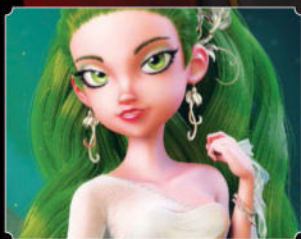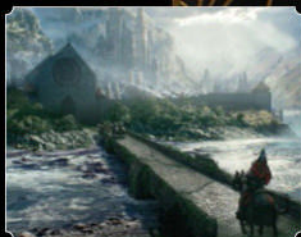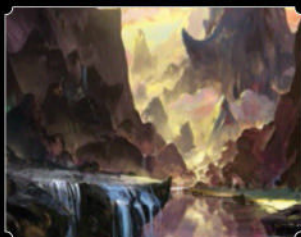# Fantasy ART

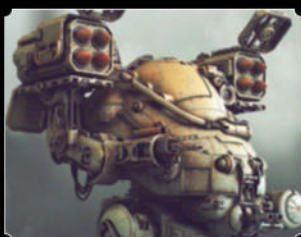## The essential guide to designing the most stunning fantasy art

• *Create dynamic characters*
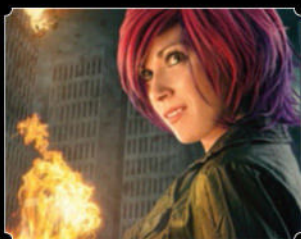
• *Render incredible landscapes*

• *Produce your own 3D concept art*

Welcome to
Fantasy ART®
Genius Guide™

Being bound by reality, quite frankly, is rather boring. Continually retouching models and editing the contrast in your holiday snaps can get repetitive. Photoshop, 3ds Max and ZBrush can be used for so much more. You can bring your art to life. From using digital painting techniques to create new worlds to readying your designs for 3D printing, there is so much you can do using the software available to you. Utilise concept art to produce your own mechs and monsters, design your own charismatic characters and create original landscapes and architecture for your fantasy world.

Also included with the book is a collection of free to download Photoshop brushes, all the tutorial files you need to complete the step-by-steps and video tutorials covering the many different techniques. Access them all on FileSilo.co.uk/bks-872 and get creating. Enjoy the book!

Fantasy ART®

Part of the

Photoshop® creative
bookazine series

ip
IMAGINE PUBLISHING

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Build your own dystopia concept

Use digital painting techniques to create a photoreal concept illustration for film production

Learn how to use Photoshop to create photoreal concept art with this tutorial. You will be using a 'photo bashing' technique – working from photos and literally 'bashing' them into new forms with digital paint – to create a base to paint over. At the same time, you will learn how to decide on a composition and where to position the focal points to create an interesting concept that tells a story. Creating a realistic painting in a short amount of time is sometimes very difficult. Using photos as a base will help you to manage this problem and give you the chance to create two or more of these concepts in a short amount of time. This tutorial will explain how to use this for your own projects and push your Photoshop skills to a new level. These techniques are used in the feature film industry as well as in some game-related projects, such as *The Last of Us* by Naughty Dog or game cinematics. This tutorial is for advanced, skilled Photoshop artists but also for beginners who want to find out what they're capable of doing.

Artist
Tony Andreas Rudolph
www.zulusplitter.de
Rudolph is a concept artist and digital matte painter working in the feature film industry. He has worked on projects like *Guardians of the Galaxy*, *Jupiter Ascending* and *Captain America 2*.

Software
Photoshop

Source Files
On FileSilo you will find nearly all the source files needed for the tutorial, from the base image to all the added photos.

Concept

Prepare the background
Composite multiple images to create a base

01 Open the plate First, open the plate image that will be the base for your concept. You can use the same one that was chosen for this image, which can be found on the disc ('IMG_3383.jpg'). Start analysing the image to ensure that anything you add follows the same colour grading and light direction. The image has very diffused lighting, which means no directional light and no shadows. It has more or less only ambient occlusion and contact shadows created by the objects in the scene.

02 Prepare the plate The next step is a small but important step to save time in the future. Start to prepare the image by separating the foreground from the background. You will use the building in front of the tree for the cut. Create a new group. Now start using the Polygonal Lasso tool and create a selection on the edge of the station. When you have done this, click on the mask icon in the Layers panel to create a mask on the group.

"Analyse the image to ensure that anything you add follows the same colour grading and light direction"

03 Add the basic background Download 'IMG_0391. jpg' and 'IMG_0401.jpg' from the disc. These will be added on the left and right of the image. Make sure that the images have the same diffused lighting situation as the plate. Import the images by moving them into the scene with the Move tool. Match the perspective of the image on the left slightly more using the Cmd/Ctrl+T shortcut for the Free Transform tool. After that, create a 'Checks' group with a Hue/Saturation adjustment on 85% Saturation. The check layers will help to match the colours better.

04 The 'photo bashing' technique Time to add the first photo elements to the concept and start with photo bashing. This technique helps to create fast, good-looking elements for the concept. But often these will not match the image 100 per cent. This is why you will need to paint over them later. For now, add the tyres ('IMG_9304 .jpg') and grassy elements on the left by using the Lasso tool to select the parts from the source references and the Move tool to move them into place.
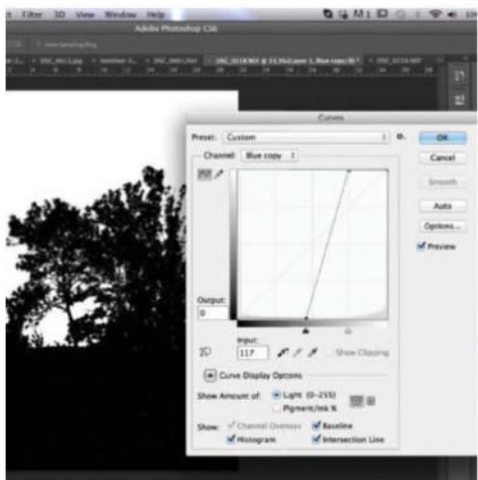
05 **Station destruction** The next step is to add more interesting elements. Start to destroy the roof of the station by selecting one side of it using the Selection tool. When it's selected, press Cmd/Ctrl+Shift+C and then Cmd/Ctrl+V. Photoshop will create a new layer containing that section. Then do the same with the other side. After that, press Cmd/Ctrl+T for the Free Transform tool, hit the Cmd/Ctrl button and move down the roof sides. When complete, find an image of collapsed building material and move it under the sides.

06 **Refine the collapsed area** Add more details to the collapsed area using the same techniques as before. Don't forget to use layer masks and paint the masks by hand with the Brush tool and not the Eraser to have more control. To match the colours quickly, go to the collapsed building and grass layers. Every element or layer has to be matched separately. Then go to Image>Adjustments>Match Color and set Source to the PSD file and the plate layer. Use the fade to keep a bit of the original colour intact.

07 **Nearly finished with photo bashing** You are now nearly finished with the photo bashing of the foreground. Go to Image>Image Rotation>Flip Image Horizontal. This will help to give you a fresh look at the image and pick out any mistakes. Create a rule of thirds raster to plan the next steps. Go to Image>Canvas Size, move the top anchor point to the middle and enter 2947 as the Height. Only shrink down the bottom part of the image. Then create a new group over the background group and use the same mask.

08 **Add trees** When you have done this, open one of the tree images on the disc ('DSC_0218'). To extract the tree from the sky, go to the Channels tab and look for the channel with the most white and black contrast between the tree and sky. Duplicate the channel by moving the channel to the New Layer icon on the bottom. Then go to Image> Adjustments>Curves and move the bottom and top anchor points to around the middle. Then click on the channel, click on the RGB channel, duplicate the layer and move it onto the canvas.

Integrate elements in your work

To better integrate all elements, create a master copy by hitting Cmd/Ctrl+A, then Cmd/Ctrl+Shift+C and create a copy of the whole image by hitting Cmd/Ctrl+V. Then go to Filter>Blur>Gaussian Blur and blur by 5 pixels. Set the layer to Lighten blending mode at around 15%.

09 **Integrating the trees** Repeat the previous method on another tree for the scene. Now create a new group. Hit the Opt/Alt key on the mask of the background group and then hit the mask icon to add the same mask to the trees group. Move the trees to the position you want with the Move tool. After that, create a Levels adjustment by clicking the circle icon. In Levels, push the blacks a bit more up over the Output Levels area. Do the same with the background group to lighten up the industrial images.

Perfect the scene
Add in details for a balanced composition

10 Paint the masks The next step is to add in a tree to the front area between the railway station elements to make it a bit more integrated. Use the previous tree image you used for the background tree and move it into the position you want. You now need to go to Image>Adjustments>Match Color and match the tree colour with the grass at the front. You can then create a mask on the tree and paint the mask with a round black brush.

11 Final photo bash Now you are done with all the elements and image information you need for the overpainting stage. Don't worry about the edges of some lighting directions that don't match 100 per cent with the base plate. You only need the information from the references to create a faster and more realistic result. Create a new group over the background group and under the background trees group with the same mask. Call it 'Overpaint'.
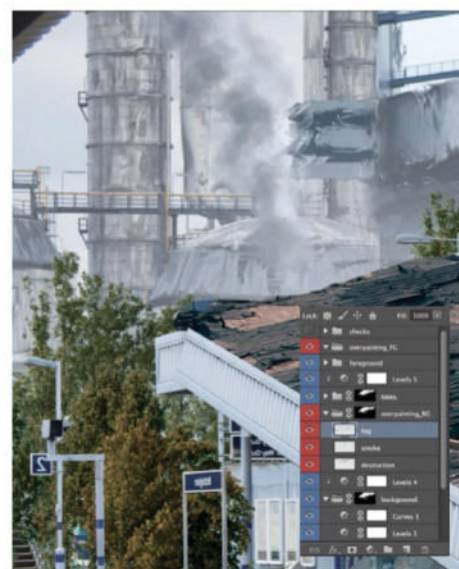
12 Start painting Next, create a new layer in the group. Choose the Brush tool and use a textured brush like the chalk brush. Pick some of the darker colours in the background and start to paint over it. Make sure that your brush strokes follow the shape of the building part or perspective. If you want to destroy a part of the building, pick a dark colour around it and paint back the lighter elements like the walls. Use a custom cloud brush for the smoke.

Add noise for effect

Adding noise and a kind of chromatic aberration helps to sell a concept and turn a digitally created image or painting into something more like a photograph. To add noise, create a grey layer and set it to Overlay mode, then go to Filters>Noise>Add Noise set to 400% and Uniform and bring down the Opacity to 15%.

13 Paint the fog The background has too many small and tiny details. You need to push back everything with fog. Create a new layer in the Overpaint group and over the Trees group for the foreground. Then use the Brush tool and a cloud brush or a round brush with 0% Hardness. When you start painting, add more fog to the parts that are in the centre of the image and less on the right part for a transition.

14 Storytelling elements The whole concept needs more storytelling elements as well as moving objects. You need to paint this in on a new layer just with black. Use a simple round brush to scribble these elements on very quickly and roughly. Create separate layers for each element, which means in the background Overpaint group and in the foreground Overpaint group. These two new elements will be your composition focal points too.

15 Paint the foreground Create a new layer. This is what you will paint the new details on. Paint the masks for the photo-bashed elements as well to integrate them more into the concept. On the Overpaint layer, start painting the roof collapse and deleting the highlights from the tyre with a chalk brush. Then create a new layer for the plants. Use the Mixer Brush tool with 'Dry, Heavy Load' and 'Sample All Layers' selected. Choose a plant brush and pick the colour information from the tree from the foreground you added before and start painting.

16 Refine the destruction The collapsed part of the railway station has too many black, small parts. You need to integrate the collapse more into the plate. Start painting on top of it on the Overpaint layer from before and pick a colour from a collapsed building reference. To paint the stuff, use a chalk brush with the texture to create a used look and less painterly feel. Pick as much as you can from the reference to create more colour differences. Work backwards if the result is a monochromatic painting.

17 Add more interesting elements Open a rusted metal texture and move it into the PSD over the Overpaint layer. Make it with Cmd/Ctrl+Shift+U grey, set it to Overlay and move it over the painted roof from the step before. Then go to the vegetation layer and paint again with the Mixer Brush tool to create more plants on the left side as well as on the rails. Pick on different areas on the tree to create randomness. Then use the normal Brush tool with a plant brush and paint plants on the roof on the right side on the same layer.

"Use a chalk brush with the texture to create a used look and less painterly feel"

18 Refining Create a new fog layer over every layer. Choose a cloud brush and pick the sky to add more fog to the foreground as well as on the left side to push the details away. Just keep the roof fog-free. Then use a reference image for the girl and start painting on top of it to match the lighting direction. Paint the girl's bag by hand using the Brush tool and the Polygonal Lasso tool to get sharp edges. Finally, paint the destruction on the roof on the right side as well as the sun rays.

19 Final touches The last element is the jet in the background. Use the same techniques as before to paint and design an interesting jet. Make sure the exhaust trail and the headlights are a warmer colour than the background element. After this, make a master copy and add noise to the image via Filter>Noise>Add Noise on around 8%. Then copy this layer and sharpen it a bit with the Smart Sharpen filter. Create a Hue/Saturation adjustment layer. Go to the Yellow and Red channel and move the colour to the right to get greener plants.

20 Explain the composition The image is done. You should have three focal points: the jet, the collapsed roof and the girl. The jet is a warmer colour than the background. The collapsed roof has the most details and no fog, and the girl is the darkest point in front of a bright background. You also have a simple one-point perspective that is leading to the girl. The girl leads to the jet and the roof. If you look at the roof this is leading to the jet and the jet back to the roof. These elements define the viewer's path of sight and create an interesting concept.

Design your own fantasy vehicle

Learn from engineers and find a quicker and more efficient way to build a fantasy vehicle
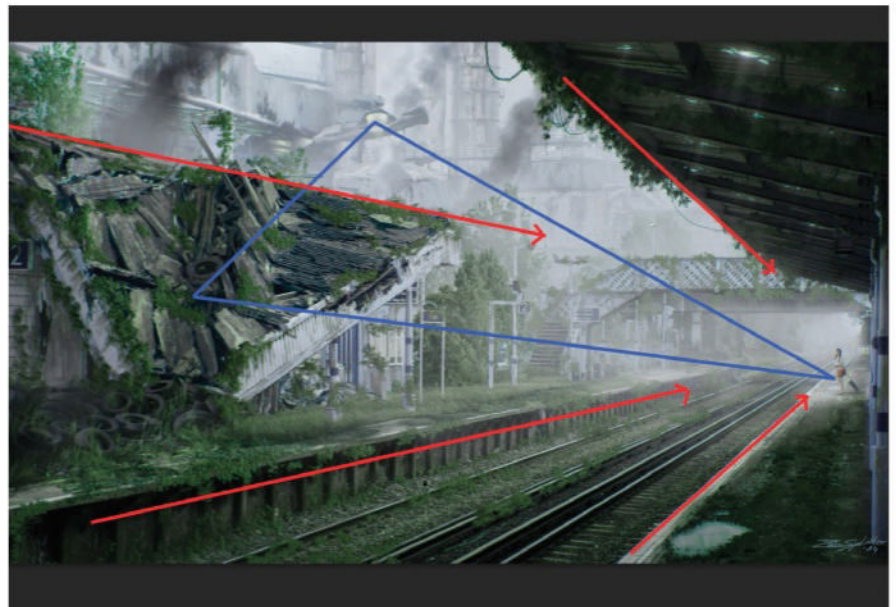
Artist
Stefano Tsai
www.stefanotsai.idv.tw

Stefano Tsai is the owner of Stefano Tsai studios. He works in game and film design, creating concepts and working on the actual production process

Software
3ds Max, V-Ray

Source Files
On FileSilo you will find the tutorial screenshots and 3ds scene files you will need to complete this tutorial.

In this tutorial, I am going to show you how to quickly model a large-scale fantasy ship. The first step involves thinking like an engineer, looking for efficient ways to build the ship. Next, we'll focus on modelling. For this, I will explain how to get the initial parts built, then how to use them as an example for the rest of ship. This will include not only its structure and style, but how it connects with neighbouring sections. Remember to follow along using the project files provided to get the most out of this tutorial!
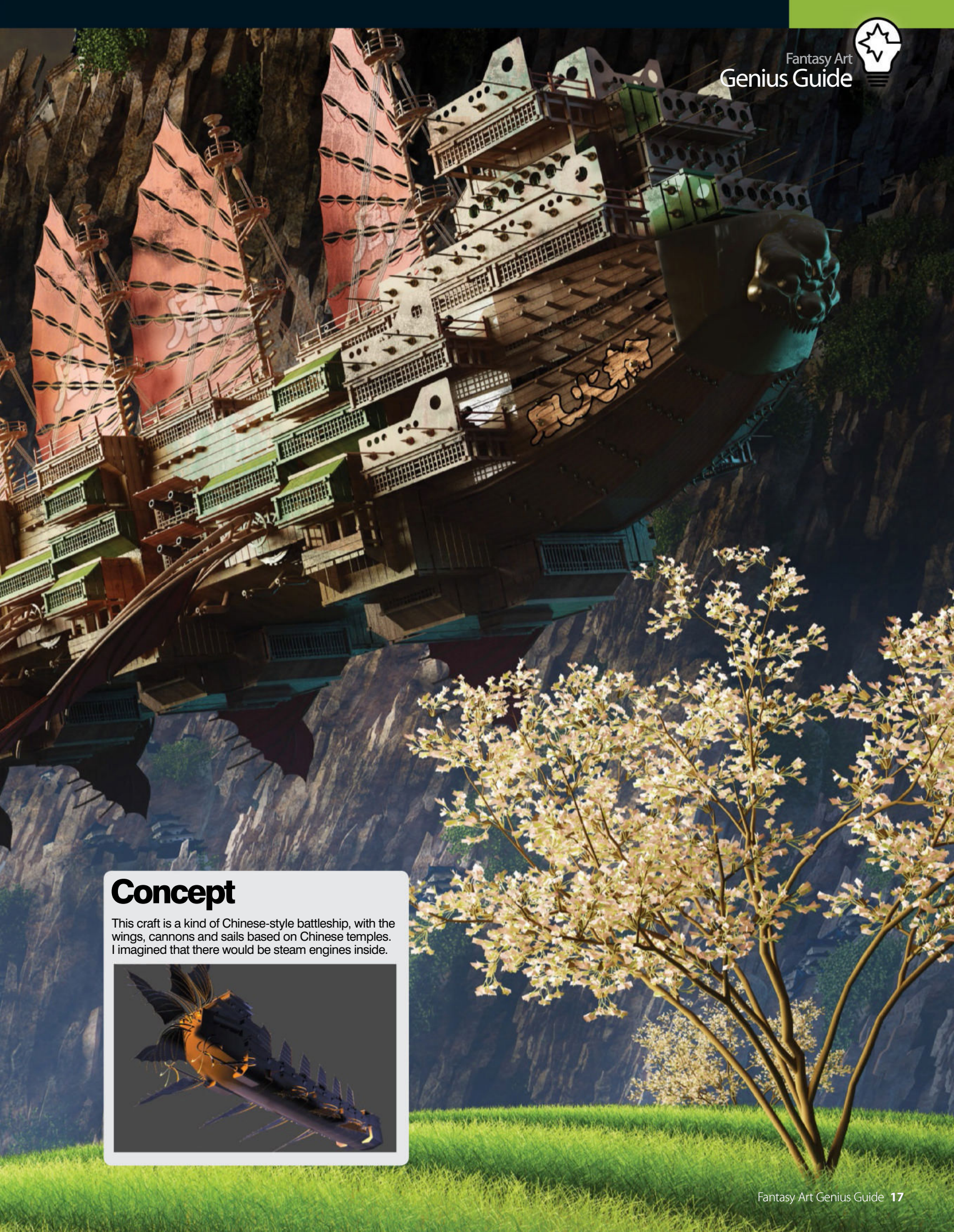
Concept

This craft is a kind of Chinese-style battleship, with the wings, cannons and sails based on Chinese temples. I imagined that there would be steam engines inside.

Concept
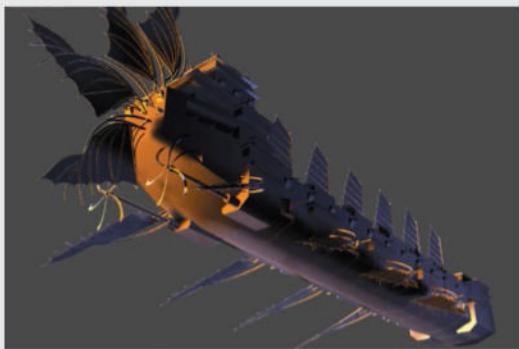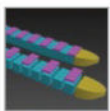
Create your sections
Clearly define the different parts of your ships
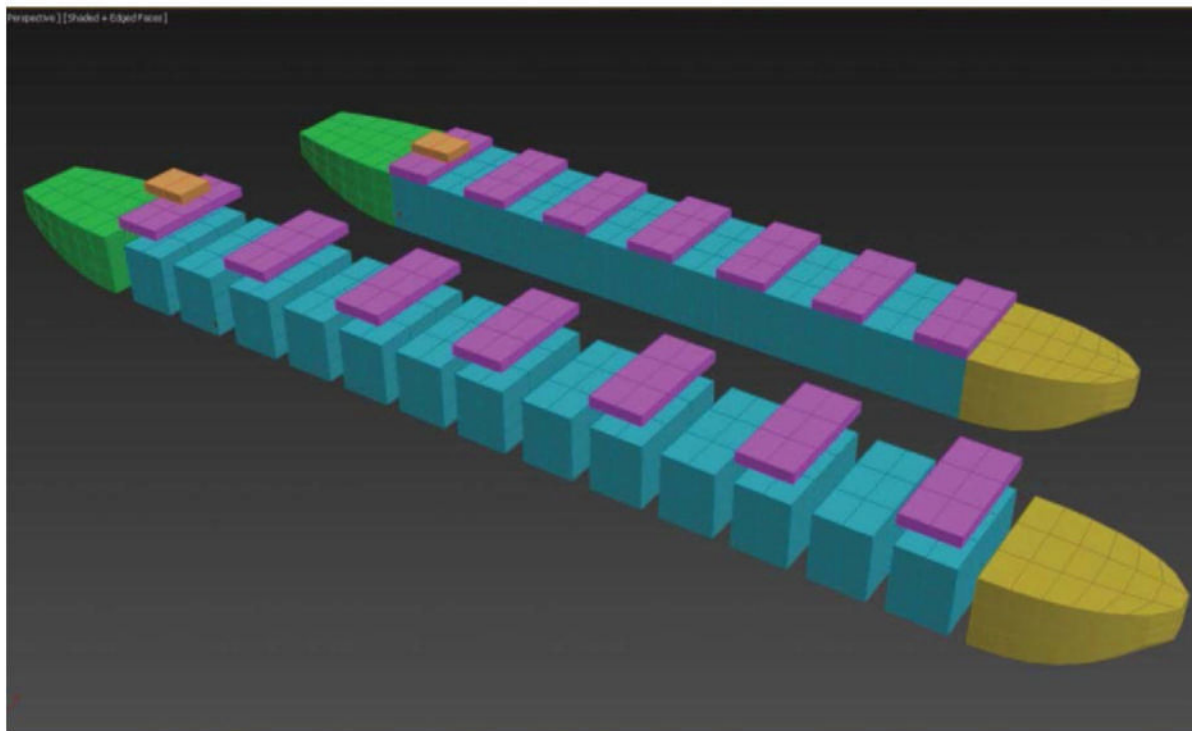
01 Be efficient Split off the ship's main hull and think like an engineer – how can we build this ship? If you think of building the ship as one big project then it'll end up seeming like a lot of work and it'll be difficult to make any changes. We should keep it as simple as possible. Section off different parts of the ship into different groups and – as you can see from the image – models with the same colour are instanced, so you have full power to change them with minimum effort. Don't build the whole ship in one go, but build the parts separately.
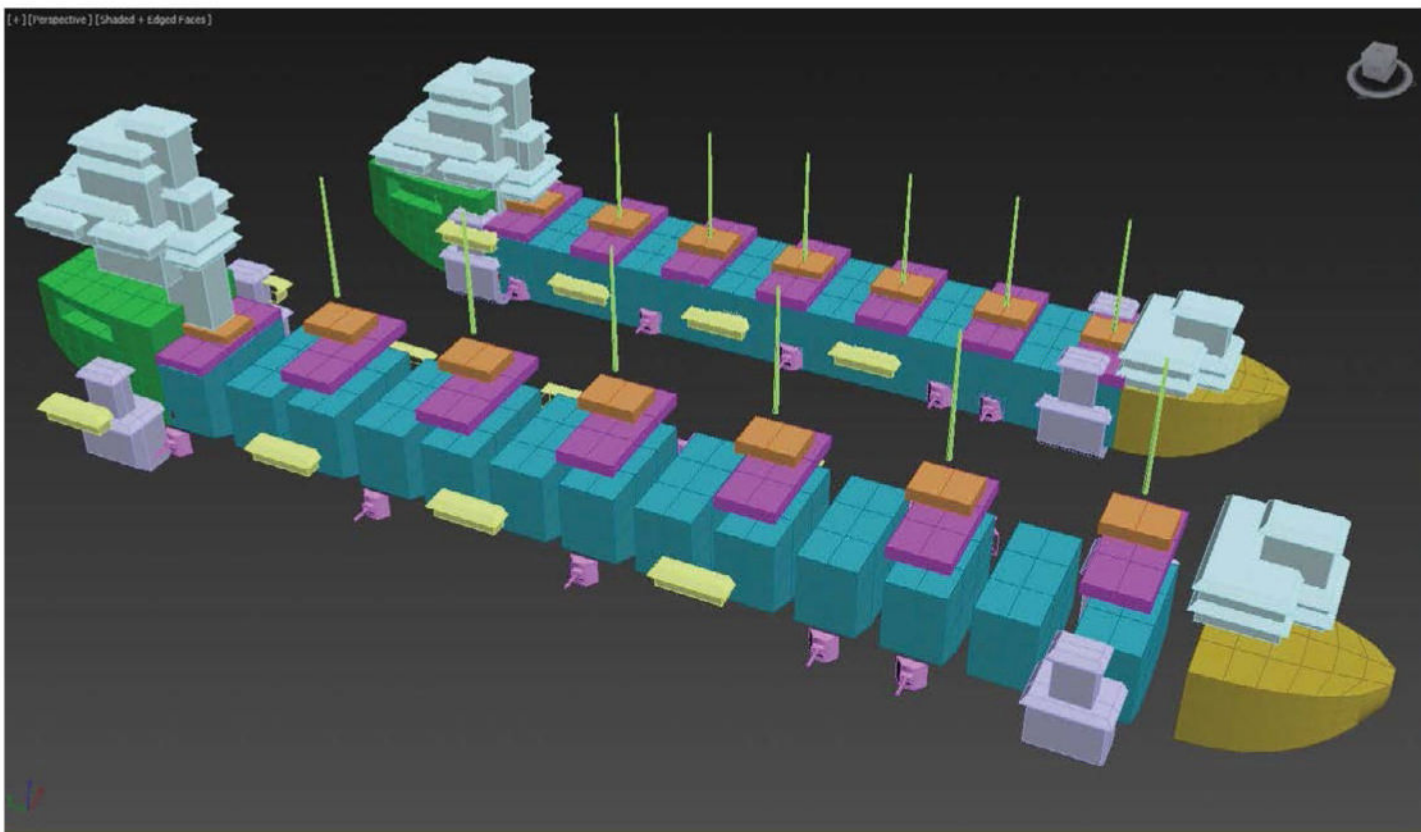
02 Block out the main areas Add the secondary blocking details on the hull and apply different colours to help differentiate each group. In my project, I added the main bridges, master poles, extended the structure and added cannons. To make the process simpler, reuse assets as much as you can. For example, the purple blocks in the image are all the same asset. Extend the secondary blocking on the main hull and like before, reuse the same models as much as possible.
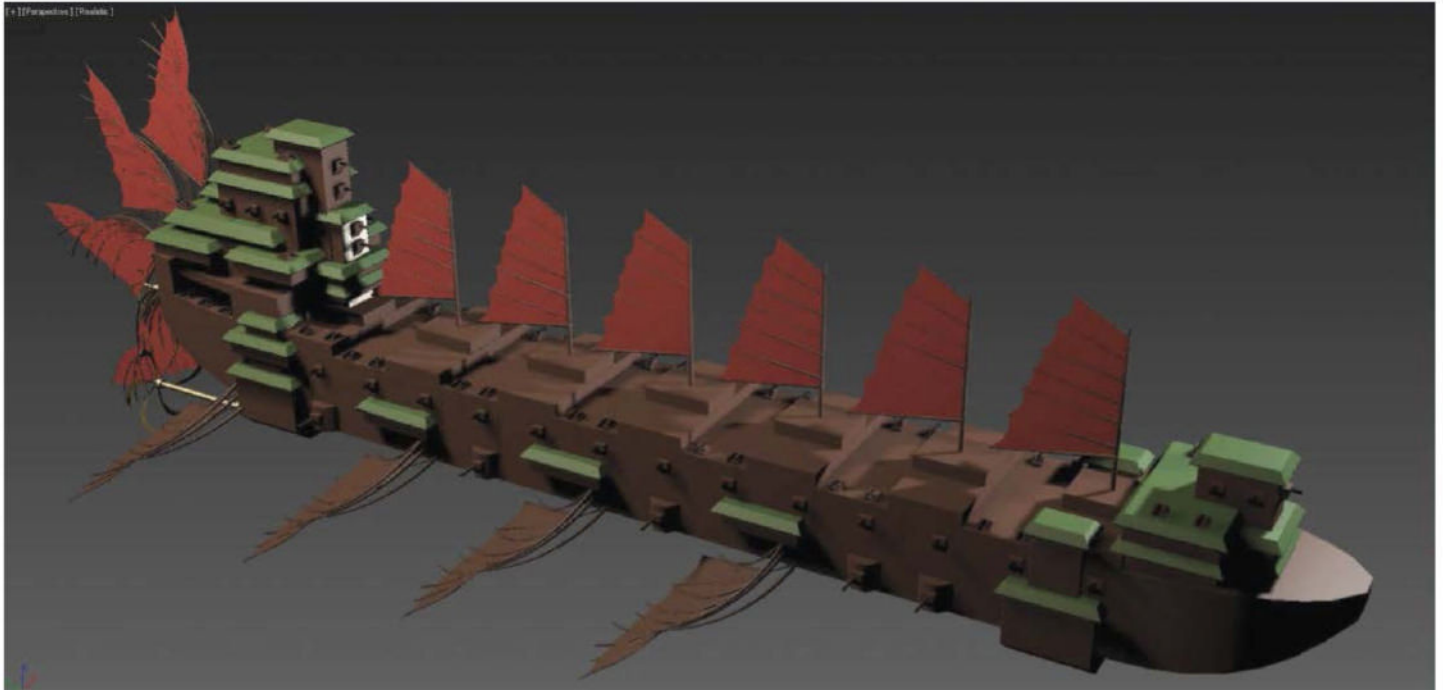
03 Include wings For our fantasy ship, there is no way that it would work without wings. It is the element that really makes this stand out as fantasy. Don't make them too big or too realistic, but try to keep them looking quite fantastical. Be careful not to make them too large, otherwise they will dominate the ship and cover the main hull, which will ruin the overall effect (unless you're designing a fast vessel). Switch into Clay mode to see the ship in one solid colour, as this way we can see the entire model clearly without obstructions.

Learn to recycle and reuse elements of your work

To save time and speed up progress, remember that you can take elements that you have already used and place them in other parts of the ship. You can simply resize or reshape them and they'll feel completely new . For instance, the middle section of the hull was repeated and re-used most as its structure can be easily extended to other parts of the ship. For the interior of the ship, cannons, steam engines, platforms and so on can all be easily copied and placed around where you feel they make most sense.

04 Build wooden structural frames To make things more believable and to have something to show later on when we open up the panels, let's build up a structure inside the middle section of the hull's blocking. We need to consider where exactly the decks are going to be and where we're going to place the windows and extended platforms, so this means we need to leave them some space. Thinking things through like this will emphasise the believability of our fantasy ship.

05 Place the planks on the ships With the main wooden beams and posts ready, let's start placing planks along them. Remember that these sections need to be tiled, so they can't be overlapped – everything has be to placed inside their boundaries. We can also add stairs and some windows frames to bring in the sense of scale. It's details like these that really emphasise the sheer size of the ship. The bigger it is, the more imposing and impressive!

06 **Step back and check the design** It's always advisable to check how the overall look is panning out throughout the process. Reveal all of the middle hulls to see how everything looks together. If it looks too straight and formal then the surface is continuing without a break. To add interest, take one of the upper decks, copy it and turn it into a duplicate version. Push it out a bit further to make an extended structure. These new platforms are good areas to place cannons, as they can get a better shooting angle.
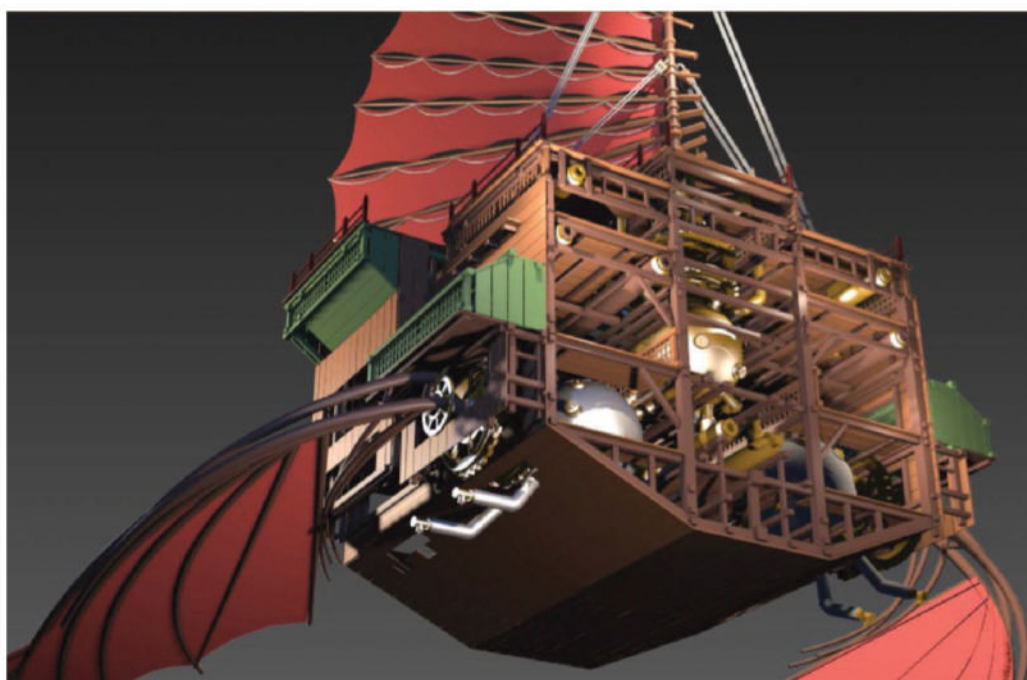
07 **Add functional mechanisms** After checking all of the connected parts, go back to complete the mechanical joints, including the mechanisms for both side sail wings and for the main sail wings. These need to be connected with the mechanical parts and should lead to the central system. In this case, the central area will be the ship's keel. The keel area has plenty of equipment from the front to the end of the ship, so it's essentially the nerve centre of the ship. You want to add many details to make it feel functional.

Focus detail in specific areas

We can't put details everywhere on the ship, as it'll get too noisy and it'll take too much time. Instead, we need to pick a few key areas. To do that, create highlight details for the chosen areas, and in others dial the detail back – you want the eye to naturally fall on your focal points. On my ship, I spent time adding details to the stern tower, the bow, the propellers and master cannons. These elements really emphasise the ship's fantasy style.

08 **Finish the rear towers** For rear towers I won't be creating a semi-open structure, so there is no need to work on the interior parts of the ship for these elements. Instead, I focused mainly on the exterior details of the towers. I used images of Chinese temples as my reference for the shape of the towers. To make them feel larger and more imposing, I created an extended structure with parts that hang out. This way, the tower seems to get bigger as it gets taller, and it gave me more space to add some beautiful Chinese roof details. Remember that this is fantasy; while we want things to feel believable, they don't always have to be physically accurate.
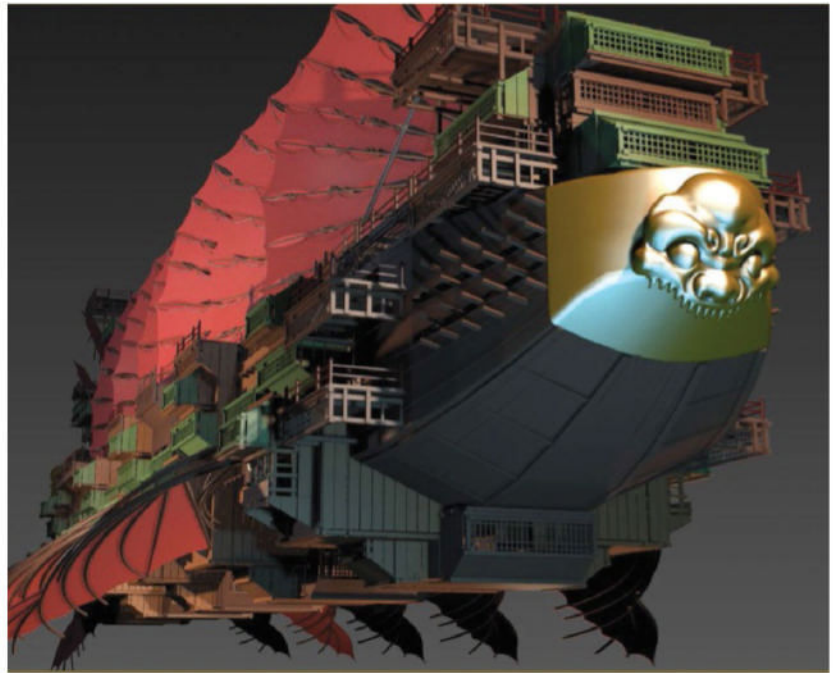
09 **Complete the bow** Generally, this is the most armoured part of the whole ship as it needs to be built for combat collision. For dynamics, if you want the shape to be stronger, you need to keep it as simple as possible. As such I didn't got crazy with the design here, then added some metal decoration onto its surface. Something fierce-looking works best!

10 **Give it power** The wings and the propellers are the source of power for the ship. Obviously we can't get reference for these from real ships, so we need to look elsewhere. The surface of each of the propellor blades needs to be huge to push the ship forward and to maintain a reasonable rotation speed – you don't want it to spin like a mower! For our fantasy vehicle, it makes more sense for it to move more subtly. Aesthetically, its size can make it a key element of the ship. Don't be shy about making it much bigger than you think it needs to be!

"After checking all of the connected parts, go back to complete the mechanical joints, including the mechanisms for both side sail wings and the main sail"

Concept

**11** **Include weapons** There are three cannons on this ship – one is on the top deck, another one is mounted on the wall, and the biggest one is near the bottom of the ship. Let's focus on the biggest one, as it is the main weapon and it's much larger than the others. It can be seen much more clearly and it should be the most advanced equipment on the ship. Put the effort into these big cannons, as they can be seen much more clearly than other two.
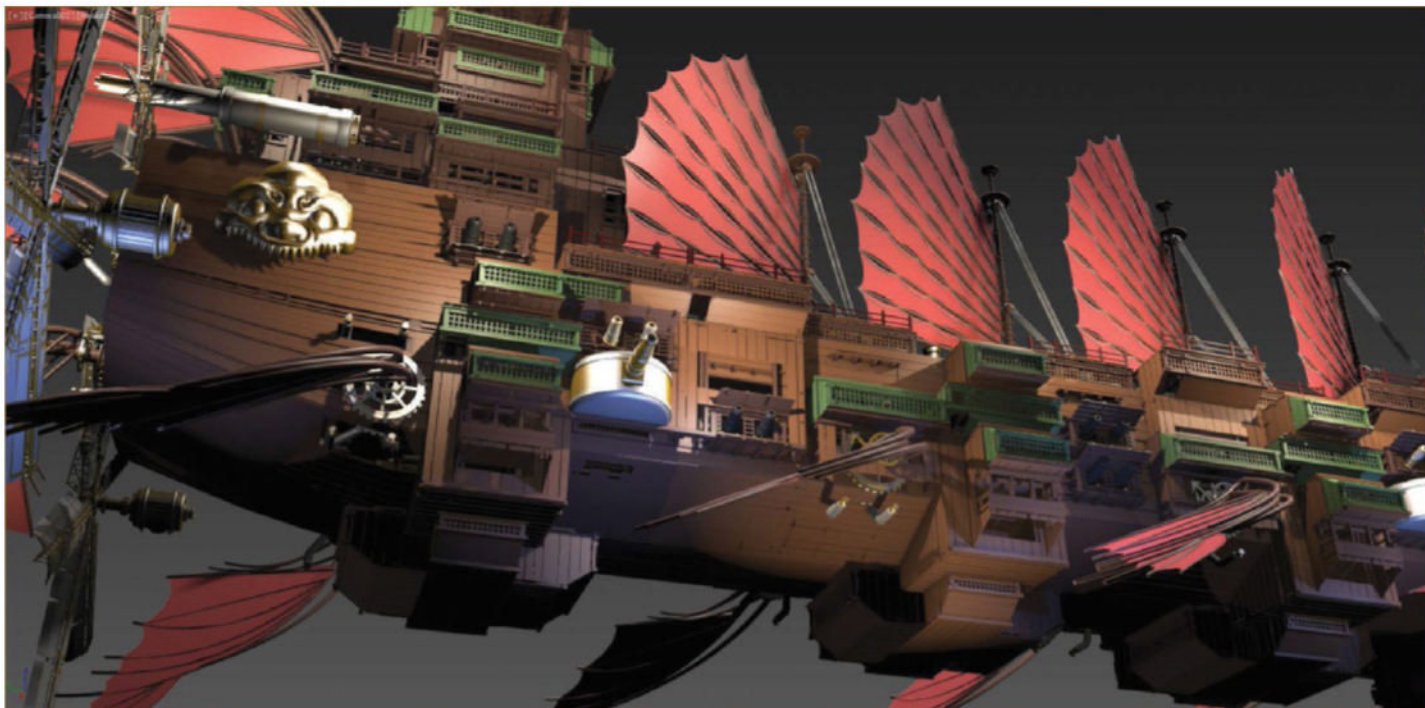
12 **Work on the rear** The rear of the ship is the biggest target for the enemy, as this is where the officers and the commander rest. Naturally it makes sense to have lots of heavy armour to surround it and to protect the high-ranking officers. I added some decals and decoration on top of this armour to enhance the fantasy feel. I also added some communication equipment and large, armoured windows to show that this is the control tower. Make the tower appear stronger, tougher and well-built so it feels ready for heavy duty work.

> "Naturally it makes sense to have lots of heavy armour to surround it and to protect the high-ranking officers"

13 Focus on the front bow Approach the front part of the ship as you did the back: it also needs to be ready for strong impacts. I installed a few scattered structures for pre-crash purposes, so that when it happens it'll reduce the damage to the main hull. The same goes with armour – keep spreading the same style of armour protection boards around the ship. You want your ship to feel menacing and ready to take on whatever is thrown at it!

Try out different looks

Once you've built up the basic shape of the ship, don't be afraid to try out other compositions. This is just the start of the process and the idea is to explore your idea and to refine it. In my project, I quickly grabbed the upper decks and duplicated them to create decks below the ship's main hull. It's not very precise, but it gives an idea of how it will look straight away. If you like the new idea, it's so easy to go back and modify the model to include it.
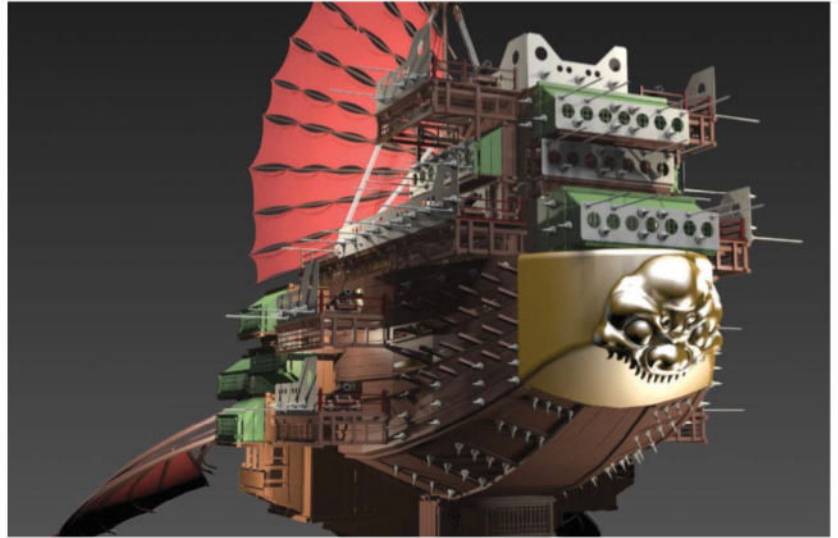
14 Check for overall balance

Check the model to see if everything is balanced. At this stage, I realised that the main mast near the rear tower was too close and covered up almost 70 per cent of visibility, so I deleted it, and then added more details on the other masts to make them appear stronger and to make them easier for the crew to climb up. For the crew's safety, I also built a few small platforms along each mast. I also added a small rudder-esque wing at the ship's end to give it more control. Look around to see if everything is well balanced and if not, start playing with new ideas.
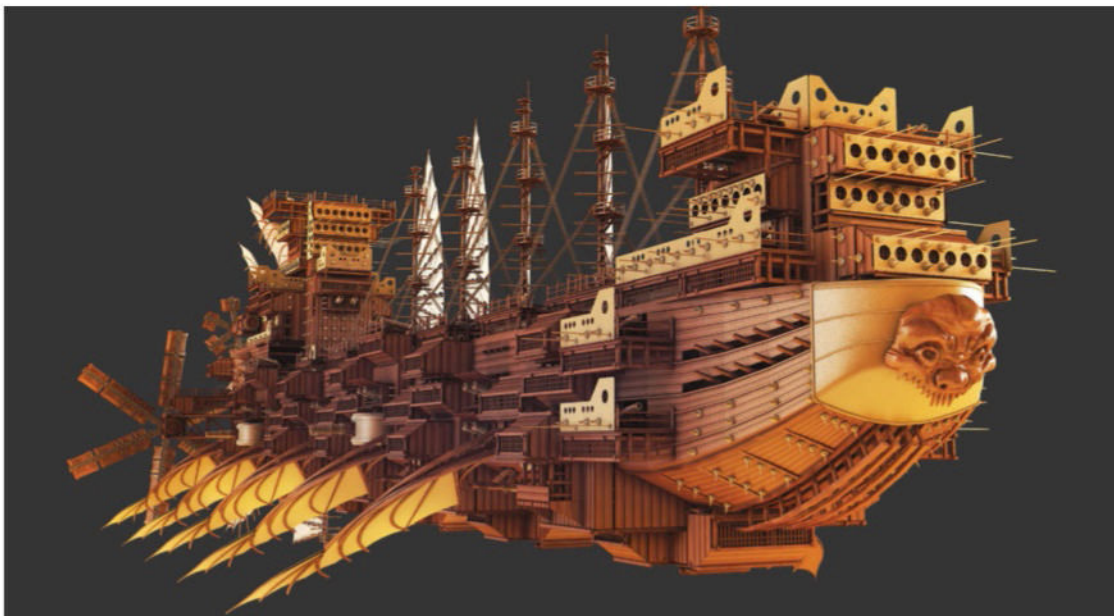
15 Materials, lighting and render This image only focuses on the modelling process in relation to the concept and we didn't spend any time on proper unwrapping, textures or lighting. You can see a quick result on the left, where we have only applied box mapping and a few materials such as wood, metal and fabrics. I used V-Ray 3.0 and an image-based method to create a quick previs image. I also applied an AO layer in Photoshop. To finish up the image, give the materials a slightly rough texture and make the colours and lights a little more lively.

Produce your own 3D concept

Learn how to create interesting illustrations combining basic 3D renders and stock photos

You don't have to be a master of 3D graphics to be able to use 3D to your advantage while creating 2D illustrations in Photoshop. In this tutorial we will look closely at the process of mixing different digital techniques in order to create a stunning, atmospheric sci-fi illustration. Along with different Photoshop tips and tricks, we are going to focus on what is most important in any kind of creative work; composition, lighting and the different parts of art theory that help us to come up with images that are full of atmosphere and are well-balanced in terms of visual content. Custom brushes and plug-ins are not the only thing you will need to create really professional visual creations, it's always helpful to look back at classic art theories and mechanisms that have been used for centuries too. There's a lot of software around us, with Photoshop being the main program for creating visual content. Let's take a look at how to incorporate other software and techniques in Photoshop to create even more complex artworks – from the first sketch through to building your way from a basic 3D render to a final visual full of details.

Artist
Tomáš Müller
www.tomas
muller.com
Tomáš Müller is a well known CGI artist, matte painter and retoucher, working for a wide variety of clients and studios from different corners of the creative industry.

Software
Photoshop

Source Files
On FileSilo, explore the layered PSD file and learn how the 3D and photo elements were created and textured.

Coming up with a balanced composition
Think about your creation and sketch before starting work

01 Start with composition This illustration will have a central composition, which was picked purposefully because it's harder to work with. It's challenging to balance the composition and avoid making it look boring and static. There was an additional challenge of possibly incorporating the magazine title into the composition while maintaining a nice flow and balance in the illustration itself.
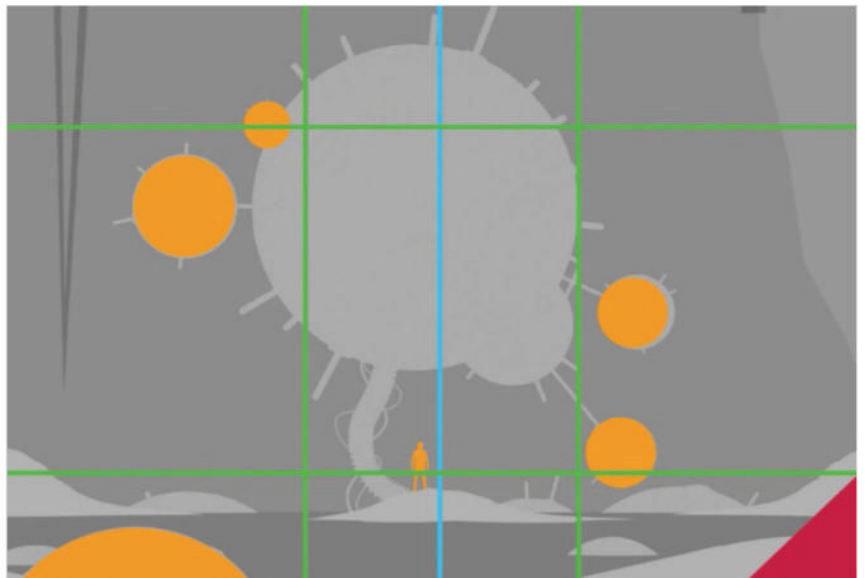
02 Every part has its place On this image you can better see the main elements and their placement, which breaks up the central composition. Additional spherical parts and other details of the bomb are placed in the 'golden points' near the horizontal and vertical thirds of the image, pushing the viewer's focus away from the centre. Foreground parts are added in at an angle, which also helps to break the composition apart and make it more dynamic.

"Custom brushes and plug-ins are not the only thing you will need to create really professional visual creations, it's always helpful to look back at classic art theories and mechanisms"

Concept

03 Let the light build the image

Another important part of the composition is the flow of light and colours between background and foreground. As you can see in this particular scene, there is an amount of light decreasing towards the foreground and on top of that there is a mist created by the background waterfall – here objects are disappearing with increasing distance from the camera. This also enhances the fluid composition and adds depth into the scene.

04 Sketch, sketch and sketch again

Sketching is a crucial part of image development, so don't be afraid to spend time sketching and figuring out all parts of the illustration; composition, the design of each element and the colour scheme. In this case, the final image has changed a lot compared to the concept sketch. There is no need to follow every tiny part of your sketch, it is mainly to give you ideas about what you want and don't want from the final image.

> "There is light decreasing towards the foreground and there is a mist created by the waterfall"

Keep it easy

While sketching, keep everything simple. Once you have a sketch you like, then you can try to enhance your sketch with a few textures or photos. This will give you a clearer idea about the final look and amount of detail you'll include.

05 Master painting with default brushes

Photoshop has a lot to offer and lot you can add to it. But try to master default brushes and functions rather than relying on plug-ins and customised brush sets. After all, sketching is about your ability to draw. That, unfortunately, can't be substituted by any filter or automated function. Custom functions may increase your abilities once you know how to draw things by hand, but your sketches are not going to look any better just because you use texture-based brushes. This first draft sketch was created using only default brushes.
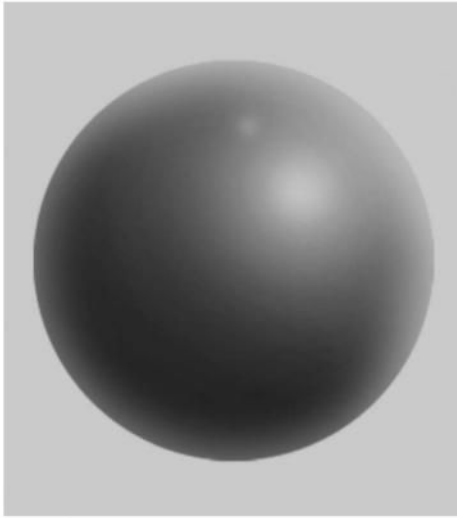
06 Start with simple shapes This bomb shape started with just a grey circle. Shadows and highlights were painted on top of it with a default Soft Round brush. This might seem simple but it's hard to create complex shapes without the knowledge of how to paint basic objects. Once you know how to paint basic geometrical objects it's a lot easier. It's similar to when animators are practicing by trying to put life into a ball bouncing. Simple often does not mean easy!

07 Master the details Now we will look at using photos to add detail to an image. As you can see on the image, there is texture and a few added details. In this case we are using a stock photo of a naval mine. To re-create this effect just put the desired photo on top of your painted object, then switch the photo layer to Soft Light or Overlay. Then select Filter>Other>High Pass, on the layer with the photo. The amount of Radius on the High Pass equals the amount of detail that becomes visible. Use the slider inside the filter to find the desired amount of detail and apply.

08 Add colour to your sketches Keep your sketches defined in terms of colours. It will help you to avoid unnecessary changes that could appear in the final stages of work, as a result of not having clear ideas about colours from the very beginning. As the image shows, even one Selective Color adjustment layer and one layer set to Overlay with a few soft green brushstrokes can give you at least a rough idea about your chosen colour scheme.

Texturing the 3D parts
Add details and additional textures to your rendered parts

09 Add some reality to your design Now we can take a look at how to enhance our 3D elements with additional details such as moss, dripping water, rust textures, leaking water and foliage hanging below the main objects. Always think about what the scene you are creating would include in real life. What kind of weather does the scene have and how it would affect objects in the scene?

"Additional details such as moss, dripping water, rust textures, leaking water…"

In forests near water there is always some amount of moss present, so it should be added on 3D parts as well

Water should be also dripping from the objects, because water condenses on the surface and pours down

The scene is full of water and humidity, so all metal parts should be rusty and dirty
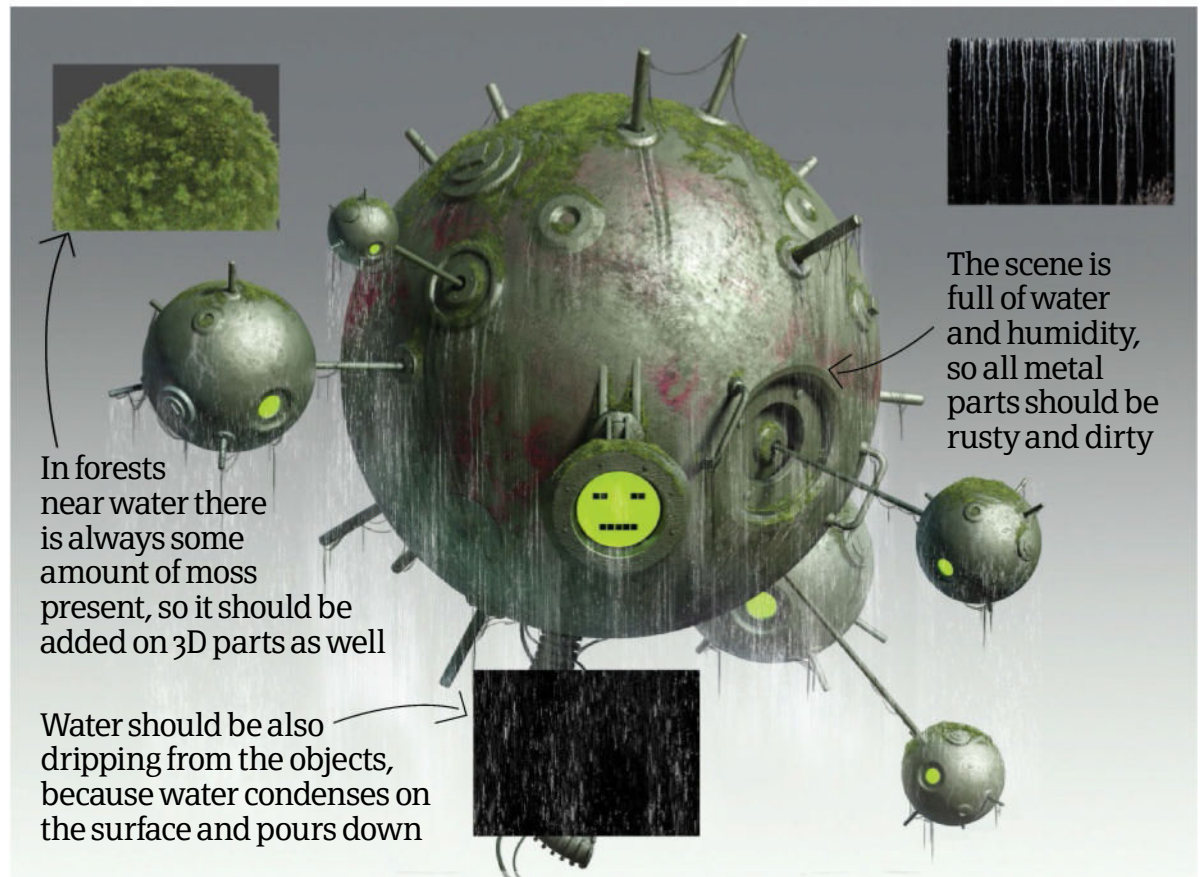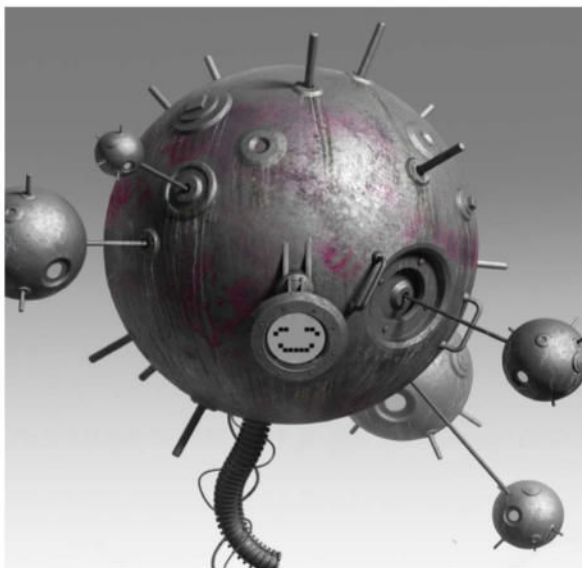
10 Rust it up Rust and leaking dirt is added to the image using stock photos and textures of real leaking and rusting metal. Adding textures is simple, just use different blend modes like Screen, Multiply and Soft Light. Depending on the brightness of the additional textures, bright textures are best set to Screen and dark stains to Multiply. Always check the shape of the object that you apply texture on, and make sure that the texture is following the shape of the object correctly. Use the Warp tool to make the texture follow shapes and edges.

11 Let it grow The next additional detail is moss on top of objects and grass below them. Grass is painted by hand with a 2-4px brush (the thickness of the brush depends on the resolution of the image you are creating). Moss is painted using the Clone Stamp with a default round brush. A stock photo of spherical moss is used to make sure that it follows the shape of the bomb spheres. From that point all the moss is hand painted with the Clone Stamp set to 50% Opacity and 50% Flow.

Perfect the imperfections

As mentioned in step 17, lens flares and effects like these are all products of the imperfections in manufactured optics. Our minds are so used to seeing these artefacts in images that our brains perceive them as reality. Photographers try to get rid of these effects to make their photos more perfect, while CGI artists add them to make their works more realistic. One of the effects worth mentioning is grain. Don't be afraid to use grain and other imperfections on top of your images to make them feel more rough and genuine.

12 Add the downpour Another nice detail to add is dripping water. In real life, water mist would condense on cold metal and pour down in the form of droplets and small streams. In order to create this effect you can either paint droplets and streams by hand or use photos of dripping water on a black background like we did in this case. White water, black background – with this setting you can just switch the water layer to Screen and paint the water itself by using the Clone Stamp wherever you need it to be.

"Always think about what the scene you are creating would include in real life"
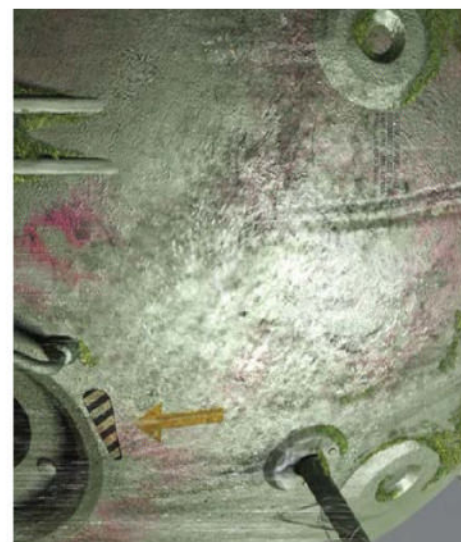
13 Play with the tiny details Even the tiniest details matter, even those that are not visible at first sight. There is no need to overdo your image or fill it with thousands of objects, but some small additions here and there can increase the look of the whole image or add small hints of backstory or the functionality of objects. There are small illegible texts and textures added in this step to make the viewer wonder what could happen next or what the story of the scene is about.

Finishing the scene
Build your way up to the final image

14 Think ahead and build up It's always a good idea to proceed systematically with building up your layered scene. Try to find a good starting point which gives you the advantage of seeing what you need to do to add to or improve the image. After some time spent looking at the image you start to lose the ability to perceive the image from a distance and see things that need or don't need to be done. So think ahead before you start compositing. In this case, we are building our image from background to foreground.

15 Create an atmosphere Having created the background at the beginning will help you see if other parts in front of it fit with the scene conditions, such as lighting, atmosphere and colours. Every enviroment is affected by surrounding light from the sky and sun, as well as light bounced back to the scene from different surfaces or additional artificial light sources. When yo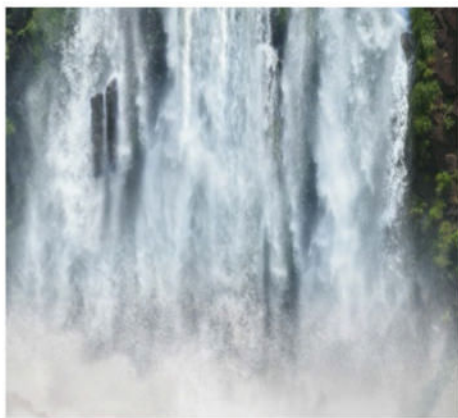u have the main mood and background set, focus on ensuring everything else corresponds with it. Try to achieve a fluid blend of elements while avoiding obvious cut-outs.

16 Finish the scene Now, when we have all the main parts present and building up the scene itself is finished, we can focus on colour grading and the final steps of postproduction. As you can see, the finished composite already has a good atmosphere; the base flow of colours and light works already. Systematic build-up paid off! But the overall colour scheme is a bit monochromatic and it is apparent that it could be pushed further in terms of colour variety and mood. Let's see how far we can push the image.

Use a High Pass filter

The High Pass filter, Filter> Other>High Pass, is a great way to sharpen all sorts of images or even just parts of them. Duplicate the layer or object you want to sharpen, switch the blend mode of the layer to Soft Light and apply the filter. The size of the Radius affects the amount of sharpening. A general rule is to keep it low, unless you're looking for a heavily over-sharpened look.

17 Play with the lighting and effects To increase the realistic look of light sources in the scene, we can add all sorts of effects produced by light and camera lenses in real life, such as spot light, glow, lens flare, chromatic abberations and glare. As you can see on this image, the montage is switched for solid black colour so you can see clearly how all the light effects are composited. It's very simple to add them in, for instance a lens flare that is generated on a black background can be added simply by switching its layer to Screen and adjusting for the desired opacity.
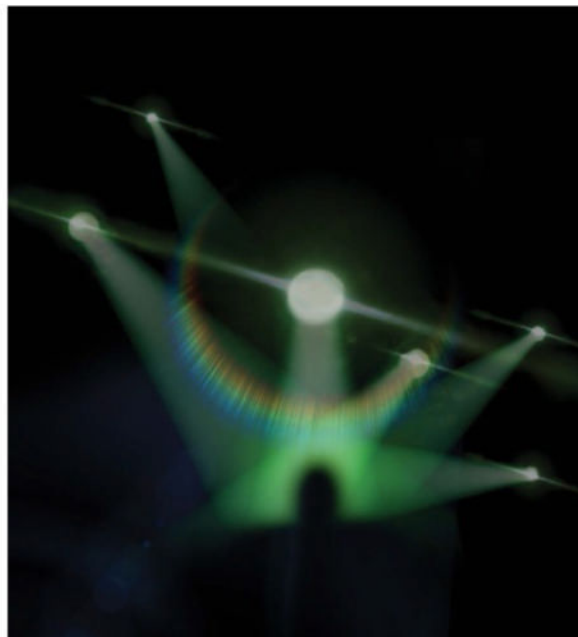
18 Final colouring and adjustments Here you can see the image with final colour grading. Grading was done selectively one small step at a time. Don't be afraid to use many adjustments layers and masks to deliver the exact colour and feeling you need. There is no need to do all of the colouring in at once, so take your time, adjust all objects and colour tones one by one, look away for a moment to gain visual distance and then look back at the illustration again. This allows you to see more clearly if the image needs more adjustments or not.
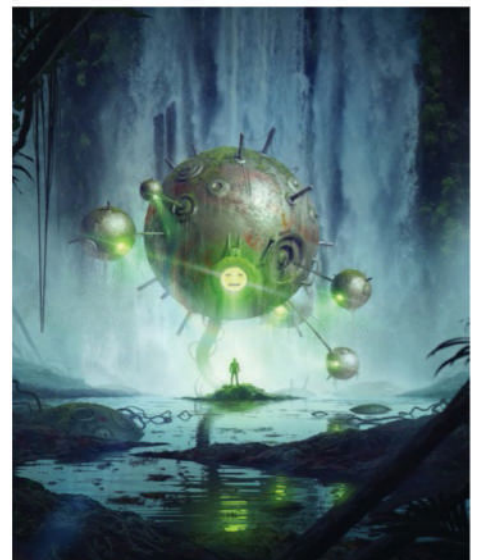
"There is no need to do all of the colouring in at once, so take your time, adjust all objects and colour tones one by one, look away for a moment to gain visual distance"

Sculpt dynamic forms

Portray important moments in your designs by creating a dynamic sculpture of your subjects

The tools in both ZBrush and 3ds Max are very handy, especially when it comes to sculpting anatomy. Over the next few steps we'll discover methods in these programs to sculpt a heroic character.

For the creation of Beowulf, our main character, we will start from a base mesh, where we will focus on how to obtain a dynamic, heroic pose. At the same time as this, we will be trying to model a masculine and well-defined, muscular anatomy, using the default sculpting brushes in ZBrush along with some other customised brushes in order to achieve different types of effects.

Then, we will learn how to use more advanced techniques like ZSpheres and DynaMesh along with simpler ones, such as masks and Mesh Extraction, in the design and creation of the sea serpent. After that, we will begin detailing, which will help us to make our characters look more natural.

We will also use Decimation Master in order to create a model of lower-polygonal resolution. This will allow us to easily export the file to 3ds Max, where we can add materials and illuminate the model how we like. Last of all, we'll make the most of V-Ray for rendering, then post-process our scene in Photoshop.

> "For the creation of Beowulf we will start from a base mesh, where we will focus on how to obtain a dynamic, heroic pose. At the same time as this, we will be trying to model a masculine muscular anatomy"

Think about it first
Create a clear picture in your mind

01 **Pre-production** Before starting to work on this piece, we need to have a clear picture in our mind of what we want to do, so that we can define how we are going to do it. The pre-production stage is one of the most important ones. At this point we need to look for all different kinds of references, whether that's visual, textual or of any other kind, as these will help us form our main idea. In this particular case, I used references from different sources: the epic poem 'Beowulf', the 2007 film of the same name, and many online images.
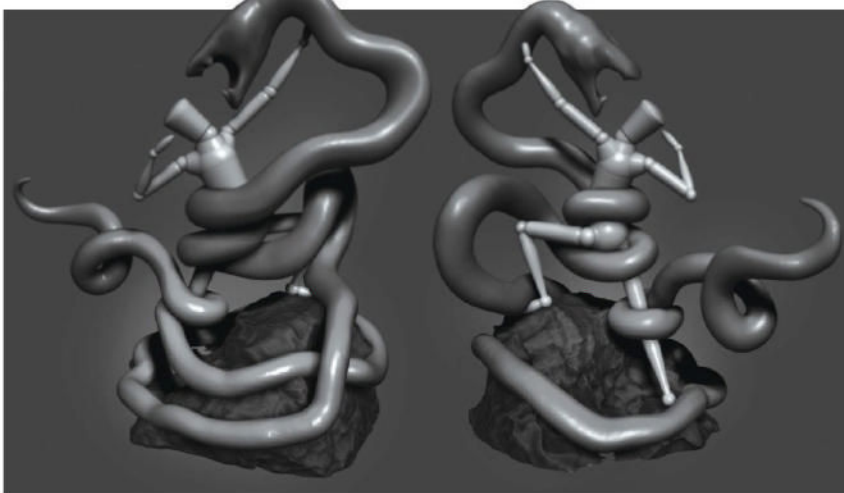
02 **Think about composition** With all the information at hand, it's time to think about the best way to show our piece. For this, it is necessary to begin sketching what we have in mind, whether that means drawing it or by doing it in 3D – however, always make sure that you have a rough draft so it does not consume too much time. This will give us the chance to play with shapes, poses and elements of our scene.

Take pictures for reference

Besides taking photographs for general pose references, we can also take pictures for details, as we won't always find everything that we will need online. For example, in the case of this piece, I took many pictures of my hands and feet to study the reaction of the skin, tendons and veins when I adopted positions similar to those used in the final piece. This is also very useful for clothing references, as it means that we can see how creases work with different fabrics and surfaces.

03 **Understand the character** It's time to be more meticulous with our work. In this case, Beowulf is the most important element. For that reason, we want him to adopt not only a heroic pose, but also a natural and realistic one. Therefore, it needs to be a pose that a human being can perform. For hands-on reference, I chose to act as if I were the character. Obviously the character and I are different, but this helped me see how the pose works.

Artist
Daniel Bel
www.danielbel.
com

Daniel has been in the industry for a decade having worked as an animator for Gameloft and currently as an art director for Waypoint Studios.

Software
ZBrush, 3ds Max, V-Ray, Photoshop

Source Files
On FileSilo you will find the tutorial screenshots and scene files to complete this tutorial.

Concept

04 **Use Mannequins** A tool that isn't very widely used by the majority in ZBrush is the Mannequin function. This tool consists of a character created from ZSpheres, which will enable us to pose our character in a simple, practical and fast way, simply by using the Rotation tool and without losing the original proportions of the figure. In this case, I copied the pose from the previous reference photographs. I was then able to correct or exaggerate certain elements that I thought were appropriate for the character.

"This tool consists of a character created from ZSpheres, which will enable us to pose our character in a simple, practical and fast way, simply by using the Rotation tool"

8 Heads Proportions
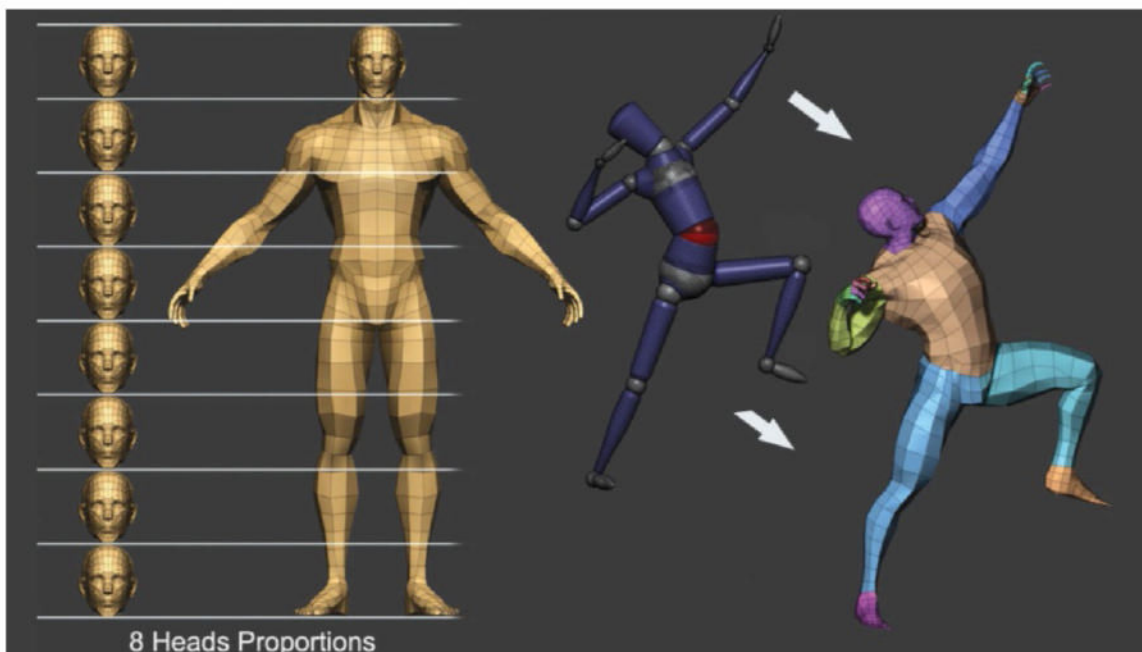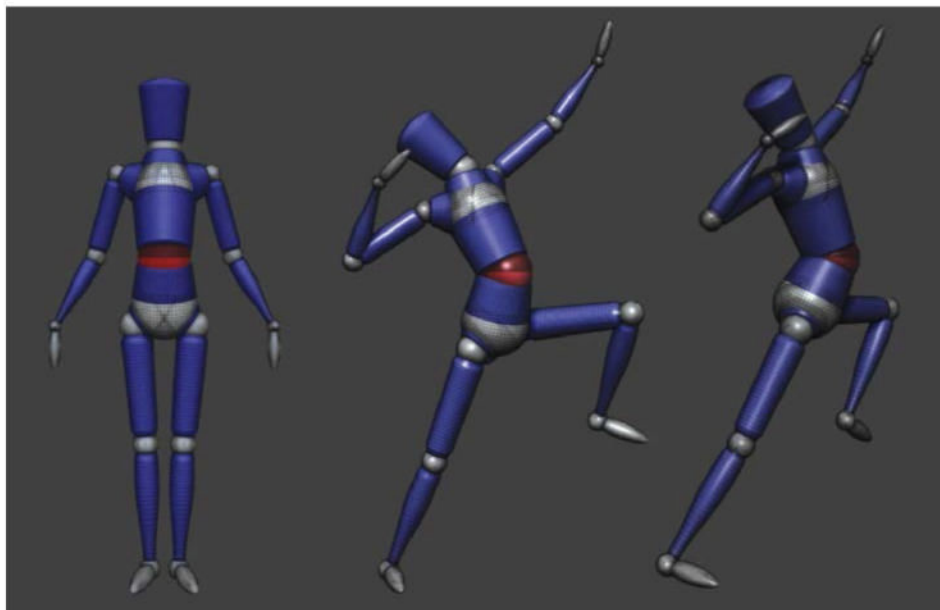
05 **Use a base mesh** With the pose already defined, the next step is to import a base mesh that has been previously created as a new SubTool into ZBrush. This is a base mesh that I tend to use for characters with heroic proportions (eight-heads tall). We need to place the base mesh on the Mannequin, and using the Transpose tool, try to match it to the pose of the Mannequin. Once we've done this, we'll have the main character mesh that can be subdivided in order to start refining the geometry and keep working.

06 **Create the muscles** The first step we must take into account in order to start working with muscles is to mark certain bony protrusions, called bony landmarks, that will work as guidelines to sculpt every muscle. Once identified, use the Clay Tubes brush to sculpt each of the muscles, taking into account its shapes and volumes according to the pose of the character's limbs. To do this properly, we need to use as many anatomy references as possible. It is very important to know what our body is like and how our muscles work, particularly when putting a character in such an extreme pose.
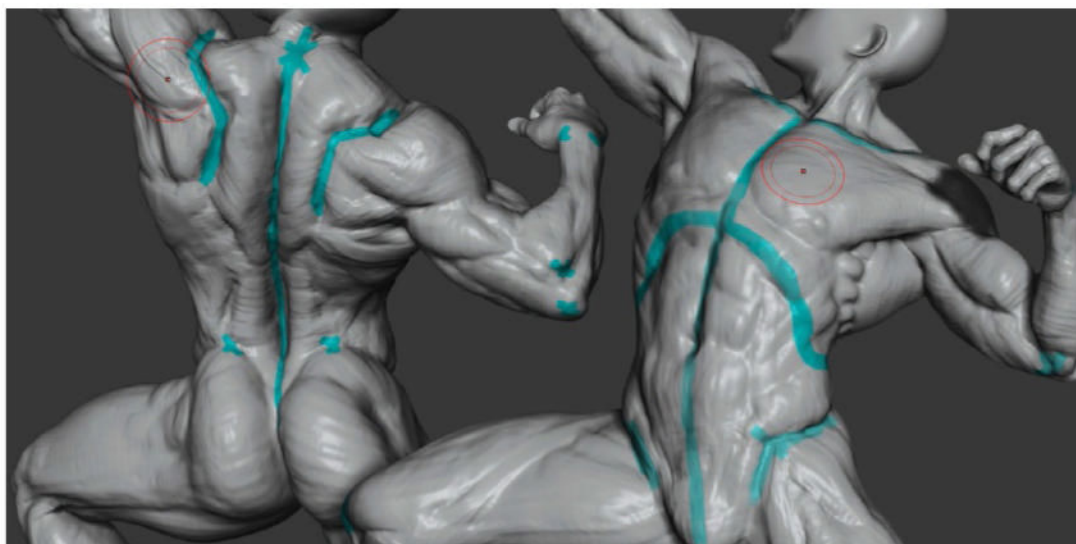
07 Design the monster

This is the most creative and free stage of the modelling process. Use ZSpheres to start creating the body of the serpent, as it is a practical and dynamic way to obtain a cylindrical and continuous shape. After acquiring the basic shape, press the A key to convert it to Adaptive Skin, then convert it to DynaMesh to start playing with the shapes of the head and other details. In my project I wanted it to look like a sea serpent, so I masked all of its back so that I could create the fin from the SubTool panel with the Mesh Extract. I did the same for its belly.

Zspheres — Dynamesh — Final mesh
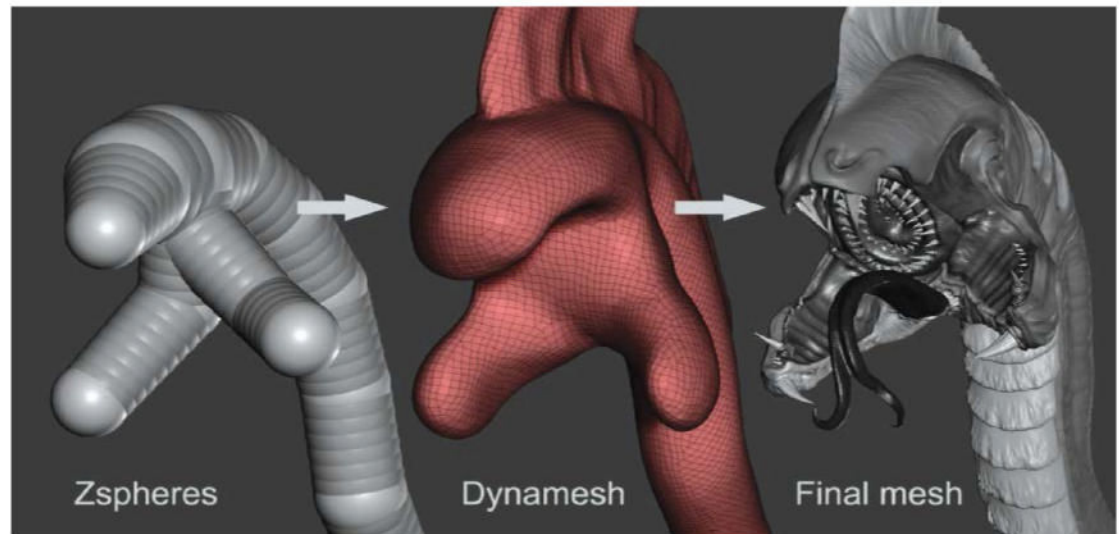
08 Extract and create accessories

One of the many advantages of working in ZBrush is the Mesh Extraction feature. Simply by masking any part of our model and then clicking on Extract, we can generate a new tool of the masked portion within the SubTool panel, meaning we can get all kinds of basic shapes and use them as accessories. In the case of Beowulf, I used this feature to create his beard, hair, headband and shorts. As I have already explained, I also created some parts of the monster in the same way. I also used the Insert Mesh brush for the fangs, among other things. It's these kinds of details that will bring your character to life.
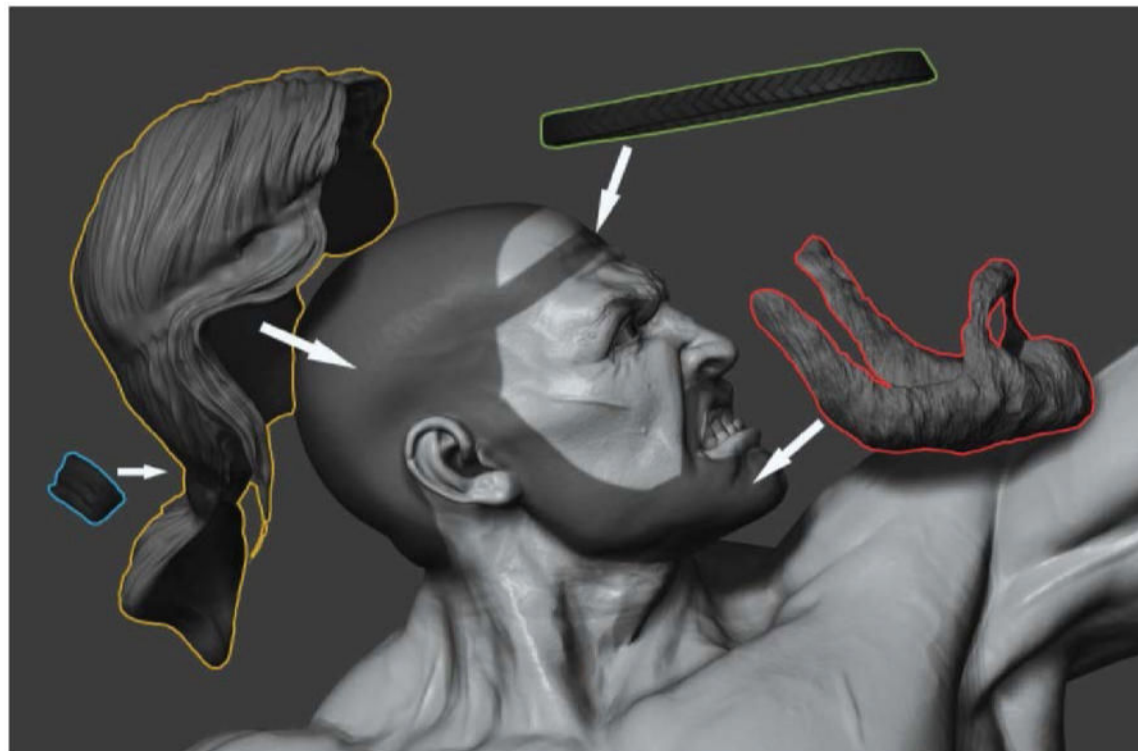
09 Make the sword

For the creation of hard-surface objects, I usually combine 3ds Max and ZBrush. For the sword, I created the entire base in polygons, working with subdivisions in 3ds Max. As a blueprint for these, I used an image of the original sword used in the Beowulf movie. I then modelled a base mesh and exported it to ZBrush, where I used DynaMesh to join certain parts of the handle, and the retopology function with ZRemesher to achieve a cleaner geometry. Like before, it's the finer details that make your image more realistic, so I added scratches to the blade.
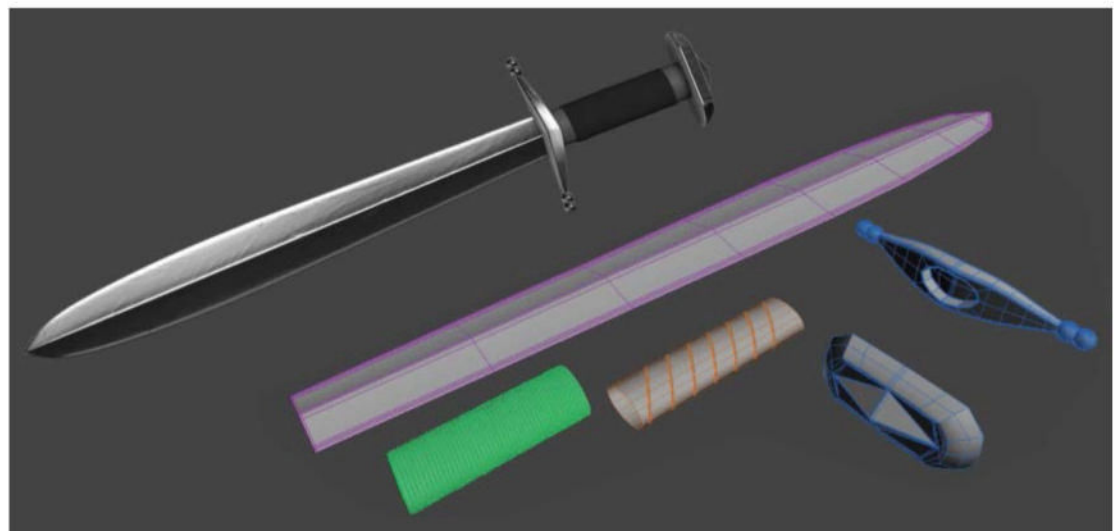
Concept

Concept

In this diorama I wanted to depict the strength, bravery, heroism and anatomy of a great character such as Beowulf.
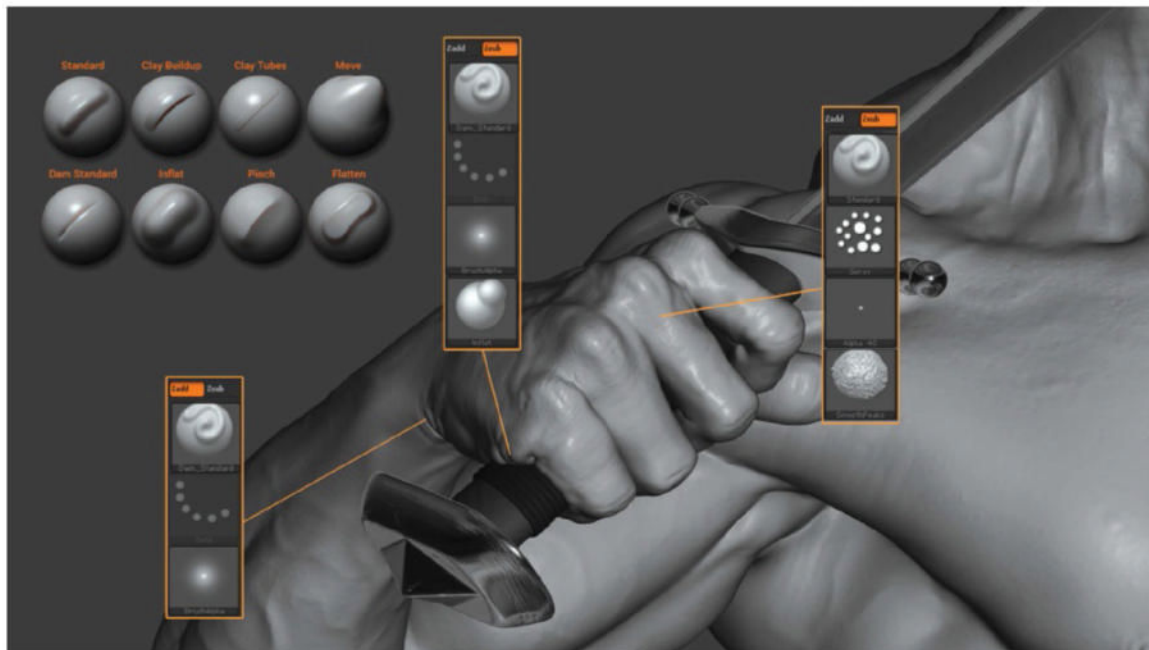
10 **Add the final details** This last stage of modelling is when we must keep an eye for detail in order to take our figure to the highest level of quality possible. As always, use reference images and your imagination to add the small final details to really emphasise the reality of your work. For the skin wrinkles, I usually use the Dam_Standard brush together with the Inflate brush. I also used the Standard brush with the Stroke set to Spray in combination with Alpha 40. Then smooth it with the Smooth Peaks brush for porous and rough surfaces.

11 **Clean and merge SubTools** Before exporting the scene to 3ds Max, it is important to have our SubTools labelled and free from any hidden or unnecessary items. It is also useful to try to group them so as to avoid having too many separate elements. So, if we have five SubTools, each of them with just a part of the sword, we can group them in a single SubTool titled Sword. To do this, we just have to go to the Merge menu and choose the option that suits us depending on the order of our SubTools.

Find the best workflow for you

From my own personal experience, this series of steps for the creation of Beowulf is the most convenient way to do it. However, it is not the only method you can use. I recommend that all artists try to find their own workflow in relation to their skills and needs. ZBrush is an amazing tool for your creativity, so don't waste it!
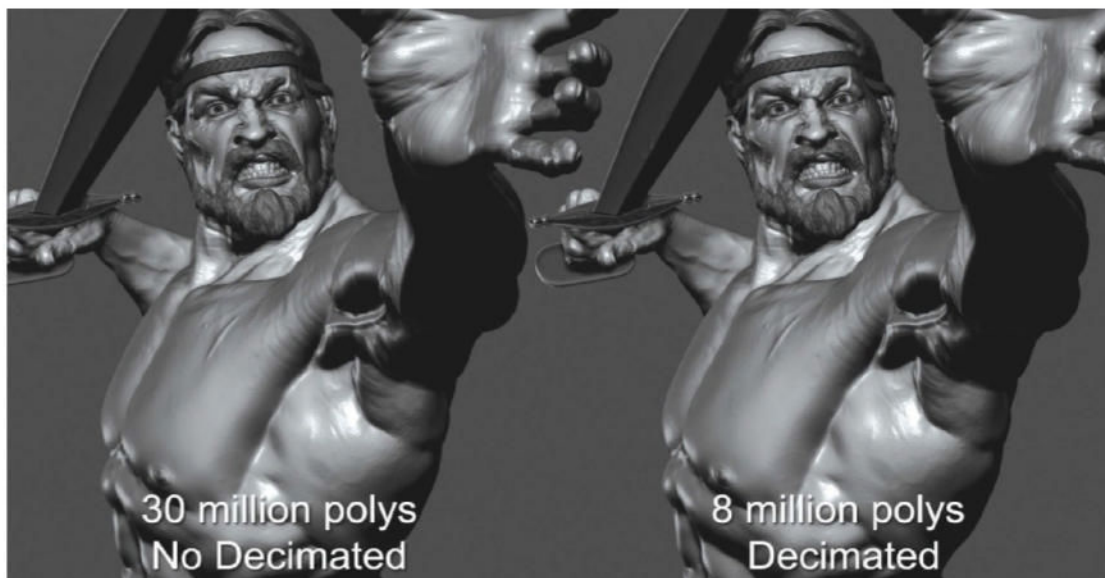
12 **Decimate the model** In the case of Beowulf, I knew my only intention was to export the scene to 3ds Max to render different views of it. I decided that instead of retopologising each element and investing time in this process, I would use the Decimation Master function in order to get a reduced number of polygons that 3ds Max could import for a later render. For this, go to the Zplugin menu> Decimation Master>Pre-process All. This will pre-compute each element of the scene. Next, press Decimate Current, testing to see what the correct Decimation Quality value is for each SubTool.

30 million polys
No Decimated

8 million polys
Decimated
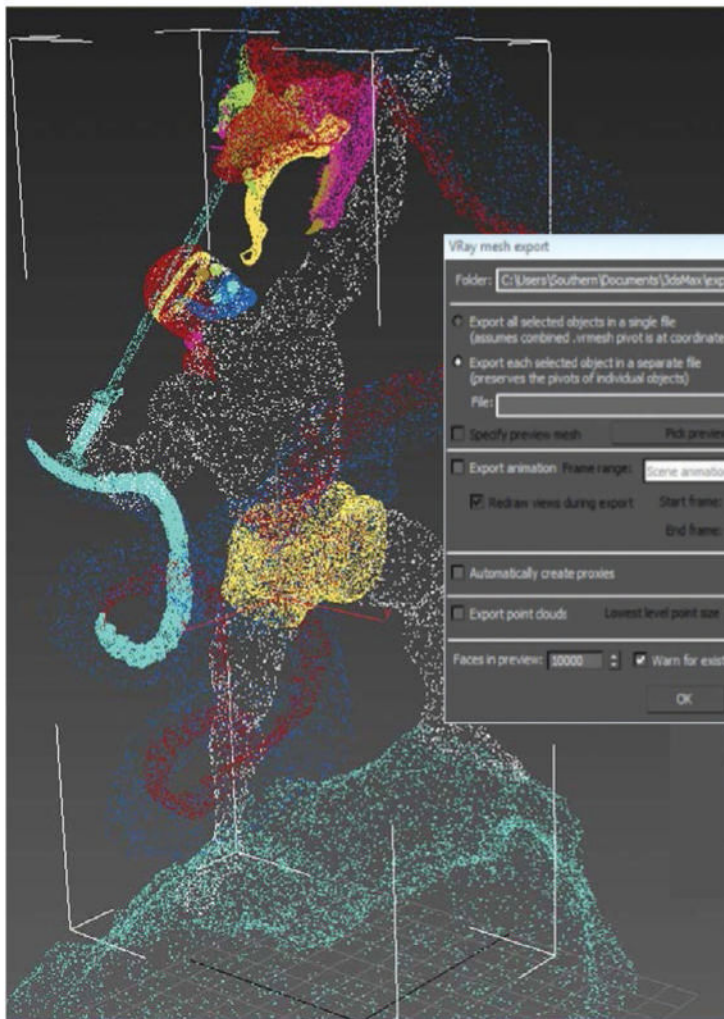
13 **Export and import** Once all our SubTools are organised and decimated, use the GoZ All function (which is within the Tool panel) to export all of the SubTools simultaneously. This tool exports from ZBrush and automatically opens 3ds Max, importing all objects into a new scene. Once the scene in 3ds Max has the full model ready, use V-Ray's Mesh Export function to create proxies of each item so that you can navigate fluidly in the Viewport. The proxies load just at render time.

Retopologise with ZRemesher

Another method used to transfer all the details of a SubTool with millions of polygons is the using ZRemesher and the Project function. To do this, we have to duplicate our current SubTool and apply a ZRemesher to it, setting the parameters for a suitable topology. Then, from Geometry, subdivide the geometry as many times as necessary. Last, go to the Project menu of the SubTool panel and click on Project All. We will then get a tool with several subdivisions and all the details of the original piece. We can then extract the Displacement or Normal maps to export them along with the low-res version of the model.

14 **Set up the lights** This process and the following one are as important as all the previous steps, since through these we will really emphasise and bring to life all of the modelling that we've already done. Therefore, it is advisable to have some inspirational images to hand that will help to inspire the final look of our sculpt. I usually use several VRayLights scattered around the scene along with HDR images. Test each light separately to see how each of them affects the model before creating another one. In this way, each light has a specific function and we are able to manipulate them according to the look we want to generate.
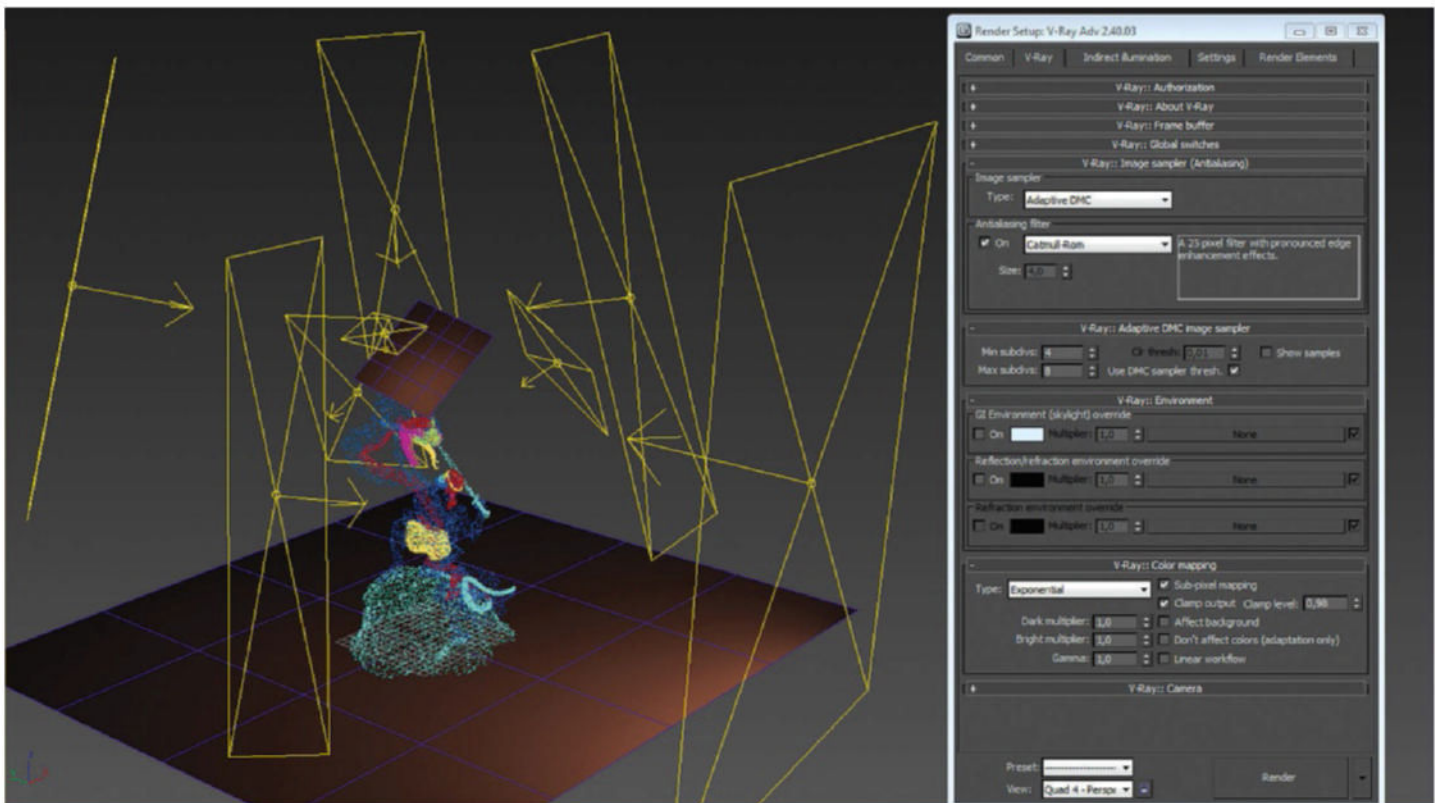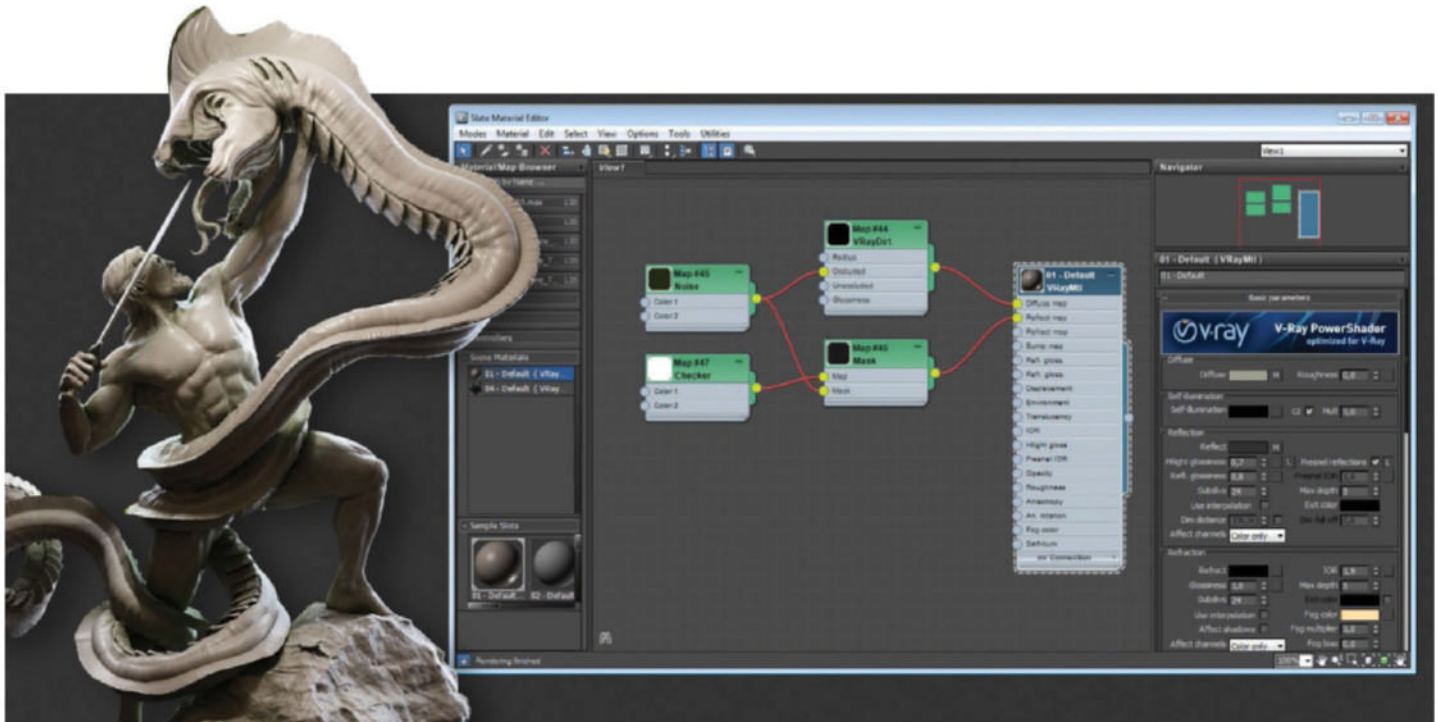
15 **Create the shader** We'll use just one material for Beowulf. The idea is to create a look similar to a polished stone with some sparkles and some dirt diffused on it. The point of this look is simply to highlight the volume and shape of the figure, without getting lost in complex or flashy textures that would distract our focus of attention. To do this, use a VRayMtl with a VrayDirt applied in the Diffuse channel and a Fresnel reflection with a small Noise map. Only with that and playing around with the lights can we get this effect for the project.

> "For every camera that we create, feel free to move around some (or all) of the lights in the scenes until you manage to generate the desired effects"
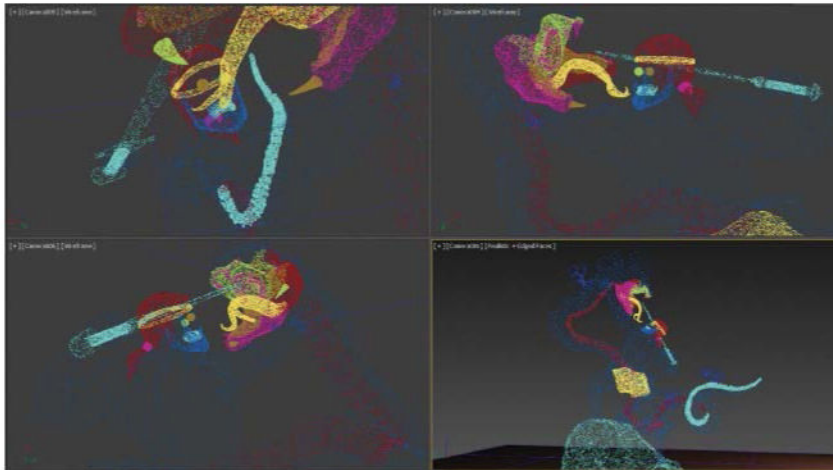
16 **Cameras and render** Finding the perfect angle where we can show both a correct composition while at the same time presenting the drama of our piece is not an easy task. As Beowulf is no exception to this rule, place several cameras in order to make some test renders. For every camera that we create, feel free to move around some (or all) of the lights in the scenes until you manage to generate the desired effects on each shot – not every light is going to look effective in each render. V-Ray is the render engine that I generally choose for all my works.

Get feedback

From my point of view, comments and constructive criticism on your work are one of the best ways for you to understand whether what you're doing is working or not. Beyond our taste and personal style, we must realise that other people's opinions are very important as well, whether they are a viewer or industry outsider's, or a more experienced colleague's insight. We need to learn how to take criticism in a positive and productive way in order to develop our work and grow as professionals.

17 **Final composition** When it comes to post-processing the image, it's best to use Photoshop for stills. Here, compose the original render, stressing particular areas and reflections by using selections and masks and different kinds of blending modes. In my scene, I decided to make the background entirely black with a free stock image of smoke to add a sense of drama. Last of all, I applied some stone textures with the blending mode set to Overlay at a low Opacity. It's also worth doing some colour corrections and adjusting the contrast levels. Once we've done this, flatten the image and use the Burn tool to emphasise areas, creating points of interest.

Awaken a beast with ZBrush

Model, pose and texture a monstrous creature's life cycle and its natural setting

In this tutorial we will go through the steps to create a posed and detailed creature. Starting with only a sphere we will create the rough form of the creature and use ZSpheres to add limbs. We will also make use of readily available Insert Multi Mesh brushes to add features to the creature. After posing the creature we will use Polypainting to create basic materials and textures on the model. Finally, the 3D renders will be taken into Photoshop to finish the composition by adding lighting effects and textures. We will also cover how to export and render the model in KeyShot from ZBrush 4R7.

Concept

The aim of this project is to create a detailed and expressive creature and its natural habitat.

Artist

James Suret
www.artstation.com/artist/zerojs

James is a digital sculptor and expert in 3D modelling from the UK. He is a master of ZBrush and Photoshop and concentrates on characters and creature artwork.

Software

ZBrush, KeyShot, Photoshop

Source Files

On FileSilo you will find the tutorial screenshots to aid you in following the steps of this tutorial.

Start with rough designs

Don't worry about the finer details to start with
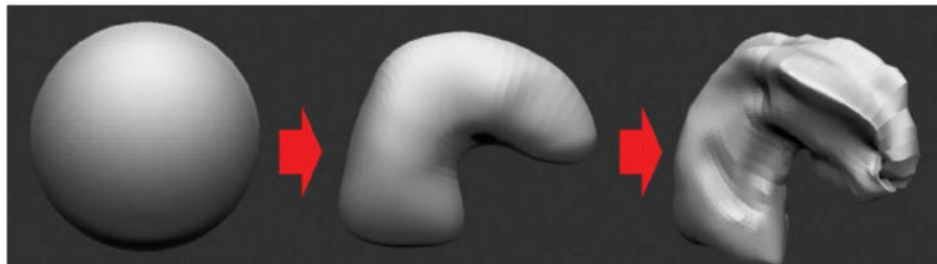
01 Create a rough bust First insert a new sphere. Press T to edit the object and click Make Polymesh3D, also activate Symmetry by pressing X. Now with the Move brush set to a large size (by pressing the] key), push the shape around. The idea is to quickly explore your ideas without worrying too much about what the details will be. At this point it's sometimes useful to look at reference images of the anatomy of real animals or insects.

02 Develop the model using DynaMesh Now we have a very rough form but the mesh is becoming difficult to sculpt because of its topology. We need to use the DynaMesh feature to even out the surface of the model. We can then continue to pull out the basic form of the creature. When it feels like the polygons are stopping you from adding more detail, just use the DynaMesh feature again but with a higher resolution. At this point the polygon count is quite high and we can start using the Clay brush to carve in smaller features such as the eye sockets and skin folds.
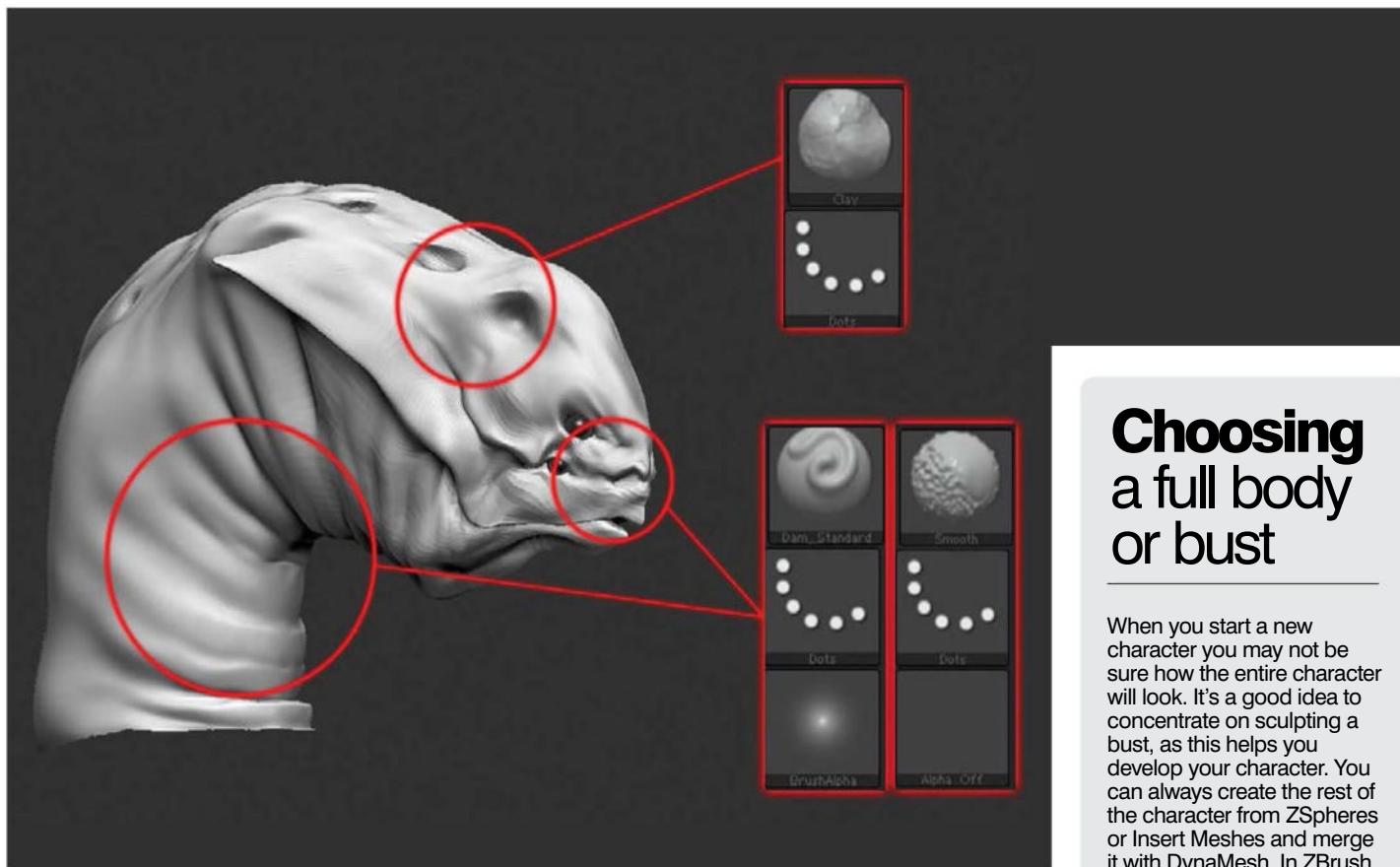
03 Sculpt the initial details The next step is to add character and realism to the model by sculpting basic skin folds and muscle structure. Using the ClayTubes and Smooth brushes we can quickly create the look of skin folds or wrinkles. The Dam_Standard brush is great for carving lines and wrinkles as well as carving out the mouth and nostrils. During this stage you may need to use DynaMesh again to smooth the mesh out. Next, add the eyes by inserting spheres. Then mirror the spheres using the SubTool Master plugin and move the eyes into place with the Transform tools.

Choosing a full body or bust

When you start a new character you may not be sure how the entire character will look. It's a good idea to concentrate on sculpting a bust, as this helps you develop your character. You can always create the rest of the character from ZSpheres or Insert Meshes and merge it with DynaMesh. In ZBrush 4R7, when you use DynaMesh on a SubTool with multiple objects merged, it preserves the individual objects' Polygroups.

ZSphere ⟶ DynaMesh
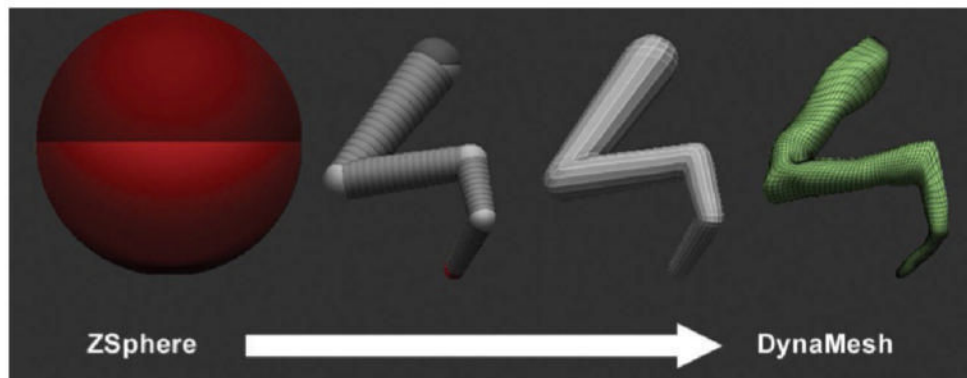
04 **Create the arms with ZSpheres**
To create the forearm we will start by inserting a ZSphere into the model. Press Q and you can draw out a new ZSphere and after pressing W you can drag the new sphere out further to create the first part of the arm. By repeating this process you can create the basic form of the arm, the Scale and Rotate tools can also be used. When you are happy with the arm click on Make Adaptive Skin under the Adaptive Skin menu. This new SubTool can then be added to the main SubTool, it's usually best to run DynaMesh before sculpting further.
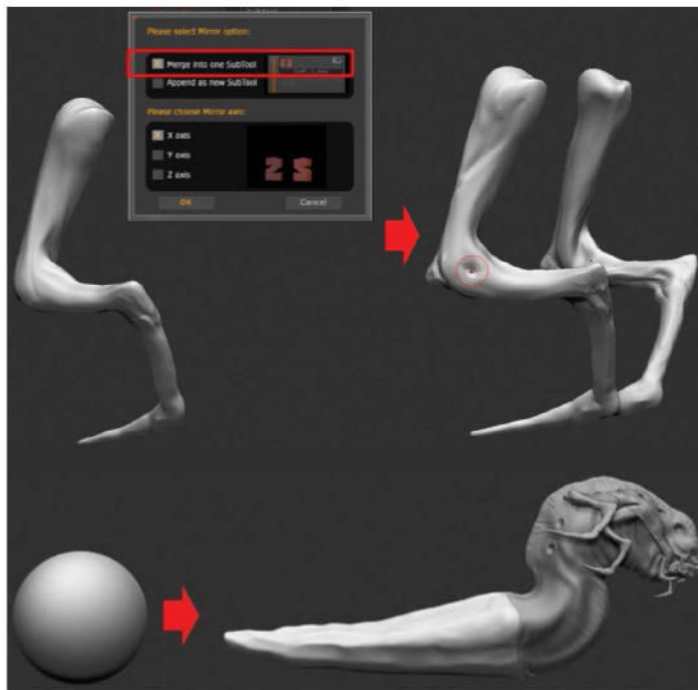
05 **Develop the anatomy** Now we have a sculptable arm we can mirror the SubTool using SubTool Master menu under Plugins, if you choose the option to Merge into one SubTool you can then press X to enable symmetry on the arms. Then using the Move and Clay brushes you can build up the anatomy of the arm; consider where the joints will protrude and skin folds might hang from. To complete the creature we can now add a new sphere and pull out the basic shape of the lower half of the creature's body and tail. Now use DynaMesh to prepare the SubTool for sculpting.

06 **Use Insert Multi Mesh brushes** Now that one set of arms is sculpted you can add more by clicking Duplicate in the SubTool menu. The new arms can then be resized and moved by making use of the Transpose tools. To speed the modelling process up we can add some legs to the creature by using a premade Insert Multi Mesh brush pack available for free at badking. com.au. Once the brush set is loaded up you can then click on the side of the creature's body and drag out the size of the leg that you want it to be. Then you can use the Transpose tools to position it.
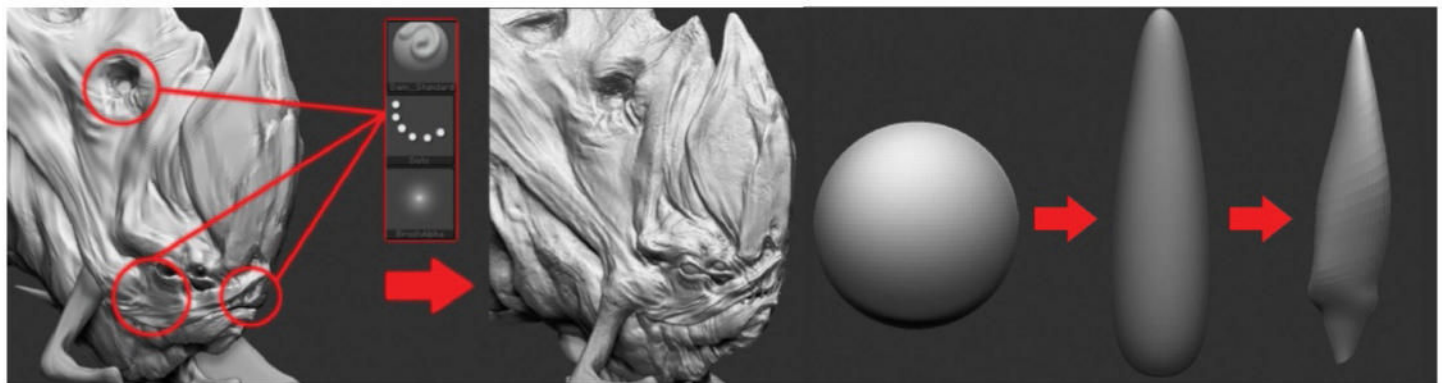
07 **Detail the face** Now the large forms of the creature are complete we can focus on adding detail to the smaller areas. Using the Dam_Standard brush you can create more skin folds and wrinkles. It is useful at this point to use DynaMesh again at a higher resolution to enable you to sculpt these smaller details. We can also add in some teeth by starting with a sphere, pulling out the basic shape and then duplicating the SubTool as we did before when we were working on the arms.

Concept

Artist showCase

James is currently a games designer

Oculus
2013, **ZBrush, Photoshop**
● This sorceress character was sculpted in ZBrush, using Insert Multi Mesh Curve brushes to create the clothing.

Nova-25
2013, **Photoshop**
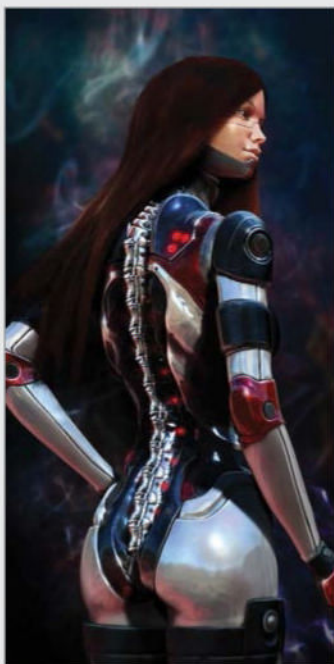● This is a futuristic character concept. I sculpted this female cyborg character in ZBrush, using FiberMesh to create the hair.

08 Create the egg and baby The egg is created by inserting a sphere and roughing out the shape with the Move tool. Then use DynaMesh and tweak the shape further. You can use Alpha materials to quickly sculpt surface details. To create the baby creature, make the basic skeleton from ZSpheres based on the anatomy of the original creature. Then move the skeleton inside the egg and position the limbs. To move the ZSphere model press W, hold Alt and click on the initial inserted ZSphere. After turning the model into an Adaptive Skin, use sculpting brushes to add detail.
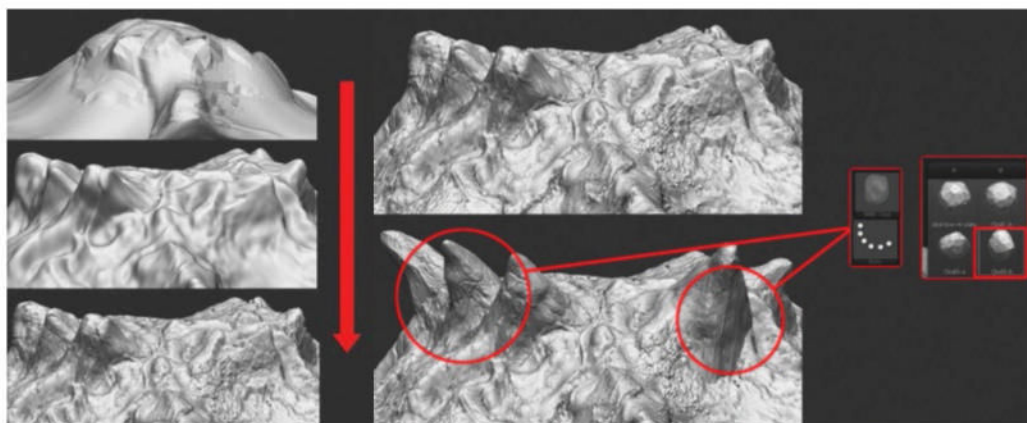
09 Create the landscape Now we need to create a base environment for the creatures to exist in. Starting from a sphere again we can rough out a rocky platform with the Move and Clay brushes; use DynaMesh to smooth out the mesh after large changes. When the polygon count is high enough, use Alpha materials to add a rough surface to the model. Then load the IMM Clod brush that comes with ZBrush and insert some rocks along the surface. Use the Transpose tools to resize and rotate each rock as you are inserting them. You can now also duplicate the SubTool containing the baby creature. It can be scaled up slightly and positioned near the front of the egg with Transpose tools.
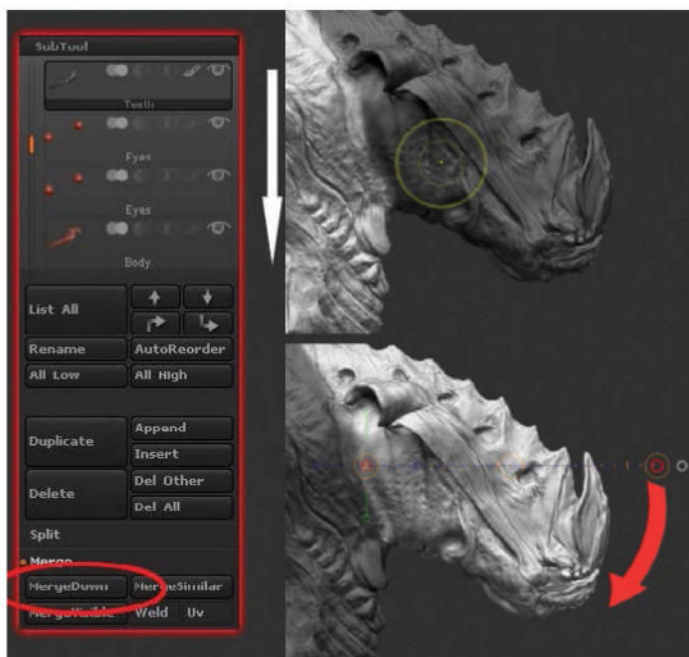
10 Pose the creature Now we can pose the creature to fit into the environment. Before we do it's a good idea to merge the eyes and teeth down into the main body SubTool so they will be posed together. Make sure they are listed underneath each other in the SubTool list before clicking MergeDown. With the body SubTool selected hold down Ctrl and paint a mask covering the head and neck. Turn off symmetry by pressing X, hold Ctrl down and click outside of the model to invert the mask. Press R and draw out a transpose line from the base of the neck outwards then drag the end of the line to rotate the neck. You can then use the same method to pose the rest of the body and limbs as well as the larger baby creature's limbs.

11 **Make the background** Now that we have the creatures and the foreground ready we can make a quick background for the environment. Start by pulling out a sphere with the Move brush into a rough rectangle. Use DynaMesh and then pull a tunnel shape out of the back of the model with the Move brush. Continue shaping the cave and using DynaMesh to help sculpt more detail. You can also use Alpha materials to quickly add some texture but don't worry too much about sculpting details as the background will get blurred out in the final image to create a depth-of-field effect.
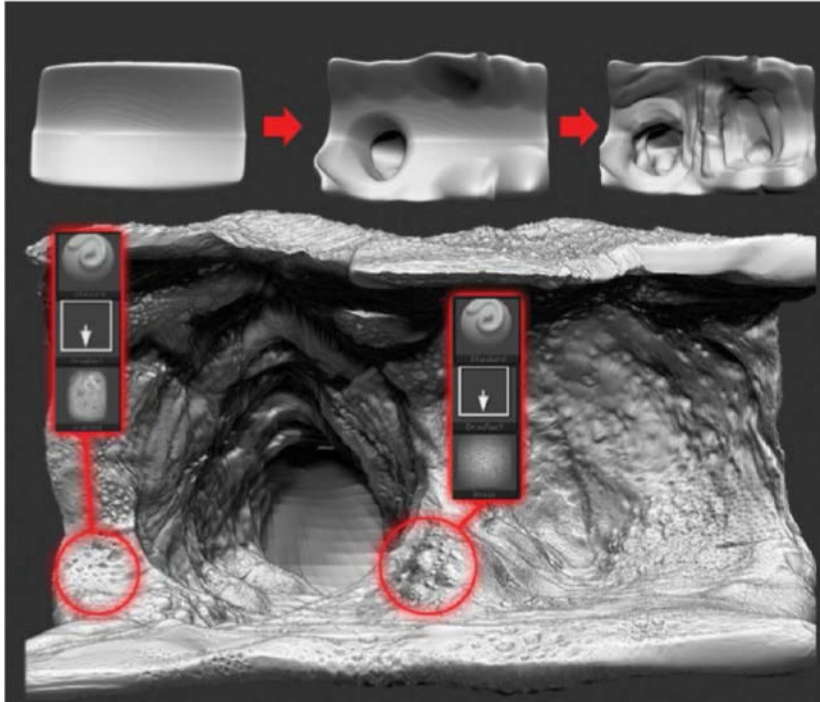
"Use different Alpha materials to layer hard and sharp textures on the skin"

Posing forms

When posing organic characters you usually need to create smooth bends, for example, the neck or knee. When you are painting out a mask you can hold down the Ctrl key and lower the RGB opacity which will draw out a softer mask. This will create smoother, more organic bends. You can quickly blur the mask by using Ctrl+click several times.

12 **Final details** Now to complete the sculpt we can add fine surface detail. Add a fine layer of noise to the model to make the skin look more realistic. Click on the Noise button under the Surface menu, here you can tweak the strength and scale of the noise. To apply this noise to the model click OK then Apply To Mesh. You can then use different Alpha materials to layer hard and sharp textures on the skin to create the look of bumps, veins and scratches on the skin. A great selection of free Alpha materials can be found at **pixologic.com/zbrush/downloadcenter/alpha**. Alternatively you can create your own from photos by saving them as greyscale PSD files.

13 **Polypaint the base textures** Firstly, fill the model with a plain material by clicking MRGB and selecting MatCap White01 as the material and FillObject in the Color menu. Make sure ZAdd and ZSub are not ticked (so you don't accidentally sculpt on the mesh) and tick RGB (this will allow you to just paint in colour). It is a good idea to choose an Alpha material to paint with to blend colours in a more natural way. Then, apply some base materials to enhance the texture's shading. To do this make sure only M is ticked, select a material and click FillObject from the Color menu.

Painting with colour and alpha maps

Applying MatCap materials

14 Lighting and rendering First we need to rotate the model to create an interesting composition. Then select the background SubTool and press the Solo button to only show this SubTool. Use the BPR render to create the background image. Next turn off Solo mode and hide the background SubTool. Move the light placement by moving the dot around the sphere under the Light menu. Set the shadow resolution to 8,000 on the BPR Shadow section of the Render menu to create higher quality shadows. Enable Ambient Occlusion under Render Properties and set the resolution to 8,000. Click BPR to render and save all the render passes. To create a specular render, fill the model with Toy Plastic material and black colour. Finally we will create a clown pass render to help select individual parts of the model in Photoshop. Fill each SubTool with the Flat Color material and fill each part with a different colour, then render this out.

Polypaint with masks

After you have finished painting the creature a good way to bring your sculpted details back out is to use the Mask By Cavity button under 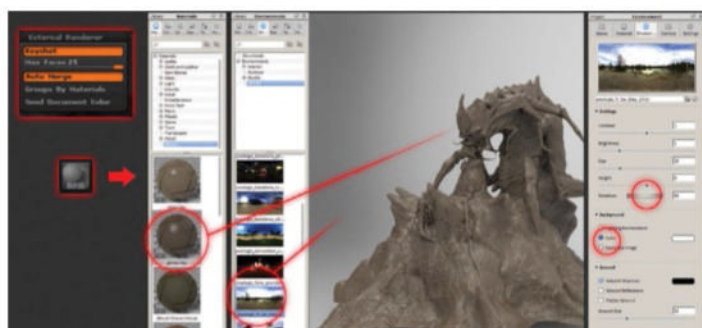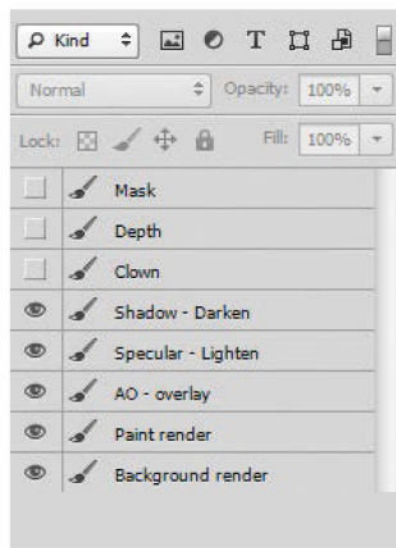Masking, then invert the mask. Now you will have all the deeply carved details selected, such as skin folds and pores. You can then paint with a darker skin colour over these areas only. Clear the mask and you will be able to see the difference it makes.

15 Composite the layers in Photoshop After saving the renders as PSD files open them in Photoshop and layer them up. First the background render and then main BPR render, followed by the AO layer set to Multiply which helps add more depth to the render. Next, set the specular layer to Lighten which brings out highlights along the skin. Finally, set the shadow layer to Darken to enhance the dark areas. The mask layer can be used to delete the background of the renders to enable you to place the background render behind the character.

16 Add effects and textures Apply a strong Gaussian blur to the background to create a depth-of-field effect. Next, insert stock photos of skin and bone to enhance the textures on the character; set them to Overlay and reduce the opacity. Using the Clone Stamp tool you can paint these extra textures on different parts of the creature. A great selection of free photo textures can be found at cgtextures.com. Finally, using a soft brush, add some soft lighting and glow effects to the teeth, eyes and skin. This emulates reflected light and adds to the atmosphere of the image. To create the strands of slime/saliva you can draw a line with the Line Tool and then use the Warp transform tool to make it look more realistic.

Transform - Warp tool

17 Render in KeyShot Rendering in KeyShot is now easier than ever with ZBrush 4R7. Simply load your model as normal and click on the External Renderer button under the Render menu, then hit the BPR button. The model and all of its texture/materials will be sent to KeyShot. If you want to create a realistic clay render you can apply one of the clay materials that comes with KeyShot. For more realistic lighting, load one of the HDR environments, set the Background to Color and choose a light colour. You can also rotate the lighting by using the slider under the Environment tab. When you are happy press Render and choose your resolution.

The right view

When trying to decide the best camera angle for your final render, consider the Rule of Thirds or the golden ratio. Render a camera angle that you like and overlay an image of the golden ratio (search Google Images), see if the image's features match up with the spiral centre and then adjust the camera angle accordingly.

"To create the strands of slime and saliva you can draw a line with the Line Tool and then use the Warp transform tool to make it look more realistic"

Model and render a submersible drone

Extrapolate and develop interesting details from the render context and the conceptual stage for a unique aircraft model

This tutorial will give you insight into the process of taking an idea from a budding idea to a finished, painted concept model. You will also be shown where to refine ideas within a model/idea by researching contextual information available to us on the subject. This contextual information is anything that makes your idea, and ultimately your presentation, more believable.

As we go through this tutorial, we'll be exposing moments where we learned more about a particular reference or visual subject along the way. This remains, for us, the most important aspect of the design process. This means that the rule of form follows function takes precedence. By taking a closer look at many of the things around you in the world, it's possible to extrapolate future and past contexts to strengthen your final product! For this tutorial, we will go through the design and execution process of developing a German submersible drone from World War Two.

Artist
Colie Wertz
Colie is a visual effects professional currently working on projects ranging from ship concept design and sketches to production-ready assets for film. He has been in the industry for 20 years and is enjoying smashing together techniques in both 2D and 3D art to create more believable and pipeline-friendly concepts. He now lives in San Francisco, CA.

Software
Maya, ZBrush, MARI, KeyShot, Photoshop

Source Files
On FileSilo you will find the tutorial screenshots to aid you in following the steps of this tutorial.

Model and sketch
Develop a brief of your design

01 **Model the head** This portion of the process can be the most fun. Use a number of tools to get your thought process started. The first is simply allowing yourself to be inspired. This sounds fundamental, but try to get in a headspace where you can be more receptive to things around you. For us, it usually starts by getting in a car and looking at how much stuff has been designed for the interior and what their functions are. From there we can imagine cars 50 years ago and the demands on them compared to the demands today. Bluetooth just wasn't necessary, for example, as it just didn't exist. Now it's the first thing needed in a modern car. What will the first thing needed ten years from now be? This approach can be applied all day, every day. It's a rich world. By the time we're into our first cup of coffee, we're already feeling around some shapes in the sketchbook. We don't have anything in particular, and that's okay!

> "[We] took today's interest in drones and overlaid that with a craft that might need to be unmanned but accurate in application"
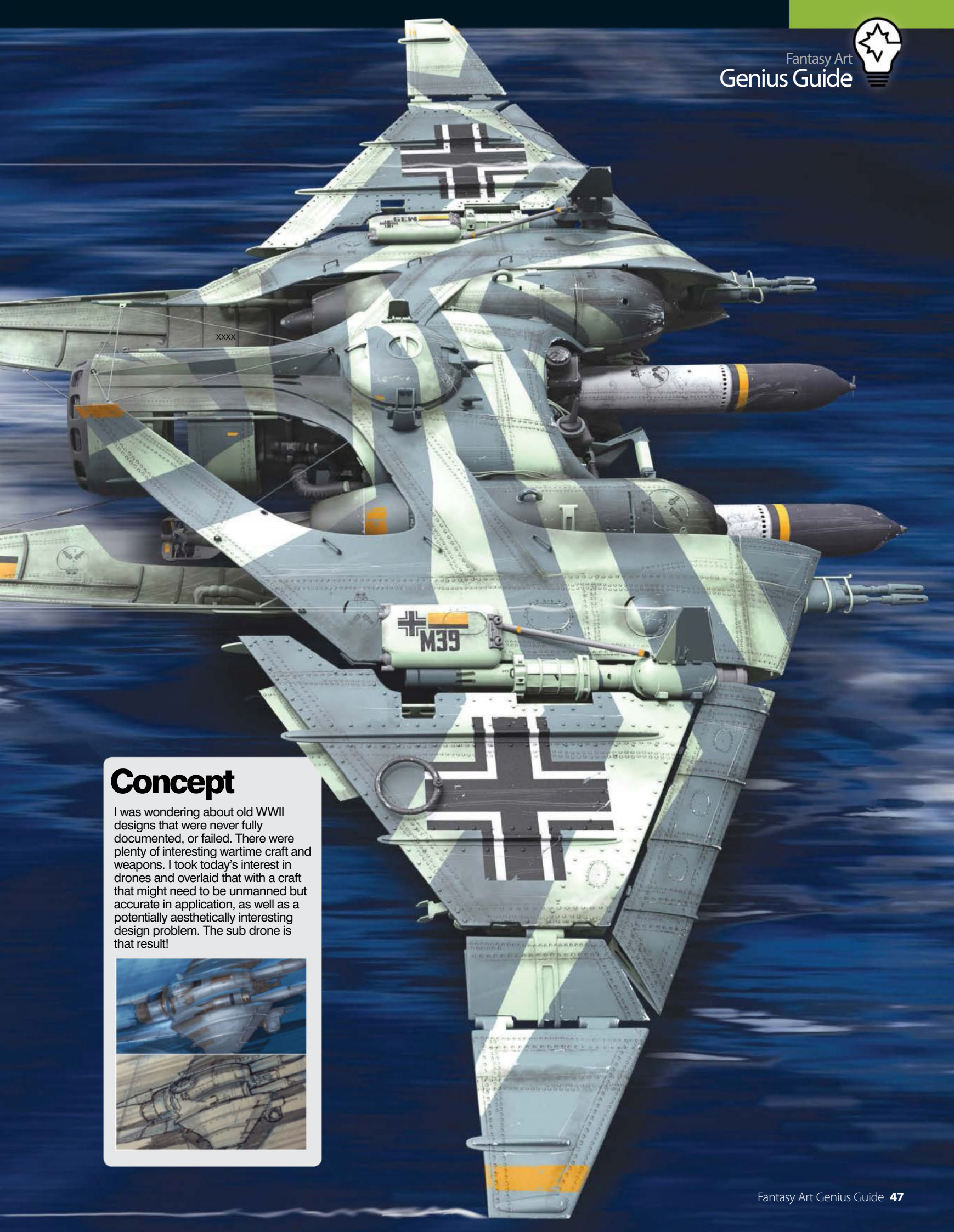
Concept

I was wondering about old WWII designs that were never fully documented, or failed. There were plenty of interesting wartime craft and weapons. I took today's interest in drones and overlaid that with a craft that might need to be unmanned but accurate in application, as well as a potentially aesthetically interesting design problem. The sub drone is that result!
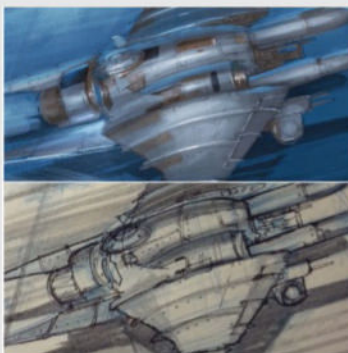
Concept
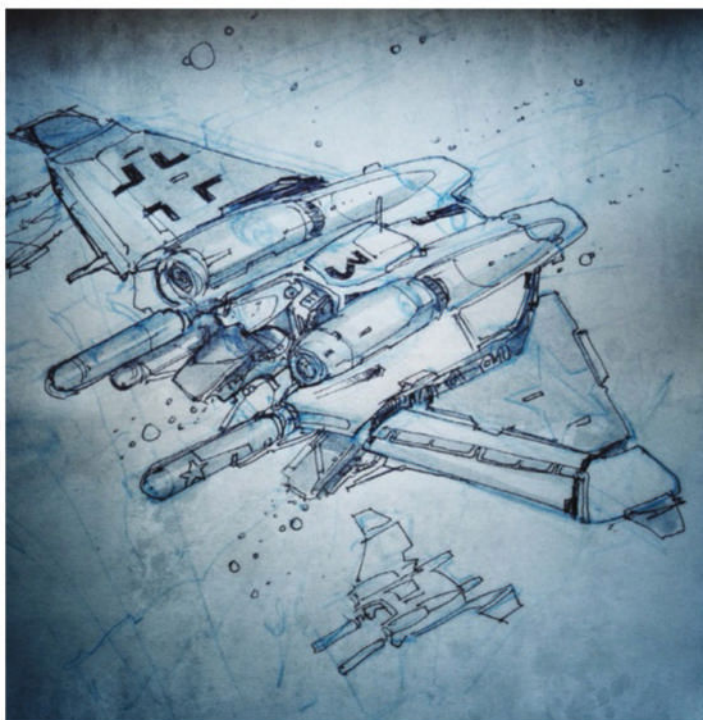
02 **Develop a brief and weapons of choice** You need to have some inkling of what you're going to develop. It could be one word, or a paragraph or simply a shape you see and want to explore. Often when doing paid work, briefs are typically given to you and that narrows down a lot of the flailing when you're just trying to come up with something cool. The manta shape drove our initial sketch. There's a smaller sub drone in the image sketched with its wings flapping, maybe for propulsion or maybe for axial manoeuvring – showing that even at an early stage, with only a few lines, we were thinking dynamically no matter if we used a smaller sub drone in the final render or not. We prefer getting rolling with a Moleskine sketchbook, a little Tom Binh bag that holds it, an Apple iPad and a Microsoft Surface Pro 3. It's our little arsenal for purging and developing. We also have a Dropbox account that lets us look over images whenever we want.

**04** **Eliminate the lies with a good model** The 3D modelling stage takes a lot of pressure off your sketch. You can sketch cool stuff all day, but if they don't work in the round, you will be chasing notions of something not looking right all day long. There are definitely some people out there in design-land who can draw nearly perfect 3D images in form, well we're not one of them! Your modeller of choice can get you into a more comfortable area in your design process. For the sub drone, we opened Maya and made a few planes. By jerking some points around and adjusting those proportions, we had a little plan of the sub. The simple shading in a modeller will allow you to move those same points around and establish some interest in all three dimensions, and that's important.
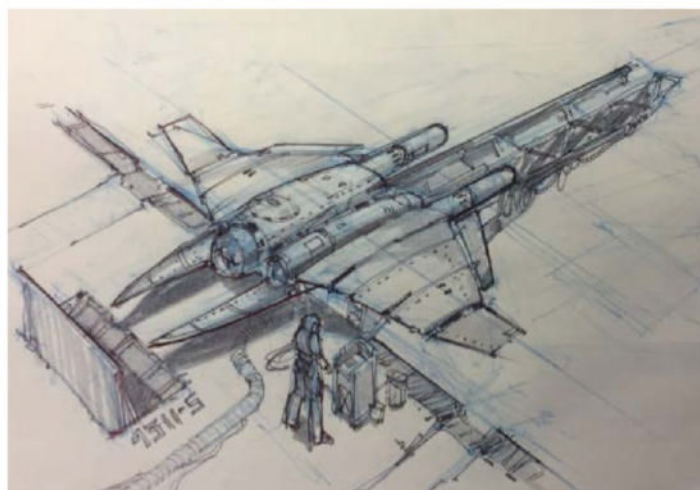
03 **Start sketching** For the sub drone we drew a square diagonally and started cutting it up. So we had an inkling of what we might be going for at this stage. The manta shape started to show itself, and we went from there. The assignment was to develop a mech for a book; we allowed (and this is key) our sketching and that assignment to overlap. The brief, as mentioned previously, was bleeding and forming itself the more it was sketched. Be present for this occurrence. It can change your game and alleviate a lot of design-block anxiety that can come later on! Don't feel handcuffed by the word 'sketch' either. If you sketch in your modeller, do it. It's all about having a clear mode of communication from your head to the medium you choose. Once you sketch something, usually in a top view for easier 3D understanding, challenge yourself to sketch it again. This puts you in a 'I'm committing' frame of mind, and a little light goes off in your head that tells you that what you're doing is carrying more worth than just a simple doodle. Things will change, and the idea begins to form of what we think of as a directory structure: form, function, context, materials, history and users.
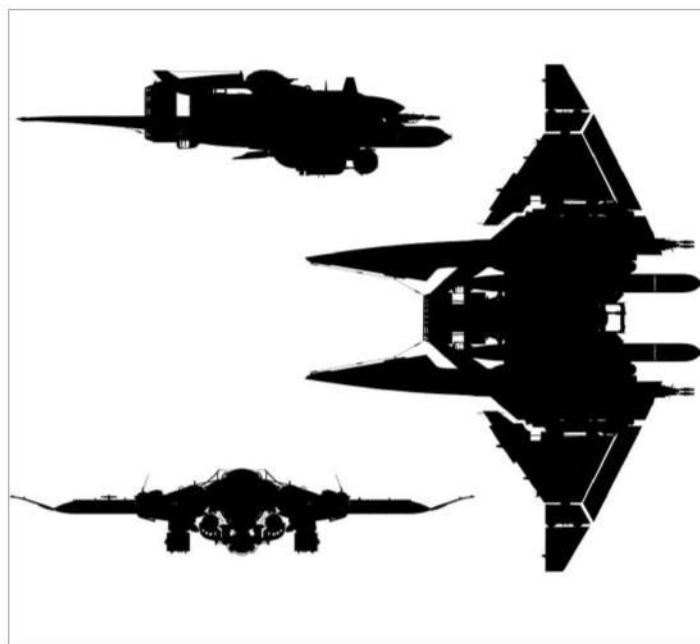
05 **Silhouettes rule** A good design will look good in plan, front and side elevation. As you get a feel for your primary shape and form, which for us was sticking to the manta silhouette, begin thinking about what can add interest to your silhouettes. This is where your reference library can come into play. For this project the barbs on a manta's head, which gives it the 'devil ray' name, are pretty significant in the ray's silhouette and had to be in the design.

"Once you sketch something, usually in a top view for easier 3D understanding, challenge yourself to sketch it again"

06 **Nail the scale** Having decided that the torpedo was going to be a known quantity, we searched for a period-appropriate model used by the navy at a particular time in history. A little reading later, we found a few models of torpedoes that made some sense and could serve as the backbone of the design's scale and historical reference in object form. This is a massively important point, as we're now committed to a form and a time for the design to be rooted in. We made an underlay of the torpedo and built it in Maya. We kept the Maya models at a one unit to one centimetre scale, as V-Ray likes that for its real-world lighting accuracy. While we weren't committed to a renderer, we liked knowing it could be used there. It was a relaxing build, as we knew that the viewer would see it and think, 'oh! I know what that is!'.
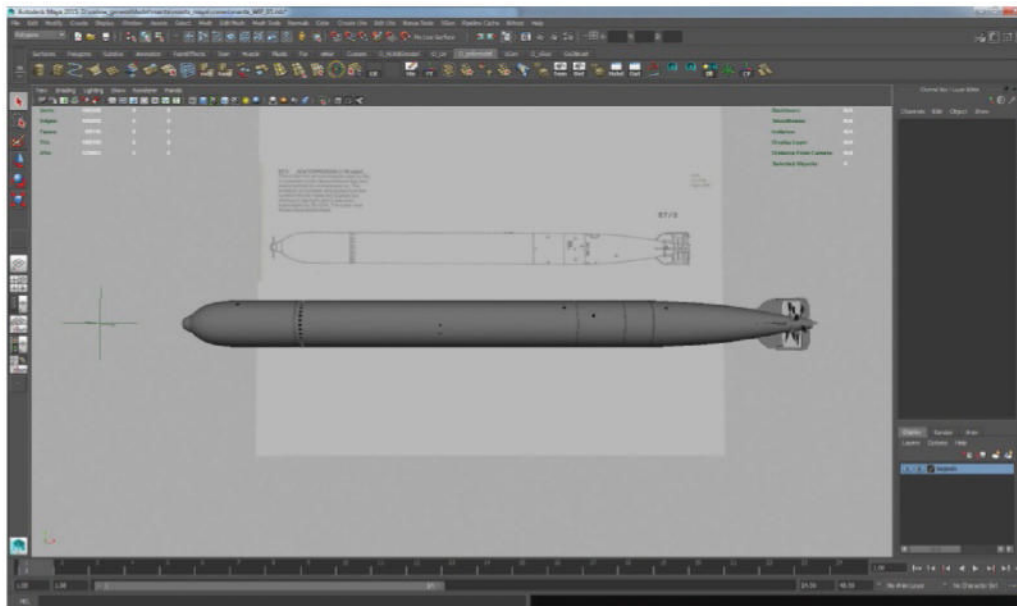
07 **Rabbit holes** As we did research on the torpedo, we went down a few rabbit holes of other information that we found interesting on the subject. Allow yourself this luxury! It's all relevant, and you're loading your palette of reference: both visual and factual. Some things we hit were torpedo tubes, torpedo storage, torpedoes being mounted on aircraft, depth charges and a few other technical tidbits that gave us an inclination on how these antiquated weapons were deployed and tracked targets. The sub drone would be used as a short-range taxi for depth charges and torpedoes, shuttling the armaments to deploy to targets at close range. They're manoeuvrable, hard to track, and would be great for minefield navigation if a ship decided it was too dangerous to try and pass. Since the sub drone carried no human cargo, it could ram the target if need be. It's a bit like a Zero, only from the Luftwaffe. We imagined the guidance systems on torpedoes would be developed further and applied to these drones. The whole design for the sub drone wasn't complete, but it was getting more and more rooted. We had a real direction and could start developing around the torpedo model.

Concept

08 **Build with educated purpose** With the establishment of a history and place where your design would exist, you can sketch out scenarios that would give your vehicle/character more believability. In this story, the sub drone would need to be launched, cruise, splash down, navigate and deploy. For the launch, we chose a Messerschmitt Me 262 engine pair that would have been used by the Germans since that was their first jet aircraft, and this would be built about the same time. These engines would be smaller than those on the aircraft, but of the same design so we got orthographic underlays from Google, put them into Maya and built them. We made the size work with the pre-established scale and proportions. There'd need to be a propeller/screw for the aquatic part of the mission, so we did research on the dive planes and screws of subs. There was a great palette of parts from the past that we could use for the form and function whilst adhering to the aesthetics, too. The fairings and wings would allow the sub drones to be stored on ships for deployment, as they folded to save space.
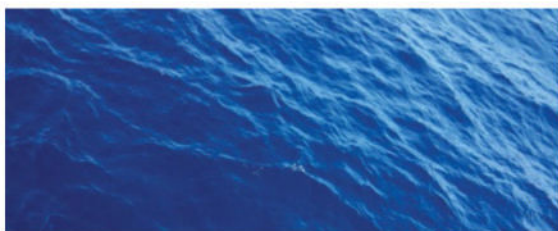
09 **Pick an environment** It is imperative that a lighting environment be established as early as possible in your design if you're working toward a deliverable of either a still or animation. Light shows off your model, and how that light can best show your model off is easier than ever. Maya's Viewport 2.0 is good, but we prefer Luxion's KeyShot. A smoothed OBJ file is all that you need to inform you of how you can detail your design and determine depths of details as well as shapes of fairings. We modified a few of the outdoor images that come standard with KeyShot, making them less saturated for drama. You can save these modified versions in KeyShot for future use!
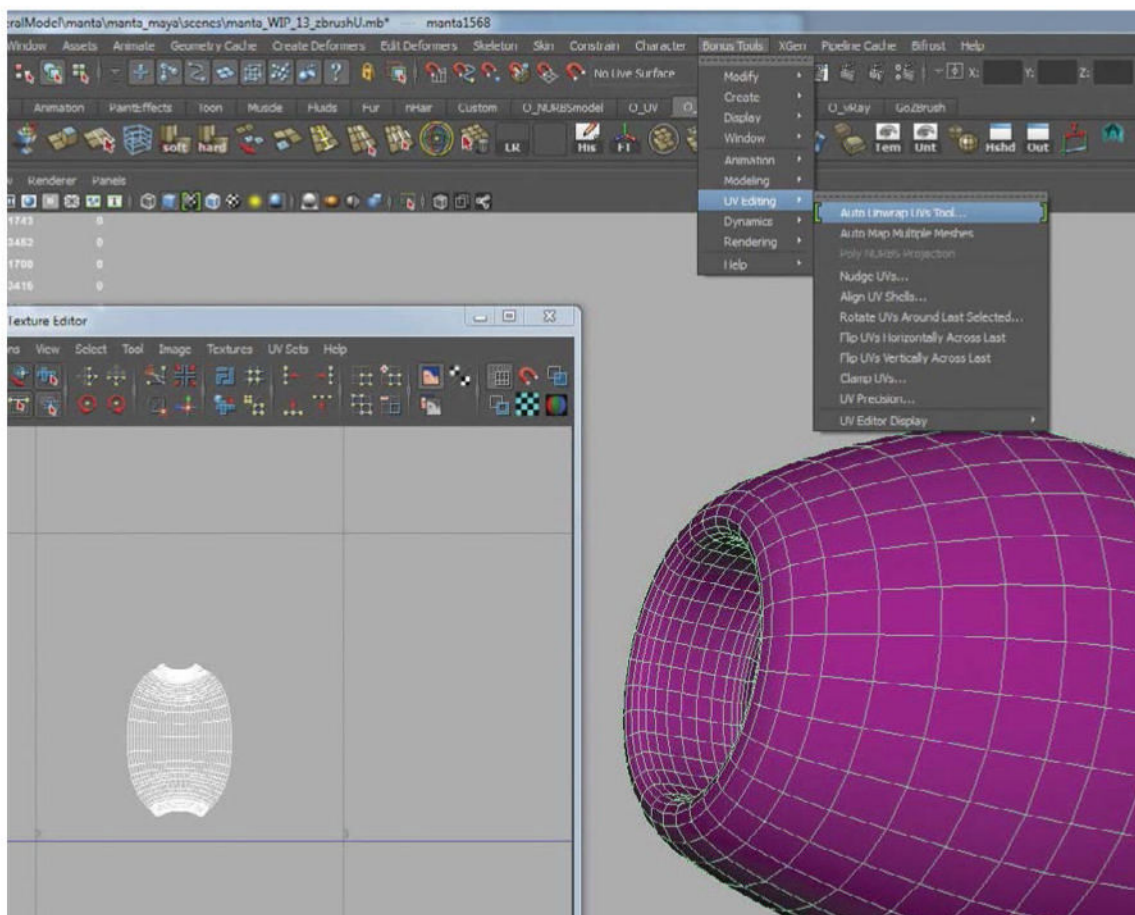
10 **UV maps** We used Maya and ZBrush for UVs. Maya's UV tools in the 2015 version are great. You can enter a live UV scenario where you pick edges, separate and see what you get in the UV editor, then change your cuts to better serve your purpose in paint. This is a painless alternative to the past. That said, with MARI it doesn't really matter. We tend to ship baked, smoothed parts over to ZBrush, run a UV unwrapper, and call it a day. We like doing this as it shows how accurate and fast it is. It's literally a button – UVing is too much work when you're trying to stay in the flow.

> *"Maya's UV tools in the 2015 version are pretty great. You can enter a live UV scenario in which you can pick edges, separate and see what you get in the UV editor, then change your cuts to better serve your purpose in paint. This is a painless alternative"*
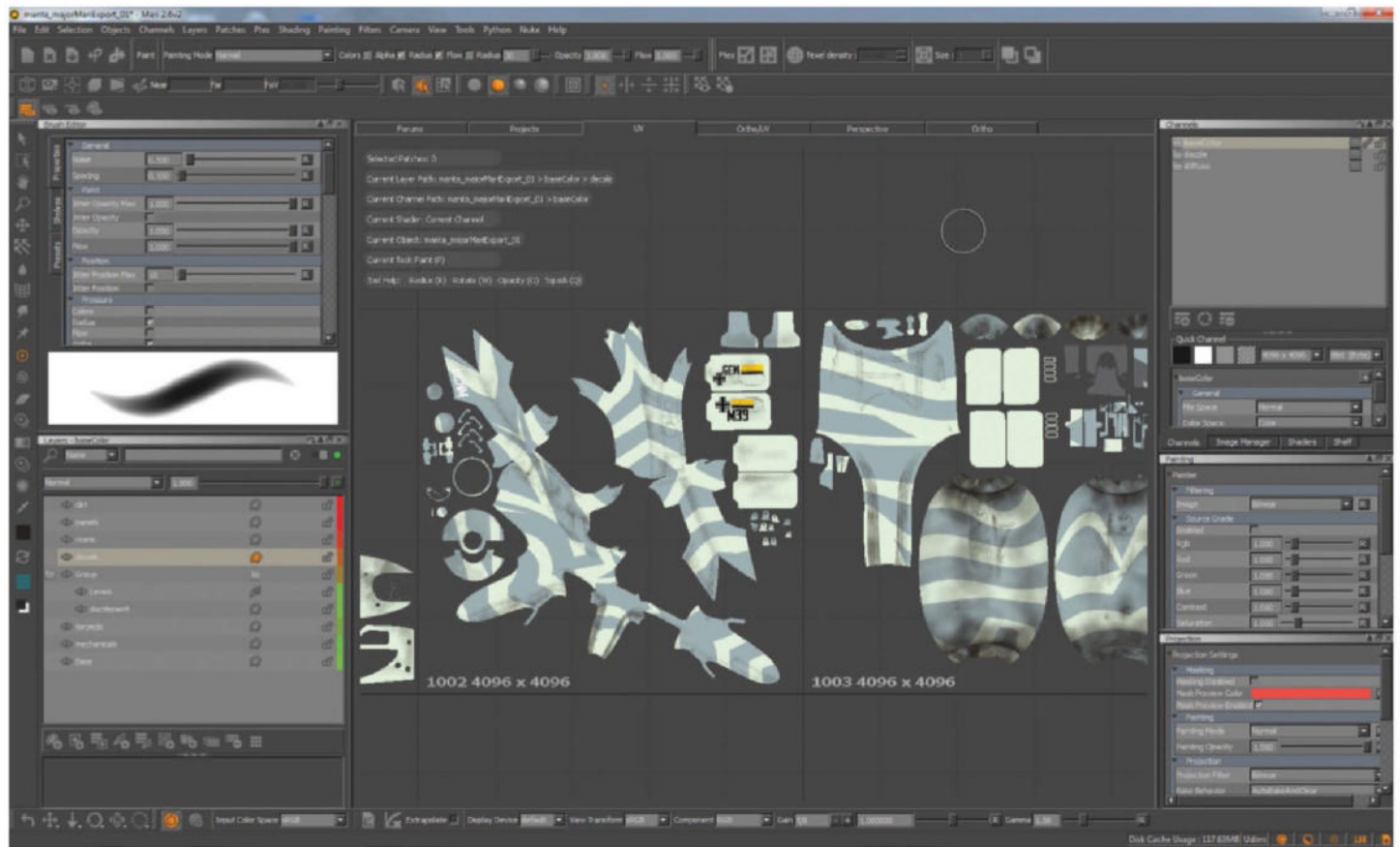
11 **UDIMs rule** Line up your UVs in a row of tiles: 0-1, 1-2, 2-3 and so on. This will allow you to see all of your maps in the editor and their corresponding parts. Back in the day you could stack them all in 0-1 space – don't do that. If you ever decide to go to MARI, it won't work. MARI enables you to work on multiple maps at once because of UDIM space. So why not make full use of it! Pick a naming convention for your shaders in whatever program you use to correspond with the UDIM space they occupy. For example, use 'uv1001_subdrone_vRay' as the name of the shader for a group of parts living in UV space 0-1 using a V-Ray shader. This will enable you to look at your shader and know what you're up to if you're not working on it straightaway, for example if it's a week down the road. It'll make life easier especially when you start spraying parts. Think of it as working from big to small with your initial shaders taking on the biggest, known amount of planned parts. You'll probably add pieces to your model later down the road, and you can plop those new parts in a new UDIM with a corresponding shader name. That shader might have a name that describes what that part is as it's an addendum.
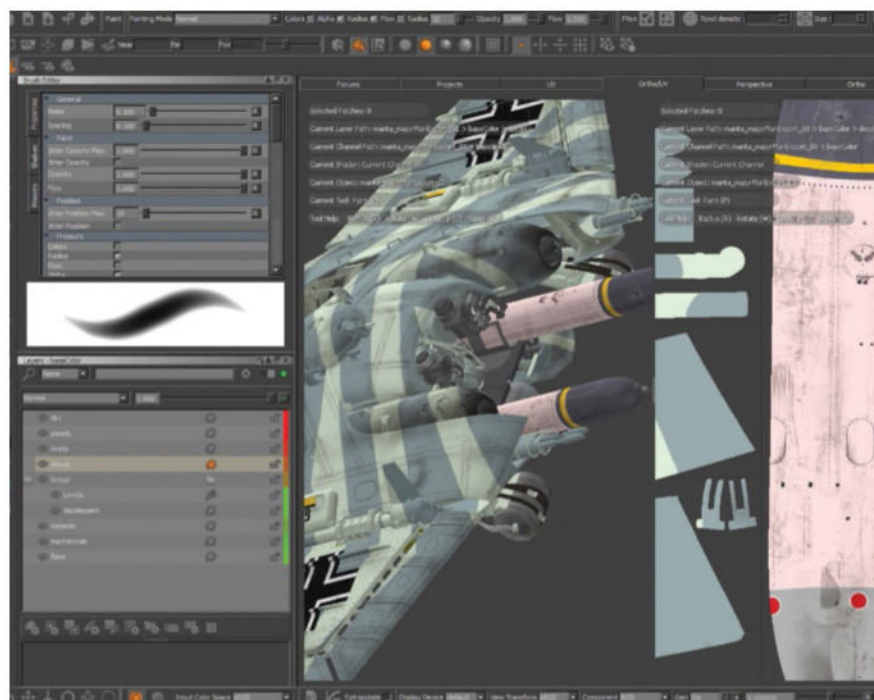
12 **Paint it** Once everything that you want paint on has UVs, save an OBJ and send it to KeyShot. You can certainly stay in Maya and play with mental ray – we prefer KeyShot as our first try, since it's so fast and we're only dealing with a still for the project. Remember, the sooner you can get feedback from your final renderer, the sooner you're troubleshooting and directing your paint and maps. Get in there! Now you have a working model that lives in Maya, KeyShot and MARI. You can test as you paint. Use MARI's channels and layers to build up all kinds of different aspects of your paint job. For the sub drone, we have used a base colour layer, a camouflage colour layer, a mechanical parts layer, a dirt layer, a decal layer and a scuff layer. With the controls in MARI, which are not dissimilar to Photoshop, you can achieve a look that you're confident in during paint application. Once you're done getting a fresh pass of paint on your model in MARI, save out your baked maps that correspond to your similarly named shaders in KeyShot and Maya. For instance, your output from MARI for a texture might be 'uv1001_DIFF_01.png'. This is for your parts living in UV space 1001, it's a diffuse colour map and it's the first version should you decide to change it. It's clear and short. No need to muck around with where the part lives on your model, just think about where it lives on your shader.

"Use MARI's channels and layers to build up all kinds of different aspects of your paint job. For the sub drone, we have used a base colour layer, a camouflage colour layer, a mechanical parts layer, a dirt layer, a decal layer and a scuff layer"

13 **MARI paint templates** Get out in the world and sniff out what you're painting. Google is great for getting you in the ballpark, but once you get a feel for what you are after, get a camera and snap away. If you have a DSLR, shoot textures with a long lens in flat light and harsh shadows. Remember that Dropbox folder you set up? Use it. Get these maps in there. For a vacation, we went to Pima, Arizona and shot a bunch of airplanes from a number of eras in time, then went to a submarine in the San Francisco Bay and shot a bunch of nautical parts, including the torpedo. Doing things like this gets you outside and exposes you to other relevant parts of the types of things that you clearly already have an interest in. Make a directory in your local drive and keep your favourites handy, then drag them into the Image Manager in MARI to use as paint templates. You will begin to have a very intimate relationship between the cloud and your local workflow.
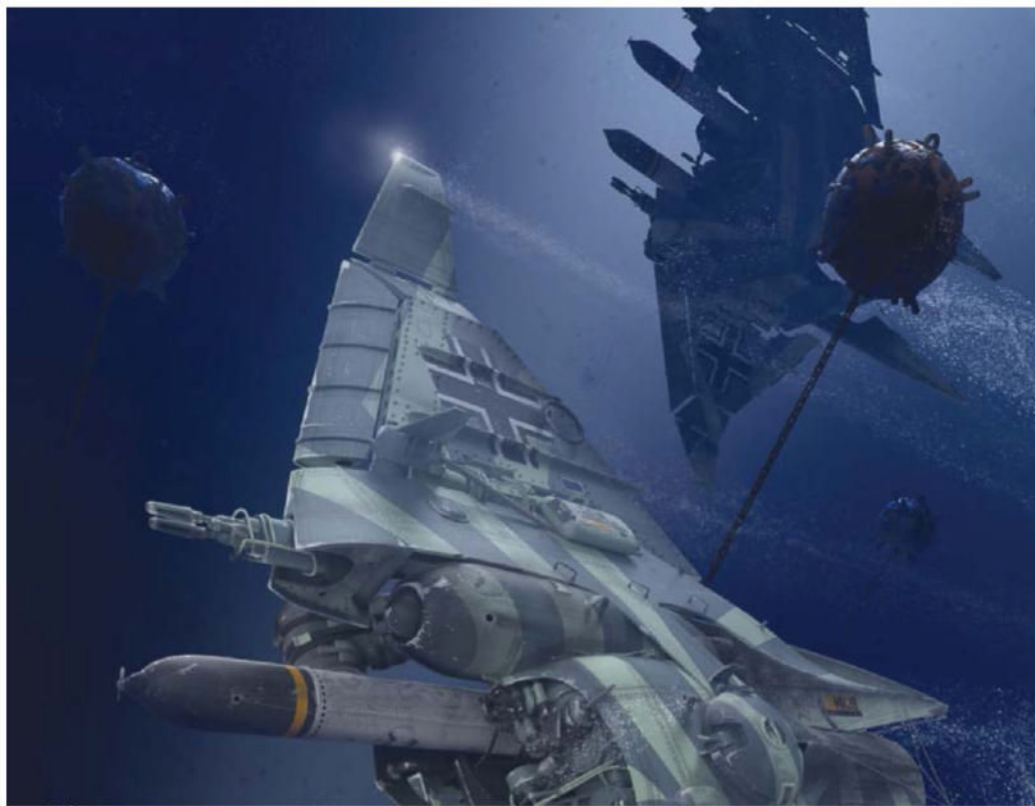
14 **Render it** We chose KeyShot for this render. There are some controls in more sophisticated render packages like V-Ray (which has reflection colour and shader layering, for instance), but for a still, KeyShot is plenty good, with some compositing of different renders done in Photoshop. The image is composed in an aspect ratio that will fit into the page of this bookazine – when rendered at 4,000 pixels high and at 350dpi, this 4K resolution is perfect for us. Lock your camera before you render and save your progress. You'll be able to return to the camera and render out different passes with different maps in the future. For this tutorial, we rendered a diffuse colour pass, a metallic pass, a black material pass with some broad shading, and that was it. Render out some PNGs with a transparent background for all of your compositing purposes.

Lookdev swatch

I was in an automotive finishing shop recently and was very interested in what looked like a wall of shoes in an athletic store, only the shoes were duplicate shapes of concave and convex surfaces painted in a variety of different colours and coatings. They were essentially 3D paint swatches right in front of me! 'Brilliant!' I thought. Each shape was a collection of common forms and their transitions that can be found on a car. I'm sure there's a name for this thing, but I wanted to make one for my own testing of materials on the computer. So I came up with a simple shape, made some UV maps and set up an environment scenario for it to live in. I tilted the shape so I could see it from a number of different angles in one turntable. Voila! My little lookdev swatch project was finally born! It's like the teapot of old, only mine has lots of hooks and whistles that have been set up in order for my shader work to behave predictably. I don't have to think, I just have to paint, render, adjust some settings and send a turntable overnight for motion tests. I used this method when it came to working on the torpedo!
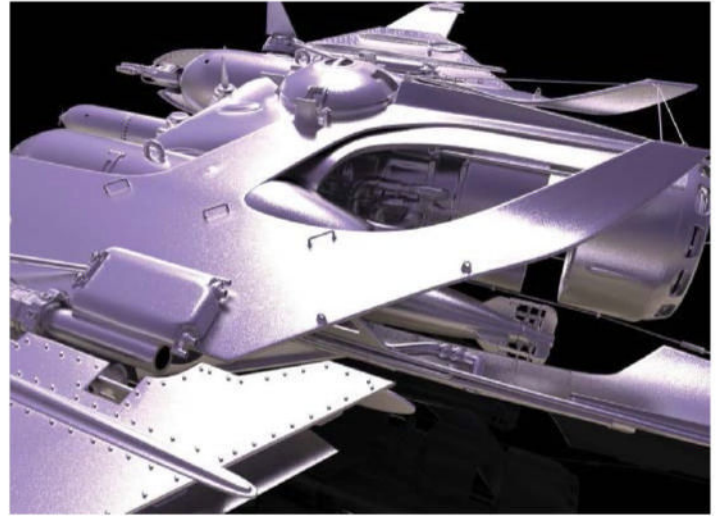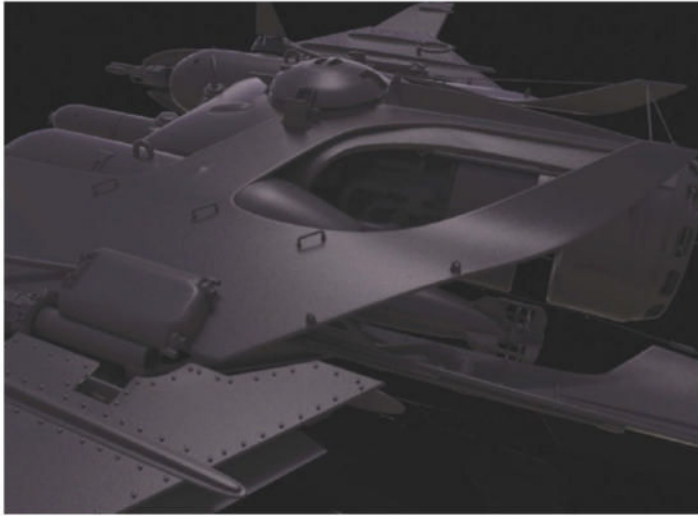
15 **Comp it** For your final image, try to put your model in a setting that helps convey what it does. Sure, a blank background is sexy, but when you do this you're suggesting that the viewer only considers the object. They may ask themselves, 'Am I to decide if this is a good collection of shapes or a well-built model?' This is fine, but you have the option to give them just a bit more and say to them, via a background, 'this is its story'. We referenced offshore speedboats as seen from a helicopter for the final image, showing the sub drone in its cruise mode prior to splashing down for the hunt. The document is the size of the render and all the renders have been brought in, setting each with a layer mask. We can now paint in the detail we need from each layer over the diffuse colour pass. The water is a blurred photo, adjusted to match the sub drone's lighting. Once the comp is done at a reasonable level, we merged the visible, desaturated layer. Then we used the Overlay Transfer mode to marry the background and sub drone. A vignette further marries the two.

World creation

Your design or model will have some reason for existing. Because it exists in a particular time and place, you can springboard off of existing things of that era, and invent new ones that serve to support your new entrant in that place. For my sub drone, I sketched some elite divers and modelled custom rolling racks for loading and unloading both armaments and the drones onto catapults on ships. Because the navy didn't have aircraft carriers, they'd retrofit cruisers and battleships with the steel catapults. I also researched mines and designed some minefield layouts. You could go on and on with more parts.

"We used the Overlay Transfer mode to marry the background and sub drone. A vignette further marries the two"

Concept

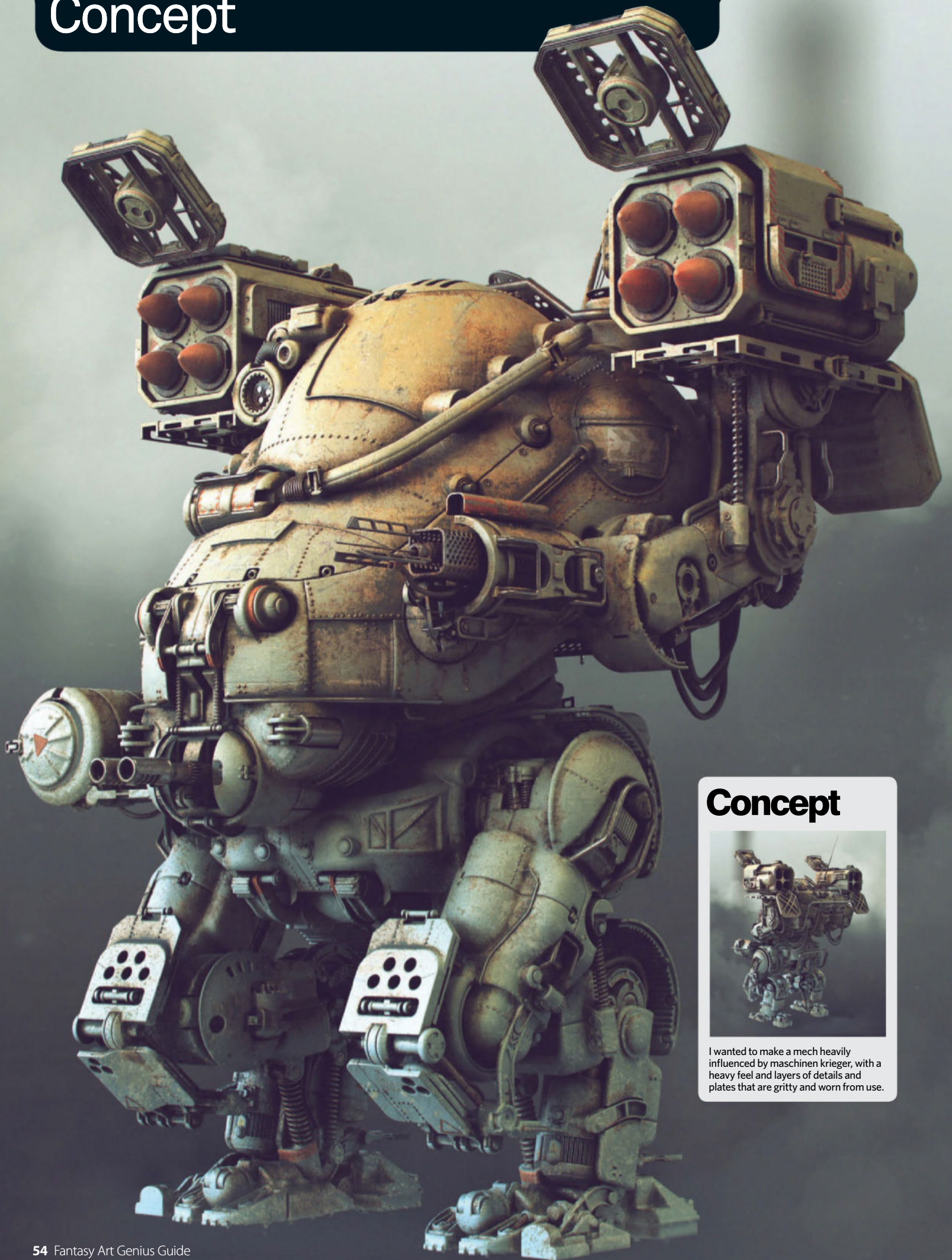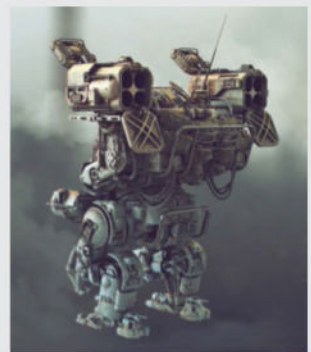I wanted to make a mech heavily influenced by maschinen krieger, with a heavy feel and layers of details and plates that are gritty and worn from use.

Kitbash and model a mech

Build a semirealistic render, showing off the design of the mech

In these steps we will give an overview of some of the main steps taken when building complex mechanical models from the idea to the finished product. We will explain the thoughts behind the choice of workflows and why we do things in our chosen order. The focus is on kitbashing and quick detailing, and how to avoid the pitfalls that normally come with these workflows. For example we will teach you to use kitbashing extensively while avoiding a repetitive look. We will also show you a process for quickly adding decals and custom text to our meshes. We mainly used MODO 901 and Photoshop for this model, but most of our steps are not program-specific and are adaptable to almost any workflow.

Artist
Tor Frick
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I am 3D generalist working in the videogames industry as an art director. I spend most of my time talking, studying or making 3D in different ways, preferably involving sci-fi and machines.

Software
MODO, Photoshop, Marvelous Designer

Source Files
On FileSilo you will find all the source files you need to recreate this incredible artwork.

Assemble your mech
Identify potential kitbash pieces
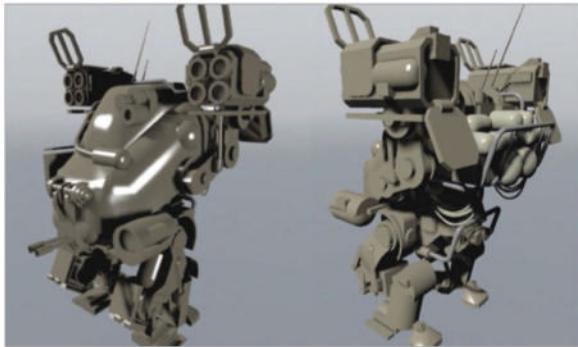
01 Create the blockout This might sound like a no-brainer, but it's worth mentioning. The foundation to a good workflow starts with a good blockout. It's good to identify kitbashing methods and pieces as early as possible. By finding reoccurring shapes in the blockout, we can plan our kitbashing elements ahead. For example in this model we have relied on cylindrical elements, hinges and different kinds of rails in the detailing and construction of the mechanisms.
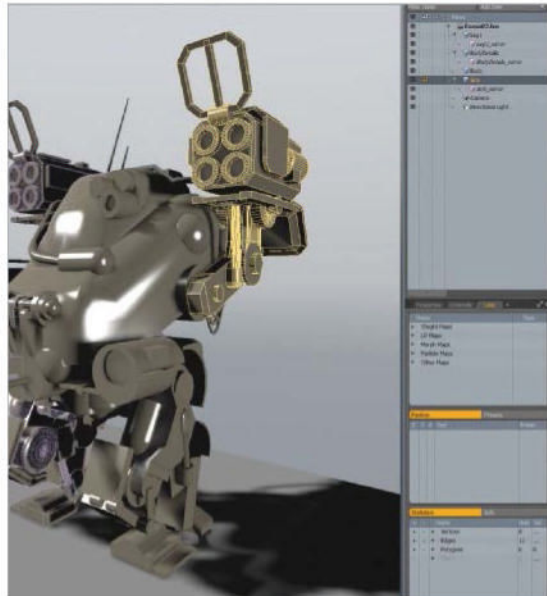
02 Set up the scene When working with any kind of complex model, it's good to take the time to set up a solid scene structure, as well as things like mirrored instances. A good method is to have the instances and mirroring set up correctly from the start, so that we can see the end result of the model at all times. It's also good to set up animated parts with test animations, so that we can make sure that things work the way we want them to without accidentally ruining mobility or functionality.

"By finding reoccurring shapes in the blockout, we can plan our kitbashing elements ahead"

03 Assemble kitbash pieces and details Using the blockout as a base, we can identify possible kitbash pieces as well as find the style for the detailing. Create a decent number of kitbash pieces that you think will be enough to cover most situations on this model. Throughout the modelling phase keep adding to the kitbash library as you will find reuseable elements while building. Try not to create details that are too specific with the pieces so that you can reuse them easier.

Concept

04 Set up core materials and colours Set up the core materials early on – this enables us to keep track of how noisy the final model will be visually. This allows for easier focus on the modelling and a better distribution of the elements because we will be able to catch cluttered or drab areas earlier. It also speeds up the texturing and shading process, since the majority of the materials will already be in place. It also saves time since we will be copying and pasting a lot of elements around.
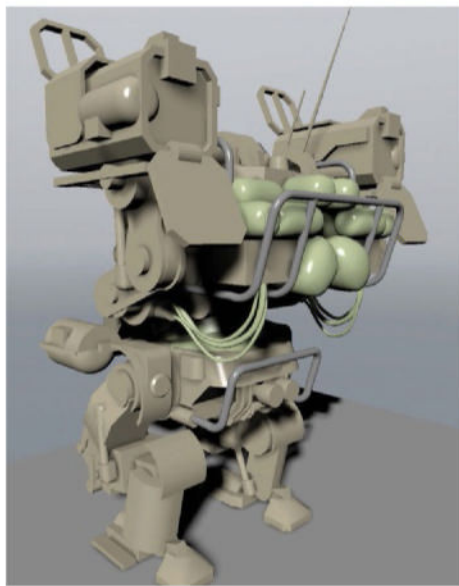
Reusing elements

If you are working on a series of models that are sharing the same underlying design principles or style, kitbashing is even more efficient. Reusing elements between models and constantly growing your library helps maintain a visual style as well as speed up the detailing process. A good habit is to dissect your model after completion in search of good kitbash elements. It's easy to forget once you are done with something as you just want to finish working on it, but it's worth the time.

05 MeshFusion base elements For some of the main elements of the model like the cockpit, use MeshFusion to iterate quickly on the large shapes instead of on a traditional mesh. MeshFusion works best when you have large complex shapes and forms that do not need to match an existing design. It allows for very quick experiments with shapes such as this. Spend some time experimenting in this stage, deviating from the original idea a bit to see if we find something new since the iteration speed is so fast. The rest of the model is hidden for clarity.

06 MeshFusion polish After getting the base shapes right, convert the MeshFusion to a schematic fusion, which enables us to do a few more complex things like layering the fusions on each other. Spend some time adding additional detail to the MeshFusion as well as cleaning up the angles and setting up the correct hardness of the intersections. Add all the large and medium-sized shapes needed for this part of the model – basically, add everything that needs large, soft transitions. Leave finer details out of MeshFusion entirely.

07 Freeze the fusion After we are done with the MeshFusion modelling, freeze a copy of the fusion mesh and start to model with that as a base. We do this because MeshFusion can get quite sluggish when you abuse it too much with many separate pieces. Separate the mesh into pieces, like the cockpit lid and the base, and start to do more detailed modelling and panelling on it. Use MODO 901's new cutting and capping tool to create quick panels and seams in the mesh.

08 Main modelling stage This is the biggest chunk of work for the model. Go through the entire model and model out all the main elements, or replace blockout parts with kitbash pieces, then do a detail pass using the kitbash pieces and flesh everything out to a near-final state. After this step, the majority of the mech has been modelled. During this stage we used a lot of Booleans in the modelling, combined with reused parts to speed up the process. It is during this stage that it's easiest to find new material for the kitbash set.
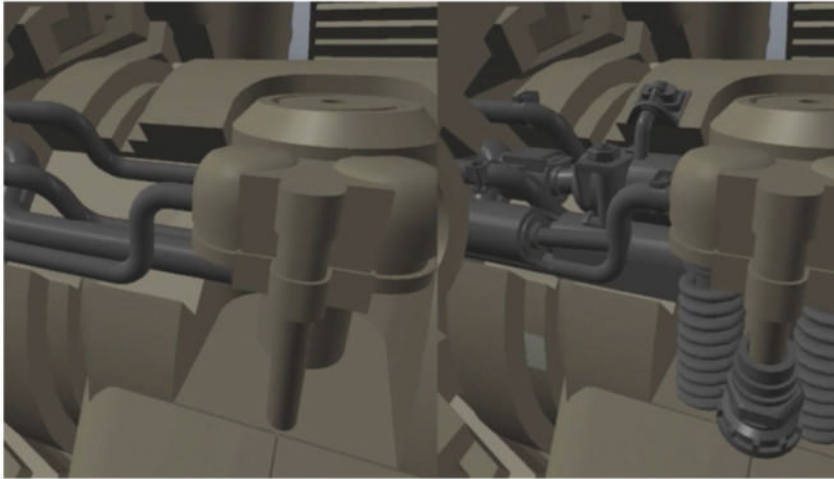
09 **Kitbash filler** For areas that are hard to see, or out of focus, kitbashing can be a great time saver. Sometimes you need to fill large holes or areas with details, but doing them all by hand can be time consuming. A few areas of the mech could do with some more filling out, so just reuse existing parts (since this is not an area you will see all that well) – making it fit together is not so important.

"Before we do the very last detailing step with floating details, we need to create a small selection of details that we can clone out over the model. A selection of rivets and different small insets is more than enough"
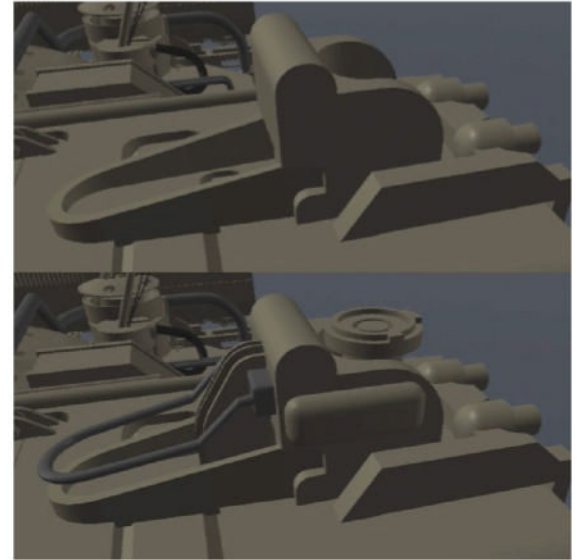
10 **Cover up the kitbashing** Once we have used the kitbash pieces everywhere, it starts to look overused and you can spot the repetition if it's not hidden well enough. Always take a quick pass to change some of the more obvious reused ones by adding or subtracting elements from them. The majority of the touchups we do includes rescaling parts of a kitbash element or just deleting parts of it, or covering/adding to it with some additional simple shapes. Most of the time, simple changes are enough to get away from repetition.

11 **Sculpting and cloth** To break up the monotony of the metal surfaces, it's a good idea to introduce some cloth and additional equipment (like bags for example). Parts of the cloth is sculpted in MODO by using the sculpting tools, which are great for quick, basic sculpting. For the more complex parts like the bags, we used Marvelous Designer combined with some quick shapes to simulate bags with packing in them. They are then instanced out in MODO so that the file does not explode in size.
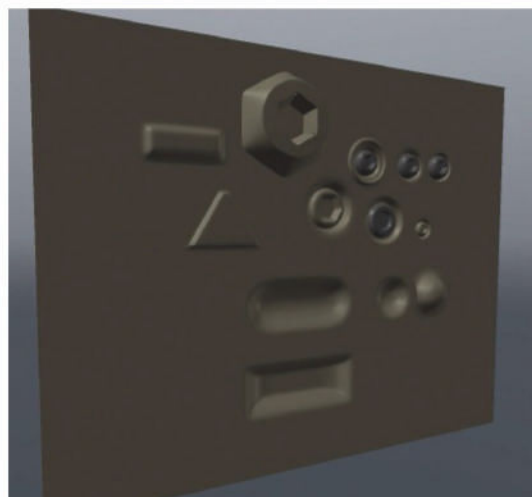
12 **Set up the floaters**
Before we do the very last detailing step with floating details, we need to create a small selection of details that we can clone out over the model. A selection of rivets and different small insets is more than enough for this model. A good trick is to give them their own material, so that you can easily mask them out if needed.

Do your UV maps earlier!

If you are aiming to texture and render the high-poly model properly, make sure to UV your kitbashing pieces before you start redistributing them in your model. That way you have already done UVs for a large part of your model from the get-go. Even if you alter a lot of the geometry later, the base unwrap still carries over.

Rendering floaters

One problem with using floaters in renders is that if used incorrectly, or too aggressively, they can become quite obvious. There are a few ways to minimise their impact in the render. One is to separate them to their own layer and turn off shadow casting. If you render an AO layer in MODO, do it using an occlusion node instead of the AO render output – this method creates a fake and faster AO that doesn't highlight the floating details.

13 **Fine detailing** This is the final detail pass where we add the rivets, small details and so on. The reason why we do this so late is because it can make or break a model. Sometimes it's hard to know what you have until this the model is almost complete. We do not want to create overdetailed areas, or cover areas of rest with small detail. The Tack tool and Clone tool are your best friends when it comes to placing detail meshes in MODO.
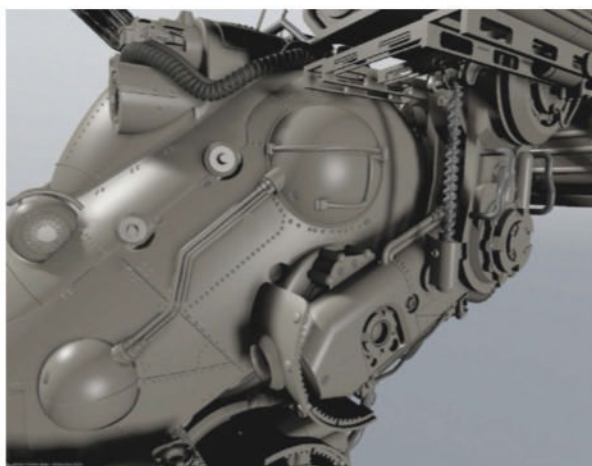
14 **Set up the decals** The same way that we set up kitbashing elements earlier, set up a number of decals that we can combine: a few generic warning signs, some numbers, as well as some custom decals. Create these as separate mesh planes with a texture so that you can place them more easily using the same tools, the same as when placing the mesh details.

Decals

An alternative way to create the decals is to have a decal sheet as an image only, and then camera project UVs from the viewport onto the decal sheet. That way you do not have to bother with planes for the decals, and it can make things easier.

> " We do a lot of the colouring by just tagging materials instead of adding textures to the model, saving us a lot of time"
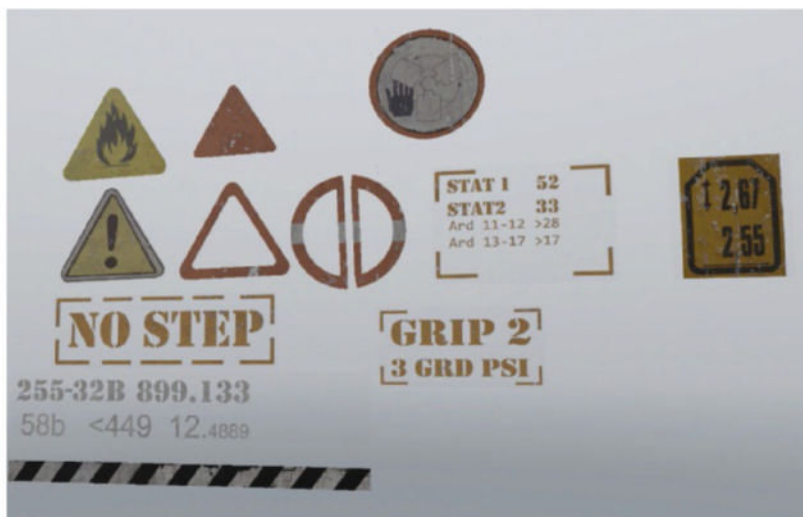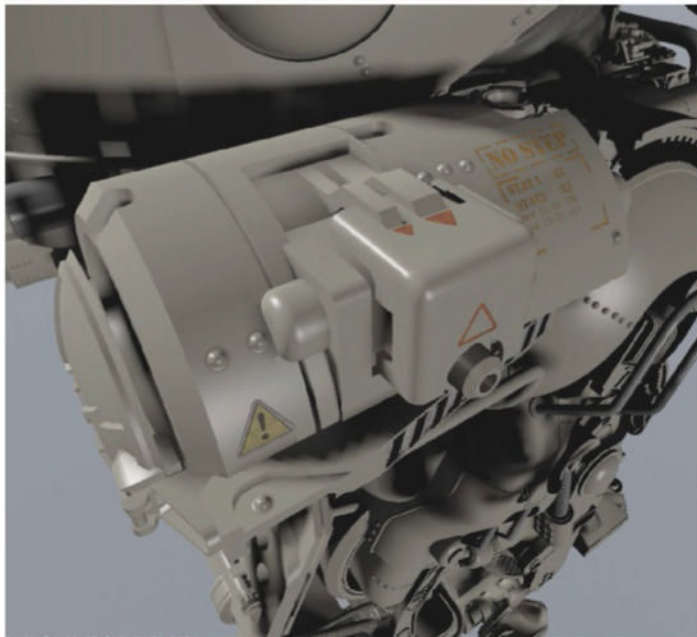
15 Place the decals and text The same way that we were holding off on adding the small detailing like rivets and so on, we hold off on adding decals until the end. We don't want to end up with a cluttered model with too many decals in obvious copied-and-pasted locations.

16 Set up materials Set up some instances of the materials so that you can easily create more colour variations without having to create new base materials from scratch. We do a lot of the colouring by just tagging materials instead of adding textures to the model, saving us a lot of time when doing quick designs. Do not be afraid to create extra cuts and lines in your model only for the purpose of assigning colours. The main colour variation in the mech comes from material instances only. A simple tiling Bump map and diffuse texture are all that drives the main material.

17 Postrender tweaks After rendering out the model, we take it into Photoshop for some quick touchups to get our final image. A quick trick is to render out an ambient occlusion layer and multiply that, combined with a colour to get a very basic dirt pass for the render. To get away from that artificial look, play with the layer blending and manually mask away parts where the AO is too strong. A few quick material overlays can get you a long way.

Character

From magical to steampunk

106

94

100

82

114

126

88

Create a convincing cartoon character

Render a charming cartoon pin-up, prepare a hairstyle and complement a scene with organic ornaments and lighting

This tutorial covers a basic workflow used for creating a female cartoon pin-up, it covers areas such as a basic way to start a model and important ones such as creating hair. While there are tons of different methods, here we show you a quick and flexible way to define a hairstyle without worrying too much about technical aspects so you can focus more on the shape, silhouette and other creative aspects. We will work with Maya, Mudbox and Photoshop, but most of the technical aspects and all of the artistic parts can be done in any other equivalent software.

> "If you get the shape of the head you want with a small amount of geometry and a smart topology it becomes easier to predict when and where to add or delete new edge loops"

01 Model the head Starting with a 4x4 plane we start by creating the edge loops that will become the main areas of the face, such as the eyes, mouth and nose. The eye sockets are just circular extrusions and the mouth consists of two circular extrusions: 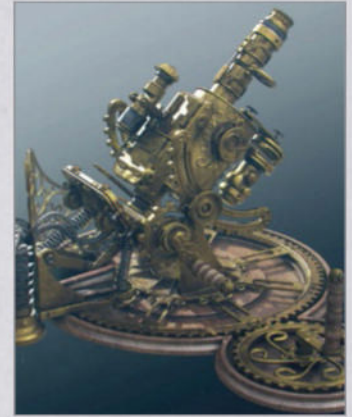an outer one going around the mouth up to the nose bridge area, and an inner extrusion that will become the mouth and lips. At this point it is useful to have a sphere to serve as an eye placeholder – it will also help us to build and define the eye sockets around it.
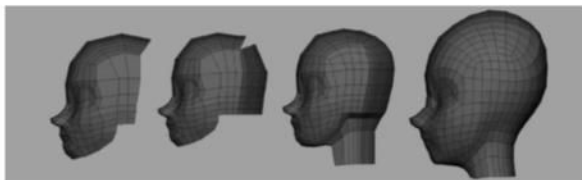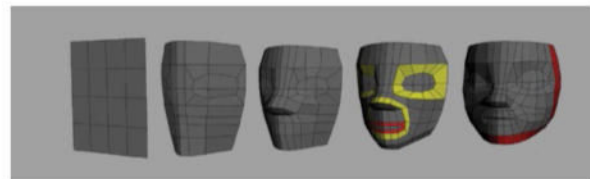
02 Close the head By extruding the border edges of the sides and the bottom of the head we will get the polygon flow that will define the jawline. Now extrude the edges of the sides and the top to the back of the head, this will leave room at the bottom to extrude the neck. You can close the head by extruding the edges of the back and merging the vertices to the top of the head – just think of the shape as a smoothed cube. Then extrude the hole in the bottom of the head to create the neck. Using the Sculpt tool, smooth the new edges to get a round shape.

Take control of every vertex created

A common error is trying to get a lot of detail from the start, if you get the shape of the head you want with a small amount of geometry and a smart topology it becomes easier to predict when and where to add or delete new edge loops. That being said, don't be afraid to add new edge loops for further detailing without the fear of losing the shape you already had. Tools like Edit Edge Flow, the Slide Edge Tool and the relax and smooth operations in the Sculpt Geometry tool are really powerful for smoothing out an organic, dense mesh.

03 Model the nose and ear We create the nose by adding a face loop in the nose area. The ear is modelled in parts, starting with a simple row of polygons shaped as a spiral section. We don't need a fully detailed ear for this character – modelling a simple, suggestive antihelix and the inner ear is enough to get believable cartoon ear. By deleting some faces on the head and leaving the same amount of edges in the hole and in the ear border, we can attach it to the head using a Bridge operation.
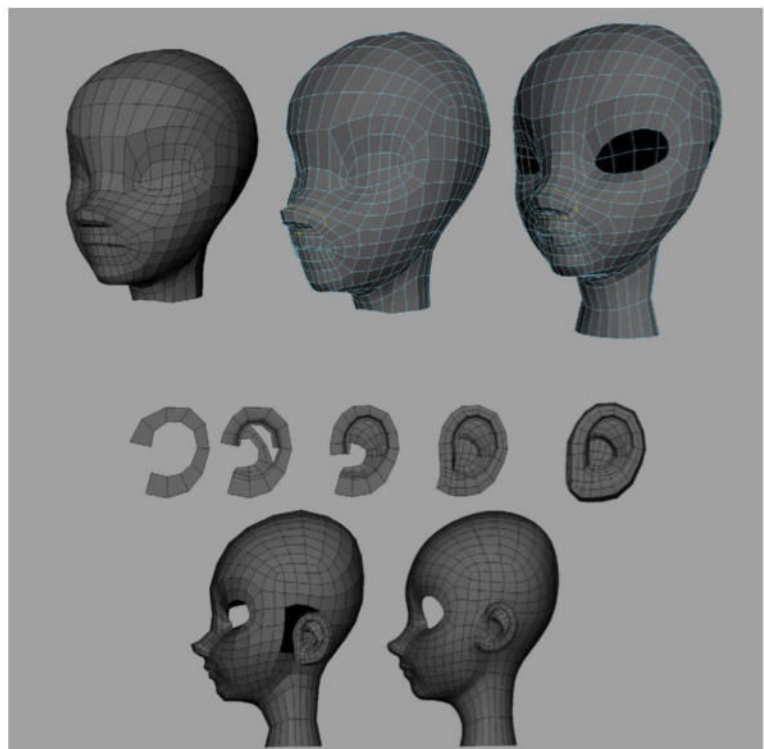
Concept

I've always loved the elegant mix of organic ornaments and fabrics that are frequent in the art nouveau style, this was in part inspiration for this piece, which started out originally as a quick sketch.

Artist
Carlos Ortega Elizalde
carlosortega.prosite.com

Carlos is a 3D artist who has worked on various freelance projects including several M&M holiday campaigns.

Software
Maya, Mudbox, Photoshop

Source Files
On FileSilo you will find the 3ds Max scene files and tutorial screenshots to help you complete this tutorial.
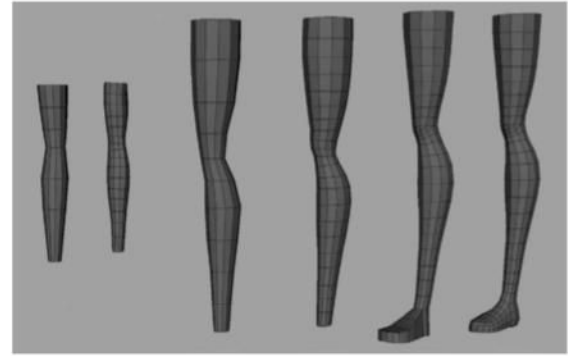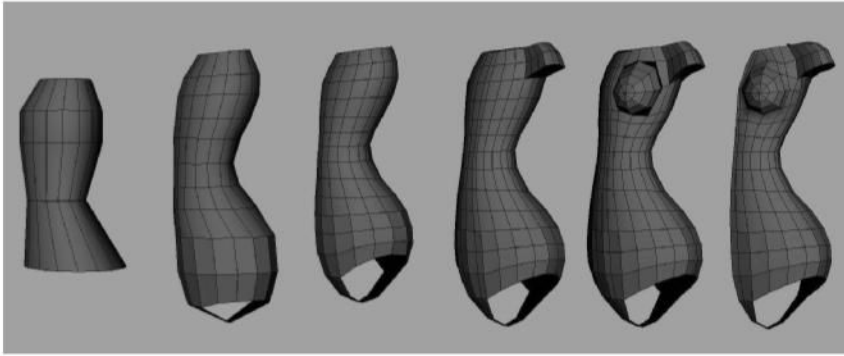
04 **Build the torso** The main shape of the torso is basically a cylinder. With a few divisions we start to block the base of the neck, the shoulders, the waist and the hips. With those areas defined it's easy to start adding divisions to the rest of the piece, as well as extruding the shoulders. The breast area is just a section of a 8x8 sphere attached in the front, slightly below the shoulder's height. We close the bottom area by creating a bridge with the central edges in the front and back, this will leave the holes for attaching the legs later.

05 **Build the arms, legs and feet** The arms and legs are cylinders too, but with the edges extruded. The main areas and widths that we want to define here for the arm are the biceps, elbow, forearm and wrist; and for the leg the width of the thigh, knee, calf and ankle. For both parts always check from both views to get the desired shape. Once we have those sections blocked we can start detailing by adding more divisions. The foot in this case is created by closing the bottom of the leg and extruding the front faces, we don't need toes since our character will have shoes.
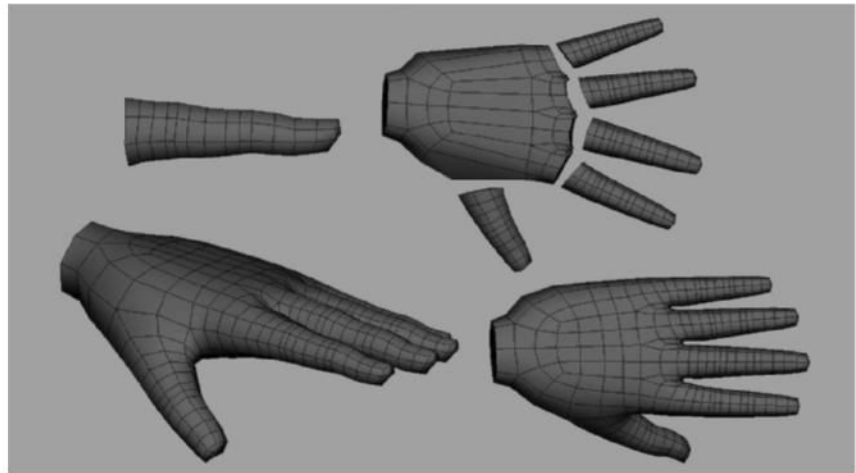
06 **Model the hands** Starting with a cylinder we create a base finger. The palm can be started from a cube with enough divisions for attaching fingers later. It can come in handy too, when adding the skin, to leave space between each finger. Duplicate the finger and place them around the palm, scaling each one to its proper size. Then attach each finger to the palm, using a Bridge or the Merge Vertex Tool. The base topology is really basic, so focus more on avoiding a blocky shape by sculpting or tweaking vertices using a soft selection.

07 **Merge the pieces together** Attach all the limbs to the torso, and smooth out the joins if needed. Add some clavicle detail on the body since it is a part of the body that will not be fully covered by cloth. For the final eyes we start with a sphere, extruding and sculpting the bulge on the front that is useful to catch highlights pleasantly. The iris and pupil is just a concave disc placed inside the outer eye, by using a transparency map it will enable us to see through the cornea inside the iris.
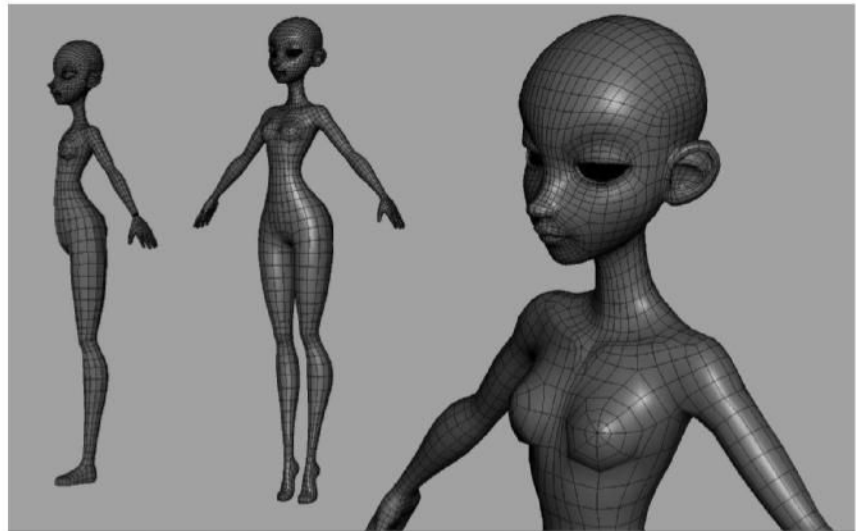
08 **Make the dress** We create the dress by using a duplicate of the body, this way we will make sure it will fit with no major effort. The upper part of the dress uses the geometry of the waist up to the shoulders, and the skirt itself will come out of the hips' geometry. Once extracted, we need to get rid of the breast details and close the dress more naturally. The cloth extension is just an extrusion of the bottom half of the dress, going back and up to connect to the opposite side of the dress at the hip's height.
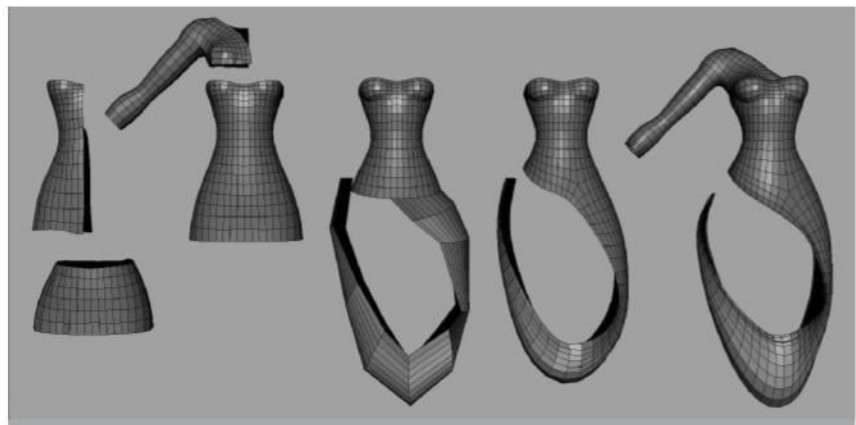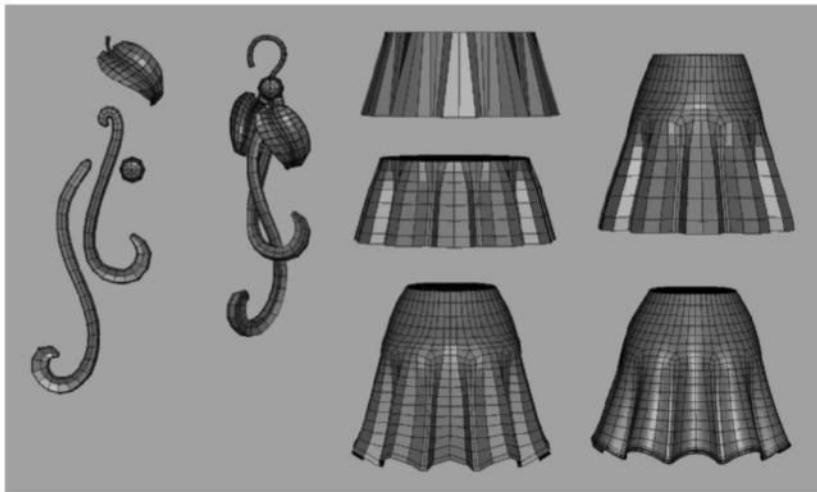
09 Add the skirt and accessories The skirt is created in two parts, the folds can be easily created by using a cylinder and pulling out vertices to create the folds. After extruding and shaping the bottom part of the skirt attach it to the hip's geometry that was previously extracted from the body. The shoes are created using geometry from the feet, and then building them around the foot. For things like earrings and hair ornaments, model the elements and then combine them to create each accessory, this adds a consistent style by having repeating patterns across the model.
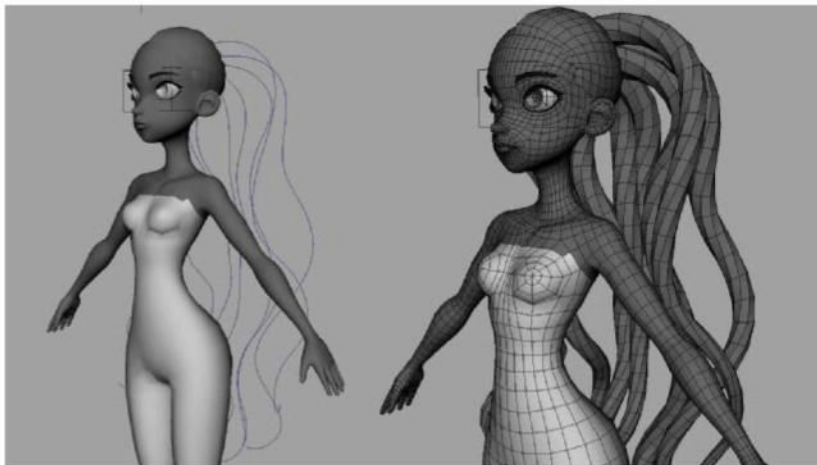
10 Build the hairstyle The hair here is divided into two parts – one covers the skull and the other is formed of long strands in the back. For the calvaria we can start with a sphere and delete the poles to easily get the basic strand shapes coming from the forehead to the back of the head. Keeping the topology as grid patches is pretty useful for converting later to a Maya hair system. For the long strands of hair in the back draw the main shapes using CV curves. Then, build eight blocks of hair by extruding a circular plane along the curves.

11 Detail the hairstyle Use the taper and twist functions in the Extrude options and sculpt the resulting mesh to get variations in volume and shape. Now extract the curves that will serve as guides for the hair. Select the Edge Loop and go to Modify>Convert>Polygon Edges To Curve. You will need to do this for all the necessary curves. There are free scripts on Creative Crash that can automate this process. Too many curves can lead to a heavy system and too few curves can force you to grow wider clumps with lots of hair to fill the gaps, and this will hence lose the silhouette of your hairstyle.

12 Finish the hairstyle Next step is creating two hair systems, one for the head and another for the long strands. Select the head curves and go to nDynamics>Hair>Assign Hair System, then assign a PaintFX brush to Hair. Now you can adjust the clumps' width and shape, hair thinning, number and width of hairs per clump, and hair shading. Keeping the original mesh of the hair without deleting history in the curves lets you modify the polymesh directly to tweak the hair and transfer those changes to the hair system. By default the hair gets dynamic properties, and you can change it to static for a still image like this.

Plan the hairstyle

You can easily block the hair geometry using polygons by thinking of hair as broad shapes or clumps instead of hundreds of individual elements. By keeping a 'grid' or 'patch' topology on the geometry of the strands, it can lead to different styles of output depending on your needs. You can use the geometry to get an appealing cartoon look, use transparency and bump maps to get a more detailed look, or create curves from the geometry to grow a more complex and dynamic hair system.

13 **UVs and texturing** The improved unfold tools in Maya will let you unfold the body and cloth meshes easily, one UV tile per material will work great for this model. Moving to Mudbox, paint the textures of the character. You can start with a skin colour base and add yellow, orange and pink tones in the nose and ear areas, and purple tones in the eyes. Using references is a good way to know where those tones suit better. Now paint more maps such as a deep Scatter, Specular and Glossiness map. We will plug those to our skin material.

Getting a graceful silhouette

Learn to observe everyday life and how the human body acts, balances itself and moves so you can start to create natural and balanced poses that pushes limits in a believable way. Here, the shoulders tilt in the opposite direction to the hips to compensate the weight. The pose is almost an S shape, something playful and flirty yet balanced. Along with the flow of the shapes of the dress, it can help you to get a solid composition and guide the viewer from the face, down to the fabric on the ground.

15 **Detail the model** Once posed, send the character and dress to Mudbox for detailing to fix the weighting and volume loss for a more natural bending in the elbows, fingers, neck and knees. We subdivide the dress a couple of times, sculpt the foldings in the fabric and fix interpenetrations between elements. Most of the silhouettes of the objects were solved with pure polygon modelling, so at this point, bake some normal maps of the cloth to get all the folding details. Then export all the elements with one level of subdivision to save some render time and avoid the use of displacements.
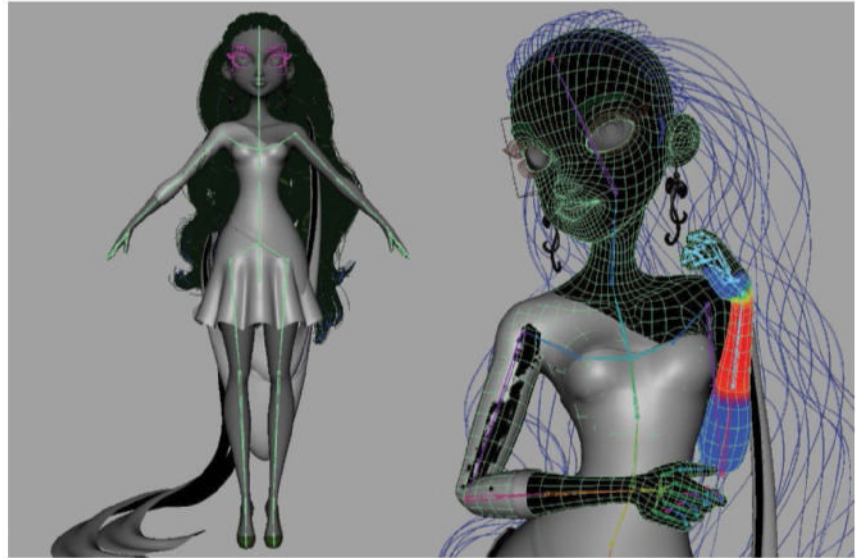
14 **Pose the model** Create a basic skeleton in Maya, drawing the joints from the hips up to the tip of the head, then legs and arms. Using the Snap to Projected Center feature will enable you to easily create the joints in tricky areas such as inside the arms and fingers. We bind the skeleton to the main mesh using the Heat Map option and Quaternion method, and since it is a skinny character this option works well by default. We can then skin the clothes and copy the influence of the body to the dress.
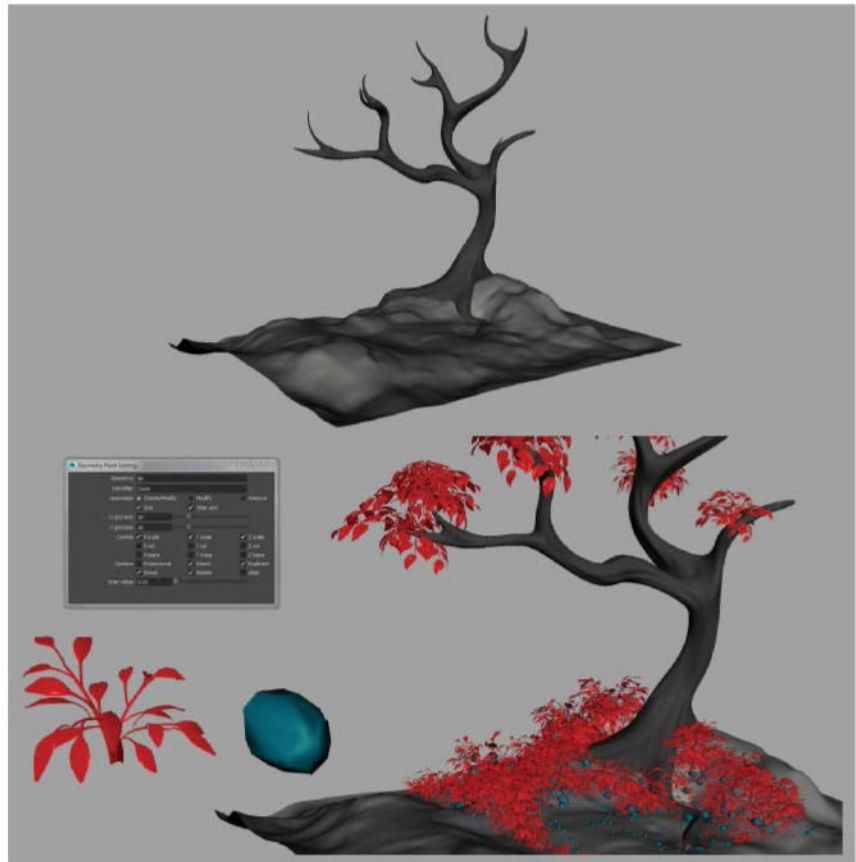
16 **Lay out the scene** To complement the scene we will add some natural elements that will suit the atmosphere and colour palette. We will add a simple terrain which we can sculpt and detail in Mudbox. The tree can be quickly created in ZBrush – we don't need to overdetail the model, since the whole feel of the scene is smooth and more like a fake set rather than a realistic scenario. To fill the ground with details we use the Paint Geometry Tool which you can find in Maya Bonus Tools 2015. Its ease of use will let you quickly grow some plants and throw some rocks on the ground.

17 **Materials in mental ray** This scene uses the mia-material-X, the misss-fast_skin shader and blinn materials. It is useful to start playing with the Scale Conversion option on the skin shader to make it work, since the shader will depend of the size of your object. Plug the textures and be sure to gamma-correct each texture or work your scene with the Color Management option. The fabric material uses some ramps to define transparency and colour, so that it gets more transparent and is at a glancing angle. Use glossy refractions objects, which will become blurred when seen through the fabric.
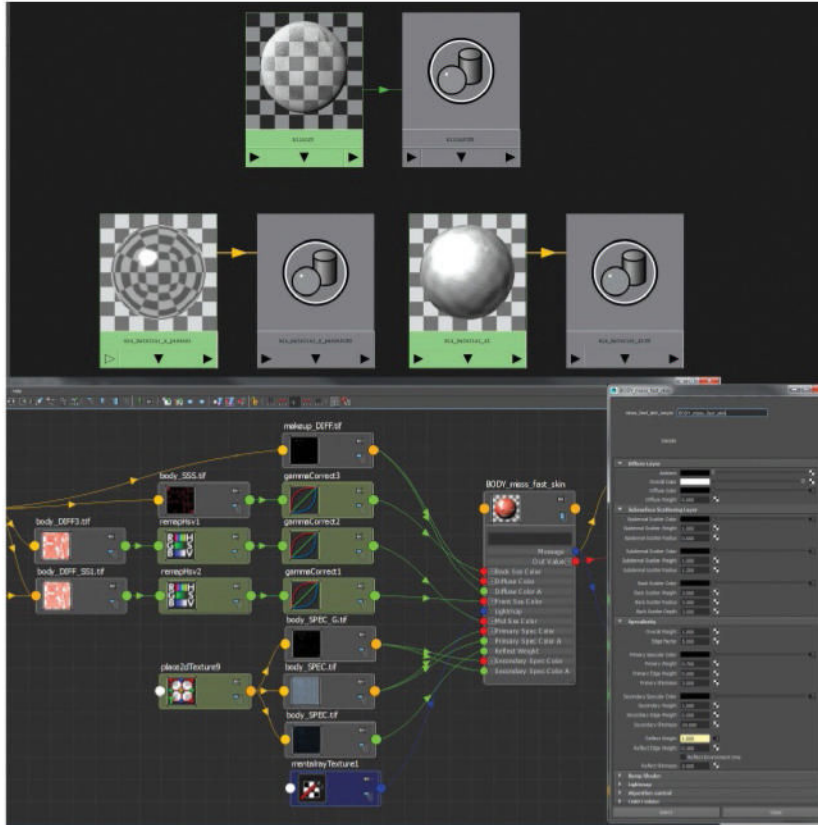
Be curious with the attributes

It can take a while to get a decent look with materials like the skin shader. A suggestion for this kind of cartoon character is to not look for realistic results or fixed recipes of values. Be curious, take your time to do various render tests with default settings and analyse every value by turning it off or changing its value to see the effect on the material. Try to be a good observer of real-world materials so you can replicate them in the future.

20 **Finish the image** Some useful layers to render during image compositing are a good set of masks, a depth pass and in some cases a normal pass. In Photoshop, use the depth pass, and add atmospheric elements such as fog and depth of field (using the Lens Blur filter). The masks are useful for adjusting the colour or exposure of different elements without struggling with selections. We can create light effects by painting with soft brushes and setting layers to a Screen or Add mode. The dust particles are just brushes with high scatter values and different blur settings for a feeling of depth.
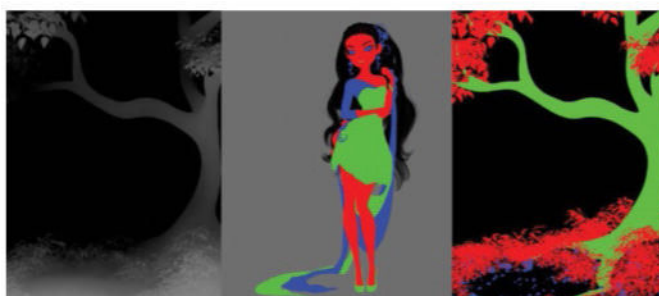
18 **Lighting** The light rig consists of four lights: key light, (spotlight) which gets most of the volumes and defines the main source of light; backlight (spotlight) to get some highlights on the hair on the left side; bounce light (arealight) to fill black areas; and environment light (IBL), which is set to a very low value – it fills the whole scene and casts reflections on the objects with a free blurred HDRI.
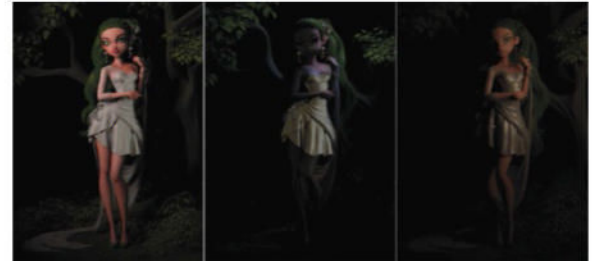

"Learn to observe everyday life and how the human body acts, balances itself and moves so you can start to create natural and balanced poses that push the limits in a believable way"

19 **Rendering** The scene is rendered with mental ray and Final Gather. For large resolution renders like this, it's useful to bake a Final Gather map at a lower resolution and then freeze it to save some render time. By default the skin shader takes into account the resolution of your scene to compute its light maps, be aware of this when doing large tests or final renders. For the same reason, we will render the scenario and the character in separate render layers using a 32-bit EXR format.

Texture distinct steampunk characters

Master the creation of two technically different characters: a steampunk machine-maker and his giant, steam-powered mechanical marvel
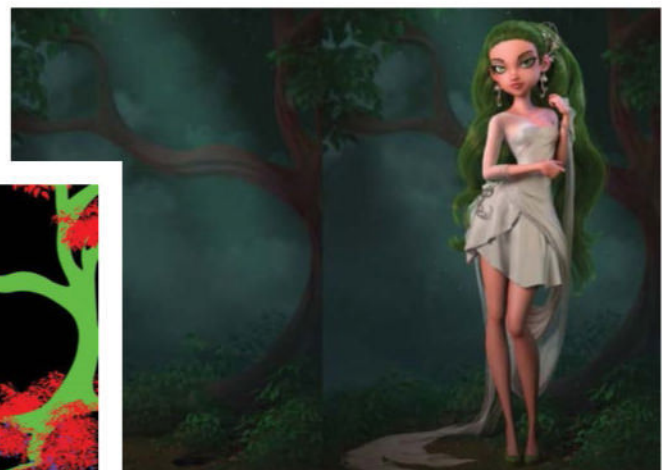
Artist
Aldo Vicente
www.aldo
vicentecg.com

Aldo is a 3D generalist based in California. He currently works at the Medical Tech industry creating 3D Visualisations for Aurora Spine.

Software
Maya, ZBrush, Photoshop, RoadKill, XNormal

Source Files
On FileSilo you will find the tutorial screenshots and a video tutorial to complete this tutorial.

In this tutorial we'll be taking an overarching look at some 3D character workflows. We will go through the process of constructing characters, from basic modelling and sculpting to building textures and materials, posing and rendering. We'll be creating a steampunk scene with two characters that are very different from a technical standpoint. Each character will present us with a distinct set of challenges, which enables us to explore a variety of tools, techniques and workflows. While building our machinist, we'll get to practice an organic character workflow. We'll go over techniques for modelling and sculpting anatomy, clothing and accessories, as well as tools for quickly unwrapping clothes and baking perfect detail maps. Our guardian character will have us work through balancing the character's motion functionality and aesthetic appeal. We will also explore techniques for quickly texturing metals and building convincing materials. Finally we'll build a quick environment and set up our scene for rendering.

Start with a rough pass
Work out your character's shapes

01 Guardian block-in Let's start with a quick, rough pass. This block-in gives us an early look at our character's overall shapes and it's important since our character's proportion, overall feel and personality will get lost between the concept art and the 3D model. By blocking in the full character as quickly as possible, with minimal regard for edge flow, neatness and so on, we avoid wasting time on work that will most likely need to be redone. We can worry about edging and cleaning once our block-in feels like our concept.
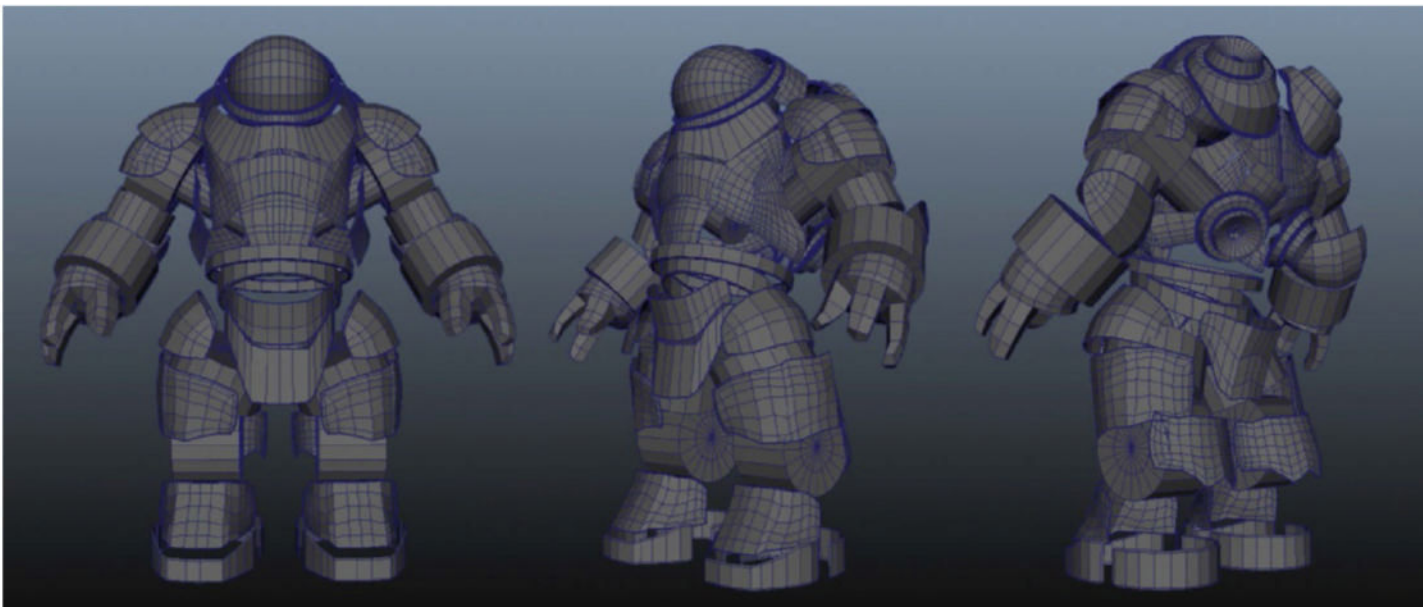
"Hard surface parts can create very rigid-looking forms, so it's important to emphasise the S-curves in our design"

Concept

I wanted to create a Victorian era machinist and his creation; a giant steam engine, built for military defence. The designs are steampunk-inspired, with a heavy industrial emphasis.
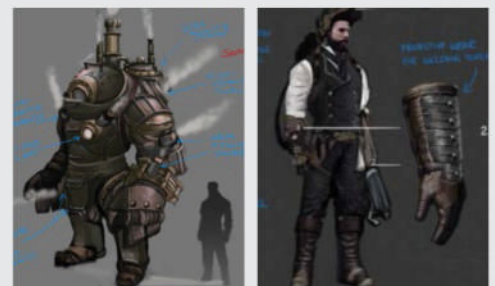
Character

02 **Build our parts library** Now we can start looking at our overall forms and figuring out our individual parts based on the character's intended functions. The best part about working on mechanical characters is that, just like in real-life machines, a lot of parts can be reused. We only need to model out a few types of protective plates and one of each part so that the arm can rotate, twist, bend and so on. This means that we are saving a lot of time in modelling and UV layout while creating a cohesive and believable design.
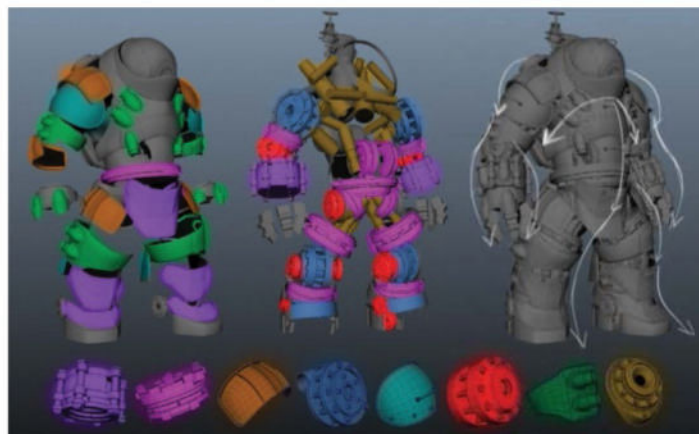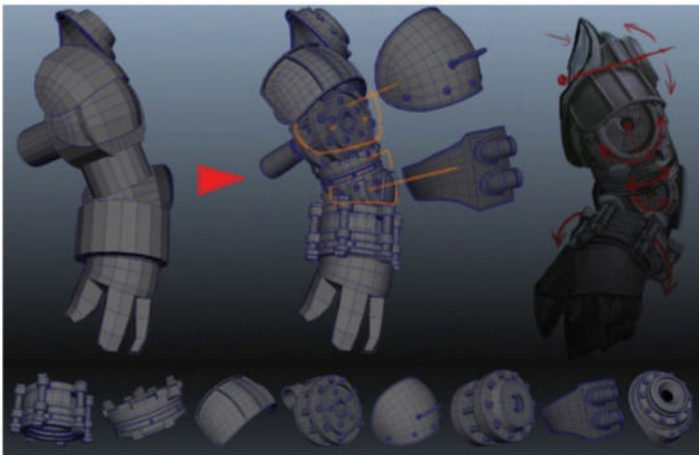
03 **Lock down the look** With our small library of parts and our block-in as a reference, we can start finalising our model. We can duplicate, shift and modify existing parts to fill in the rest of our character. We have to keep function in mind to a certain extent (knees have to bend like knees, for example), but there's no need to overthink all of the internal workings of our machine. Form and silhouette should take some priority. Hard surface parts can create very rigid-looking forms, so it's important to emphasise the S-curves in our design to give our character a lively and natural feel.

04 **Clean our mesh** Neat, well-distributed edges are helpful for UV layout and surfacing. The Sculpt Geometry tool on Relax mode, or the Relax Vertex tool are very useful here. Let's delete the back faces on our guardian's outer plates. This will reduce poly count, save UV space and make unwrapping much easier. Double extrude border edges has tons of benefits; we get a consistent edge loop around our mesh, we create support edges for smoothing and UV-relaxing algorithms, and we're adding subdivision density around our borders to provide more fringe detail when sculpting.

> "Delete the back faces on our guardian's outer plates. This will reduce poly count, save UV space and make unwrapping easier"
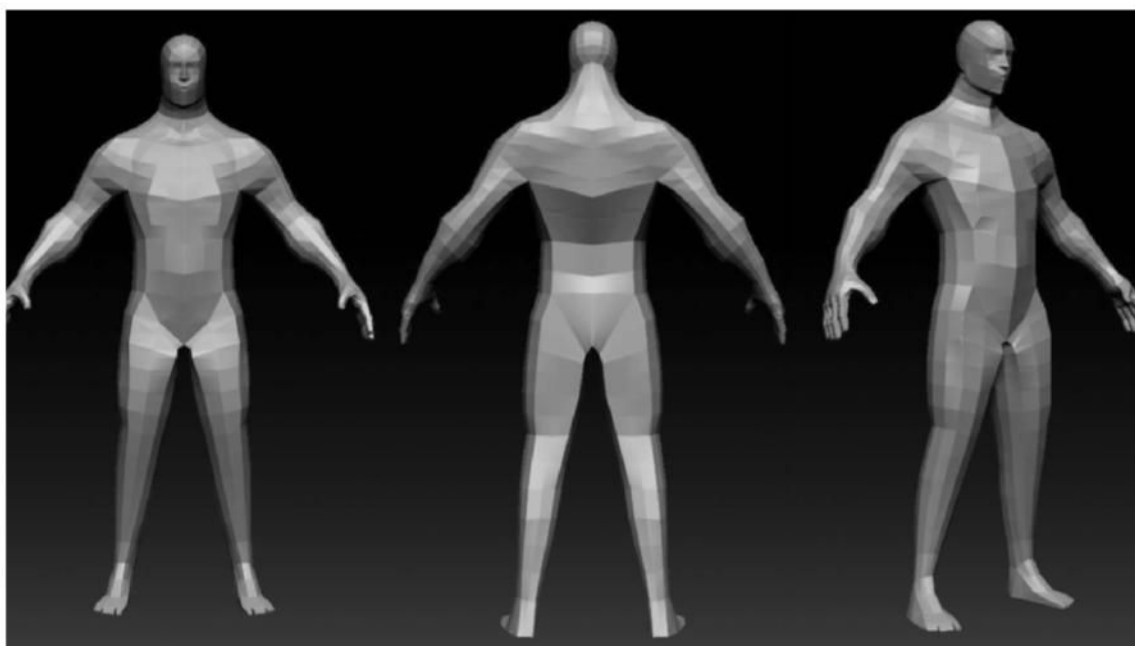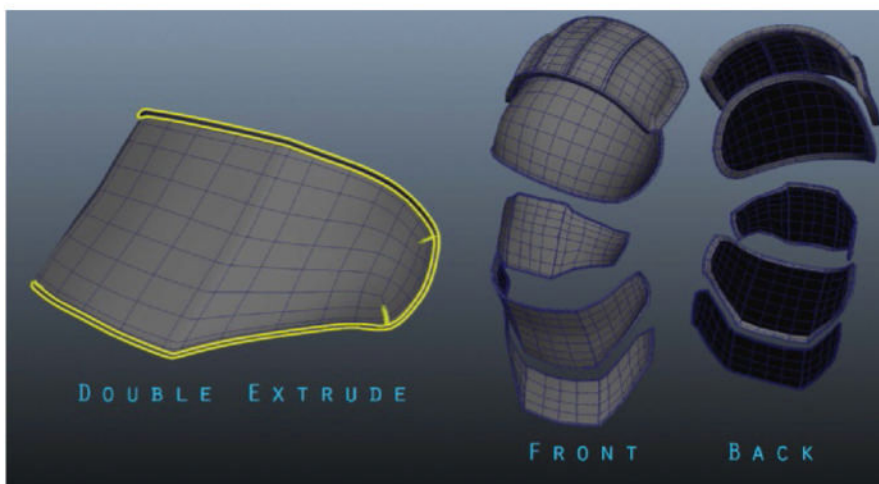
05 **Build the anatomy** In this step we want to create our machinist's anatomy with concept-accurate proportions and clean edge flow. Generally we want to keep this mesh relatively low poly, as we will be using it to extrude our clothing and accessories later on. We can start with an available generic anatomy model, or we can build a simple base mesh in Maya and take it into ZBrush. Here we'll manipulate the physique to fit our character. Our machinist is a cross between a blacksmith and an engineer, so we need his silhouette to convey that he frequently works with heavy metals and equipment.

06 **Model clothing and accessories** Let's bring our machinist mesh back into Maya, and make sure our character is at real-world scale. Split up our model into the basic areas of our head, shirt, gloves, pants and boots. We can repeat the process to create geometry for the vest, belt and harness. Instantly we have fitting base geometry for our character's costume. We only need to refine our clothes meshes to a certain point, as most of the clothing detail will be done in ZBrush. We can use basic box modelling to shape the belt straps and harness.

07 **Prepare our costume for sculpting** First, we should be sure again that we have neat, even edge distribution. The majority of this should have already been in place from our machinist anatomy model, but we can use the Quad Draw tool in the Modeling Toolkit to quickly and easily make improvements to edge flow wherever necessary. Again we should double extrude our border edges, for the reasons listed in Step 4. We could do UV layouts at this point, but it may be preferable to do it after sculpting as some of the geo may change considerably, and our UVs may need to be redone.

Sculpting warm-up exercise

Sculpting clothes wrinkles can take a lot of practice and iteration. It's about getting in the right mind-set rather than any particular brush or technique. I recommend starting with an exercise to help get a feel for cloth folding. Create a simple sphere on a ground plane, with a plane right above it. Imagine the above plane is a tablecloth, and try sculpting how it would land if you were to drop it onto the sphere on the ground. Try this same exercise with more complex shapes, and imagining different types of fabrics. This helps us warm up and get a really solid grasp of how clothing and folds work.

08 **Sculpt the clothes** Here we'll be sculpting in the large and mid-level detail of our clothing. This includes the overall structure, drape of our clothes and the wrinkles. We won't be sculpting in the fine detail such as the threading and stitching of the fabric, as we'll be adding those details via our textures later. It's good to have reference of the types of fabric each piece is made of. Keep in mind that these are just panels of fabric falling over simple anatomical shapes. Also consider that these folds need to stay generic enough to work in most poses.

> "We won't be sculpting in the fine detail such as the threading and stitching of the fabric, as we'll be adding those details via our textures later. It's good to have reference of the types of fabric each piece is made of"
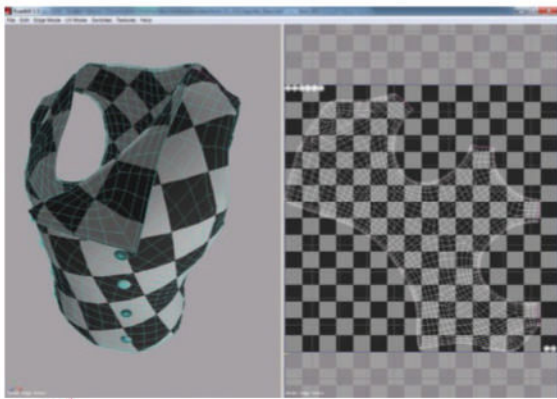
09 **Lay out the UVs** To unwrap our clothes, we'll use RoadKill, a free plugin for Maya. We can select our vest mesh, and run the plugin. In RoadKill we double-click to select the shoulder seam edges and hit C to cut the UVs. Instantly, we will see our vest flattened neatly in our UV viewer. We can quickly repeat this to separate the lapels and we're done. If we want to smooth our UVs out further, headus is another free option with an excellent UV-relaxing algorithm and a very simple, but fantastic GUI for flagging, bunching and stretching in your UVs.

Image-based lighting

Metal materials are mostly reflective, so in order to get realistic-looking metals, we need to provide them with an environment to reflect. For this, we'll use image-based lighting. In the Render Settings, go to the Indirect Lighting tab, and click 'Create Image based Lighting' to put an IBL sphere in the scene. We can load an HDR image into our IBL sphere node – free HDR images are available online. Now all we need to do is turn on Final Gather. At render, mental ray will use data from our HDR image to light the scene and create some convincing environment reflections for us.

11 **Paint metal grunge** It's hard to distinguish which UV islands correspond to what plates by simply looking at the flattened mesh. This makes it difficult to paint our textures in 2D. Instead, let's turn on ZBrush Polypaint and subdivide our mesh into the millions. We can start this off by coating our mesh in 50 per cent grey. Let's set our brush to RGB Color Spray with a grungy alpha and zero z-intensity. We'll paint in the edge grunge, rusting and scratches. At this point we are only concerned with colouring this detail onto our mesh. Grunge and rust should be darker values while scratches should be a white colour.

12 **Create the metal textures** Now we should export our Polypaint data as a texture map and bring it into Photoshop as an overlay layer with our base metal colour underneath. The grey in our grunge map will disappear, leaving us some dark grunge and light scratches that will go over our base colour. We'll also add a subtle metal photo texture over our base colour and colourise our grunge to get a rusty red hue. This is our Diffuse map. We'll fashion a Bump map with desaturation and then invert our scratches to black. We'll raise our base colour to near white and then adjust the noise layer to a medium grey.
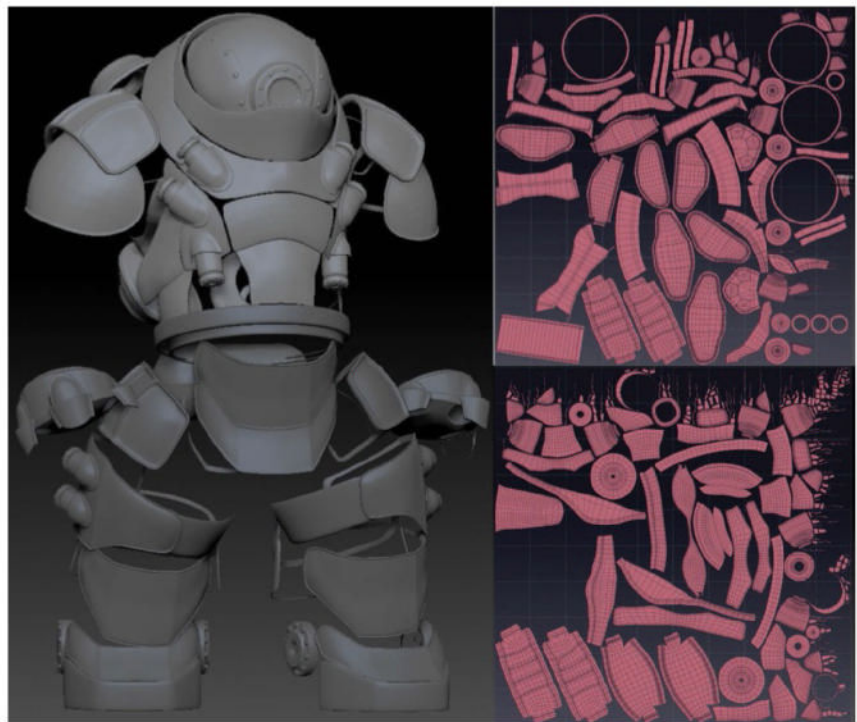
10 **Unwrap the guardian** Our guardian has a lot of internal and external parts, but we can save a lot of time and UV space by using 3D procedural textures on the smaller, less visible internal parts. We'll only unwrap the outer metal plating of our guardian. Let's select our plated parts, export them to ZBrush and run the UV Master plugin. Because of the cleanup and double extrudes back in Step 4, our plates are essentially curved planes with structured border edges. This makes them ideal for the UV Master algorithm. Almost instantly, we get a clean, evenly scaled UV layout for all our plates.

13 Create metal materials Metal materials are reflection-based so we'll use image-based lighting to give our metals something to reflect. Using mia_material_x_passes, we'll plug in our Diffuse and Bump maps. Metals have low diffuse weights. Our metal is relatively rough – it has a smooth, metallic microsurface, but its overall surface is too rough to cleanly reflect any image. We will get a certain level of gloss but our specular reflectivity should stay low. To control this further, we can fashion a Specular map from our Bump map by adjusting the levels to fit within our desired reflection values.

Map baking in XNormal

Normal casts rays from the lower-res mesh surface to the hi-res surface. The rays' travel distance and normal data is written as colour data to the UVs of the lower-res mesh to create our maps. However, there is a travel distance threshold – if the rays travel past that distance without reaching the hi-res surface, they get ignored and no data is written to the map. This is why we use cages around our meshes instead of distance thresholds. The cage surface becomes the new distance threshold, ensuring we collect all the hi-res data, with optimised calculation time.

DIFFUSE MAP

DIRT

FABRIC

NORMALS GREEN

AO

BASE COLOR
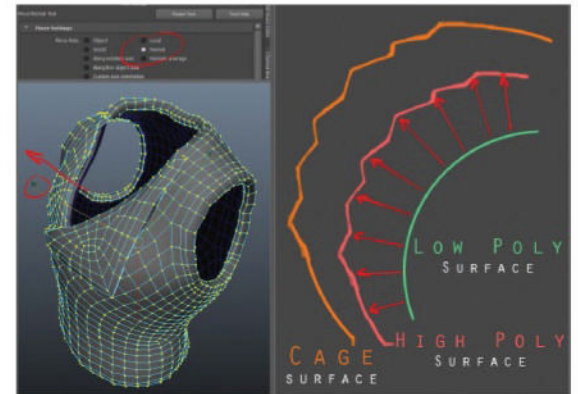
14 Bake good maps We'll bake our maps using XNormal. With our vest as an example, we'll export the high and lower-res meshes. To create a cage mesh in Maya, we'll duplicate the lower-res mesh, and with Translate set to Normal we'll move all the verts out along N. The cage mesh should be just big enough to fully envelope both high and low-res meshes. Now we'll take our meshes into XNormal. Right-click on the low-res mesh and click 'Browse external cage file' to assign our cage mesh. Set to Average Normals and Bake! This will produce full, clean, accurate and fast maps!

15 Texture the machinist Normal and AO maps are a great starting point for Diffuse, Bump and Specular textures. In Photoshop, paint base colours for each island in our UV map. Multiply the AO map over the base and Overlay the green channel of our Normal map to create top-down shading. Now we'll tile and overlay images of fine fabric detail. We can use those same overlays later on top of a grey background to create our fabric bump texture. Let's paint in some subtle layers of dirt, dust and grunge to finish our diffuse texture.
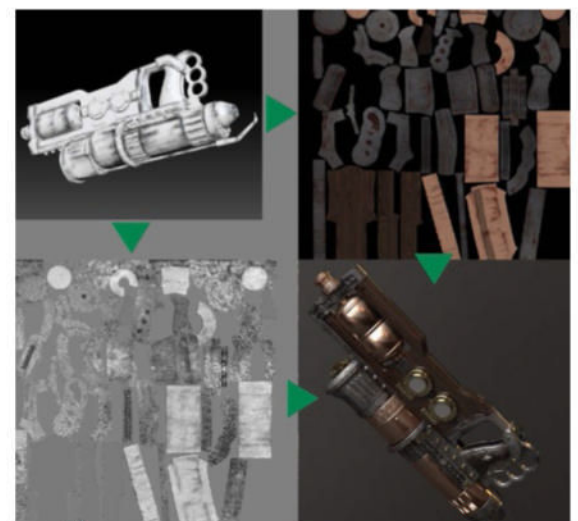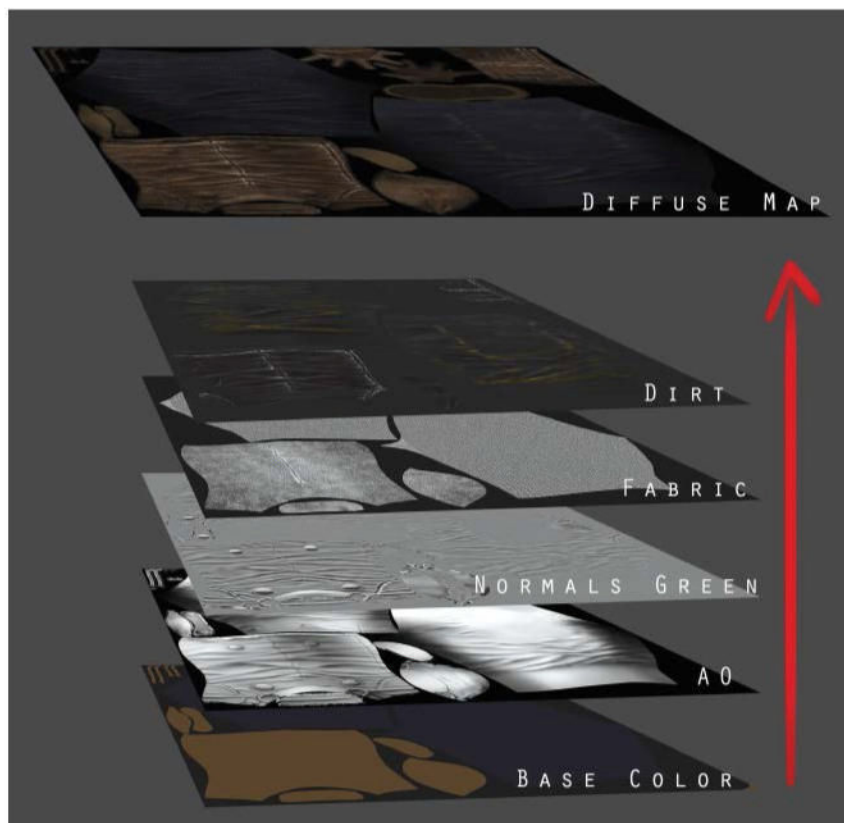
16 Texture the equipment For our equipment, textures, we'll use a technique similar to Step 11. With the help of ZBrush Polypaint, we'll colour in the rusting and scratching around our equipment's nooks and edges. We can bring these maps into Photoshop and colourise or do a photo texture to create a grunge effect. Again we'll repurpose the same maps to create our bumps, indenting scratches, dinks, rust and noise. We can add neat decorative pieces by adding black-and-white patterns into a Bump map, and overlay these patterns into our Diffuse map to make them pop even more.

Character

17 **Clothes shaders** Let's import our machinist textures and plug them into a new mia_material_x_pass. Remember that the Normal map gives us the fold and wrinkle detail, while our fabric bump maps gives us the fine stitching and cloth detail. Both will be plugged into the shader. The cloth for our vest, pants and shirt is generally pretty diffuse, with very low gloss and specular reflectivity. We should also adjust the BRDF as looking at cloth at direct angles is especially dull. We can add a tiny bit of translucency, or we can fake it by plugging in a very weak mia_self_illumination node.

18 **Build the remaining materials** We'll need to build several different material types for our equipment. With our maps ready, gather reference and create some fresh MIA materials. First, name all our materials, turn on Use Fresnel, and input the real-world Fresnel values for each one. Now we can start balancing the Specularity and Diffuse, knowing that our reflective distribution is accurate. Since there's no refraction, we can observe our reference and estimate the reflective strength, and the shade strength from zero to one. With MIA's energy conservation math in mind, we can solve for really accurate reflective and diffuse weight values.

MIA energy conservation math

The MIA materials are physically accurate, meaning that Diffuse plus Reflection plus Refraction will never be more than one – the total incoming light. But how do our input values get balance out? When we increase the value of one of these, its resulting effect takes energy from the result of the others to maintain the same total energy output. It breaks down as follows:

Diffuse result = (Diffuse weight value) – (1/2 Reflectivity attribute value) – (1/1 Transparency value);

Reflectivity result = (Reflectivity attribute value) – (1/2 Diffuse effect) – (1/2 Transparency attribute); and

Refraction result = (Transparency attribute value) – (1/2 Reflectivity attribute value).

19 **Make a background environment** Let's create a simple ground or wall backdrop. We'll give the wall extra edges to indicate where the brick meets the concrete segment. We can use planar mapping to quickly get UVs. In Photoshop, we'll use photo textures of bricks and concrete to create a quick Diffuse map. We'll balance the levels and colours to make the different images fit each other. Now we can fashion a Bump map by desaturating and pushing recesses into black, while pulling convex surface space up to white. To add depth to our environment in Maya, we can apply a bend deformer and create a rounded wall.

20 **Render our scene** Let's set up render passes for better control over our final image. In Render Settings>Passes, we'll create and associate beauty, AO, diffuse, Indirect, reflection, refraction, shadow and specular passes to all three. We can render and save these passes out individually for compositing in Photoshop. We should use 'Linear Dodge (Add)' blending mode to put our passes together and re-create our beauty pass. Finally, let's create a custom matte pass, assigning different coloured surface shaders to each character and the environment. Now we have full control for tweaking each asset and element to make our final image.
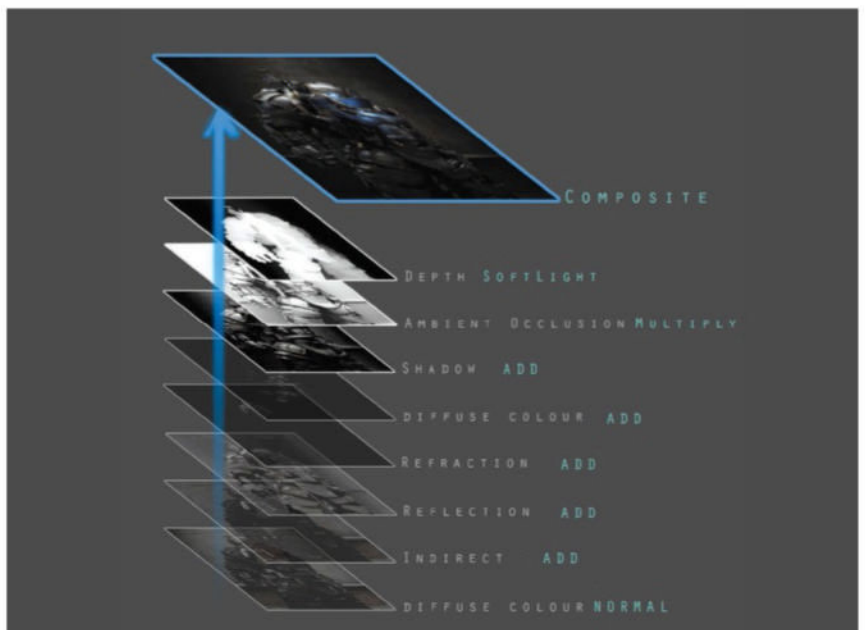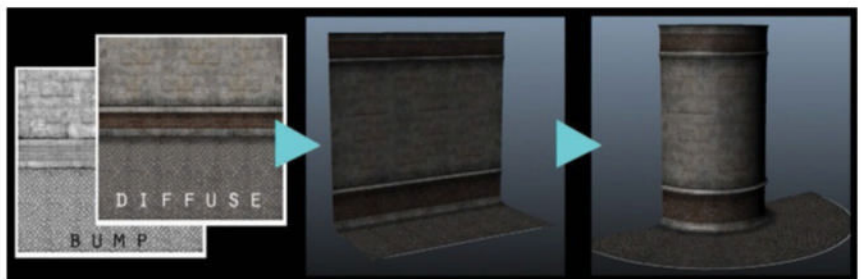
Perfect colourised characters

Master digital illustration techniques and learn how to colourise with the Brush tool

Illustrations don't always have to be hand-drawn from scratch. By manipulating stock imagery and adding effects, you too can create a fantasy scene like the one seen here.

In Norse mythology, a valkyrie is an angel-like figure that chooses who lives and who dies in battle. This illustration portrays a valkyrie in Valhalla, a heavenly hall, as she prepares to descend to Earth. The image had to convey her as dynamic, as well as being bathed by light seeping through the gates.

This tutorial will outline some of the key tools and functions of Photoshop that are most useful to illustrators. It will show you how to add colour to a scene, how to manage a bright atmosphere and will simplify the rules of composition. To complete this image, you will need to download or create a selection of custom brushes. You will call on numerous tools, adjustments and blending modes, which will all be useful to you in future. Experiment with brushes to find ones that suit your style, and use photo stock from the internet or your own libraries as references for your illustration.

Here the artist used Photoshop CS6, but you can follow this tutorial using any version from CS4. Before you start, download the stock images from **www.filesilo.co.uk/bks-872.**
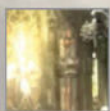
Build a fantasy scene
Import the background image and add lighting effects

01 **Configure your workspace** Create a new document and import the background image named 'reference_picture.jpg', available from FileSilo. Search for angel images on the internet or in your personal library to use as references for your illustration. It is important to choose these well, as they will give you ideas for composition.
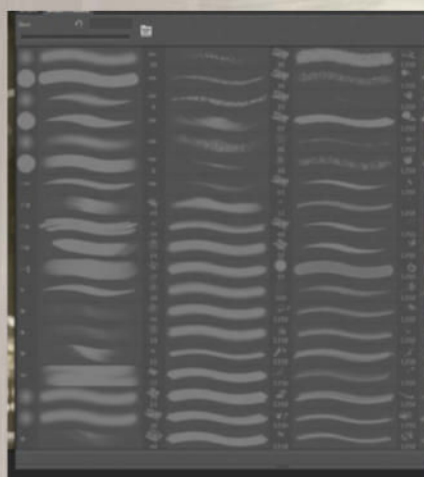
02 **Build the scene** Download paint and pencil brushes from the internet. These site are useful: **www.brush-photoshop.fr**, **www.brusheezy.com** and **www. myphotoshopbrushes.com**. Go to Brush Presets and click the top-right dropdown menu, then select 'Load Brushes' to import them into Photoshop.

Apply ratios

The golden ratio (also called the golden section) is approximately equal to 1.618. It often appears in nature in things like shells and flowers, and has been used by many artists and architects to create beauty and harmony in their designs. Use Photoshop's Golden Section plug-in to position points of interest in your image along the lines of the spiral and over the intersections.

Artist
Nicolas Delhelle
www.facebook.com/
ndelhelle

Nicolas Delhelle is a French freelance illustrator and a decorator for Ankama Games and Wakfu anime. He has worked alongside publishers in both the book and magazine industries.

Software
Photoshop

Source Files
On FileSilo you will find the stock imagery used to create this artwork, including the background and Roman columns.

Concept
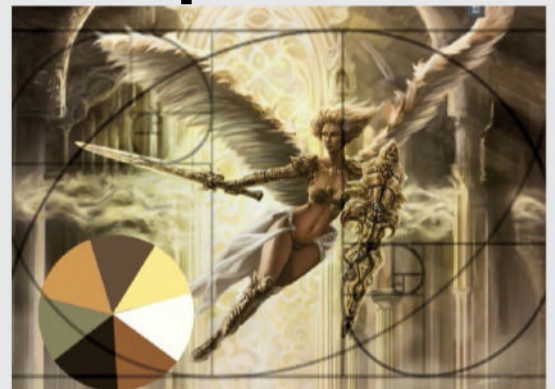
Character
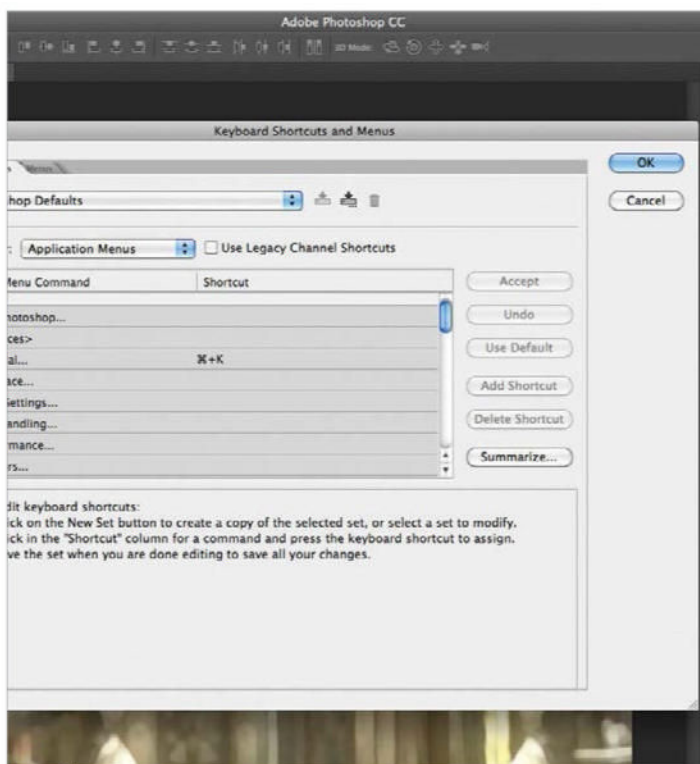
03 **Create shortcuts** At this stage it is important to configure your hot keys. This will save you a lot of time on your workflow and will let you concentrate on the image rather than the tools you are using. Shortcuts that allow you to increase and reduce the size of the brush quickly are very useful.

04 **First lighting effects** Create a new layer. On the background image you will see that there is already a gate, but you now need to add some lighting effects to it. Use the Brush tool to make a number of fine, parallel lines of light leaking through the gate. To do this, hold down the Shift key and click a part of the gate. Then click on an area away from the centre of the gate to make a straight line of light. By repeating this step, you can create multiple sunrays.

05 **Painting effects** Continue to draw rays of yellow light with the pencil brush. Then select the Smudge tool. Click on an area of a sunray and click and drag along the line to smudge the paint. You can use various different brushes to achieve unique and original effects. With the Unsharp Mask you can increase the strength of the created effects. To find this, go to Filter>Sharpen>Unsharp Mask and set the Amount and Radius according to your tastes.

06 **Give movement to the rays** Continue to draw rays of light on another layer and then apply the Motion Blur filter to them, having selected each one with the Lasso tool, to give them a directional blur. The Liquify filter is a good way to spread and deform rays of light to give them effects but also to manage their perspective. Other filters, like the Distort filter, are also useful. You can even use the Perspective tool, which you will find under Edit> Transform>Perspective.
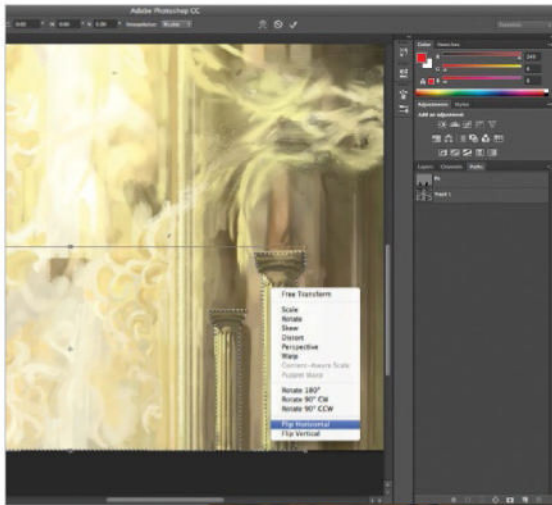
07 **Build your columns** Import 'roman_columns. jpg' and use the Selection tool to isolate one of the columns from the scene. Once complete, make a new layer mask. Duplicate this individual column four times as seen on the screenshot, then colour the columns in yellow with a Hue/Saturation adjustment layer. Then horizontally flip two of the columns, so that the light on the columns is coherent with the scene. Press Cmd/Ctrl+T or Ctrl/right-click and choose Transform Selection. Then Ctrl/right-click again to transform and select Flip Horizontal.

08 **Finish the door and add effects** You will now need to polish up the background with several paint brushes. Once that is done, you can play with blur effects, sharpness, clarity and darkness. To do this, select the Sharpen filter and mark the option to Sample All Layers. This filter allows us to play with the sharpness of certain areas. The Blur filter will have the reverse effect by adding blurriness to certain areas

Pick colours with handy tools

Photoshop's Color Picker is very useful, as it allows you to preview colours in several variables of luminosity, hue or saturation. You can attribute a hot key to this selector to always have quick and easy access to it and place it where you want on the screen. You can do this via Edit>Keyboard Shortcuts. This is a very useful trick.

09 **Rays of light** Go to the Paths tool and create a new path. Call it Trace 1. Here, highlight the path and click on Trace1. Draw lines that start from the gate to the outside edge of the image. This tool is useful when you have to draw many lines. Before going any further, select a wide brush with a paint effect. All these lines are on a path layer, so Ctrl/right-click the layer, and then you can select Contour and the Brush tool.

10 **Outline the valkyrie** The most important thing is to find a pose that gives dynamism to the character. Here I chose an angel in flight, coming towards the viewer. You can use model images as reference. I began by drawing a female form, then added wings, hair, armour, a veil, shield and sword. You can also draw each element with different colours to give an idea of what you want. Make sure you create a new layer each time you add anything new.

11 **Light and shadow** Once the outline sketch is complete, quickly paint in the shadows and the light of the angel using only two colours. It is very important to determine a light direction so the scene looks realistic. In this image, the light is coming from behind the valkyrie. Always bear the light source in mind when integrating objects into a scene. Play with the areas of light and shadow to give them an interesting shape. Also try building a hidden silhouette.
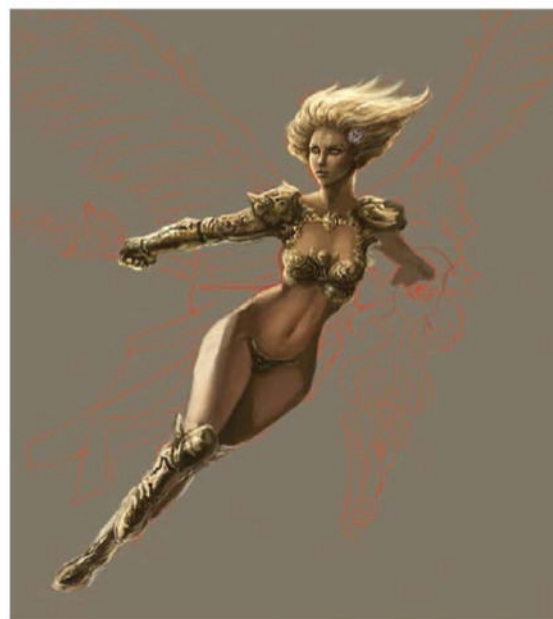
12 **Finish the valkyrie** Here you will attack the most complicated step, which requires a certain amount of control. I would suggest practising first, as painting realistic models can be difficult. Concentrate on the body and then add the armour afterwards. Take a paint brush to paint each part of the character. Respect the lines of your initial sketch and the values of the shadows and lights. While you paint, click to vary the opacity of the brush, for example, make four different changes to the opacity, ending up at 40 %.
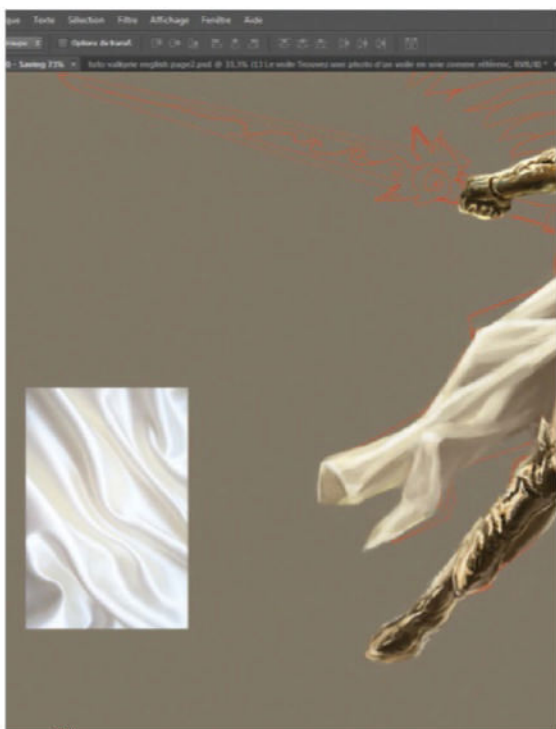
13 **The veil** Download the texture 'veil.jpg' to use on the valkyrie's own veil. The tricky part will be trying to make the fabric look realistic and show the movement. On the photo, use the Clone Stamp tool to duplicate the texture and apply it to the valkyrie's veil. For fabrics, the shadows should be very deep to give the impression of folds. This is a very useful technique to master.

14 **Sword and shield** Research images of swords and shields on the internet to use as reference when illustrating your own. Useful sites include boutiquemedievale.fr, toutesvosrepliques.com and heavenlyswords.com. Bring all your references together to help inspire you. If you do not want to import the images but merely use them for reference, create a Mini Bridge in Photoshop, which will allow you to have access to your reference images without importing them into the document.
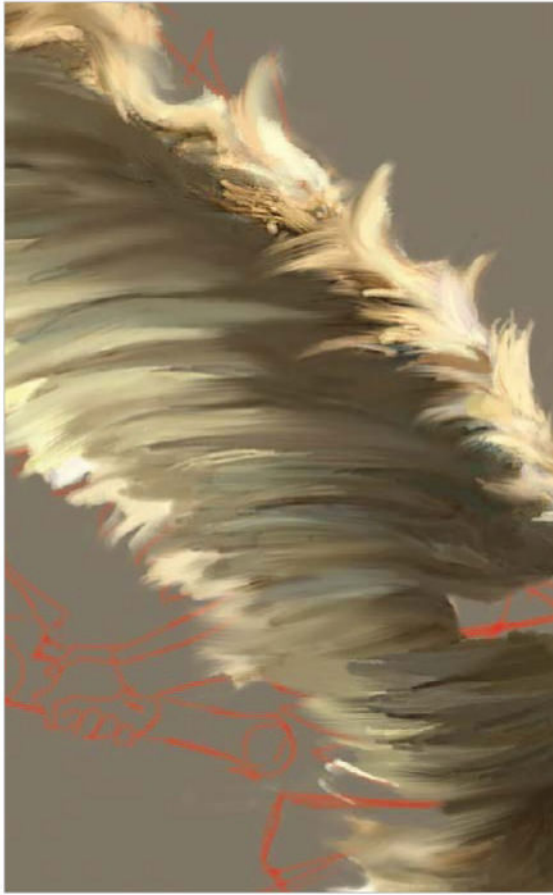
15 Wings Use the shadow and light layers to guide you here. I used a brush to add several spots of colour in mainly yellow and brown, but I also added touches of green, purple and blue to vary the tints and break the dullness. Then I used the Dodge tool to spread the colour and create a feather effect. Another brush with parallel lines will give a nice brush effect. Then use the Sharpen filter on certain feathers to create effects.
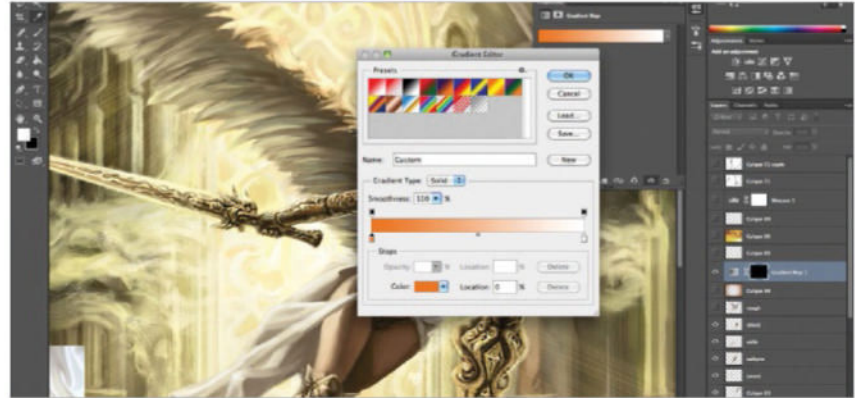
16 Tints and smoke If you find that the image is too yellow, add in a little orange. To do this, click on the Gradient Map in the Adjustment toolbar and click on the colour bar to go to the Gradient Editor. Set the left-hand side of the gradient as an orange colour and set the Opacity to 100%, and on the right make it 0% Opacity. Then tick the option to invert. Draw the gradient from the outside of the image, leaving the least amount of colour in the middle.

17 Final adjustments I tried importing numerous images into the scene and experimented with different blending modes. I finally chose to go with a twilight sky in Exclusion mode with 9% Opacity, which added pinkish tints to the image. You can make variations to the colour of the orange-coloured gradient with the Hue/Saturation adjustment. To finish I created a Levels adjustment layer and moved the arrows below the histogram to increase the contrast.
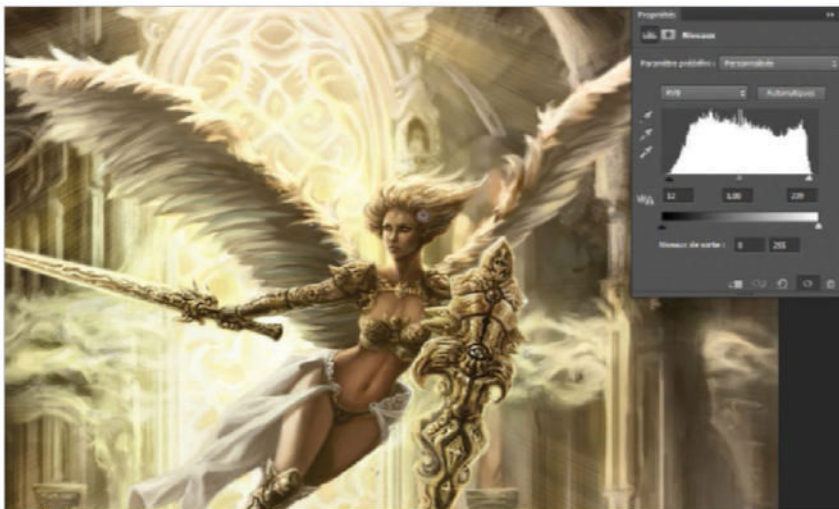
18 Colour adjustment If you find that the image is still too yellow, create a layer and fill it with another orange circular gradient. Keep it transparent in the centre and set the layer to Hue blending mode. Then add some smoke below that layer with a large brush of low opacity. Next, play with a twilight sky. Import the image 'orange_sky.jpg' and set this layer to Exclusion mode with Opacity at 9%. To finish, create a layer with a Levels adjustment and drag the black arrow to 22 and the white to 241 to increase the contrast.
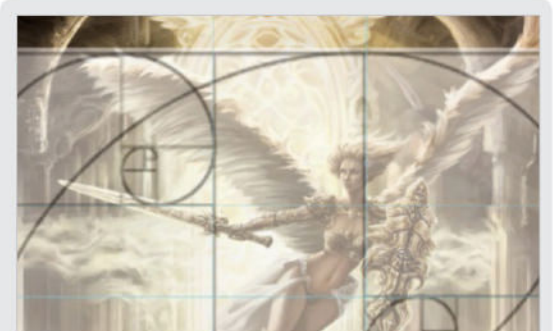
Using Brushes

Brushes are almost inexhaustible tools, as thousands exist. Some serve to just create a spot or a texture in a single click and other types of brushes give chalk, pastel and oil paint effects, among others. You can find planets, galaxies, friezes, wallpaper, fractals, drop caps, and objects of all kinds in brushes. Their variety allows you to experiment with things and find your own style. The tool options will allow you to play with these brushes and to save them as custom brushes. The creative potential is infinite.

Concept

Colour your fantasy composite

Use advanced blending methods and colour techniques to create a magical photomanipulation

This tutorial is for Photoshop fanatics who want to overstep the boundaries of their creativity. At first look it may seem impossible, but if you carefully take the right steps, you will master the techniques in no time. The use of light effects and the proper use of lighting in this design are essential, and this tutorial will enlarge the possibilities. Attention will also be given to diving the design – the layout of the composition, so to speak. To create the right atmosphere, this tutorial will explain how to enhance the composition. Throughout the process, several images will be transformed into abstract layers with use of the Warp and Liquify functions. They will be creatively processed in the design afterwards. Advanced blending methods and colour techniques will make this process easier. Eventually the design will form a complex composition that will serve as an exciting eye-catcher. Finally you will learn how you can improve the overall picture by using certain filter techniques. Once you have completed this tutorial, you will be able to process objects in a creative composition and manipulate photos by yourself to make them abstract.
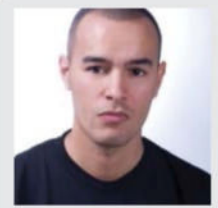
Artist
Kevin Lohstroh
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Kevin Lohstroh is a graphic designer from the Netherlands. He describes his unique style as "photomanipulation on steroids", combining Photoshop techniques.

Software
Photoshop

Source Files
On FileSilo you will find a small collection of files that have been made for this tutorial.
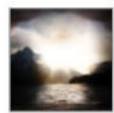
Combine all the elements
Resize and place image layers before adding effects

01 Choose a size for your document
Start by creating a brand new document in Photoshop. Choose the size of document you prefer, but try to keep it in a vertical shape with a transparent background. For now you can set it at 235mm wide x 302mm high using RGB colour at 300 pixels per inch.
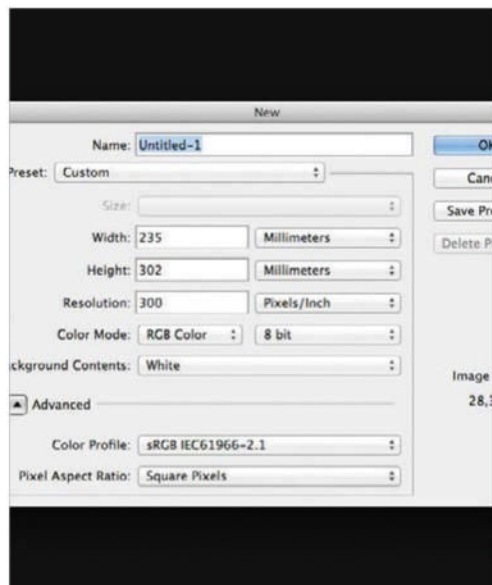
02 Insert a manipulated background Find a good stock image of a cloudy atmosphere that you can use as a background, or open the supplied 'Landscape Manipulation.psd'. You can also interweave several pictures to create the background if you prefer. Make sure that the clouds are dark enough for a final atmosphere and will fit with the other elements you will be adding to your creation.
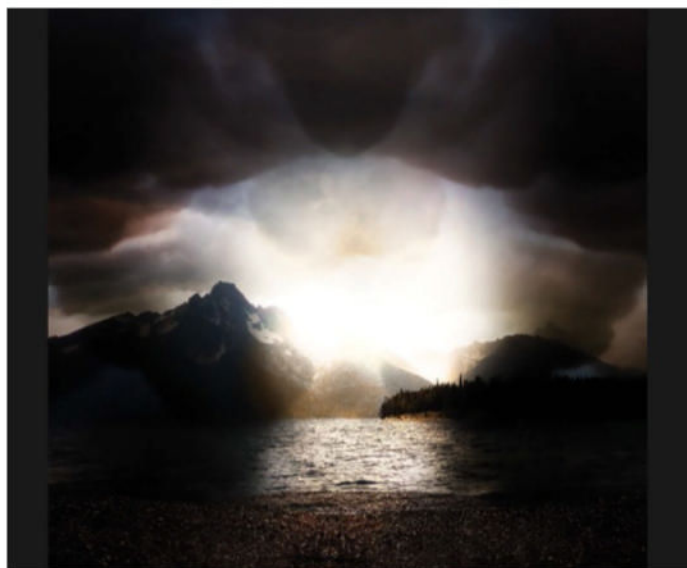
Combine different tools

Combine the Warp tool with the Free Transform tools to create a whole new look for your images. To warp multiple layers as a single unit, first convert the layers into a Smart Object or merge them, and then add the warp.

Character

03 **Cut out the character** Open 'danigutierrez.jpg' and cut the model out from the background. Create a path layer using the Pen tool, tracing the contours of her body point by point. Once the path is closed and the shape is correct, Ctrl/right-click and choose Make Selection. You need to invert the selection to eliminate the parts you don't want. To do this, go to Select>Inverse, then press Delete.
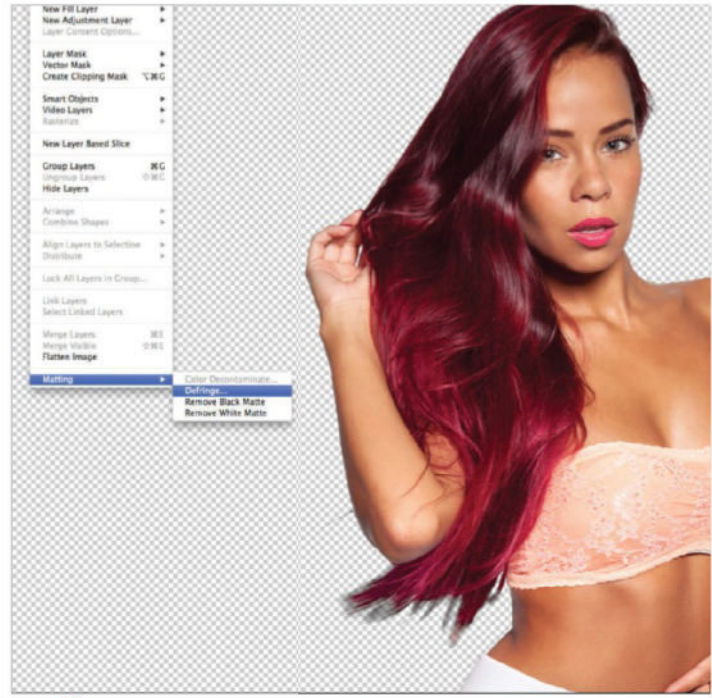
04 **Defringe residual pixels** Display the image at 100% zoom. Select the foreground layer of the image. Go to Layers at the top of the window, then select Matting and Defringe to open an option box. Enter a number of pixels to use for defringing. Photoshop uses the default value of one pixel for defringing. Click OK. Open the Defringe option box if some pixels remain and enter increasingly higher values in this box until no pixels appear in the image.
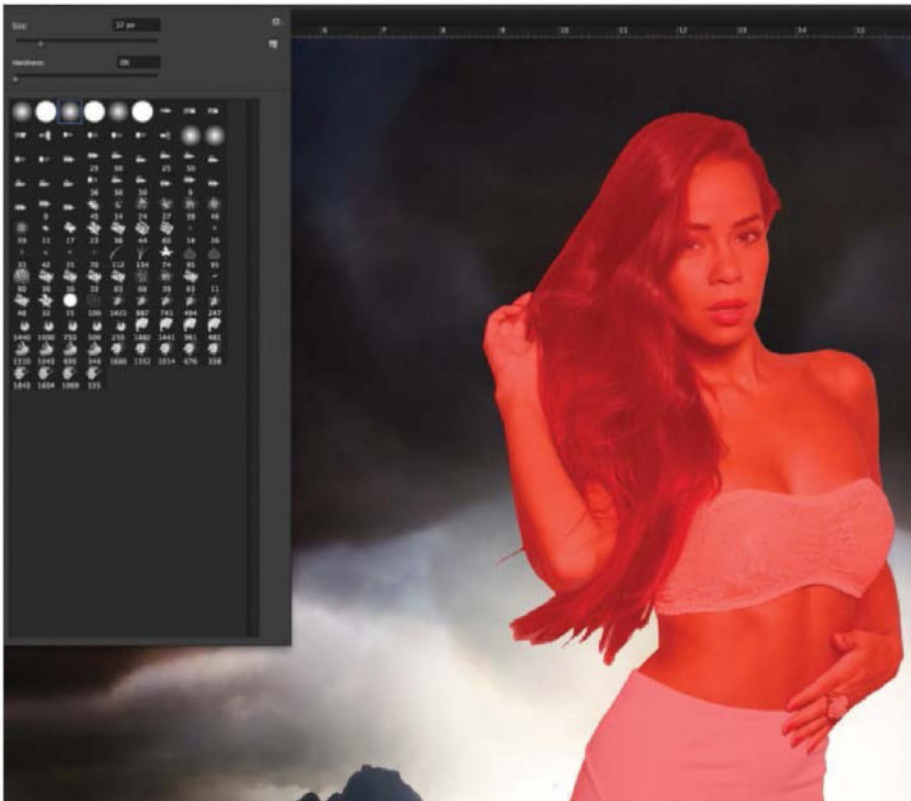
05 **Remove details around the image** Place your image in the middle of the landscape background. Because of the dark background there will be some details left around the image that need to be removed. To do this, turn on Quick Mask mode (Q) and, using a brush, fill in the areas that should be part of your mask. Turn off Quick Mask mode, then go to Select>Inverse Selection (Cmd/Ctrl+Shift+I). Last but not least, copy and paste the model into your main composition.

06 **Determine the composition** The next step is to determine the composition of the image. Open the image file 'TreeTrunk.psd'. As you can see, a sketch has been made upfront. You can use this as a guideline. Feel free to make any changes to it. The purpose is to create equality using different materials. These layers are included in the document. The Warp tool has been applied here and will be explained in the next step.
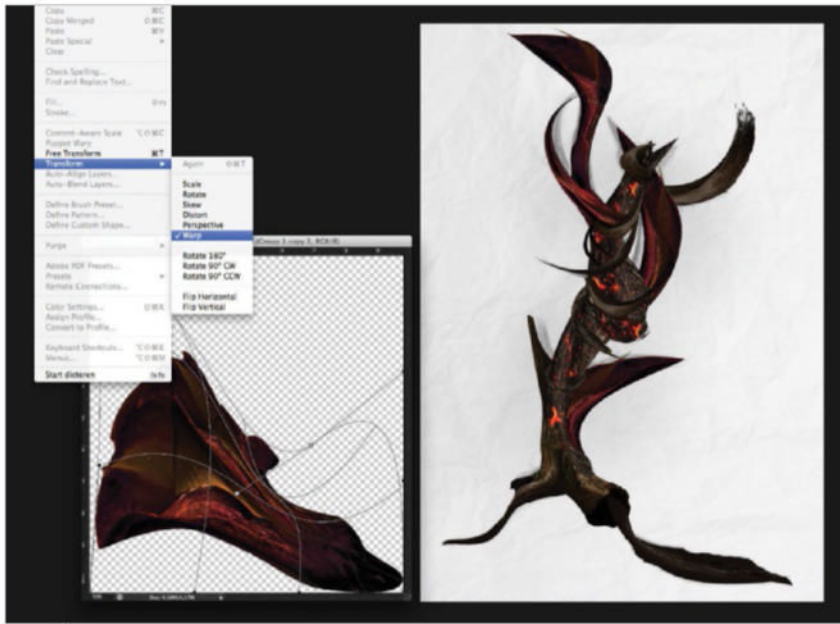
07 Use the warp ability Open 'AbstractFlower.psd'. Press Cmd/Ctrl+T to enter Free Transform mode or go to Edit>Transform>Warp. You will now see that your element is divided into rectangles, meaning that you are in Warp mode. Click on a rectangle on top of your selected element and drag it up, down, right or left. As you do this, your element will become warped. Release the mouse button to finish warping and press Enter. Continue clicking and dragging on the rectangles to further warp your image until you have achieved the desired look.

08 Add shapes and objects Look at the different types of objects and attributes that make your composition part complete. Use them for creating your own unique formation. As you'll see, focusing on certain shapes and avoiding symmetrical patterns will allow you to develop formations that look abstract and natural. Create a mixed-media composition using different warp techniques, with the help of only a few objects of different sizes, as well as using some images to produce a powerful composition.

You should balance the 'weight' of your subject by including other objects of lesser importance in the empty spaces

Add some extra skin shapes to parts of the model using different techniques, to make her look more surreal

Use the Dodge and Burn tools to add highlights, shadows and lighting details to the areas where you can place them

09 Interim evaluation Place the elements that have already been created on the canvas. In the following steps you will fill up the empty spaces around the composition and start to add all the lighting and effects to bring this image together. The focus is now on making this image complete.

10 Modify the eagle Open 'Eagle.psd'. Modify your eagle to give her folding wings. The hardest part is to integrate her into the composition smoothly. With the knowledge of the last steps you can use 'AbstractFlower.psd' and make new elements with it by using the Warp tool or Liquify function (Filter>Liquify). Warp or liquify your elements until you have achieved the desired look. For example, cut out a piece of the model's hair and bring it around the eagle. Use the Burn tool for shadows where it is necessary.

11 **Apply curvy shapes** The curvy shapes protruding from several parts of her body are also created using the Liquify filter, more specifically the Forward Warp brush. Create these shapes and pull these sections with the Forward Warp brush. Now that some parts have been pulled, burn and dodge them to create a 3D effect. This is because other sections are above it, preventing the light from hitting it. It is important that you handle these curved elements correctly.
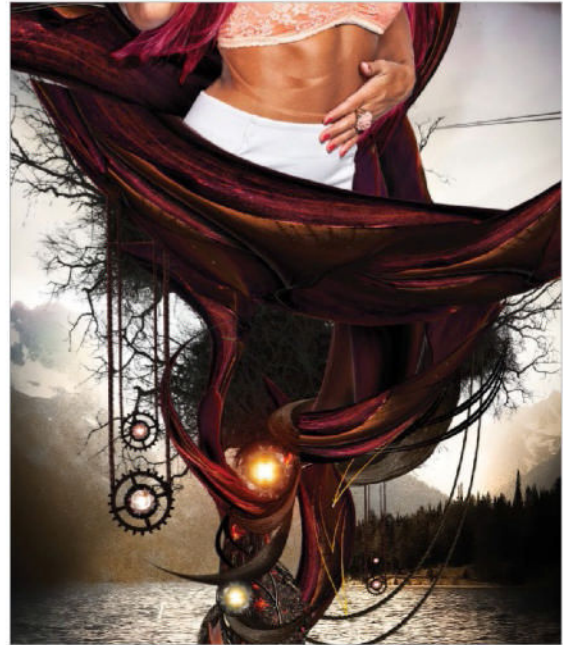
12 **Fill up the emptiness** To fill up empty spaces, you need to place some elements behind the composition. Open 'TreeManipulation.psd'. Drag, resize and duplicate it until you have filled up the emptiness. Add some elements like old ropes hanging through or make your own abstract elements that fit into the design. Create one using the Warp tool on the image 'AbstractFlower.psd' and place it. Warp it until you have achieved the desired look.

13 **Add finishing elements** To make your composition complete, you need to add some elements. As first you'll give the model a new set of lingerie. Cut out a bra shape using the Pen tool. After that use the Warp tool or Liquify function to make a well fitting bra. Cut out parts of the hair and place them subtly above the other layers. Add some subtle areas of shadow with a soft black brush. Place them at the bottom of any images that are asking for some shadow.

14 **Apply specific lighting** Open 'Lighting.jpg'. Drag and resize it on the hair parts. Change the blending mode to Lighten. Duplicate the image and flip it vertically. Add more light effects into your composition, like an image of an explosion. Drag it into the composition and resize it, then place this next to the lighting. Change the blending mode to Screen. Use the Hue/Saturation adjustment to combine the colours. As an extra, draw some lines and use a spot or lava brush. Give these a gradient colour that fits with the design.

15 **Dodge and burn** First duplicate the original layers that you would like to dodge or burn. This is because they could permanently damage your image. You will always have the original layers to fall back on. For now select the Brush tool. Set your foreground colour to black or white. Lower the Opacity of the brush to 20-50%. Paint over the areas that need to be lightened or darkened. Each time you paint over the same area, you'll increase the amount of darkening or lightening that has applied.
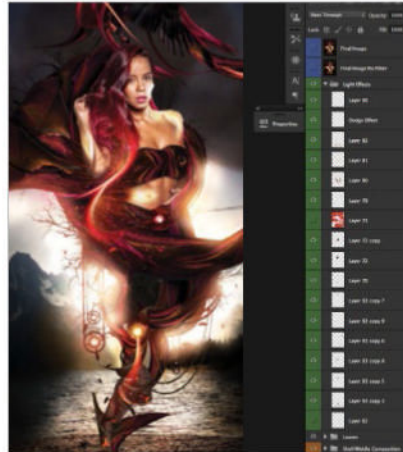
16 **Add sunlight** In this step you will be adding some light effects around the composition. Create a new layer and change the blending mode to Overlay. Use the Brush tool, select the white colour and set the Opacity to 50-100%. This depends on the parts that you want to lighten. To soften the effects, go to Filter>Blur>Gaussian Blur and set the Radius to 20.2px or more. To bring more light into other parts of the design, repeat this step but this time change the blend mode to Screen.

17 **Colour adjustment** Create a new layer and set the Opacity to 30-40%. Change the blend mode to Overlay. Now use a soft brush with a dark red colour (#4e1811) and paint on several parts of the design until you have corrected the overall colour balance. Add adjustment layers to enhance colours or produce special effects. Adjust the tonality in just shadow and highlight areas by using the Shadow/Highlight command. To view your image with and without adjustments, click the Toggle Layer Visibility icon.

Set group blend modes

If you have multiple layers in a layer group, instead of setting each layer's blend mode individually, try setting the blend mode for the layer group. This will treat all of the layers in the group as if they were 'merged' together, then blend them as one.

18 **Add an oil paint effect** To finish, convert the layer you're going to work on into a Smart Object (or Smart Filter) layer. Then choose Filter>Oil Paint. Zoom 33-50% to see the contrast edges and some of the grain. Use the following settings: Stylization 4.85, Cleanliness 1.1, Scale 1.09, Bristle Detail 0, Angular Direction 0 and Shine 0.1. Click OK to apply the filter. Double-click the filter name (below the layer) if you want to revise your settings. Erase parts on the final result where the effect is too strong to get a natural look.
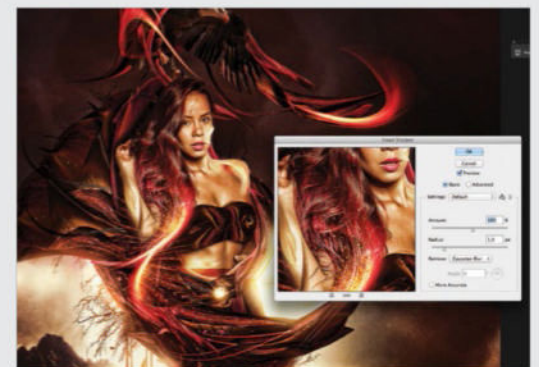
Sharpening filters

First reduce image noise before sharpening so that you don't intensify the noise. Then take a separate layer so that you can resharpen it later to output to a different medium. If you want better control over sharpening your images, use the Smart Sharpen filter. The Sharpen, Sharpen Edges, and Sharpen More filter options are automatic and do not provide controls and options. You can sharpen your entire image or just a portion using a selection or mask. Be aware that the Unsharp Mask and Smart Sharpen filters can be applied to only one layer at a time. Merge or flatten them to sharpen all layers together.

Concept

Develop your own mutant

Learn how to use this new filter tool with your own fire and flame elements along the paths you create

What if Photoshop had the potential to deliver composite elements at the touch of a button? What if you didn't have to spend extra time shooting elements like fire and sparks, or scouring the Internet for stock images?

Not only has Photoshop given us the ability render our own trees in past editions, but now in Photoshop CC 2014 we are able to use the new Render Flame filter to create our own fire

elements from scratch. In this tutorial we will show you how easy it is to create your own flames, sparks, and other fire elements straight from your imagination. To get the most from this tutorial, an average to advanced understanding of layers, blending modes, and the Pen tool will definitely prove to be beneficial. Discover how to take it one step further by not only using the Render Flame technique, but also combining the render technique with real fire element photographs.

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Brandon Cawood is a commercial and advertising photographer from Georgia, USA. He specialises in high-energy composites and does his own retouching and Photoshop work.

Software
Photoshop

Source Files
On FileSilo you will find a small collection of files that have been made for this tutorial.
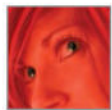
Sketch, plan and process
Be sure to consider lighting when shooting your images

and yellow fire tones illuminating gainst a dark blue-cast background

01 Begin with a sketch When trying to pull off any composite, proper planning is essential but even more so when a client has a specific idea in mind. Having a sketch will allow you to explain your vision to your talent or client, or in this case allow the client to explain their vision.
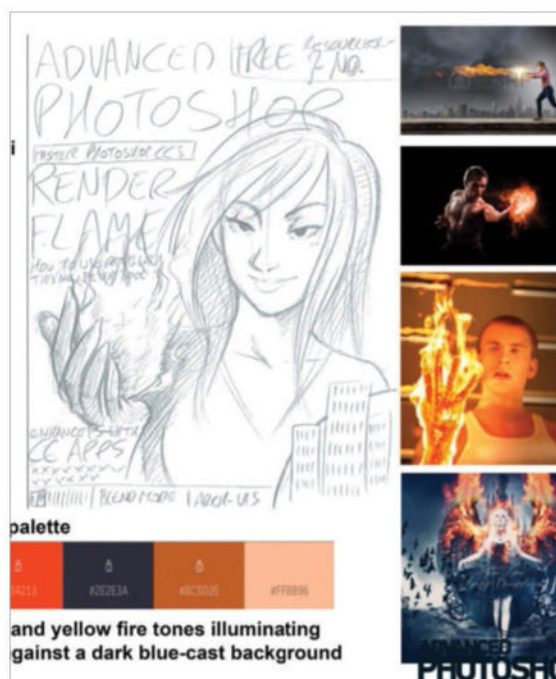
Try other options

It's not uncommon to come to a crossroads when creating an image. Sometimes you see two very different end results in your mind. Try them both! Save your PSD under two different names and try out both ideas. Compare them and decide what one you like better. You may even decide to use them both for different things.

02 Light the photoshoot Whenever you plan to have a lighting source, close to your subject's body in your final image, it's very beneficial to create a stand-in light during the actual photoshoot itself. By placing CTO gel inside of a globe modifier you are not only able to get the global light you need, but also the orange colour cast as well.
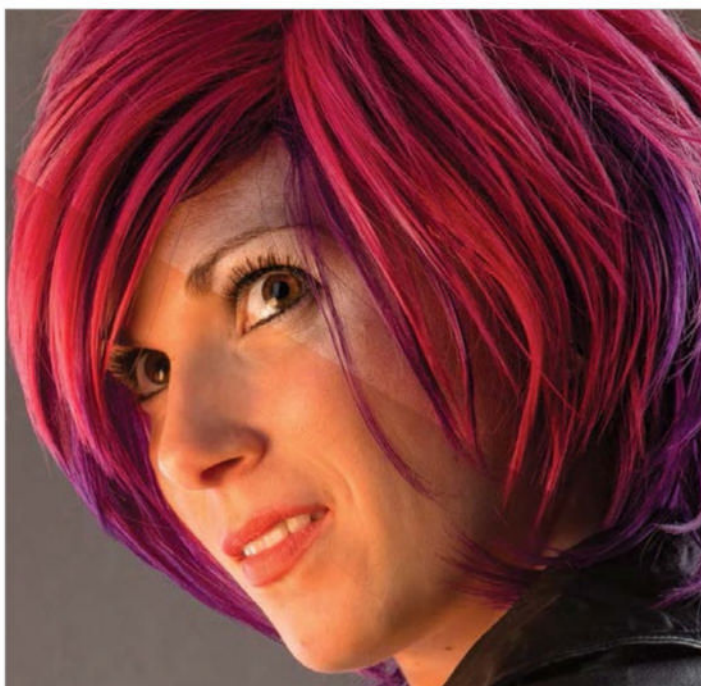
03 Process your subject before masking It's always good to process your model image before you do your masking. There are many different methods or presets that aid in processing but they sometimes leave the edges of your subjects with haloing or hard lines. To avoid having lines or haloing in your final image, process first. This way you can make sure your masks are tight enough that any haloing or hard lines get eliminated.

04 Mask the body The key to any great composite is having very clean masks. Focus on the body and clothing first. Always add a layer mask so you can use black to remove and white to add back. A pen tablet comes in handy. Take your time. Zoom in to 500% and with a black Hard brush, set at 8 pixels, follow the outline of what you want to extract. If you make a mistake, just switch your brush to white and paint it back. To make sure you are masking out everything that needs to be transparent, press the \ key and your mask will turn red. Press it again to turn it off.

Blur your layers

An easy way to enhance your fire elements even further is to duplicate the layer. After that add a Gaussian Blur with a radius of about 30 to give your fire elements a nice soft glow. Use this on flames as well as sparks.
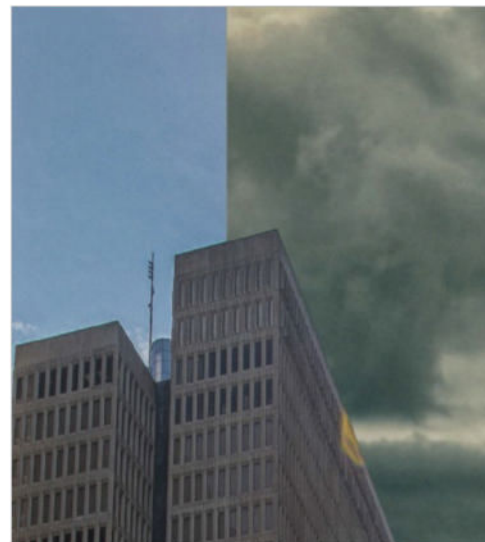
06 Prepare the background The main problem with the background image is it was taken during the day instead of in darkness. This is a simple fix. First you want to follow the same procedures from Steps 3 and 4 and extract the buildings by masking the sky. After that you want to drop an image of some dark storm clouds behind the city image. Use a Curves adjustment clipped to the background or the clouds to get the exposures about the same. Group the two images and clip a Hue/Saturation adjustment layer to the group and bring the Saturation down to about 50%. Colours aren't as vibrant when it's dark and cloudy.

05 Mask the hair When you have contrast between the hair and background, extracting the hair is much easier. Duplicate your subject and add a Hue adjustment layer and a Levels adjustment layer. Bring the Saturation all the way down on the Hue layer. With the Levels layer move the left and right sliders towards the middle. The idea is to make the background as white as possible and the hair as dark as possible without distorting it. Use the Quick Selection tool to select the face and all the hair. Then you want to use Refine Edge to refine and apply your mask.
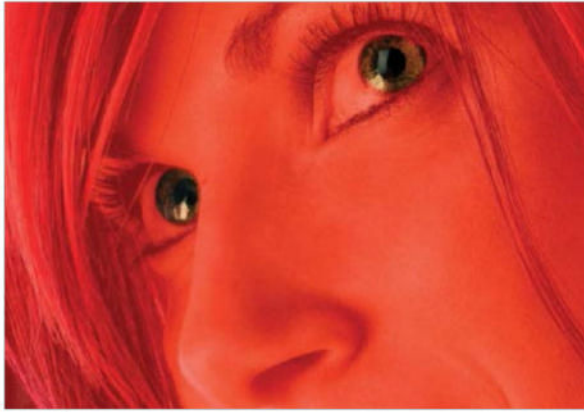
07 Make the eyes pop Making the eyes of your subject pop can really add emotion into the image. The key is to keep it subtle but effective. Create a Curves adjustment layer on top of all the other layers. When you do this it will have its own mask already filled with white. You want to fill the mask with black and grab a white brush. Paint in the mask only over the pupils and iris. Now you want to make an S shape on your Curves layers. On your graph add a point about a quarter of the way up, one in the middle, and one about three-quarters of the way up. Leave the one in the middle and bring the top one up slightly and the bottom one down. You can now adjust the opacity of this layer if the effect is over the top.

08 Colour match the subject and background Use an individual Curves adjustment layer on top of the background layer. Make sure it is clipped to only the background layer by selecting Layer>Create Clipping Mask. Use the RGB channel to adjust the exposure so that it matches the model. Next use Channels to match the temperature of the model. You may want to repeat this process on the model. You will end up blending the two images even more when you get to colour grading.

Use the render flame filter
combine the render flame filter with a real fire image and sparks
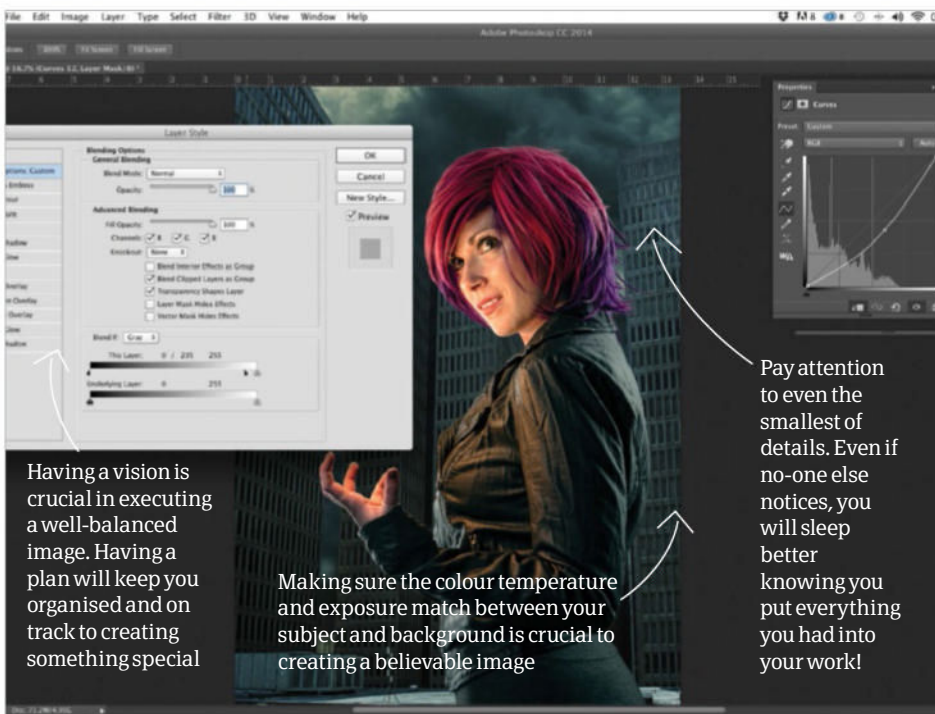
Having a vision is crucial in executing a well-balanced image. Having a plan will keep you organised and on track to creating something special

Making sure the colour temperature and exposure match between your subject and background is crucial to creating a believable image

Pay attention to even the smallest of details. Even if no-one else notices, you will sleep better knowing you put everything you had into your work!
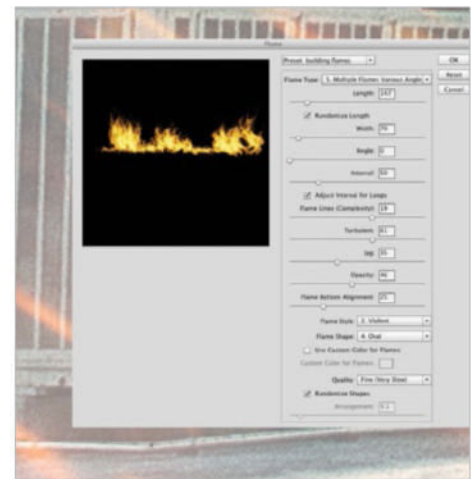
10 Use Render Flame on the background The Render Flame filter is a great way to create custom flames quickly and effectively and it's relatively easy! For this composite we want to put some flames on the buildings in the background. Create a new blank layer above your background. Grab the Pen tool and create a path where you would like the fire to go. Next go to Filter>Render>Flame. A dialog box will open up. You can adjust the type of flame you want, the direction, the width, and much more. Choose the quality you want the flame to be rendered at. Once you get your flames the way you want them, click OK. Deselect your path and you will have a custom flame on its own layer. Turn the blending mode to Screen.

09 Adjust shadows and highlights If you feel that your highlights are too bright or not bright enough you can adjust them without affecting your shadows. Add a new Curves adjustment layer above all other layers. Adjust the RGB channel accordingly. This is just like Step 8 but we are using the RGB channel instead of the blue channel. With your Curves adjustment layer selected go to Layer>Layer Style>Blending Options. At the bottom of the window you will see two sliders under Underlying Layer. Hold down Alt/Option then click and drag the right corner of the black slider all the way to the right. This will cause the Curves to only affect the highlights in the image. Do the opposite for shadow adjustments.

Character

11 Render Flame on the hand For this image you want flames to look like they are riding up the fingers of the subject. This is where Render Flame can be more effective and beneficial than using real photos of fire. You are going to want to focus on one finger at a time. Follow the same procedure as Step 10 but make sure to put each flame on its own layer so you can Transform and Warp it if you need to. Since we are going to use a photo of fire for the main fireball, make sure that your finger flames go past the fingertips and flare out so they blend with the real fire elements.

12 Create sparks To create sparks you will reverse the process a little. Create a new layer and grab a Hard Round brush set at 8 pixels. Start drawing very small dots and dashes about the size of sparks. Use the Magic Wand tool to select the negative space of the layer then inverse the selection. Next go to your Paths panel then click the Make Work Path from Selection icon. Follow the procedure from Step 10 and make sure to change your blending mode to Screen. Add a Motion Blur to give the sparks some motion.

13 Add real fire elements and smoke Although you are using Render Flame to create custom fire elements, it's hard to beat the real thing. For the main fireball use a real photo of fire on a black background. Put the fire on top of the layer you want it to be over and turn the blending mode to Screen. On you keyboard hold down Cmd/Ctrl+T. This will allow you to transform and size your flame. Follow the same steps to add fog and smoke. A great smoke and fog package can be bought at **www.phlearn.com**. Use a Levels adjustment layer to adjust the amount of fog or smoke.
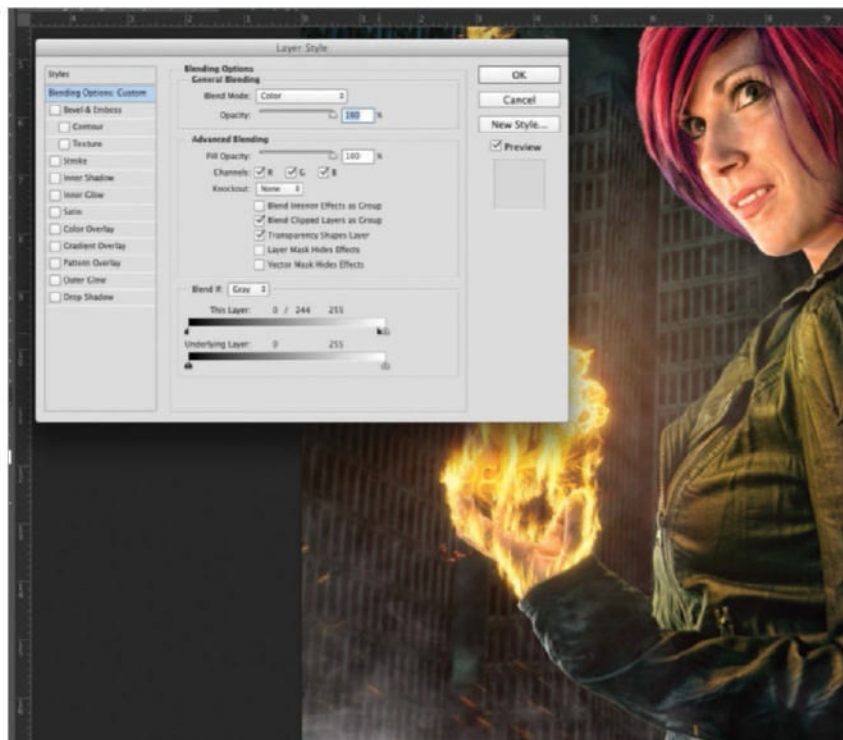
14 Enhance the flame's glow on the body Add a blank layer above your subject. Grab a Soft brush, change the Opacity to around 20% and make it orange. Take your brush and paint over your subject where the light from the fire should be hitting them. Clip the layer to your model layer so it only affects that. Turn your blending mode to Color. Use the procedure from Step 9 to make it only affect the highlights. Add a layer mask and mask out any areas that shouldn't have the glow from the fire.

16 Sharpen Save your PSD. Once you have saved it select Layer>Flatten Image. Make a duplicate copy of the flattened image by pressing Cmd/Ctrl+J. Select your top layer. Next select Filter>Sharpen> Unsharp Mask. Adjust the sliders as needed based on file size. While still on the top layer, select Layer>Layer Mask>Reveal All. You can then use a Soft brush set to black to remove the sharpening from any areas you don't want it. You can also use the opacity to pull down the sharpening over the entire image.

15 Final colour grading First add a Channel Mixer adjustment layer. Choose the Black and White With Green preset. You will notice this turns your image black and white. You want to use this adjustment for some desaturation so bring the Opacity down to 15%. Next add a Color Balance adjustment layer. The Color Balance adjustments will vary from image to image so play around with them to get the look you want. For this image the Shadows and Midtones were pushed towards the cyan and blue tones, while the Highlights were pushed towards the red and yellow tones.

17 Add grain Lastly add grain. Create a new layer above your sharpened image. Hold down Shift and click Delete. Choose Fill with 50% Gray. Change the blending mode of this layer to Soft Light. Next select Filter>Noise>Add Noise. The size of your image will determine the amount you use. Choose Uniform and leave Monochromatic unselected. Once you apply, hold down Cmd/Ctrl+U. Then pull down the Saturation to -85%. Leaving a little colour in the grain will make it look more natural. Make sure to do this step at full zoom. You can adjust the opacity if it feels like it's too much. Save your PSD with all layers intact.
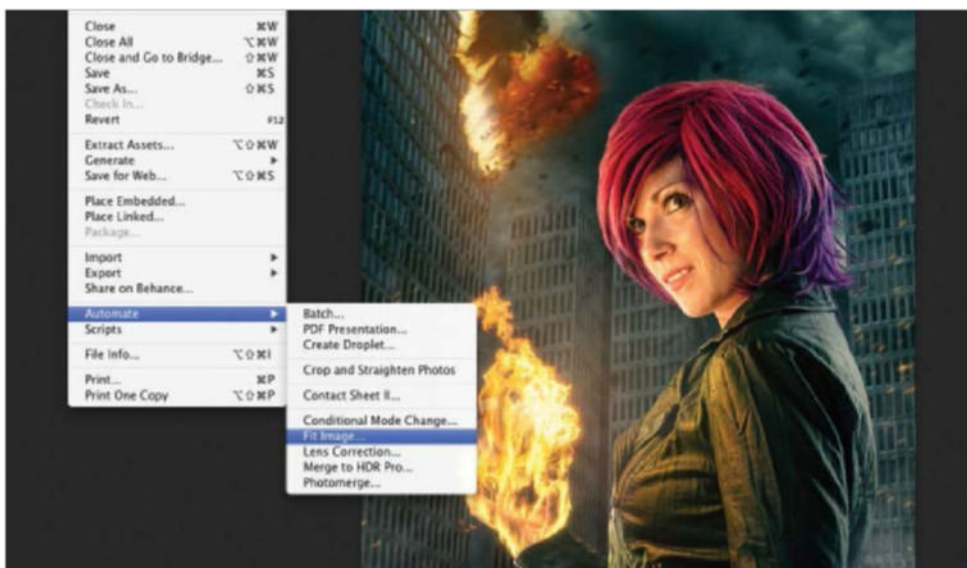
18 Save it You can save the image several different ways depending on its use. If you are going to use a good quality printing lab you can leave the image in Adobe RGB and select File>Save As. Save the file as a JPEG or TIFF. If you are planning on using a low-end printer or saving for online use you want to convert to SRGB. Select Edit>Convert to Profile. Choose Working RGB. Save it the same way as before. For online use it's good to scale it down before saving. Select File>Automate>Fit Image. Do a width of 2048 pixels and a height of 2048 pixels. Save it as a JPEG, and put it in a separate folder so you know it's for online use.

"Leaving a little colour in the grain will make it look more natural. Make sure to do this step at full zoom. You can adjust the opacity if it feels like it's too much"

Visual help

Sometimes techniques like Render Flame are hard to grasp in written form. A video or visual explanation can sometimes help. Brendon Cawood has created a video tutorial to go along with the Render Flame portion of this tutorial. You can find it by going to his website www. brandoncawood.com and clicking on the video tutorials page. You will find videos that go into further depth explaining how to incorporate the fire elements as well as colour grading.

Concept

Make your own steampunk sky captain

Learn how to design and paint a sultry steampunk sky captain using layers, textures and selections

Artist
David Nakayama
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David Nakayama is a San Francisco-based illustrator and concept artist. He is the current lead artist at TinyCo and a freelancer for Marvel Comics. He enjoys working in both digitally painted and comic-book styles.

Software
Photoshop

Ladies and gentlemen, boys and girls – it's time to go retro! In this tutorial, we'll venture into the beguiling world of steampunk, where the technology of the 1800s is all you need to achieve the greatest and most imaginative marvels of science fiction. Explore the tropes of this popular genre and learn how to use them in a fresh way, as this tutorial takes you through steampunk design step by step. We'll discover how to use a semi-realistic painting style to give your image dimension.

As with any illustration, your draftsmanship skills will come in handy here, as the focus remains firmly fixed on the specific details of character design and illustration. Then when it is time to paint, a human-interface device – such as a Wacom Intuos tablet or Cintiq – is most definitely mandatory for any artist. The precision and pressure control that a graphics tablet can give you is essential to render a painting in this retro style.

It is Photoshop's highly effective painting tools and precise blending modes that can be fully relied on for this sort of illustration, as they will ensure professional results for every user. This simple tutorial will direct the use of layers and brush passes to build up the character, adding texture with clipping masks where necessary and controlling coverage with the Magic Wand function when needed.

From sketch to colour flats
Build up the base of your illustration before tackling the details

01 Create thumbnails Before beginning any new illustration, it's helpful to sketch out several rough copies. Doing this on a small scale – thumbnail size, for example – is a great way to force yourself to think only about the big picture without focusing on the minor details. With this method, you'll generate a lot of different ideas quickly and have more options when it comes to picking a winner.
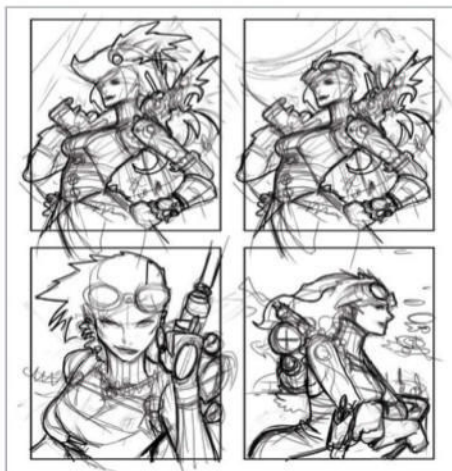
02 Draw ideas into frames Create a series of boxes with proportions to match your final image size. On a separate transparent layer, sketch up a different idea in each box – would a low-angled three-quarter view work? Perhaps a confrontational close-up? Consider which angle shows off your character the best. Decide if the background is an important part of the scene and if or how she'll interact with it.

03 Build character and composition You can't talk about composition without considering character. This image shows the steampunk femme fatale as a pistol-packing, sky-captain type to convey an ultimately confident attitude. It is useful to think about the shapes of key costuming elements and accessories at this point, as large objects will affect the overall portrayal of the figure's silhouette. Aim for negative space.

04 **Reformat your image** At this stage, look for feedback on your image. For this project, we've chosen the layout with the figure facing forward (the first two options, while interesting, didn't feel suitable). We also thought the image could be overworked a bit more. First, paste the lines of the selected thumbnail into a new document and scale it all up to full size (A4 at 300dpi) using Transform (Cmd/Ctrl+T). Then use the Crop tool to expand your canvas size. Fill in what's missing on the edges.

Crop to expand

It sounds counterintuitive, but did you know that the Crop tool is the ideal way to expand your canvas? Select the whole image area with Crop, then instead of pulling them inwards, drag the corner handles out to the desired larger size. Hit return to see your revised canvas size.

07 **Prepare for colour** The goal is to make the transition from black and white to fully painted colour. To begin the process, soften the hard blacks by tinting the line art. Lines describing skin become red-orange, for example, whereas leather elements are made dark brown, while white elements use a dark grey. Simply select the Lines layer, choose the Lock Transparent Pixels option at the top of the palette and then paint in the lighter colour. Leave the lines of the eyes, eyebrows and lips black so that they stand out, helping to draw the viewer's eye.

05 **Refine the design** Now it's time to really dig into the design, and for many artists, it's more intuitive to work with lines. Lower the Opacity of the layout layer and create a new layer (Cmd/Ctrl+Shift+N) for the line art. Every draft costume idea set up earlier must now be fleshed out and defined clearly in detail. What exactly makes a good steampunk outfit? A good place to start is with a checklist of familiar props – things like goggles, leather straps, various belts, pinstripes, lace ruffles, brass, rivets, gauges and gears.

06 **Mix it up** Don't stop there. Relying only on typical design choices will result in an uninspired and unoriginal piece. To keep things fresh, make sure to include elements that are a little outside the box. Adding a few tabs to the muzzle of the revolver evokes the look of a key, which feels right for the genre. Tattoos aren't typical in steampunk, but the one on her forearm combines an old-fashioned diving helmet with kraken tentacles – both well-known symbols in this aesthetic. Later we'll remix with the palette in a similar way.

08 **Build flat colours** Block in the basic colour groupings. To do this efficiently, set up your layers in the following way: below the Lines layer, create a master silhouette layer filled with grey. Using Cmd/Ctrl+Opt/Alt and clicking the line dividing the two layers, attach an additional layer for each main colour in the piece. Paint in each colour with a flat round brush. This approach helpfully minimises the number of selections needed to divide up the form and makes it much easier to reselect any particular area of colour later.
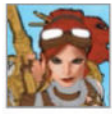
Begin painting

Start fleshing out your image by building on the colour flats

As painting begins, it's important to keep an eye on the overall image and ensure that the figure contrasts strongly with the background, as if it leaps off the screen

With design considerations completed in black and white, adding colour is the second job, beginning with line tints and flat-colour fills

Establishing a strong composition, a pose that communicates character and eye-catching costume design are generally the first priorities in any illustration

The majority of time spent on this piece will go into lighting and texture passes that ultimately give this character dimension and a realistic appearance

10 **Set up your layers** Highlight the master and individual colour layers and create a merged copy of them (Cmd/Ctrl+Shift+E), labelling this layer Flats. Next, merge the Flats and Lines layers together to create a copy of your complete figure so far. Clip a new layer onto this (Layer>Create Clipping Mask) and name it Paintover. As you work, use the Magic Wand tool to easily recall a colour grouping from the Flats layer. Hide the selection using Cmd/Ctrl+H if it's distracting. Then in the Paintover layer, brush in darker and lighter tones, building up from the flat-colour base.

"This makes the figure feel more finished almost right away, adds interest and brings together the various colour groupings into a unified whole "

09 **Add Colour and shading** Up to this point, the work has been strictly two-dimensional – sorting out composition, character design and flat-colour distribution. Now it's time to shift focus and start to think three-dimensionally, as the focus changes to rendering in light and shadow.
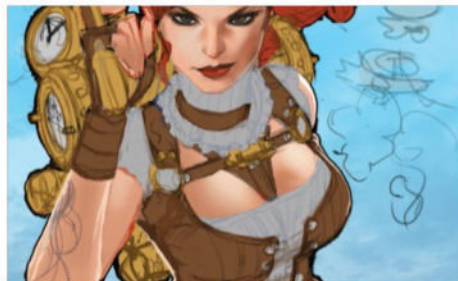
11 **Find the light source** The beauty of this approach is that it's easy to perform selections. The paintover exists on a separate layer too, which makes it easy to turn on and off. Doing this enables you to see if it's adding or detracting from the merged working copy. In order to choose what to put in your paintover layer, it's a good idea to let a single light source be your guide. In this case, the light is high and a little left of centre on the face, which is not consistent with the character's chest. Thankfully this can be adjusted.
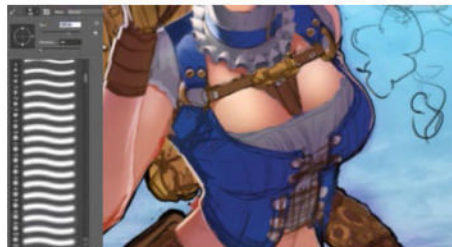
12 **Develop shadow and tint** With the general lighting source established, add an overarching shadow treatment to complement it. Create two new layers at the top of your stack. In the first one, paint a master swatch using a cool colour of medium saturation – purple, in this case. Switch the second layer to Hard Light mode and use a soft round brush with the swatch colour to tint any part of the figure that belongs in shadow. Almost straight away the character will seem more complete, while bringing together the various colour groupings into a unified whole.
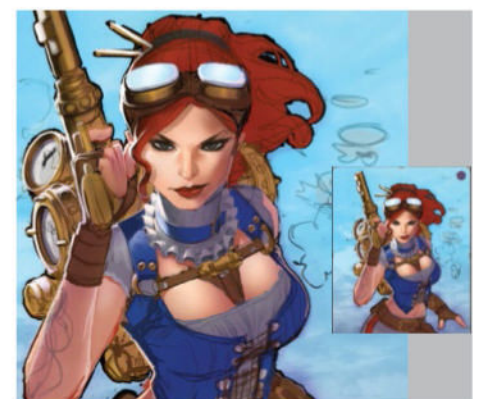
13 **Don't forget the context** As work progresses, it's important not to lose sight of the overall image. Consider things like the colours and if they are working, or if the anatomy and foreshortening make sense in the image. To keep an eye on the finished read of your image, it helps to have a duplicate window open on a second screen at a smaller size. Go to Window>Arrange> New>Window to do this. Once again, get some feedback. In this example, more overwork is needed on the left to help balance the figure and the blue clothing, which adds an unexpectedly nice touch.
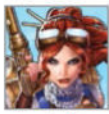
Detail the character
Conclude your piece with detailed rendering

14 Control the focus Rendering every part of a figure in high detail is both unrealistic in terms of time, but also self-defeating. Your illustration will actually be a lot stronger if detail is concentrated in one place – usually the upper body and face in particular, as this helps to guide the viewer's focus. Work with the shadows turned off for now and gather photo reference to help you get the face, hair and accessory details just right. Pay particular attention to the eyes, making sure that they are conveying the desired expression.
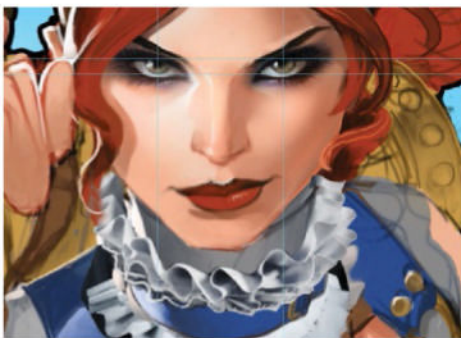
15 Build texture All the various surfaces are similar. Lighting alone isn't enough to differentiate them and to read realistically, each surface will need a distinctive texture. This can be done with brushes or texture overlays, but generally the second approach is faster. Visit royalty-free texture websites, such as www.cgtextures.com, to gather aged leather, linen and worn metal texture assets to suit this image. When painting is complete, stamp all the figure layers together and clip the new texture layers to it (Layer>Create Clipping Mask).
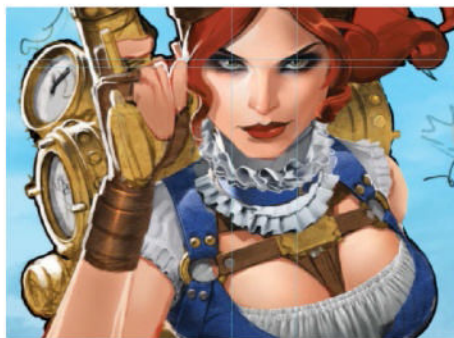
16 Work with textures None of these layers work automatically, so adjust each one until it fits in a natural-looking way. Dial up the Levels to increase contrast (Cmd/Ctrl+L opens the adjustment window). Then change each layer's mode to Overlay, Soft Light or Hard Light and lower the Opacity until it looks right. Adjust the scale of each texture with Transform (Cmd/Ctrl+T) until it seems proportional. When things look correct, use the Clone Stamp tool to alter particular areas where the texture appears too strong or too weak.
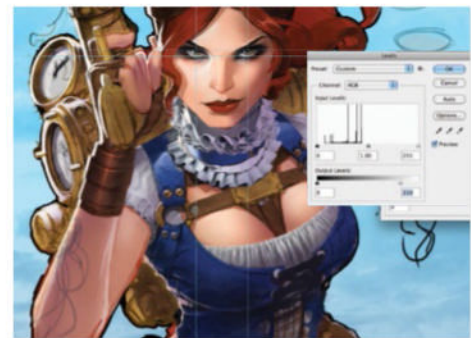
Gather texture assets

A little more on the topic of texture overlays. When searching for royalty-free textures online, dedicated sites like **www.cgtextures.com** or **www.mayang.com/textures** are an invaluable way to gather handy assets for your texture library. In general, try to download the largest version of a given texture that you can to reduce the amount of Clone Stamping you'll have to do later. When a certain texture isn't easily available, you may want to try a texture-brush approach instead. Tutorials about rendering various materials with brushes are readily available online with a simple search. **www.gumroad.com** is another great place to find useful tutorials.
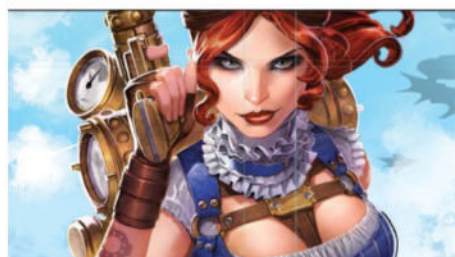

17 Include finishing touches Now the fun part – it's finally time to add the bells and whistles to make this image sing. Add fine details like the pinstripes and individual strands of hair. Add tattoos on a new layer set to Multiply mode at 66% Opacity. In the background, add some airship silhouettes. As they recede in space, increase the blur (Filter>Blur>Gaussian Blur) and the amount of blue to simulate the appearance of atmospheric fog. Finally, it wouldn't be steampunk without some steam! Add a few puffs around the figure's brass backpack using a cloud texture brush.
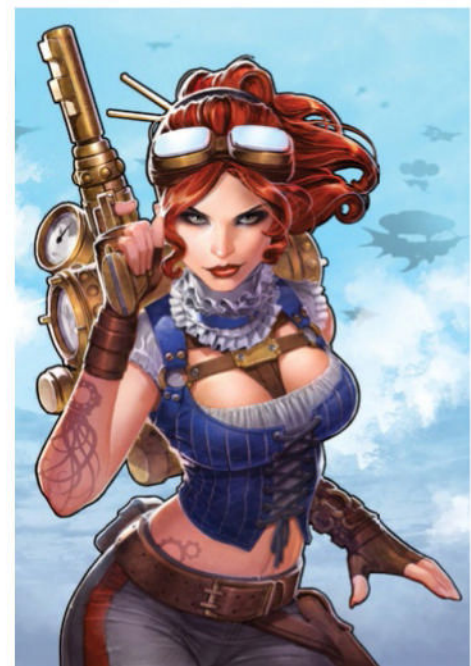
Collect reference photos

The more realistic your painted style, the more you'll need to collect reference. It's almost impossible to paint detailed realism from memory alone, so spend the time to gather images of difficult details like ruffles and other clothing folds, faces and hair. If it is possible, have your reference open on a second screen as you work.

"Now the fun part – it's finally time to add the bells and whistles to make this image sing … Finally, it wouldn't be steampunk without some steam! Add a few puffs around the figure's brass backpack using a cloud texture brush"

18 A final flourish One last thing – adding a bold stroke around a painted figure is a cool, eye-catching juxtaposition of styles and it also helps the figure pop off the page. To get a decent rough draft, stamp all the figure layers together and double-click the merged layer to access the Layer Style options. Choose Stroke and set it around 10px. Place this layer behind the original figure layers. Now add the stroked layer to a Group (Cmd/Ctrl+G), then flatten (Cmd/Ctrl+E) to get a nice clean layer with the effect added in. Clean up the edges for a nice, even outline.
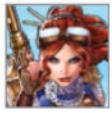
Secrets of steampunk

Find out about the visual language of steampunk and how it is created

Victorian materials are key to steampunk. Brass is a particular favourite. Its opulent golden colour adds richness to illustrations that are often in a limited palette... any object rendered in brass look instantly 19th Century

Steampunk clothing takes inspiration from both Victorian fashion and more practical clothing from the time, such as army uniforms or stereotypical ensembles like the classic explorer outfit of pith helmets and puttees. Zips and poppers are out, but rivets and carabiners are in!

Don't get bogged down by obvious steampunk symbols like clockwork. This character's tattoo isn't typical of steampunk in itself, but the mix of the old-fashioned diving helmet and oversized octopus in the design clearly references classic Victorian sci-fi, like *Twenty Thousand Leagues Under The Sea*

Advances in Victorian technology meant that those who travelled in new inventions like cars often needed to protect their eyes from wind and dust. Steampunk's love of reimagining Victorian technology as more powerful and more advanced than it actually was means that goggles have become a must-have accessory for any steampunk character

These are not merely hot air balloons or zeppelins though – they're ships built along classic Victorian lines that have been enhanced with Jules Verne-inspired sci-fi technology. Adding them into your piece is a quick and obvious shorthand for steampunk

Steampunk can be produced in any art style, the most common is realistically rendered digital paintings that emulate the oil paintings. Don't feel limited by this though. As long as you're hitting other steampunk signifiers, you can introduce more modern elements

Concept

Retouch a fantasy sorceress

Use Photoshop to produce an image that combines standard retouching techniques with creative ones

When working on composite images, you will often find yourself jumping back and forth from one element to the other. As you continue to manipulate the layers and masks, you will often find that colour and tone that looked good before may not match the evolution of the final image.

The success of a composite image relies on the artist's ability to make changes and tweaks throughout the creative process. One way to give more flexibility is by using adjustment layers for lighting effects, rather than a blank layer with a paintbrush. Besides the usual Opacity and blend modes, you will also have additional sliders and options for greater efficiency.

Expand your creativity by also introducing Smart Objects. At any point in time, you can go back to the original RAW file and make the same changes there, without the 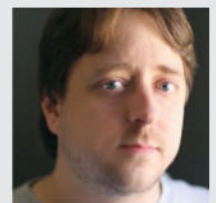need for more layers and masks. Used with Smart Filters, you can make changes to the filter's settings whenever you want.

Layer effects allow you to build upon existing layers, without the need to create more layers and do extra work with the Brush tool. They are another great way to enhance your images within a non-destructive workflow.

Artist
John Ross
www.
TheArtofRetouching.
com

Ross specialises in portrait and composite retouching. He has worked in advertising and editorial for 20 years, and lives and works in New Haven, Connecticut.

Software
Photoshop

Source Files
On FileSilo you will find a small collection of files that have been made for this tutorial.

Retouch the model
Start with basics like cloning, colour and tonal changes

Go smart

Photoshop CC now supports linked Smart Objects. This means you can work on a full size image in great detail. After saving, you can link it to another document at whatever size you want, without the need to double or triple the size of your final composite while working on it.

01 **Camera Raw filter** Open 'Imensia.tif' from the disc. In the Layers panel, Ctrl/right-click and select Convert to Smart Object. Use Filter>Camera Raw Filter to begin doing some basic colour and tonal corrections. Click OK. Smart Objects will give you flexibility in a non-destructive workflow. This is great when working with composites. Name this Layer 'Original Model'.

02 **Camera Raw and Smart Objects** ß With CS6 and older, you can use Camera Raw's Preferences to open 'All Supported TIFFs', which will open this image in Camera Raw to make changes. To go from Camera Raw to Photoshop, hold down the Shift key. It will change Open Image to Open Object. You will now have access to these changes later for further tweaking.
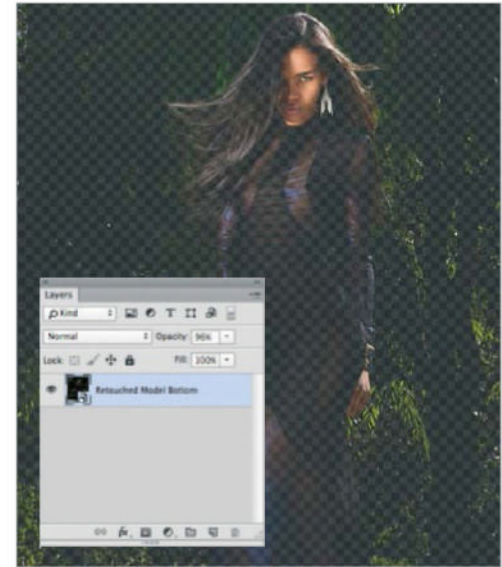
Character

03 Prepare the model Create a new blank layer for your cloning and touch-up. Smooth out the skin, enhance the eyes, and clean up some flyaway hair. Some wrinkles can be removed with the Healing Brush, while others may prefer Dodge and Burn. You will make many adjustments later, but starting with a clean image will lead to the best final results.

04 Another Smart Object Select all the layers and Convert to Smart Object. Name it 'Retouched Model Bottom', and change the Opacity to 95%. To make changes to the model later, you can go back to this base image by double-clicking the Smart Object layer. This layer will contain all of the corrections you have made to the model. If you want to change it later, just double-click again, and a new window will open. Make your changes and then save the adjusted image.

Use shape

By using the Brush panel's Shape Dynamics, you can adjust the Size Jitter, Fade Jitter, and Roundness Jitter. When you paint with the brush now, it will randomly change many of your brush settings as you paint. There's also Scattering, Texture, and Wet Edges, as some of the many options available.

05 Begin compositing Create a layer mask for the model's Smart Object layer and loosely cut her out using a brush on the layer mask. Close is good enough because you can fix this later when you have a better idea of how it will look when it's all put together. Place a galaxy image like http://tinyurl.com/lxya5t8 from deviantART behind the model. Use the Camera Raw or Camera Raw filter method like before to make the colour and tonal changes. Place all these visible layers into a folder called 'Back'.

06 Place the disk Open the image 'Disk.psd' that you can find on the supplied disc. Drag and drop the Disk layer containing the shape underneath the model's layer and above the Galaxy layer. Move the Disk layer into position behind the model's body. Use Opt/Alt while clicking on the Disk layer to create a selection of the shape, and then click the Add Layer Mask icon at bottom of the Layers panel. Change the blending mode of the Disk layer to Screen. This will give a mask of the intricate shape.

07 **Add the disk's layer effects** Select all the pixels on the Disk layer and delete them. All you want is the shape as a mask – the pixels will not matter. Use the FX icon at the bottom of the Layers panel and enable Outer Glow with settings of Screen, 75% Opacity, Size 56%, and pick a blue colour. Next, enable Drop Shadow with a black colour set to 75% Opacity, Distance of 10, and Size of 5. All the other settings can remain as defaults. Click OK.

08 **Add the disk's glow** From the disk centre, use the Elliptical Marquee while holding down the Shift key. Select a Curves adjustment layer. Move the curve up, and set to Luminosity blend mode. This goes above the Back folder. Name it 'Disk Glow'. Use Layer FX to select Outer Glow, Precise, and Size of 81, with the rest default. Place Disk Glow into a new group folder called 'Disk Glow Cutout'. Add a white layer mask to the group, using a black brush to stop the glow from crossing over the model's legs.

Refine the model and lighting
Add texture, lighting and layer blending
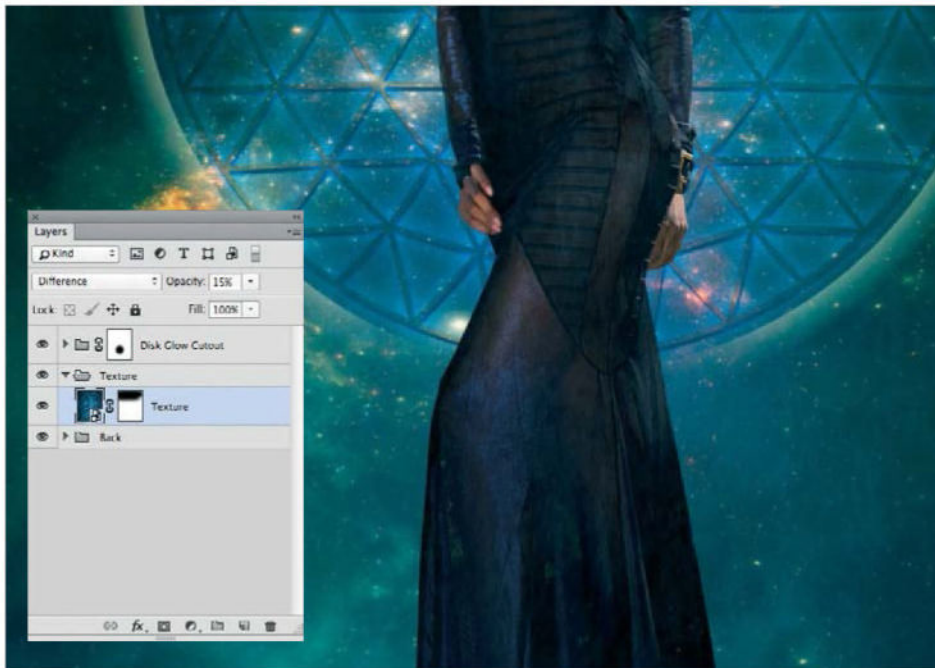
09 **Add texture** Above the Back folder, create a new folder called 'Texture'. Inside, place a textured image layer of your choice like **tinyurl.com/mrgl6fv** from deviantART and cover it over the whole image. Drop the Opacity down to 15% with a blend mode of Difference. This begins to add a painterly effect. Add a layer mask, and paint black to remove the effect from the top half of the image, where you want to retain the details. White will be on the bottom, revealing the texture effect.

10 **Duplicate the model** Select the Retouched Model Bottom layer, and drag it onto the New Blank Layer icon. This will create a second model layer, but still reference the same embedded Smart Object. So if you want to alter one Smart Object, it will apply the same change to the other layer. Place it above the Texture folder. Name it 'Retouched Model Top', with 100% Opacity. Paint on the layer mask to erase the lower half of the layer. This will make more sense in the next step.

11 **Add glow and star bursts** Under the Retouched Model Top layer, create a new Curves adjustment layer. Pull up on the middle of the curve to lighten over the image. Fill the mask with black to hide the effect, then use a white brush to paint in a glow under the Top Model with various brushes of different sizes and shapes. Create multiple Curves layers, with different settings, and different opacities. You can find many custom brushes perfect for the task at www.deviantart.com/morelikethis/99002450.

12 **Begin the blending** Now that you can begin to see it come together, you can really start fine-tuning the layer masks for the two model layers. For the bottom model layer, you should keep the body tight and let the gravel at the bottom fade up into the sky. Mask the loose hair, and let the wispy parts blow around. For the top layer, keep the parts you want the natural colour and erase away, starting at the chest. You can continue to clean these masks up later, as needed.

13 **Add a gradient map** Above the Texture layer, add a Gradient Map adjustment layer. Click on the gradient's drop-down, and then the sprocket. You will see many new types to choose from. For now, choose Photographic Toning. Cycle through the options until you find one you like. A blue one would be nice. On the layer mask, paint away the top half of the image with a black brush. Blend it in so that while a different colour, the bottom gradient merges with the top area seamlessly.
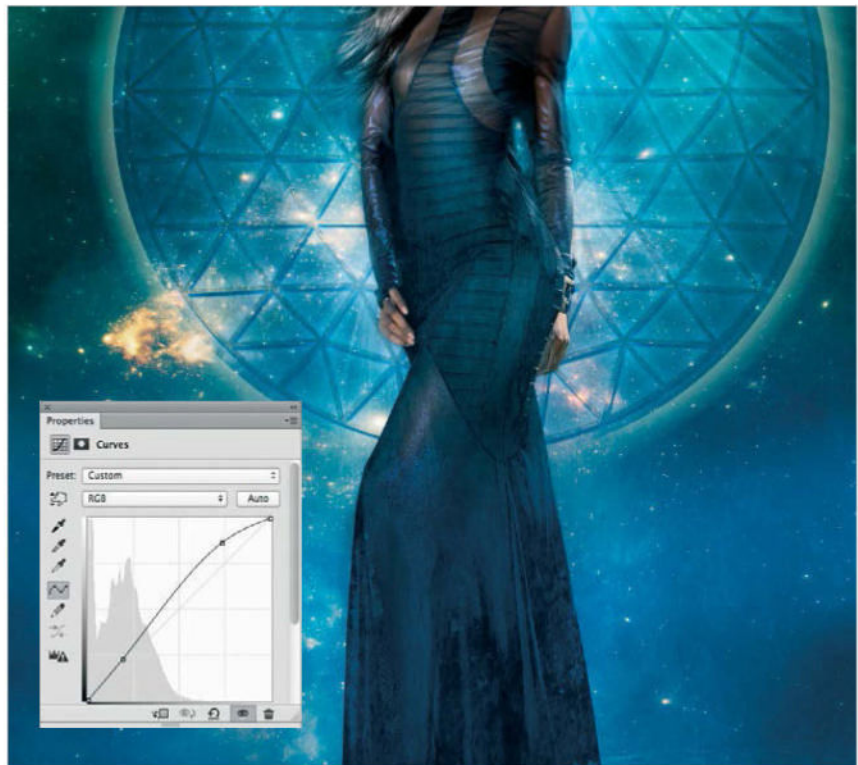
14 **Add texture light** Above the Texture layer, add a Curves layer if you want to lighten up the image. With all these layers being added, the image starts to get too dark. This should really start adding depth to the image, now that you have had a chance to play with the tonal range. Remember, you want to see the details of the texture in the lower areas of the frame, as well as ensure that the upper body remains the focal point of the image.
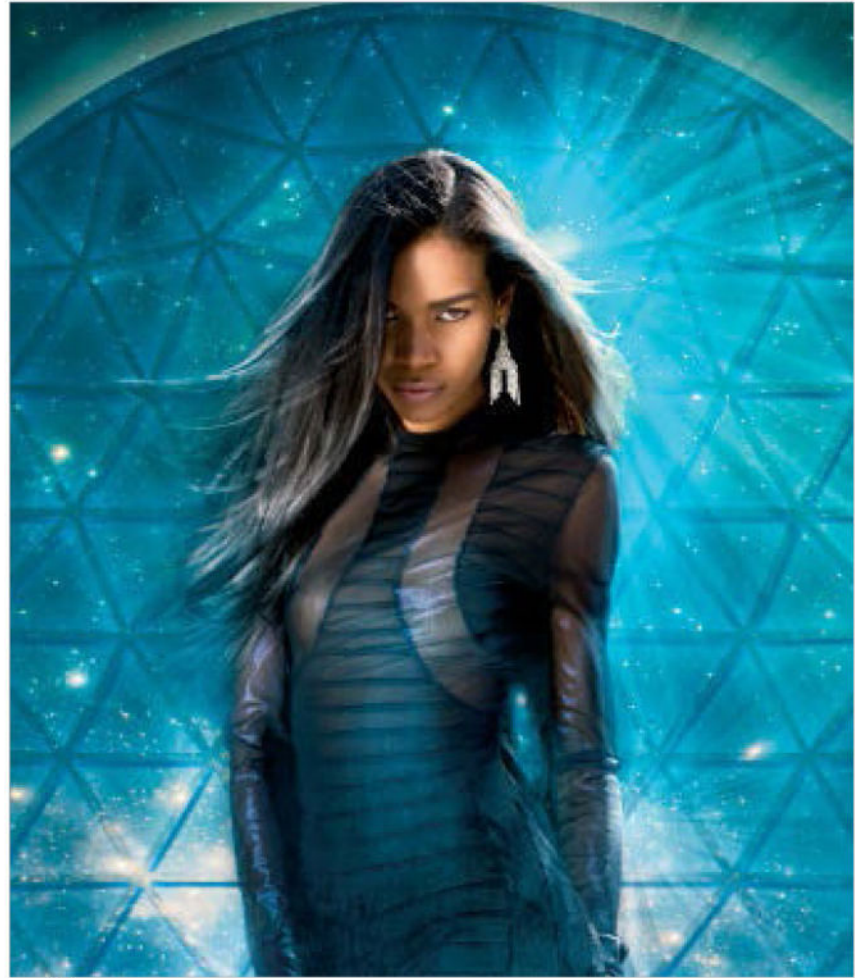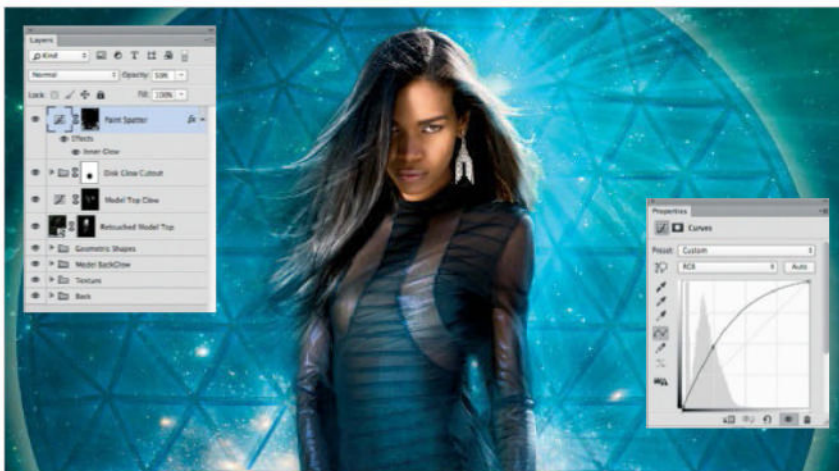
15 Add texture shadows Under the Texture layer, make a Curves adjustment layer. Bring the curve down around half way. Fill the mask with black. With a white brush, you can start to paint back in the darker tone around the lower half of the image. Focus it on the left and right sides, as well as over the gravel at the bottom. Avoid painting over the model's legs. You want to try and keep this detail, not darken it up. We will add details back in the next step.
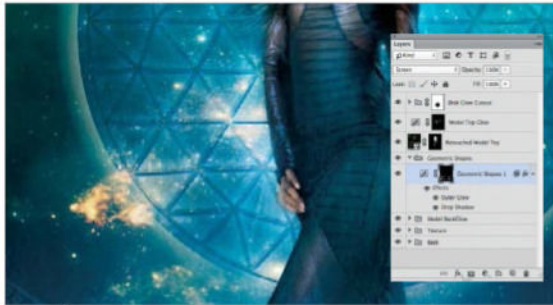
16 Add geometric shapes By using image 166758839 from Shutterstock or similar, you can add geometric patterns to the lower half of the image, off in the distance. Apply the shape to a Curves layer mask, but do not apply any changes with the Curves tool. Instead, use Layer FX with Outer Glow of blue, and a Size of 29px. Also add a Drop Shadow with a Distance of 31px and Size of 16px. Set the layer's blend mode to Screen.

18 Add paint splatter Make a new Curves adjustment layer on top of everything. Bring the middle of the curve up half way, and fill the layer mask with black. Using a white custom brush with paint splatters from **mouritsada-stock.deviantart.com/art/Brush-Pack-Splashes-Of-Paint-94180220**, you can add splashes of paint around the image. For variety, adjust the Opacity of the layer, or arc of the curve. You can use one Curves adjustment layer, or several with different settings. Also try some Layer FX like Outer Glow for added realism.

17 Duplicate geometric shapes Select the Curves layer with the geometric shapes on it, and use Cmd/Ctrl+J to duplicate the layer. On the lower version, go into the Layer FX and disable Outer Glow and Drop Shadow, then enable Stroke with a Size 46px, Position: Outer, Blend Mode: Soft Light, and Opacity: 7%. This blend mode should be Normal. To match the glow of the circular shape behind the model, add your own halo around these new geometric shapes. You could use a brush, or Layer FX with a mask for accuracy.

"To match the glow of the circular shape behind the model, add your own halo around these new geometric shapes"

Focus on the focal point

When retouching, direct the viewer's eye to where you want them to go. Bring the focus to the most important areas. Warm colours come forward, cool colours go backwards… bright tone comes forward, dark tone goes backward. With these simple principles, you can guide the viewer through the image. In a portrait, the face should be the brightest and warmest. By creating darker barriers around the sides and lower part of the image, you can often hold the viewer's attention much longer. The darker and cooler areas do not need to be severe; even subtle shifts can lead to favourable results.

Character

"The skin-tight
accessories were
created by
masking out the
shape of the
clothing on the
body and then
using extraction"

Render a cyberpunk character

Model, texture and light a high school student from start to finish for a futuristic cyberpunk world

Today, we're going to learn how to create a rebellious cyberpunk teenager from the not-so-distant future. The inspiration for this character came from a love of sci-fi and nostalgia for high school sports culture. The mixing of genres is a great way to explore new avenues for design. In this tutorial, you'll learn how to take an image from 2D sketch to a fully realised piece. We will accomplish this with a variety of tools including ZBrush, 3ds Max, Marvelous Designer, Photoshop and KeyShot 5. Whether you're an interested hobbyist, or an industry pro looking to learn a few new tricks, this step by step will show you how to take your work to the next level.

Work your way outwards
Create the skin tight accessories first

Concept

The first step as part of any workflow is having a concept. I start by sketching out my character, making sure that the details and forms are clear. This saves a lot of time down the road.
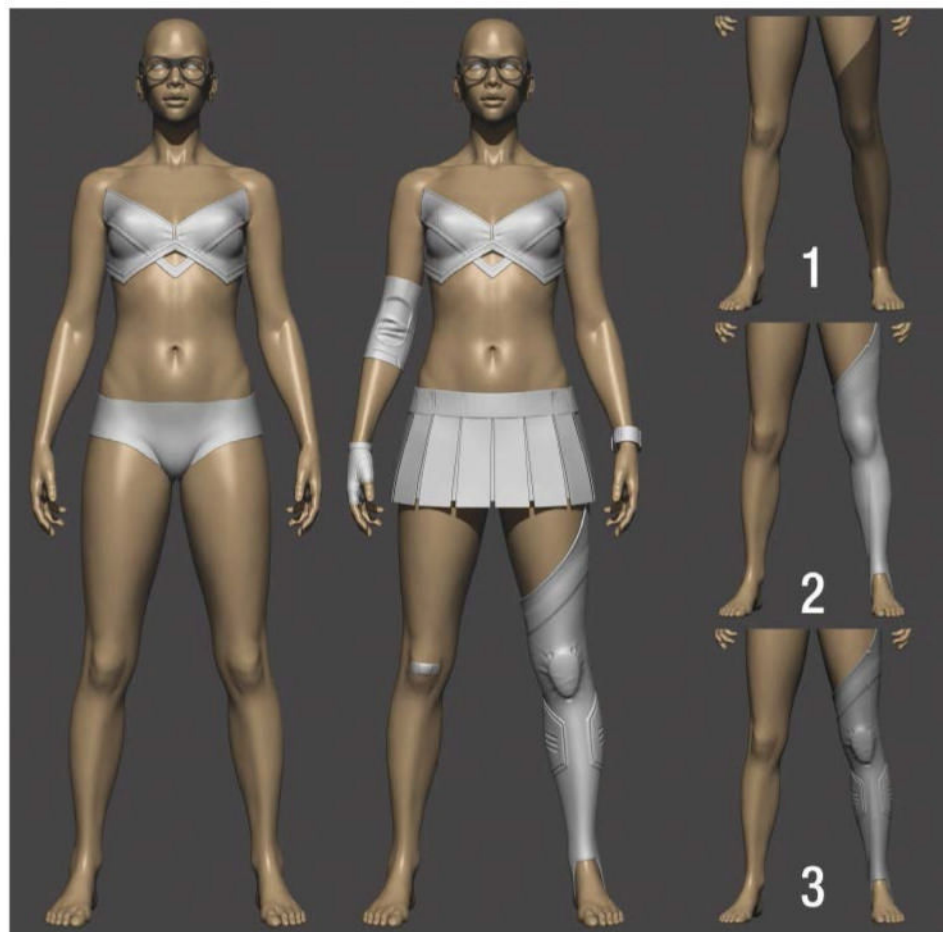
01 Start at the basics In building up a character, it's effective to start at the most skin-tight items and work your way outwards. This helps us build a well-fitting outfit and helps reduce geopenetration issues down the road. The skin-tight accessories were created by masking out the shape of the clothing on the body and then using extraction. The skirt and glasses were created in 3ds Max.

02 Shape the shoes Trainers, like most footwear, are simply a compilation of flat leather shapes. To make the shoes, use a DynaMeshed sphere and shape it around the foot. Then subdivide it a few times and create the different leather patches that make up the pattern of the shoe using the same mask and extract method as Step 1. Feel free to use your real-life trainers as reference.
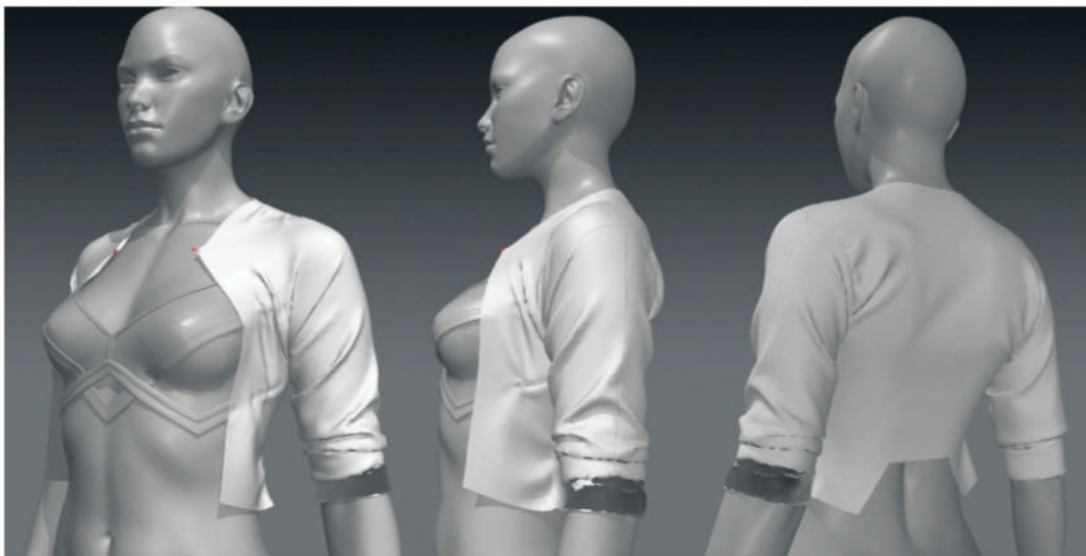
03 Use sim to create cloth

We want the jacket to have some nice realistic folds on the jacket's sleeves.

A talented artist could probably sculpt some pretty believable folds, but they will never be able to match the speed and accuracy that a cloth sim program can provide. Using Marvelous Designer, we can create this jacket with a few well-placed shapes. At this point, you don't need to nail every single wrinkle. We just need a good foundation to start on. When you're all done, make sure to set your particle distance down to around 3. Then, export as an OBJ to bring back into ZBrush.

04 Touch up the cloth

Now that you have a solid base to work on from Marvelous Designer, go in and add the smaller wrinkles and irregularities to the mesh that we see in everyday life. Once again reference is key. Pay close attention to the way the cloth buckles and ripples around seam lines. Pay attention to the natural direction that the sim cloth flows and add additional folds in places that look a bit bare. The collar, straps and other pieces were created with the CurveStrapSnap brush and touched up in 3ds Max.
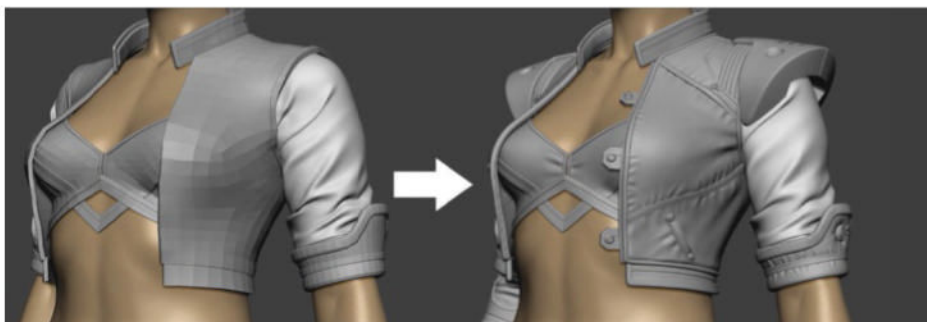
05 Add seams and stitches

To add stitches, create a custom Curve brush with a simple piece of geo to repeat. Making sure that Curves mode is on, start adding your stitches to the areas around the edges of your clothing and anywhere that patches are joined. As an additional detail, use the Dam_Standard brush to slightly indent the path of the stitches. To create the seams on the jacket, use the CurveStrapSnap brush.

> "A talented artist could probably sculpt some pretty believable folds, but they will never be able to match the speed and accuracy that a cloth sim program can provide"

06 Add nuts and bolts

To add the nuts and bolts that give our character a better sci-fi feel, we will use the IMM (Insert Multi Mesh) Brushes. Select the IMM_ModelKit brush and then hit M on your keyboard. This will pull up all of the various shapes and objects for you to choose from. To add the shape, simple click and drag on the object.
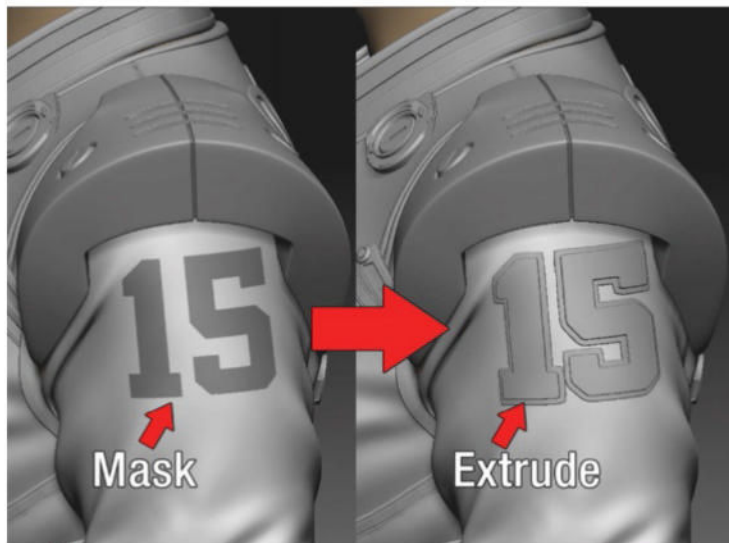
07 Create the patches Our hero is an accomplished athlete and she's not shy about it. To adorn her with her various patches, we first created some custom Alphas in Photoshop. Then we import them into the Alpha palette and do a mask extract like before. These meshes can get pretty heavy, so we suggest hitting them with ZRemesher.

Size matters

When starting a project, pay attention to the real-world scale of your character. In 3ds Max or Maya, use the measuring tools to make sure your character is a realistic height. Programs like Marvelous Designer and KeyShot use real-world scale to calculate things like gravity and thickness. If your character is 70 feet tall or the size of an ant, it will have an adverse effect on your final results.

08 Facial details Adding details to the face needs to be very precise. Make sure you have plenty of reference that matches the type of character that we want to convey. Sculpt what you see and not what you know. Reference is key in creating a believable piece. In this case, our character is high school age with attractive features. Alpha 07, with Spray mode on and at an intensity of around 6, is ideal for adding skin pores. Pay close attention to your reference to see what size, direction, and depth the pores are going in. Use Alpha 58 with Stroke mode on to create the subtle lines under the eyes and on the lips.
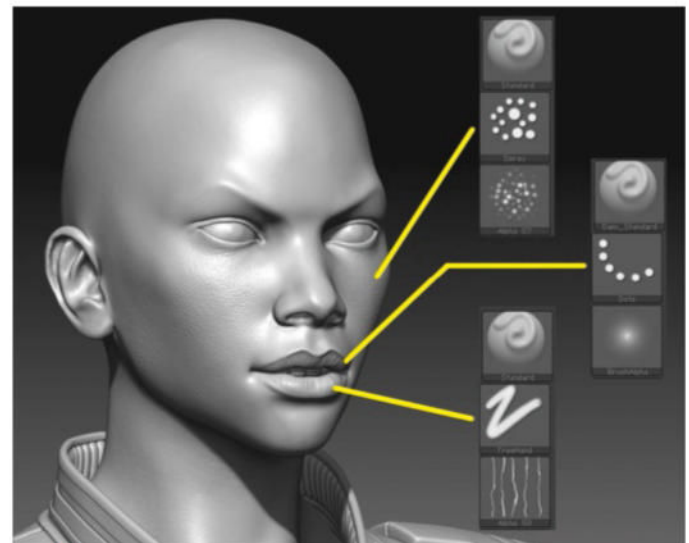

09 Create hair To create the curly 'frohawk', simply mask the area along the top of her head and go to the Fibers tab in Lightbox. Select Curley_Hair1.ZFP. From there, go into the FiberMesh tab and hit Preview. From here, you can adjust all of the parameters of the hair. You can see the settings that were used for this piece. Once you're satisfied, hit Accept. The eyebrows were created the same way. Just mask off the eyebrow shape, use a straighter hairstyle like Fibers160.ZFP and lower the length and fibre count accordingly.

10 Add the braids The braids were created using a custom Curve brush graciously donated to the ZBrush community by Tetsuo Oshima. Draw the braids across the head one at a time and adjust with the Move brush. By nature, the Curve brush will add the braids to the same SubTool that you are drawing on. A quick way to separate them is to clear your masks, then Cmd/Ctrl+Shift+click the head to isolate it. Mask the head completely and then Cmd/Ctrl+Shift+click in a blank space to unhide everything. Now with the head masked off from the braids go to Subtool>Split>Split Masked Points.

11 **Block it all in** Just like in the modelling phase, we first want to block in all of the colours with flat colours. To do a fill, go to the Color tab at the top of your screen and hit FillObject. Make sure that Mrgb is selected and use a basic material for now. The school colours for her are green, black and gold. Using lots of reference of athletic apparel, we can get a feel for how to approach things. The goal is to make her outfit read as a high school uniform, no matter what time period it is set in. The clothes would be clean, colorful and well maintained with different types of materials mixed in.

"Remember, nobody is perfect and small skin irregularities really help add realism to skin texture. Add birthmarks and acne scars"

12 **Texture the skin** Using the same skin colour that we used as the fill, select Alpha 7 with Spray mode turned on. Make sure to turn off Zadd and Zsub so you aren't sculpting while you paint. Now lightly brush across the surface to add some irregularity to her skin tone. You can also go back in and add smaller things like birthmarks and acne scars. Remember, nobody is perfect and small skin irregularities really help add realism to skin texture. To add the tattoos, images were turned into Alphas and added with Drag mode. Use a dark green colour instead of pure black to give the tattoos a more realistic tone.

Add eyelashes

Everyone has eyelashes, but not every artist remembers to add them. The Curve brush can be used to quickly and effectively create eyelashes. First model out a single lash and then orient the camera so that you are looking at it from the tip. Go into the brushes palette and select 'Create Insert Mesh'. Turn on Curves mode and draw along the edge of the eyelid. Keep in mind that the upper eyelashes are fuller than the bottom ones.
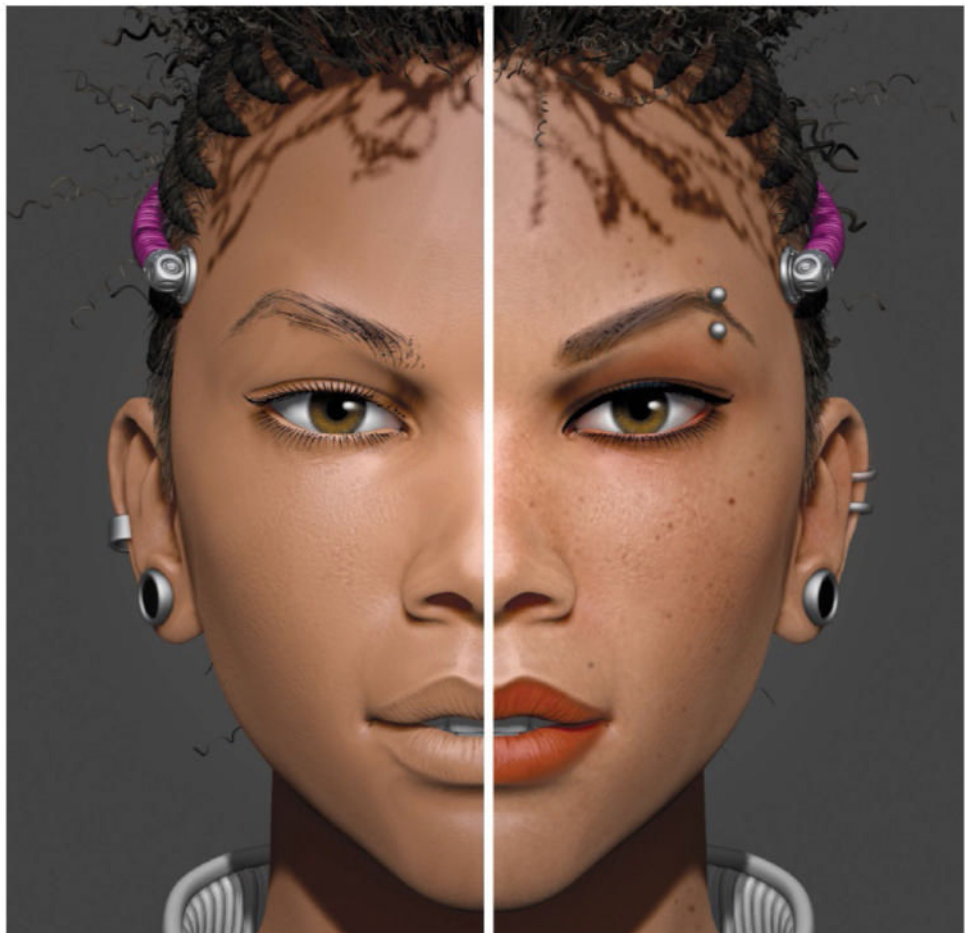
Get to know Damon Woods' characters

Indi Girl
ZBrush, 3ds Max, V-Ray (2011)
● A female bust that I did a while back. It reflects my love for unconventional beauties who go against the grain. Inspired after watching the film *The Girl With The Dragon Tattoo*.

Mr Liu
ZBrush, (2012)
● This was created as a life study. The man's name is Mr Liu and I thought he just had an interesting face with lots of history in it.

Late Night Bite
ZBrush, KeyShot, (2014)
● This was one of my first times using KeyShot. I'm a fan of vampire movies and figured I would put that love into this piece.

13 Assign materials
Now go through and assign materials to all of the different pieces to help add another level of detail. With M selected, select different materials from your Materials palette. To do this, select the SubTool and do a fill the same way we added the colour. ZMetal was used for things like nuts, bolts and zippers. Skin shader 4 was used for skin. Basic material was used for cloth.

> "Go through and assign materials to all of the different pieces to help add another level of detail"
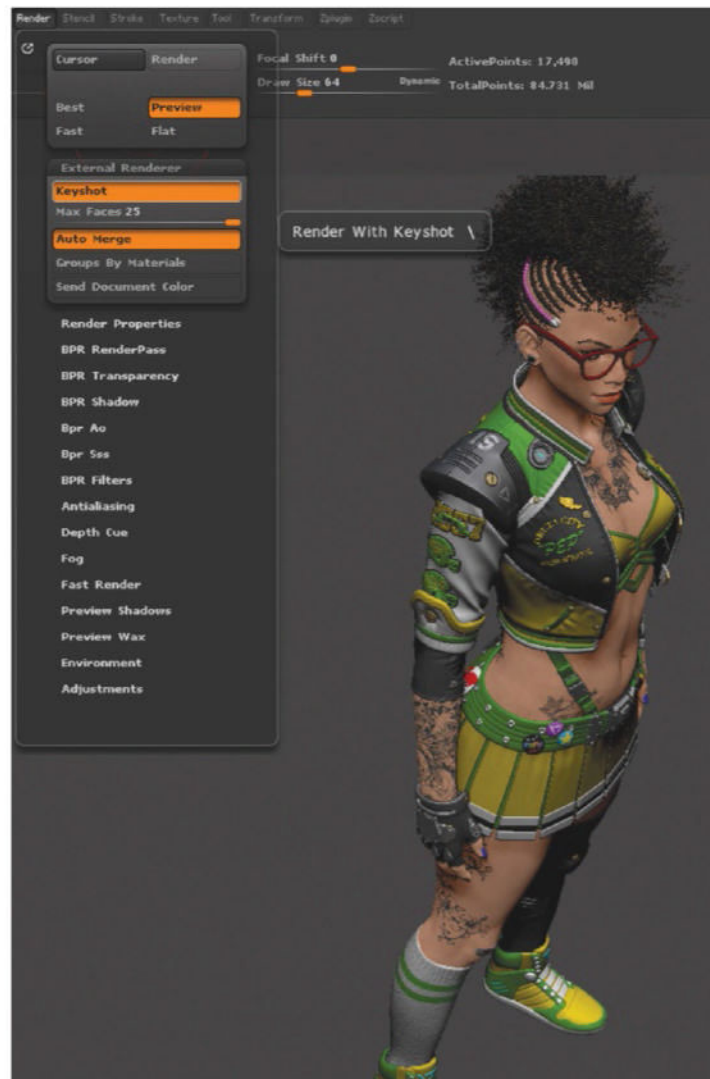
14 Export the geo into KeyShot
We'll be using KeyShot 5 to do our rendering. The ZBrush Bridge in 4R7 lets us zap our model and materials right over to KeyShot with the click of a button. Just go to Render>External Renderer and hit the KeyShot button. Now when you hit the BPR button it will automatically launch KeyShot and send over all visible geo.

What's in a label?

Adding text and labels is a great way to add another level of detail. In modern times, almost everything comes with instructions. We're so used to seeing labels and logos on things that we don't even notice them until they're gone. Create some interesting logos and labels and place them thoughtfully throughout your piece. Even something as simple as a serial number can add that extra graphical punch to your artwork.

15 Set up lights When you have all of your geo exported to KeyShot, you will always be placed in the default studio scene. The first thing you might notice is that the lighting looks really flat and uninteresting. Let's change that by setting up a scene of our own. Go into Environments under the Library tab on the left and select an HDRI scene that you like. For this tutorial, we used the Outdoor>ForestRoad scene. Now go into Environment under the Project tab. Click Edit HDRI and from here you can make several adjustments to your piece like Saturation, Hue, Brightness and Contrast. To adjust the light direction, just use the rotation wheel. You can hide the background image by clicking the Color box under Background and choosing a less distracting neutral colour.

Human Skin
Glass Refractive White
Hard Rough Plastic Black
Clear Shiny Plastic Red
Steel Rough
Leather White

16 Adjust materials Once you've created a lighting setup that you like, we can adjust our materials in the scene. KeyShot will automatically assign materials based on what you assigned in ZBrush. But some of these materials may not be what you want. To assign a different material, click the Materials tab under Library on the left. Here, you can choose from the huge selection of materia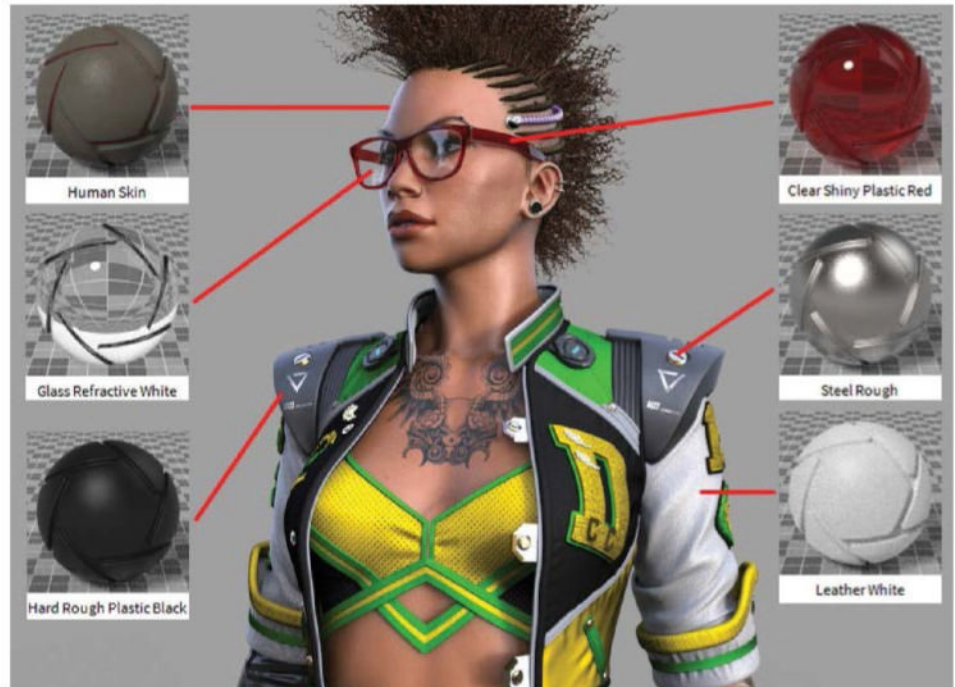ls that KeyShot has. Simply drag and drop the material over the piece of geo to assign it. To preserve your textures, hold Opt/Alt while you do this. The materials also have a great selection of normal and transparency maps. We used the dots textures to create the mesh materials by going to the Textures tab, clicking the bump and opacity boxes, clicking the dropdown next to Texture type and selecting Texture map. Then select the Dots map for the bump and opacity.
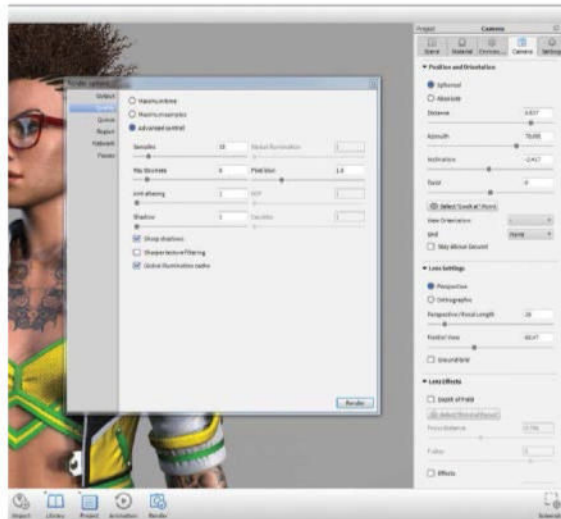
17 Final render settings Once you're happy with the way your materials are looking in the scene, find a good camera angle and save that camera by going to Camera>Add camera. Then click the Camera tab on the right. Here you can make adjustments to things like focal length, FOV and even add lens effects like depth of field or bloom. Once you've finalised your camera, hit Cmd/Ctrl+P or navigate to the Render tab. For best results, we recommend setting the samples to at least 32 and choosing a file type that supports Alpha. Click the box that says Include Alpha, set the file size and destination to your liking and hit the Render button. Congrats, you're done!

"The mixing of various genres is a great way to explore new avenues and possibilities for design"

Add lights

Are the HDRI scenes not cutting it for you? Take matters into your own hands and add some lights of your own. Go to Environment>Edit HDRI and then click the Pins tab. Click the Add Pins button and a circle will appear on the HDRI map indicating the position of the new light. You move the light around by clicking and dragging it and changing parameters such as hue, size and intensity. For fine-tuning the light's placement, click the Set Highlights button. Now you can drag the light across your model in real-time for precision placement. You're lighting like a pro!

Artist
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Aaron is a freelance 3D artist who has created many fantastical pieces of art.

Software
Maya, ZBrush, Mudbox, Marvelous Designer, TopoGun, UVLayout, V-Ray, Photoshop

Source Files
On FileSilo you will find Tutorial screenshots to help you complete the steps of this tutorial.

Design an Elven archer

## Model, pose and sculpt a character influenced by Warhammer

In this tutorial we will be covering the crucial steps in the modelling and texturing stages for creating a digital character, as well as a brief overlook of lighting and rendering. We will specifically look into techniques that are used for the creation of a character with a baked-in pose. Utilising powerful tools from ZBrush, we will be able to realise our final model and pose without worrying about rigging or topology for animation. The benefit of this workflow is that we can lock in the final pose and look of the character, and structure our elements around that.

01 Create a reference sheet
It's always useful to gather all your images into one or two large files to make it easy to quickly look up any useful references you might need. For this type of character we should group armour, weapon and art style reference together, and in another file gather references of anatomy. It's always useful to have a good anatomy book on hand for quick referral.
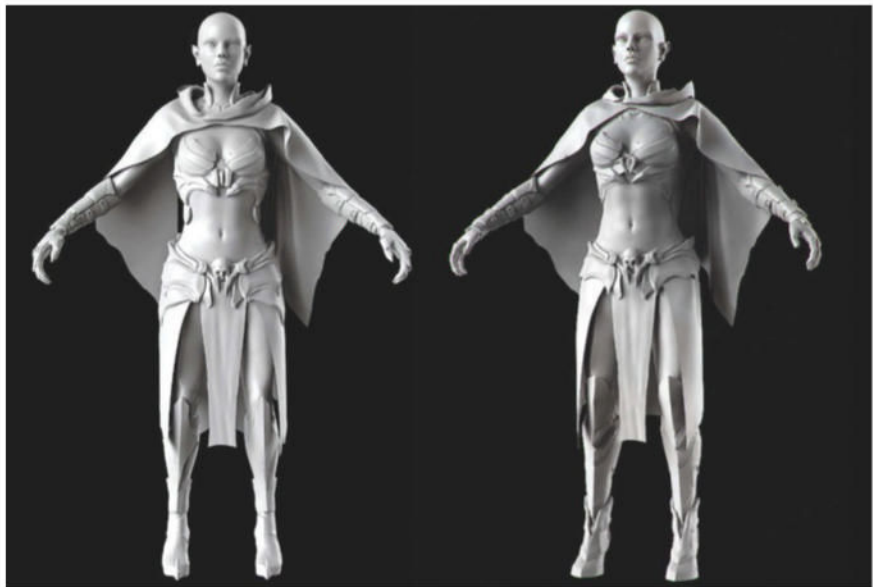
02 Block out the anatomy
Now we design the basic structure of the character. Use Maya to create a very simplified model of the female body. Keeping polygon density to a minimum means we can easily adjust our model without getting caught up in the details too early. After the base mesh is complete, export it into ZBrush for further refinement.

Ensure you are constantly referring to your anatomy reference here. In this stage it is crucial to ensure your proportions are spot on, if they are not you will find it more difficult to adjust errors later down the line.

03 Refine the anatomy and topology
Once we have a good amount of detail in the sculpt it is important to adjust the topology. Because of the simplistic base mesh we used, some areas of our model will need to be altered to allow for a denser polygon count. In this instance we will use ZRemesher to quickly automate the retopology process.

Using Polypaint to determine areas of higher density like the head, we can get a good result quickly with very little effort. After the topology is locked in we can then add more refinement to the sculpt.
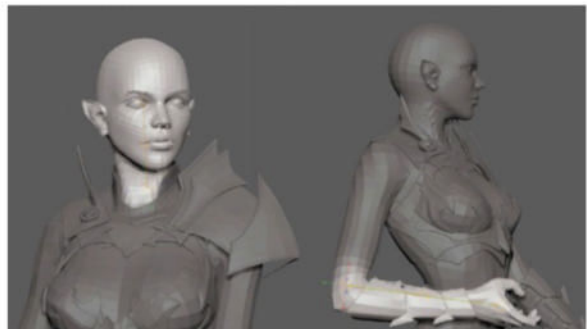
"Using Polypaint to determine areas of higher density like the head, we can get a good result quickly with very little effort"

Concept

I based this piece on the Dark Elves of the *Warhammer* universe. These mystical fantasy creatures are rich in character and have a distinct style from any other Elves.
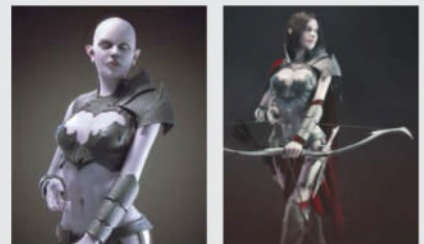
04 Block out armour design In ZBrush, mask out the area on your character where the armour will sit. Then extract a new ZTool, convert to DynaMesh and use this as a base to build out from. Slowly increase the resolution while focusing on the form and silhouette, this will ensure you don't get tied up in the details. It's good practice to block out all of your armour pieces before moving on to the next step, this way you can be sure that your shape language is clear and all your armour pieces are working well together.

07 Pose with Transpose Master Because we know that our final model is going to have a baked-in pose we can now use Transpose Master to pose our model. 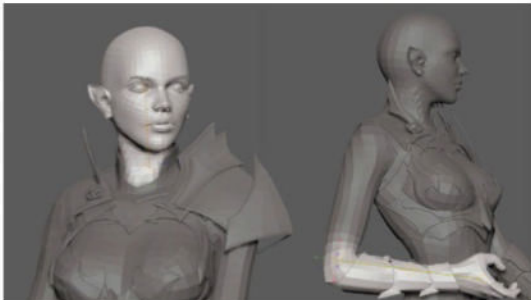Make sure you have plenty of anatomy references related to the pose you're trying to achieve – **female-anatomy-for-artist.com** is a very good resource for this. If you have armour that sits over a deformed area such as an elbow or knee, you may want to hide it before using Transpose Master, and then move it into the correct position after completion of the pose.

The power of TopoGun

With access to automated software such as ZRemesher we often forget the importance of having complete control over our topology. Often the quick results need to be refined further to ensure we get the most out of our geometry. TopoGun offers us full control so that we are able to quickly draw and build very specific edge loops, which is especially useful for modifying our facial topology. Areas such as the eyes, mouth and nose will need extra attention and often more edge loops than the rest of the face. This is because they will need more polygon density to be able to deform correctly.
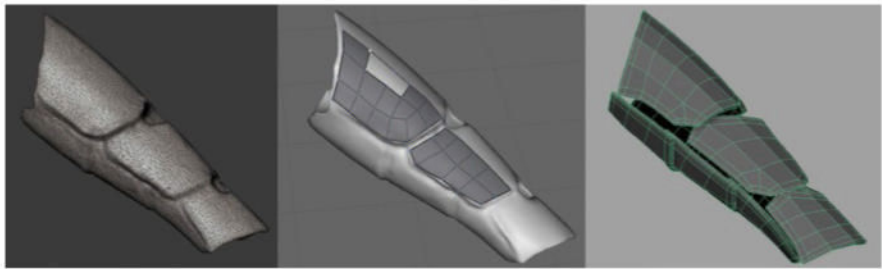
05 Create new topology Once you're happy with the armour design it's time to define the topology. Using Decimation Master in ZBrush we can export our blocked-out armour piece into TopoGun and build our base mesh. Then using Maya we will utilise hard-surface modelling techniques to refine the surfaces. Different types of bevels are key in selling what type of material you are modelling. For armour, having a very sharp edge is not always preferable. It's important to look at real-world reference as it helps ground your model in reality even if it's from a fantasy world.

06 Detail the armour We now need to bring our meshes back into ZBrush for a detail pass. Ensure that you smartly group similar material types together to make texturing and shading easier later on. You want to start by laying down some breakup on the surface, for example using the Clay brush with Spray mode and a gradient Alpha. Then using the Move brush subtly, adjust areas of the model, paying special attention to breaking up the silhouette. Then move to focus on dents and smaller scratches to add even more realism. Use surface noise to further define the kind of material you are mimicking.

08 Create hair using FiberMesh When you are working with long hair it's critical to be able to isolate and work with small clumps one at a time. Before you generate the FiberMesh, break off the scalp into many small Polygroups that can be used to define the hair clumps. Turn on Brush>Auto Masking>Mask By Polygroups to ensure you're only manipulating one Polygroup at a time. Use the GroomHairBall brush to clump your hair together. Then use the Groom brushes to style the hair to your liking.

10 **Make the fine details and accessories** Adding extra little details can really sell a model. For this model, hanging flesh hooks have been used as they are a common decoration on Dark Elves. These were simply modelled in Maya then exported to ZBrush for a detail pass, decimated, then bought back to Maya. They are attached to the model by string, which was created using the EP Curve Tool in Maya. Another good technique is to use fibres to break up the edge of the fabric so just mask by edge and generate them from that.

09 **Simulate the cloth** Marvelous Designer is a fantastic program to use for simulating cloth. The advantage of waiting until the model is posed for the cloth simulation is that you don't have to mess around with resymming. One useful technique is to use pinning to keep the cloth in the right place before you finalise your sim. Also ensure when you are blocking out your shape and positioning to use a high-particle distance to keep things running fast. Once that's finalised, decrease the particle distance until you get the desired level of detail.

11 **Make UVs** There are many techniques that can be used for this step. UV Master in ZBrush is a great automation tool to get you started and for this project. It's perfect for most meshes because we will be projection painting in Mudbox where a perfect unwrap isn't necessary. Another great tool is Headus UVLayout. This software has very powerful real-time unwrapping that enables you to quickly cut and unwrap any surface with ease. It also has particularly useful colour coding for how much UV space the faces are taking up: red for too little and blue for too much.

Tips for sculpting in ZBrush

The theory behind sculpting in ZBrush is to block out your main forms on a low subdivision level, doing this at a high level will make it harder to create realistic forms, especially with organic sculpting. Slowly work your way up the levels adding detail. Consider how the surface would have been created, back in medieval times there would have been no way to perfectly make a piece of armour and your sculpt should reflect that. Always use layers when adding a detail pass – when you complete it you will have control over its strength and can easily mask out areas that don't work.
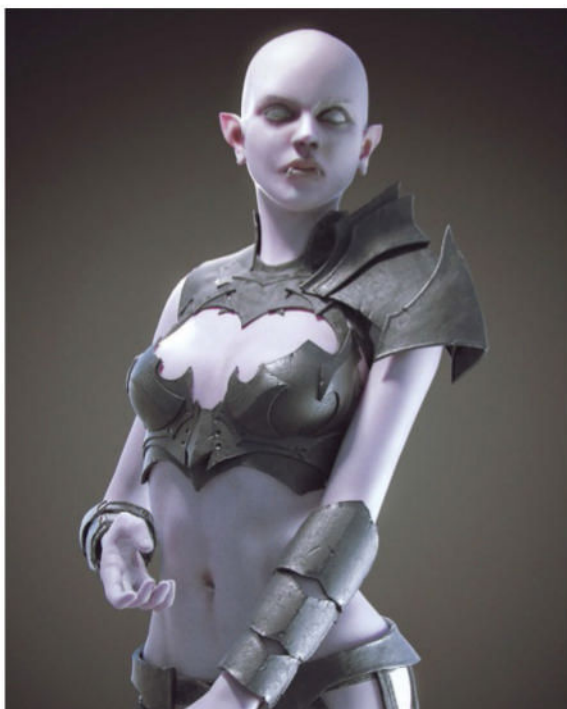
12 **Set up shaders** This step can take quite a while; tweaking shaders so you have the correct values is very important and often overlooked. Start with the specular and gloss values and then add in your diffuse colour. It's very useful to have these dialled in before you start work on your map painting because once you have multiple maps plugged into your shader, it's difficult to determine the individual effect of each map. Be sure to check your material references, having good photo reference or even real-world reference is crucial to mimicking the material in 3D.


"This software has real-time unwrapping that enables you to quickly cut and unwrap any surface with ease. It also has particularly useful colour coding for how much UV space the faces are taking up: red for too little and blue for too much"
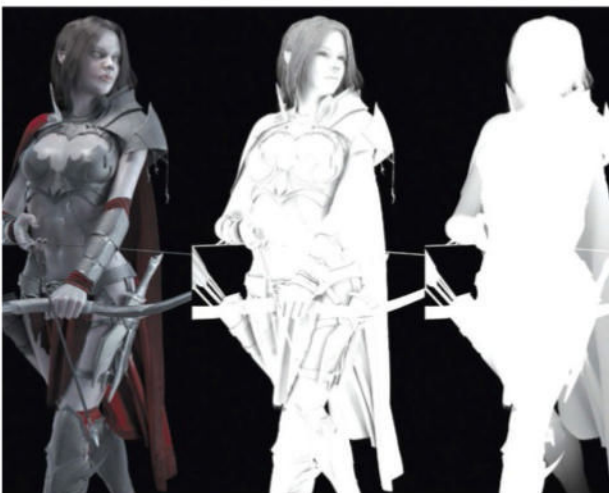
13 **Create seamless textures** Now it's time to take our model into Mudbox and use projection mapping to create some realistic textures. Mudbox is great because it uses a similar layer and painting system to Photoshop, and you can easily move your map between the two programs. To get your mesh from ZBrush to Mudbox there are multiple methods, but using Decimation Master is the best because you are able to retain a lot of detail while painting in a reasonably low-resolution mesh. Make sure you check the Keep UVs option and decimate to around three to ten per cent of your high-resolution mesh.

14 **Set up lighting** For this character we are going to use V-Ray for rendering. Often when lighting a character a simplistic three-point light setup is all you need, and this consists of a key, fill and rim light. When positioning the lights make sure you work with one light at a time so you know exactly how it's illuminating your model. Once you have completed your light setup, insert a dome light with an HDRI map at a very low intensity. Try to align your key light if your HDRI has a strong light source like a sun.
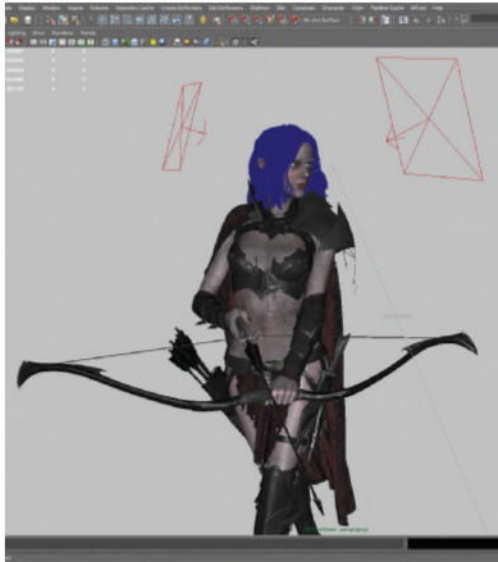
15 **Rendering techniques** The shader, texturing and lighting steps often overlap and you will find that you will be making tweaks to all of these while in the test render phase. It's important to have good settings for a fast test render and high-quality production render. There is a very good resource on YouTube by Andrew Weidenhammer based on a paper by Robert Nederhorst explaining in detail how to set up your V-Ray settings. To speed up your workflow make sure you set up a preset for your test and production render with Render Settings>Preset>Save Settings as Preset.

Baking maps from ZBrush

Using the Multi Map Exporter you can easily bake maps that will assist in the creation of textures. We will need Displacement and Normal maps to get our mesh rendering accurately in V-Ray. The Ambient Occlusion and Cavity maps are useful to multiply or overlay on your textures. You can also desaturate your Normal map and run a high pass in Photoshop to add some extra detail into your diffuse and specular textures. A similar technique can be used if you bring in your Displacement map, adjust the levels and then use an overlay at a very low opacity. Just remember subtlety is the key.

16 **Postproduction work** Render out a 16-bit EXR image to ensure you get the maximum control in postproduction. This is because 16-bit images have more light information and can be adjusted in Photoshop without loss of quality. Other useful passes are Ambient Occlusion and Z-Depth. In Photoshop the Camera Raw filter is very useful for colour correction of your raw image. Finally adding some grain, chromatic aberration and other very subtle overlays can add that extra touch of realism to your piece.

Concept

Fashion pro key art

Learn how to create an epic videogame key art to capture your audience

The entertainment industry relies on the use of powerful imagery that can touch an audience emotionally, and create memorable campaigns for film or videogame launches. Whether iconic, cryptic or a mixture of both, key art pieces and posters have the sole purpose of making a bold statement to immediately connect with fans across the globe.

Therefore, a good key art is fundamental for a successful campaign, and in some cases, it can determine how well or poorly a franchise will perform. Massive, slick, iconic, epic – these are all words that should be kept in mind when creating

key art, artwork that has the universal ability of telling a story in an instant and grabbing the viewer's attention with a single glance.

Over the next few pages you will get an exclusive behind the scenes look at how we created the Goleador League key art. This piece is a fantasy soccer-themed mobile game that our studio recently launched for Italian confectionery manufacturer, Perfetti Van Melle.

From the integration of 3D elements with 2D layer compositing, to creating a digital matte painting backdrop, this tutorial will guide you through the steps needed to create a real world videogame key art.

Artists
Davide Bianca, Andrea Mancuso
www.saizenmedia. com

Davide Bianca is the founder & Executive Creative Director of Saizen Media, based in both Los Angeles and Milan.

Andrea Mancuso is the lead CG artist at Saizen Media. He has experience in CG film, videogame projects, key art and illustration.

Software
Photoshop

Character

01 Cinematic composition Set-up your work area according to the specifications. Add extra padding space around main elements to allow for cropping. It's useful to set up your layers in groups, keeping characters, environmental elements, adjustment layers and the backdrop separated, to easily readjust if needed. For this tutorial, we will be using a cinematic widescreen, double fold-out format at 300 dpi – a size big enough for posters and magazine inserts.

02 Managing CG layers Import all character CG layers into your composition, stacking the layers in the necessary order. Start with the colour pass and proceed with two copies of occlusion, one normal layer, and a reflections layer. Double click on the first occlusion layer and set its blend mode to Multiply. Repeat the same step for the second copy and set the blend mode to Overlay. Finally, set the reflections layers blend mode to Screen. Adjust the opacity of each layer to achieve the desired look.

"The world a character lives in is what makes the scene believable, as it provides a sense of context"

03 Blocking shapes in Create basic outlines for the backdrop. Keep in mind that the main focus is on the character. However, the world a character lives in is what makes the scene believable, as it provides a sense context and location for the events being depicted. Loosely block in basic shapes and colours for the snowy mountains, skyline and foreground. Keep the colours and shapes interesting, forcing the eye into the distance and conveying a sense of grand scale. You will use these shapes as guides for detailing and texturing by integrating photographic assets.
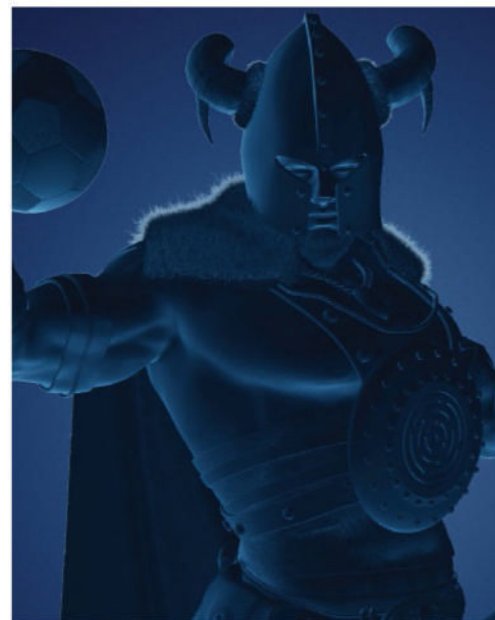
04 Adding Rim Lights Use the normal CG layer as an illumination layer. Desaturate it by selecting Hue/Saturation from the adjustment menu. Next, with the layer still selected, press Cmd/Ctrl+I to invert it. Select Gamma Curves (Cmd/Ctrl+M), and adjust the curve until you get a black image with a glow around the border. Go to Color Balance (Cmd/Ctrl+B) and tint the layer with Cyan and Blue. Then double click on the layer and set the blend mode to Screen. This will create a blue rim around your character to simulate the moonlight. Use the Eraser tool to eliminate areas that aren't lit.

05 Creating believable skin
Rendering believable skin is tedious, but it makes a huge difference. Custom texture maps are generally created for the 3D model, however, you will want to add more detail to the renders by including elements like bruises, scars and imperfections to make the character realistic. Place battle scars or wounds on the character in areas not protected by the armour, this will help create a visual narrative. Paint in extra pores and veins in certain areas, and don't be afraid to experiment with bouncing lights and translucency to simulate sub-surface scattering or wet surfaces.

06 Tell the story with clothing
The same principles used for believable skin rendering also apply to clothes – remember that we are telling a story through a single image, so we want to convey as much narrative detail as possible. A viking warrior wears hand-made animal leather clothes – a compromise between warmth and tactical practicality during battle. Add details of blood stains, dirt and wear and tear, to enhance the look of the fabric. Small rips and holes in the cape or trousers will serve as a reminder of past battles.

07 Build heavy metal
A viking helm is one of the most iconic battle props. Its unique shape and curled horns are immediately recognisable, and convey a sense of strength. The eye will naturally be drawn to the helm, so make this the main focal point of your piece. Work with the Dodge and Burn tools to create the roughness of a hammered metal sheet. Apply heavy scratches by combining brush strokes with photographic assets. Follow the shape of the helm, keeping in mind your light sources and how light bounces off curved surfaces.

Fine-tune lighting

When working with complex lighting, constant fine-tuning is necessary. Always use editable adjustment layers instead of non-reversible actions. You can apply adjustment layers to a single layer, or to a group of layers, by placing them directly above the target layer or group, and using the Cmd/Ctrl+Opt/Alt+G command.

08 Create the environment
At this stage, break away from your character and focus on the environment that he lives in. Start by choosing a colour palette that makes sense, with the tone and mood setting the scene that you are depicting. Fill in the areas that you outlined previously with more defined brush strokes to simulate the moonlight bouncing off the snow and casting shadows. Use photographic assets both as a reference and as textures to obtain a proper realistic finish. Use the Dodge and Burn tools to darken poorly lit areas or to reflect more light.
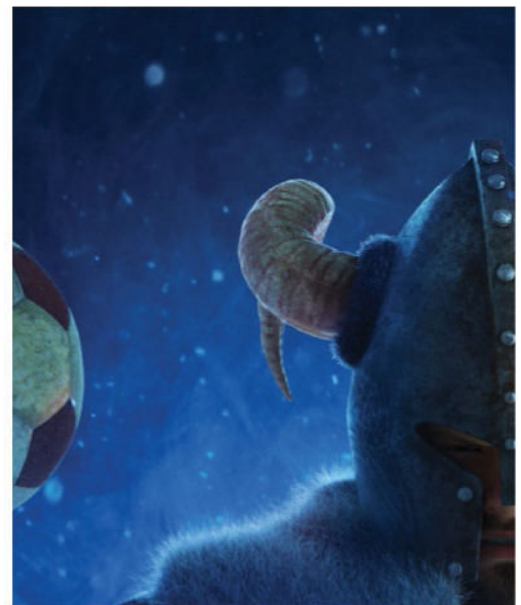
09 Add atmospheric elements
Everything looks more epic with fog and mist. There are plenty of ways to create great particle effects. For this key art, our team used the particle engine in Arnold to create thin layers of dynamic rolling smoke, combined with hand painted thicker layers in the foreground. Place the smoke layers at the top of your layer stack and set their blend modes to Screen. You will want to keep the opacity quite low. With a large soft brush erase the areas further away from light sources.
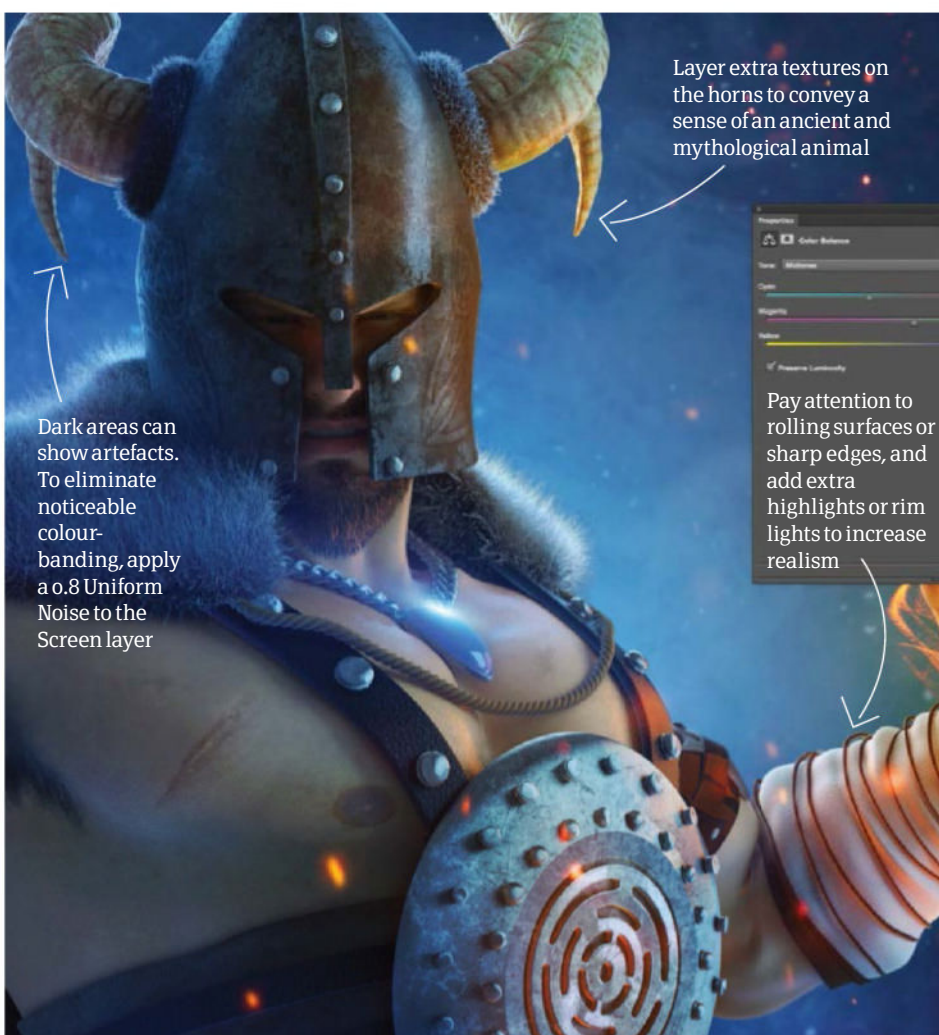
CREATE PRO KEY ART

10 Alter the depth of field Our brain processes imagery based on colour, shapes and depth. So push the depth of your image as far as possible in order to make it pop. Duplicate your character group and merge its content – keep the original group disabled as a backup. Using the Blur tool, begin softening the contours. Use a small brush with low strength. Next increase the strength and blur the areas further away, while keeping the rest sharp. This will direct the viewer's eye to the focal points, simulating the cinematic depth of field of a 50mm lens.


11 Magic particles This is a fantasy game, so your character will, of course, have supernatural abilities. Use a particle system as secondary focal point to counter-balance elements and guide the viewer's eye across the piece. Use warm colours to contrast the cool tints of the environment. Start with an orange tint and begin outlining your magical flares. Switch to lighter tints in correspondence with heat sources. Keep shapes dynamic and interesting. Integrate a soft layer of smoke and an Overlay orange glow layer to add realism and make the colours really pop.

12 Balancing Create a new group containing adjustment layers for Gamma Curves, Brightness/Contrast, and Colour Balance, and place them at the top of your composite. These will serve as master colour correction settings. Adjust the Gamma Curves until the image looks properly lit. Gamma Curves are also helpful to remove possible artifacts resulting from Screen layers and compositing. Use Brightness/Contrast to bring out highlights, and use the Colour Balance settings to increase Cyan and Blue on both highlights and mid tones, as this will help blend elements seamlessly and unify tints.

Layer extra textures on the horns to convey a sense of an ancient and mythological animal

Dark areas can show artefacts. To eliminate noticeable colour-banding, apply a 0.8 Uniform Noise to the Screen layer

Pay attention to rolling surfaces or sharp edges, and add extra highlights or rim lights to increase realism

13 Pushing it further Use three separate planes of interest to further increase the depth of the environment. Keep the foreground elements sharp and bright, the midground elements softly blurred and mildly lit, and elements in the far distance heavily blurred and dark. The reduced readability of far away elements, such as the faraway mountain tops or rock formations, will serve as hinted reading values – the viewer's brain will complete the missing portions by filling in the blanks. This allows us to get away with minimal colour variation while obtaining a very rich and full effect.
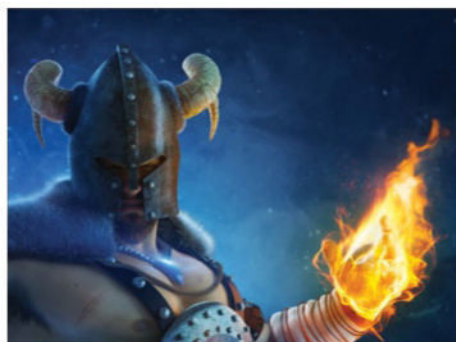
14 Add drama (sky and clouds) A dark sky will set the mood and drive the eye into the distance. You will want to create clouds that form interesting shapes, low enough on the horizon to create enough contrast to allow for easily readable mountain tops. Use a large soft brush to paint black on top of areas to simulate rarefaction of the atmosphere and the light bouncing off. Ensure the clouds and foreground fog don't clash.

15 **Alternating Shaders** Just like colours and tints, materials and shaders work best together when they create visual rhythm. Pay special attention to creating interesting, alternating patterns of smooth and rough textures. For example, a glossy metal bolt will look more interesting if placed over a rough leather patch. Next add rust and scratches to the chest metal plate. Then using a 1pt brush, paint fuzzy areas around the edges of the abdominal band fabric, sampling the proper shades. This will create a more realistic material and convey a sense of wear and tear.

18 **Using Soft Gradients** Create a new layer and place it at the top of your background group. Using a large soft circular brush, start painting black over the far bottom edges of the environment. Try following the curves of the rock formations to naturally cast shadows. Using soft gradients will add an extra level of dimensionality to your backdrop, simulating natural light and shadow casting. Set the layer to Overlay and adjust the Opacity accordingly. Repeat the same process on the lower portion of the character.

16 **Highlights and lens flares** Create a new layer at the top of your character group and set its blend mode to Overlay. Using a soft brush, paint white hot spots over the areas that receive specular light – this will help to brighten those areas. Pay special attention to edges and corners directly in the trajectory of light as these areas should reflect more light. For extra realism, consider integrating photographic assets of (anamorphic) lens flares by appropriately sizing them, adjusting their tints, and setting them in Screen mode over the area of interest.
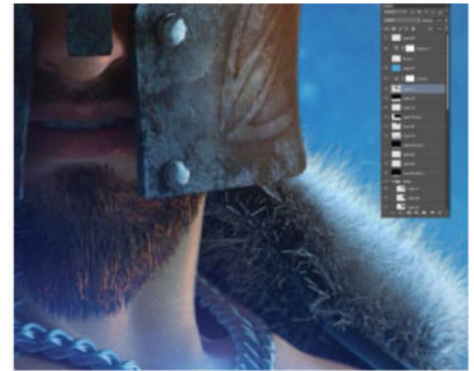
17 **Sharpening details** Using the Sharpen tool set to 50% strength, start applying firm strokes over the character's beard, eyes and lips. Proceed gently, making sure that the sharpening process does not damage the image or cause any pixelation. The main goal here is to increase immediate readability in emotionally relevant areas. Repeat the same process on portions of the skin or steel plates that you want to guide the viewer to.

Zoom in & out

When working on high-resolution images for print, you will be constantly zooming in and out of your canvas and will want to watch out for artefacts, pixelation and aliasing. Press Cmd/Ctrl+Opt/Alt+0 to toggle back to the images actual pixel size and ensure your artwork is crisp.

19 **Fire embers** Create a layer on top of your composition and using a 2pt brush, paint light orange dots. Double click on the layer to access its properties and select the Outer Glow option. Then choose a red tint and adjust the Radius and Choke. Now using the Smudge tool with a 5pt brush, apply strokes on one side of the ember particle pulling away from it. This will create a trail or path, giving a sense of motion. Repeat this step as needed. You can also blur specific ember layers to simulate distance from the camera.

20 **Final touches** At this point you will make the final tweaks and corrections, fine-tune your Colour Correction settings by accessing the adjustment layers, and export a final raster image. Always make sure your colour profile and document settings match the required output formats. Keep in mind that typically, due to the natural ink absorption process on paper, there is a 10% Luminosity drop from screen to print. So if you are delivering ready-to-print files, make sure to save a print-specific variant with an additional 10% punch in Gamma Curves.

Add drama with blend modes

Learn how to create a sci-fi scene using Photoshop's blend modes

In this tutorial you will learn how to create a sci-fi scene with a cinematic feel using blend modes. You will also learn the techniques of photomanipulation and the importance of values to make your image pop out and look like it's from a movie. We will go through some digital painting for the character's hair, so make sure to use a pen tablet instead of the mouse as this will make your workflow much easier.

Since our theme is sci-fi we will also go through creating a futuristic suit for our model using parts of superbikes as our stock, which is a technique that many well known artists use for mech design. We will also add a touch of abstraction to our photomanipulation by blending geometrical shapes and make key post-production edits using adjustment layers, Lens Correction and Smart Sharpen to finish the job.

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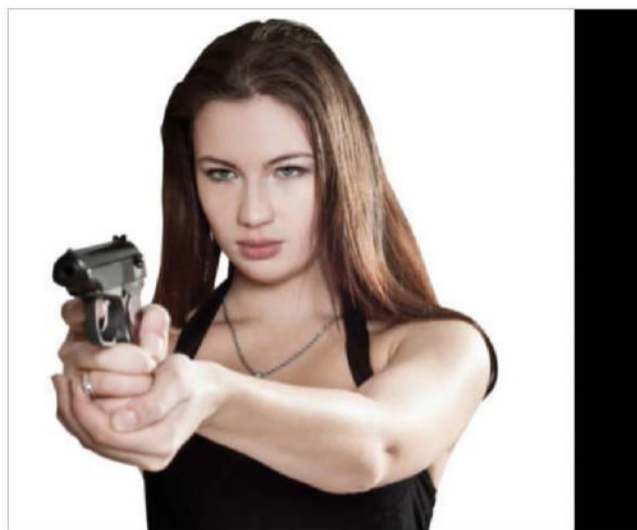
Software
Photoshop

Source Files
On FileSilo you will find a small collection of files that have been made for this tutorial.

Set up your stock
Place and enhance the basic building blocks of the image

01 Set up the model First of all we need to set up our model into our canvas, so let's grab the model image from Dreamstime, code: 22992223, then by selecting the Pen tool (P), click and drag on the edges of the model, then Cmd/right-click, select Make Selection, and press Cmd/Ctrl+J to isolate the model on a new layer, and finally place the model into our new canvas.

Study the shapes first

When designing something you always need to have an idea or sketch; don't come up with something on the spot unless you're really confident about your designing skills. Also, when designing a suit with superbike parts, make sure to study the shapes very well. Combining two or three parts can be very useful.
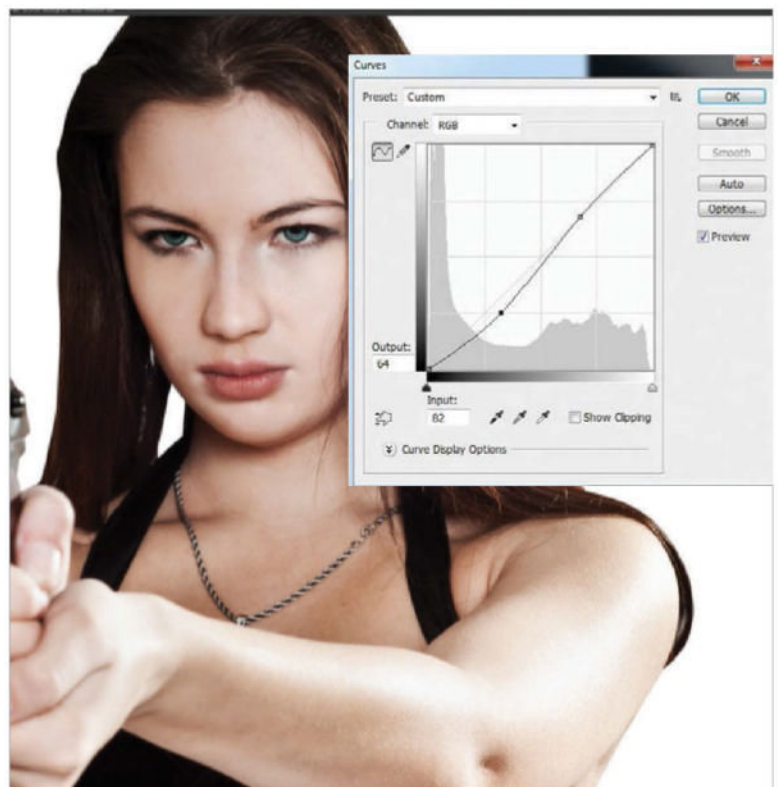
02 Modify the contrast Our model looks a little bit flat. What we need is to add some depth, so now we will add contrast by going to Image>Adjustments> Curves and making the Curves an S shape. Don't drag the points deeper as that will ruin the contrast. Next we will grab a Soft Round brush with the blend mode of the brush (not the layer) set to Overlay. Turn down the opacity and start brushing dark parts of the model. Doing this will give you more control instead of doing a regular Brightness and Contrast filter.
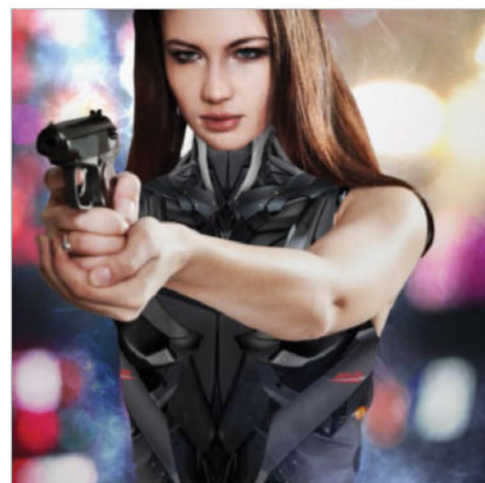
03 **Create the background** Now it's time to create our background, so grab some bokeh textures from CGtextures.com, place them behind the model layer and change their blend mode to Linear Dodge (Add). Also you can create a new layer, change the blend mode to Screen, and with a Soft Round brush, add some light around the model to make her pop out. Keep in mind that composition is really important, and our bokeh textures should not cover some parts of the canvas because we will place other elements and textures there later. Our background is composed of three bokeh textures so we need to blend them into one texture, to do that create a layer mask and with a Soft Round brush, hide parts of the textures that are not needed.

04 **Add smoke effects** We said earlier that composition is important and the bokeh should not cover the entire scene because we still need to add more elements. Next, we'll add smoke effects to add more texture to the background, so grab some smoke textures, and repeat Step 3, but this time change the blend mode to Color Dodge instead of Linear Dodge (Add), that way the smoke will not ruin the bokeh shapes and it will show clearly on the empty areas that we left earlier. Now we need to blend the model with the background; this is really simple, we just place a smoke texture layer in front of the model layer, place it as shown in the image and turn the blend mode to Linear Dodge (Add).
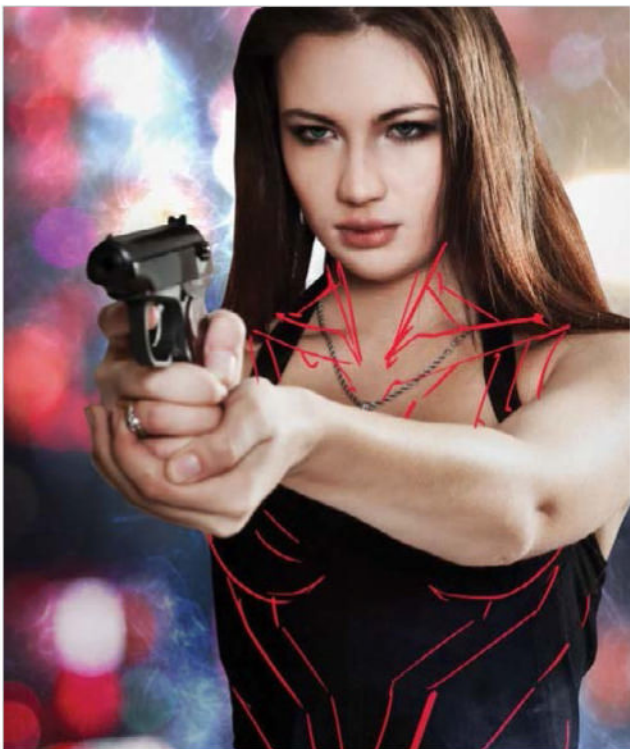
> "Since our background is bright and is our light source, our model should be dark because the light can't reach her, only bounce light is able to illuminate her"

06 **Create the suit** The sketch is done, and right now it's time to make the actual suit. Superbike parts are the best stock to create a futuristic suits or robots or anything from the future thanks to their slick designs. Grab our PNG files with the bike parts already cut out. On this part you can be as creative as you can but keep in mind that the suit needs to be practical. Our model's hand is in the foreground, so we need to create a mask so that the suit will appear to be behind the hand. To do that, we will select the Pen tool and repeat Step 1. When the selection is on, select the bike part that will be behind the hand and click the Mask button below on the Layers palette, then you can duplicate the mask by holding Shift and dragging the mask to another layer.

05 **Sketch the futuristic suit** Now it's time to add futuristic elements to the scene, but first, before we start designing our suit, we need to have a clear idea about what we will be designing. So create a new layer and, using a pen tablet and a Round brush around 40px, start sketching the shapes on the model that we want to the suit to look like. Here we followed the anatomy of the human body, so that the suit will look functional and practical, and will not hold our girl down. You can still do this step if you don't have a tablet by holding the Shift key and pointing with the mouse to create a straight line.

07 **Add shadows** For now, the suit looks too flat, so add some shadows for some depth and realism in the scene. Grab our Soft Round brush again. If you have a pen tablet you can create the shadows using the brush pressure feature, but if you don't have a tablet, you can play with the brush opacity to get more control over it. Now create a new layer below the part where you want to paint the shadow, for example, on areas like the neck and under her arms.

08 **Rain effects** It's time to add some motion to bring more dynamism to our piece. This part is very similar to Step 4. Create rain by using snow textures. Take the snow texture by Moosplauze on **deviantart.com**, place it below the model layer and above the bokeh and smoke layers, go to Image>Adjustments>Curves, create a point in the middle and drag it down to make the snow particles sharper, then change the blend mode to Color Dodge, and go to Filter>Blur>Motion Blur and set the angle to 32, and Distance to 31 and click OK. Then we need to blend the model, so duplicate the rain layer and place it above the model layer, and change the blend mode to Linear Dodge (Add) and mask areas like the face. Also take a snow texture without Motion Blur, create a mask, invert it, Cmd/Ctrl+I and paint back areas on the head and shoulder to make an interaction effect.

Enhance and adjust
Tweak colours and image elements to get the required effect

For a successful change of colour, your original hair should always be light; if dark, the Overlay filter will not work

The SSS effect in hair gives more realism, but use it only according to your light source

Adding a touch of digital painting to photomanipulations is always a plus

09 **Modify hair** It's time to modify the model's hair to make it more unique. Create a mask so as not to go over the borders, select the model layer, hold Cmd/Ctrl and click on the layer, it will give you a selection. Next create a new layer above and click on the Mask button below in the Layers palette. Now change the layer's blend mode to Overlay, and with a Round brush and a red colour, paint over the hair. Her original hair colour is brown, so the red shouldn't look artificial. Next we need to add details, so select the Brush tool (it is necessary for this step to have a pen tablet) with a small Round brush, hold Alt to select the Eye Dropper, select the colour you want and draw the hair as shown on the image. And finally create another layer, drag the hair colour mask to it, change the blend mode to Linear Dodge (Add) and by using a light red and Soft brush, paint the edges to create an effect of SSS (sub surface scattering).
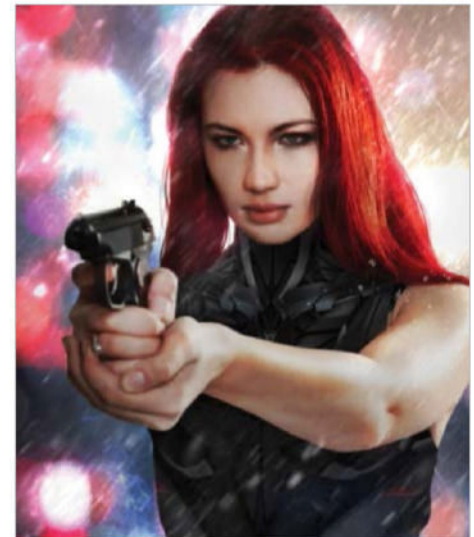
10 **Adjusting values** Now we need to adjust the values. Since our background is bright and is our light source, our model should be dark because the light can't reach her. Only bounce light is illuminating her, so grab a selection of our model by holding Cmd/Ctrl and click on the layer, then create a new one above and fill it with black using the Paint Bucket tool and then use Cmd/Ctrl+D to release the selection. Turn down layer opacity to 15% and create a mask and paint areas like the face and hands to make them more visible, then duplicate the layer. Right-click on the layer, select Duplicate Layer, delete the mask, change Opacity to 24% and blend mode to Overlay.

11 Light effects It's time to add light effects. It's important to add some abstract lighting effects to your scene to give it more life, so grab the cosmic lights PNG pack textures from **psdbox.com**. Take '16 neutron collision', place it as shown on the image and press Cmd/Ctrl+U and change the Hue Slider to make it blue, then change the blend mode to Screen. Next, we will add a lens flare effect, also from the **psdbox.com** optical flares pack. Take any lens flare type you like and place it on the brightest spot of the background and change the blend mode to Screen and turn down Opacity to 60%.


12 More effects Now add some more effects on the suit. This step is pretty easy, so let's create a new layer, grab a small Hard brush with light blue and change the blend mode to Linear Dodge (Add), and draw some lines as shown. Then click on the FX button next to the Mask button and select Outer Glow and make these modifications: Blend mode, Linear Dodge (Add); Opacity: 75; Noise: 0; Colour: 71b7e8; Technique: SSofter; Size: 38.

Visual help

For a piece of artwork to be truly great, it is important that you are telling the viewer a story. Artwork with a story is always far better than an emotionless piece of work.

13 Abstract shapes Add surrealism to a piece to make it more artistic and eye-catching, instead of just creating a scene from a movie. So make a new layer and with the Polygonal Lasso tool, create triangular shapes around the model. When creating a shape, it will automatically be selected. With a soft brush, press Alt to select a colour with the Eye Dropper and paint the triangle. Repeat this process until you get an effect that works with the composition.
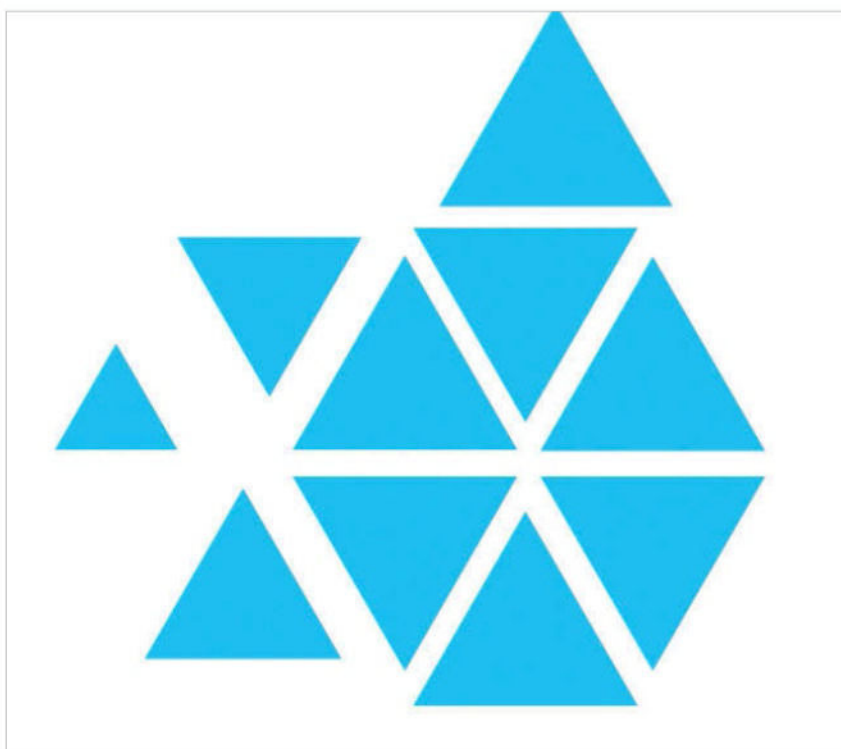
14 Create the energy shield Create a new document, make it around 2000 pixels, then select the Polygon tool, set the sides to three, choose a blue colour for the Fill, and no Stroke, then hold Shift and click and drag to create a triangle shape. Now duplicate and flip the triangle by hitting Cmd/Ctrl+T, right-click and choose Flip Vertical, then arrange the triangles for a good composition. Repeat this step again but this time without Fill and the Stroke set to 5px.

16 Story elements Our photomanipulation is nearly done, so finish it by adding some story elements. Here we added tears, and smoke coming out of the gun, as if she just killed someone she cared about that betrayed her. So for this step we will use smoke brushes and watercolour brushes – you can find free brushes like this on deviantART or any resource site on the internet. Select a watercolour brush, choose a black colour and apply it on the eyes as shown, then erase any unwanted parts. Next select a smoke brush, choose a white colour and apply it on the tip of the gun.

15 Place the energy shield Now that the shield is done, it's time to apply it to our canvas, so select all the triangle layers, right-click and select Merge Layers, then hit Cmd/Ctrl+C and on the canvas hit Cmd/Ctrl+V. Next hit Cmd/Ctrl+T and by holding the Shift key, distort the triangles to make them look in perspective. Now turn the Opacity down to 60% and duplicate the layer. In the new layer hit Cmd/Ctrl+U and play with the sliders until you get a darker blue, then change the blend mode to Linear Dodge (Add). And finally duplicate again, hit Cmd/Ctrl+U and make the blue lighter, change the blend Mode to Hard Light and move it over a little bit, and finally go to Filters>Blur>Motion Blur, Angle: 20 and Distance: 30.

17 Colour correction Our illustration is basically finished, all that's left are the finishing touches. Let's add some adjustment layers first to bring some cool tones to our piece. In the Layers palette next to the Mask button, click on the Adjustment Layer button and select Gradient Map. Set the Color Pickers to: Left picker: 1f0c03 Right picker: acdfff. Set the adjustment layer to Hard Light and turn down the Opacity to 20%. Next select Colour Correction and set it to the following: Midtones: 1st slider: -17, 2nd slider: -3, 3rd slider: +28, Shadows: 1st slider : 0, 2nd slider : -28, 3rd slider : +20, highlights: 1st slider: -10, 2nd slider: 0, 3rd slider: +20. Next add another Gradient Map: set the blend mode to Lighten and left picker colour: 220545 and right picker to black. And finally select Exposure and set the middle slider to: 0.0165.

18 Final effects Make sure all your elements are in place and everything is set out properly, then right-click on any layer and hit Flatten Image, this will merge all layers into one. For the final effects apply Smart Sharpen, Lens Correction and Noise. Start with Smart Sharpen, go to Filter>Sharpen>Smart Sharpen, set the amount to 150 and Radius to 1.0px. Next go to Filter>Lens Correction. In the Custom panel on the Chromatic Aberration slider, set the 1st slider to +50.00, 2nd slider to -30.16 and 3rd slider to -75.40. Finally, finish the tutorial by going to Filter>Noise>Add Noise, set the amount to 2.45, Distribution: Uniform and check Monochromatic. Your composite is complete and thanks to blend modes, packs some awesome effects!
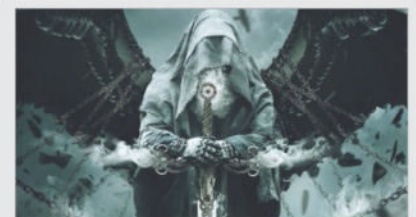
Master photomanipulation

In order to do great photomanipulations, you need to have a great photo library. Here are some great sites to gather the best stock photos and resources: deviantart.com, cgtextures.com, psdbox.com, mediamilitia.com. It is a great thing to have good photomanipulation skills because it's not only used to create illustration for books or music, but it is a great tool to use in concept art for the film industry, because it needs to look as realistic as possible.

Landscapes

Create huge fantasy worlds

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164

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Render a fairytale castle

An image of a towering castle perched on the side of a mountain, inspired by medieval architecture

For this image I was inspired by Romantic-style architecture, such as Neuschwanstein Castle in Germany, to create a towering building nestled on the side of a mountain, surrounded by forests and steep hills. Over the course of this tutorial, I will explain how exactly I went about both making the castle itself, and then how I created the surrounding landscape. Starting with Blender's ANT landscape plug-in, we'll create some procedural mountainous terrain, then block out the basic forms of the castle with Blender's modelling tools. Next, we'll jump over to ngPlant, a free app that lets you create procedural plants. Last of all, we'll head back to Blender to create a procedurally generated forest around the castle before we eventually texture and render the scene.

Concept

Before starting, I searched online for some inspiration and sketched a few rough thumbnails of castles to see how I wanted my final image to look. I didn't use any of these thumbnails specifically, but they helped me to narrow down the focus of my final design and make choices about the scene's composition.
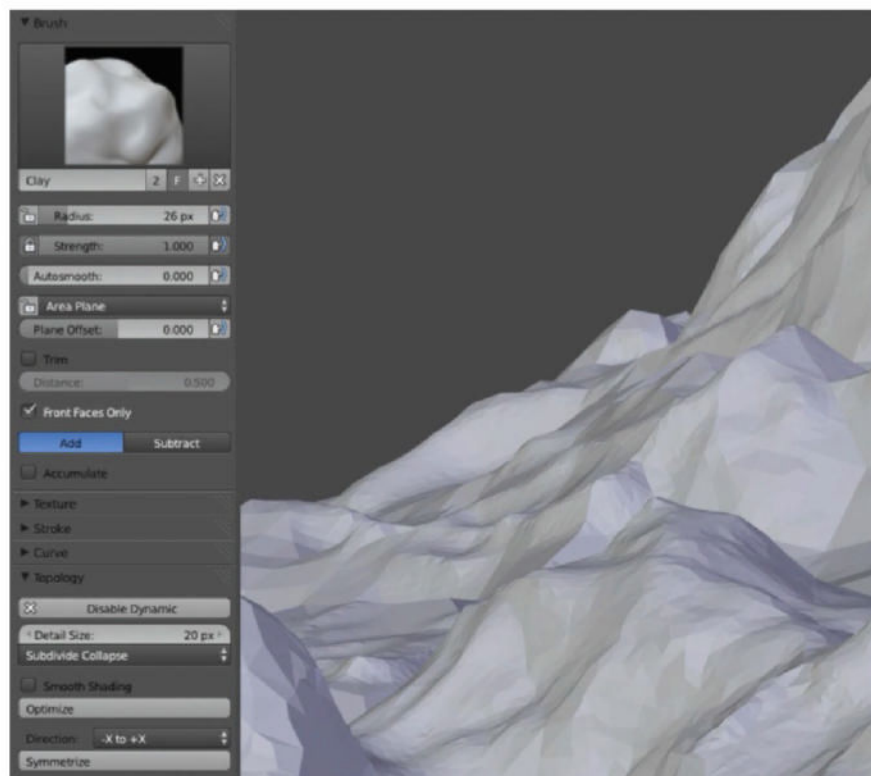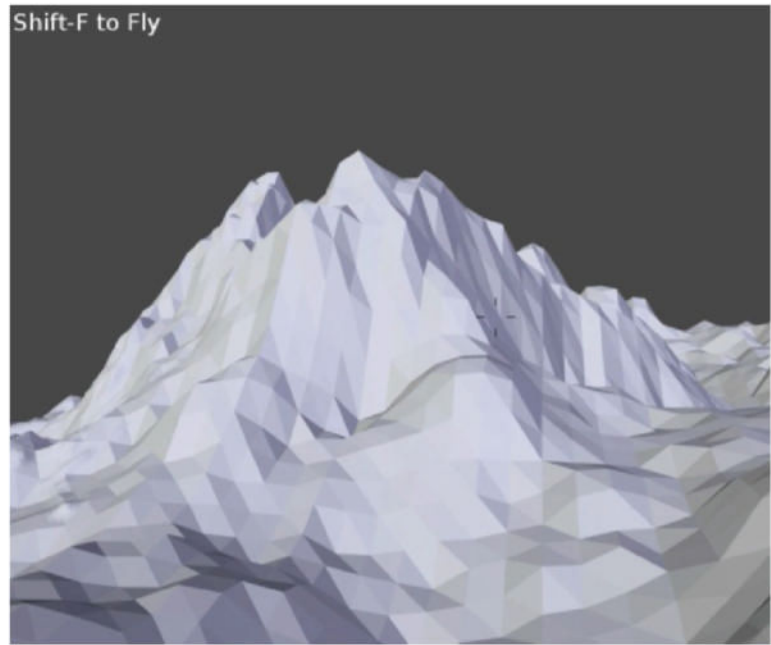

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Software
Photoshop, ngPlant

Landscapes

01 **Generate terrain** Our castle will need some mountains in which to exist, so let's begin by using Blender's ANT Landscape Creator add-on, which generates procedural landscapes. Enable the add-on from Blender's User Preferences>Addons menu – it comes bundled with Blender, but you need to enable it – then go to Add>Mesh>Landscape to generate a new landscape. This script provides all sorts of settings for tweaking the kind of terrain generated. Next, turn up the number of subdivisions and increase the mesh size, then play around with the other settings to get something you're happy with.
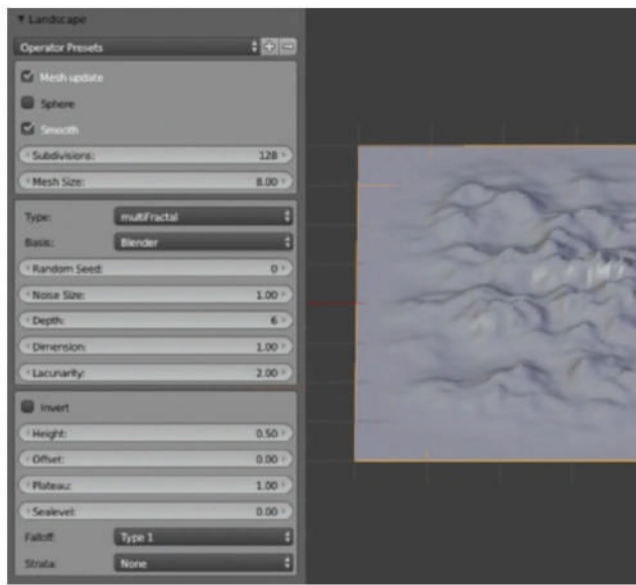
02 **Choose a site** With the terrain in place, start looking for somewhere to situate the castle. To do so, use Blender's Fly Navigation (Shift+F in the 3D Viewport) to zoom around the scene in first-person, looking for the right place to put the castle. We need a small peak next to some larger mountains to place the castle on, so that it'll have the taller terrain as an impressive backdrop. With the site chosen, simply place down a cube to mark the castle's site for the time being, then placed a camera roughly where we want the final render to be taken from.

> "We need a small peak next to some larger mountains, so that it'll have the taller terrain as an impressive backdrop. Simply place down a cube to mark the castle's site for the time being, then placed a camera roughly where we want the final render"

Dynamic Topology sculpting

Blender's Dynamic Topology tool is fantastic for sculpting forms quickly when you don't quite know how you want your final model to look. You can grab and stretch your mesh in all sorts of ways without worrying about topology, or add as much detail as you like without subdividing manually. Use the Detail Size setting to control how finely your mesh will be subdivided under your brush strokes. Set the Refine Method to Subdivide Collapse for rough work, which will collapse details into rougher topology if you use a larger brush, or to Subdivide only for working with details.

03 **Refine the terrain** Make the terrain a bit more interesting with Blender's sculpting tools and Dynamic Topology. Jump into Edit mode and trim away most of the useless areas that won't be seen in the final render. Then switch to Sculpt mode and enable Dynamic Topology. This feature enables you to sculpt and have your mesh dynamically tessellated under your brush strokes. Used the Grab, Clay and Crease brushes to define some sharper peaks and valleys. You should add some additional roughness to the landscape and flatten out the site for the castle a little.

04 **Block in with Primitives** To start off the castle, use very rough shapes just to plan what parts the castle will have. Add and scale cubes and cylinders for the towers and use cubes with the top face pulled upwards to make a peak for the main buildings. Play around with a few different configurations of shapes, adding bridges, extra towers and the like, while moving them around to see how they look from the camera's perspective in order to find a layout you like.

05 **Get an early render** Maybe it's good planning or maybe it's just time wasting and vanity, but I like to get an early render to see how my scene looks. The Cycles render preview (Shift+Z in the 3D Viewport, set your render engine to Cycles) is great for this. Add a basic Sun lamp to the scene and basic Sky to the World Settings (Blender's Sky Texture node is great for quick outdoor lighting), and experiment with a couple of angles for the Sun, seeing how it affects the shadows falling on the castle.
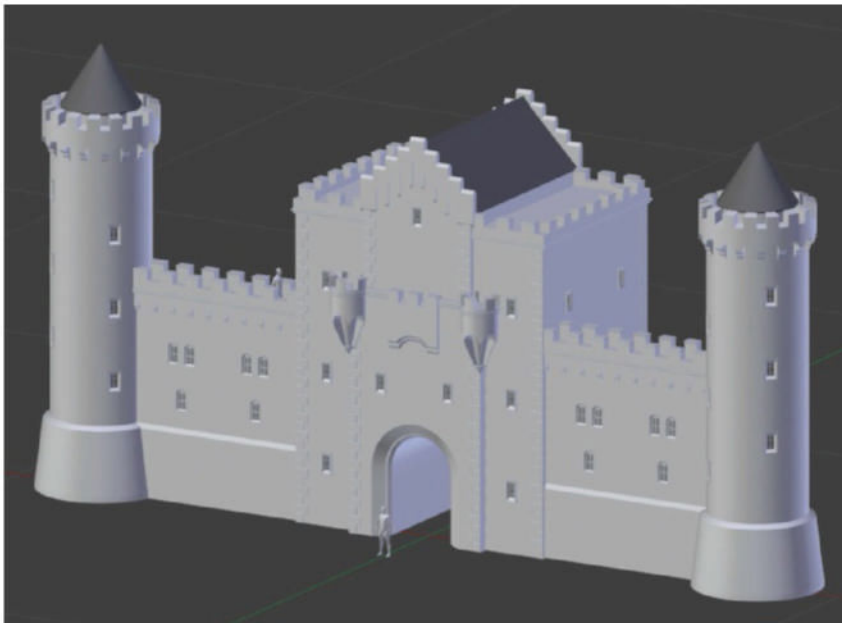
06 **Break up the castle** To make working on the castle easier, break up its design into chunks, with one for the front wall and gatehouse, another two for the two main buildings, and another for the foundations and the bridge. Duplicate these chunks and place them on their own layers. Next, group (Cmd/Ctrl+G) all the objects in each chunk into their own group. This enables us to rebuild the original block-in of the castle using instances of each group (go to Add>Group Instance>[Your Group] to add an instance). This lets us update the contents of each group, while working on them separately. Additionally this lets us work on the different groups in a more user-friendly, axis-aligned orientation.
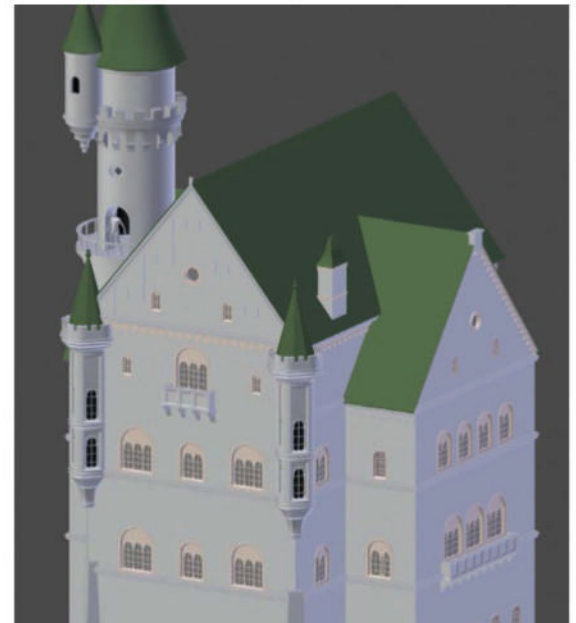
07 **Detail the architecture** Using the blocked-in geometry of the different chunks of the castle as a guide, begin creating more detailed models of the castle. For each large section of a building or wall, begin by creating a more detailed model of the overall structure, just by extruding and adding cuts to the original block-in geometry. Next, set about including secondary elements, such as windows, doors, crenellations along the walls and other architectural details.

08 **Work with duplicates** While the overall structure of the castle is pretty unique from piece to piece, there are a lot of repeating elements in the design of the castle overall. Especially for the windows, we only need to create a few different designs, which we then duplicate and place around the castle. By using linked duplicates, we can keep every instance of each window type sharing the same mesh data. Not only does this make altering windows easier (as any changes are reflected in every window), but it also helps enormously when UV unwrapping and texturing the castle, as objects that share mesh data similarly share texture space, and only need unwrapping once per design.


Array Modifier tricks

The Array Modifier is a great tool for working with designs that have repeating elements. It comes with several different inputs for specifying how you want to duplicate geometry. The Relative Offset setting is best for duplicating repeating blocks of a design, and you can use the Merge settings to automatically merge vertices between repeats. The Object Offset can be used for more complex designs, as it lets you use the transforms of an Empty to specify the offset for repeats. This lets you rotate and even scale the repeated elements. I used the object offset as an alternative way of adding repeating designs around circular towers, by placing an Empty at the centre of the tower, and using it as the Offset Input for an Array Modifier. I could then rotate the Empty to specify the angle between repeats, and change the count setting of the modifier to set how many repeats I wanted around the tower.

09 **Add crenellations and towers** Most of the walls and roofs of the castle are embellished with crenellations. To create these, model a single section of the design, and then use Blender's Array Modifier to copy the design many times in the desired axis. Most of the time we can then apply the Array Modifier and fit the model to the forms of the walls and roofs – going round corners and curves and leaving gaps for towers and windows. For the round towers, use the Warp Operator in Edit mode to wrap the linear design around a cylindrical form. By snapping the 3D cursor to the centre of the tower and placing the un-deformed crenellations at the correct radius from the centre, the Warp Operator takes the X-axis of the geometry and wraps it around a circle.
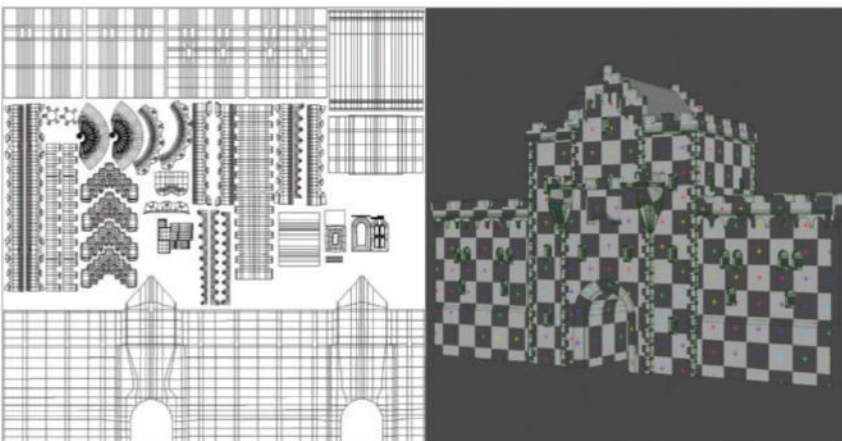

10 **UV Unwrapping** Unwrapping models is always a pretty tedious task, but Blender has some pretty useful unwrapping tools. For each chunk of the castle, we should try to pack every part of the model into a shared UV space. Unwrapping the larger, flatter areas of the castle is easy – just use the basic Unwrap Operator, or sometimes the Project From View Operator for large, flat areas. For more complex areas like the crenellations, select flat areas first and unwrap them (the Select Co-planar Operator is great for this – press Shift+G in Edit mode with a face selected), then pin those vertices' UV coordinates, add seams to the model and then unwrap the surrounding areas to get a passable unwrap for the more complex areas. As soon as the task of unwrapping the models is done, we can move onto other, more creative aspects!
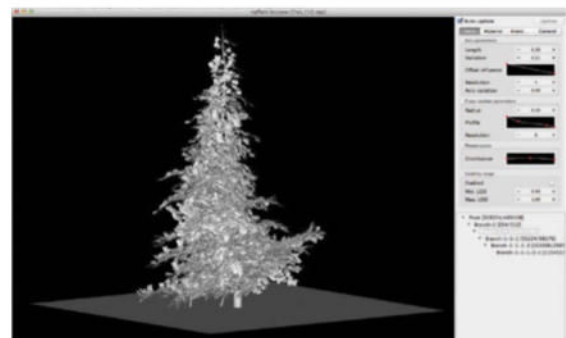
11 **Add trees with ngPlant** ngPlant (www.ngplant. sourceforge.net) is an open-source plant-modelling application that lets you create plants by starting with a trunk mesh, to which you can add branches upon branches until you want to add leaves on the end. To make our trees, start with a relatively tall trunk, then add a few levels of branches. In my experience, tweaking the controls for the Branch Density, Axis Variation and Declination (the angle that branches point up or down based on how far up the parent branch they are) has the greatest influence on what kind of tree your result resembles. For the fir leaves, I didn't add a mesh for every needle – instead my final level of geometry on my tree was a wings mesh that added flanges down the side of the branch they belonged to.

"While the overall structure of the castle is pretty unique from piece to piece, there are a lot of repeating elements in the design of the castle overall. Especially for the windows, we only need to create a few different designs, which we then duplicate and place around the castle"
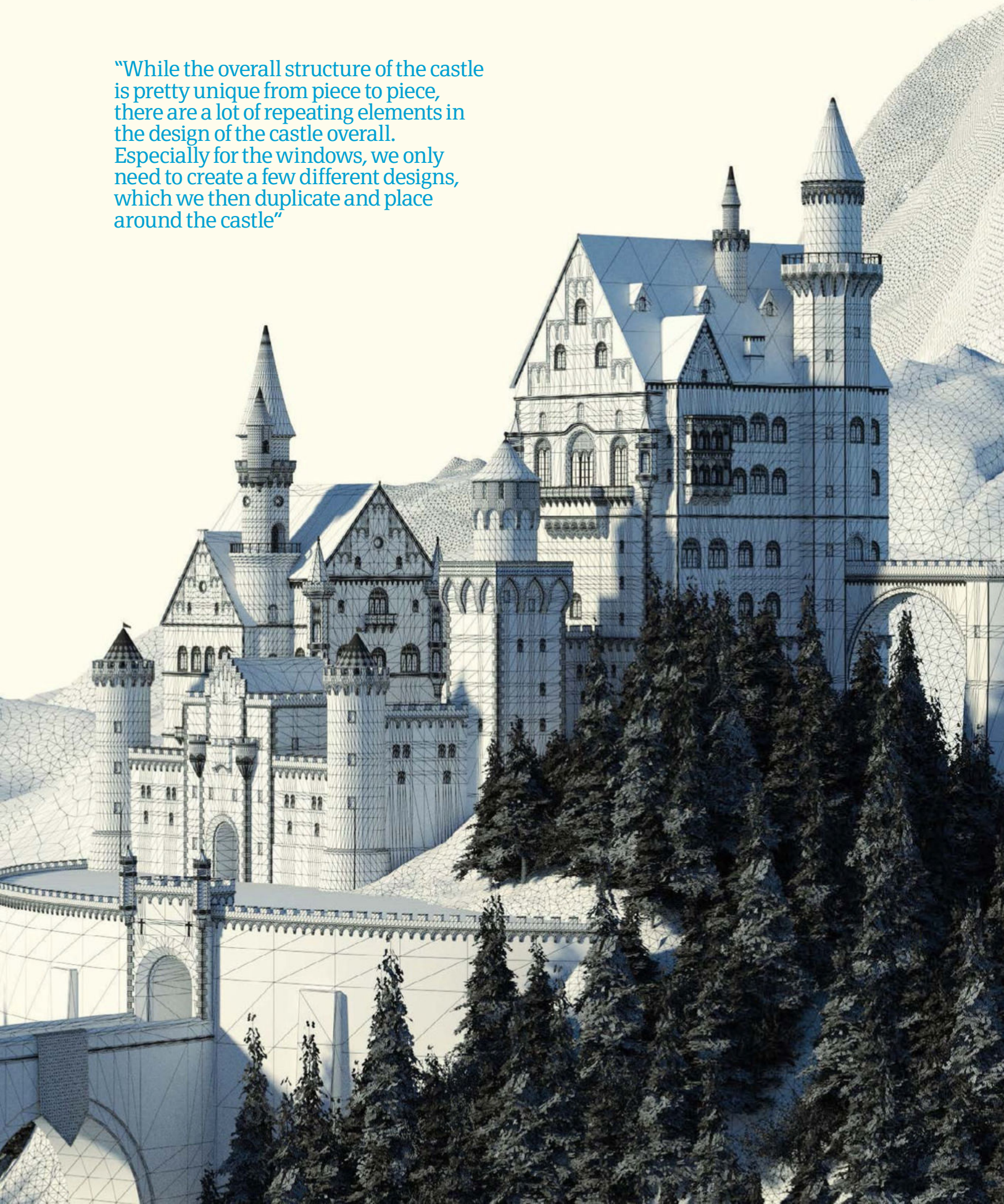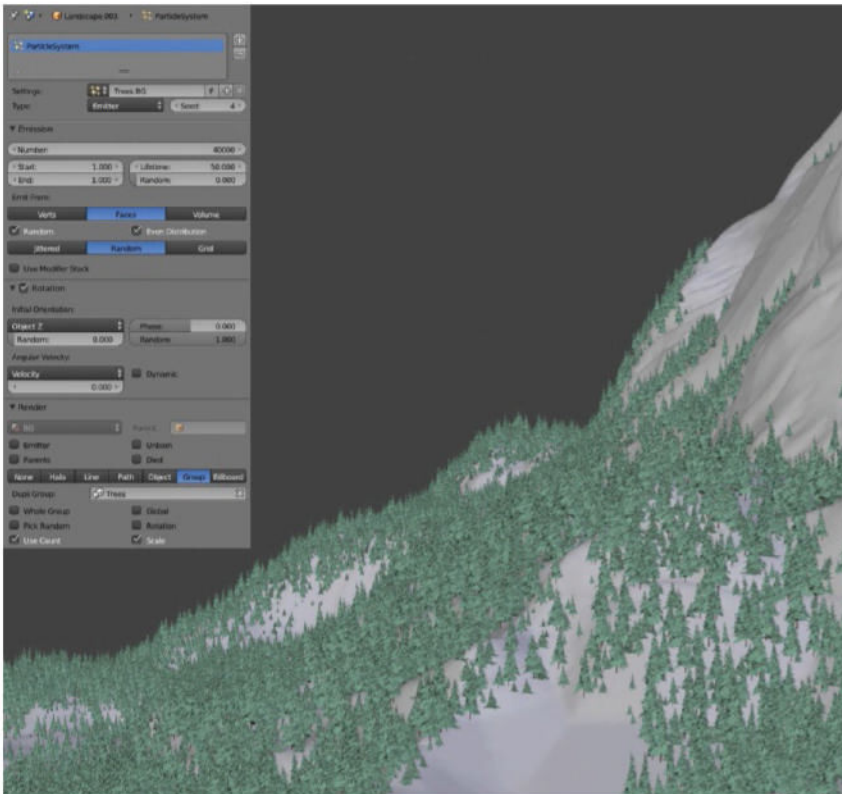
12 **Export the trees** The other great feature of ngPlant is that you can easily create variations on a single tree design. The parameters for tree creation feature several random factors, such as Axis Variation (bending along the length of branches) and the Rotation Angle between different branches, the results of which are governed by a Seed property (found under the General settings for the tree). By cycling through Seeds, you can achieve a wide range of different trees with the same overall features, but that are subtly different. Let's export a few of these variations (with some manual tweaks such as overall Height) into OBJ files that we can later import into Blender.

13 **Set materials for the trees** The materials for our trees are pretty simple to accomplish, and entirely procedural. NgPlant does a good job of automatically generating UVs for your generated trees and exporting them with separate material groups for each branch or leaf level. For all the branches, simply apply a brown Diffuse material. For the needles, take the UV co-ordinates of the long leaf meshes that run along each of the branches and manipulate them with nodes to give a gradient out from the middle of the branches to the edge, and use this as the overall Alpha of the material (by controlling the Mix Factor between a Diffuse and a Transparent Shader node). Multiply this Alpha factor with a procedural Wave texture that breaks the appearance of the wings mesh up into individual needles. Although the final tree won't stand up to close scrutiny, in a forest of thousands it looks the part.

Use the plug-ins

An alternative to ngPlant is Blender's Sapling add-on. This tool works in a very similar way to ngPlant. It also has a number of procedural parameters for generating trees, and it has some nice tools for affecting the overall shape of a tree (as well as some presets for common shapes). It can even automatically create a rig for your tree to enable it to animate and sway. However, its options for leaves are much more limited and there is less control over each level of branching, so I stuck with ngPlant for my trees.

14 **Create a forest** To make a forest out of trees, use a particles system. Add a new particle system to our landscape with several-thousands of particles, all emitted on the first frame. Then group all trees together and set the Render mode of the particle systems to Group, and set the Trees group as the source. This populates the landscape with thousands of trees. Add some randomness to them with the Size set to Random, and by randomising their Rotation slightly. We can also use the Particle Info material node to convert the individual particle trees indices into a slightly randomised green hue for the needles' Diffuse colour. This will give every tree a slightly different appearance and will make the forest look less homogenous.
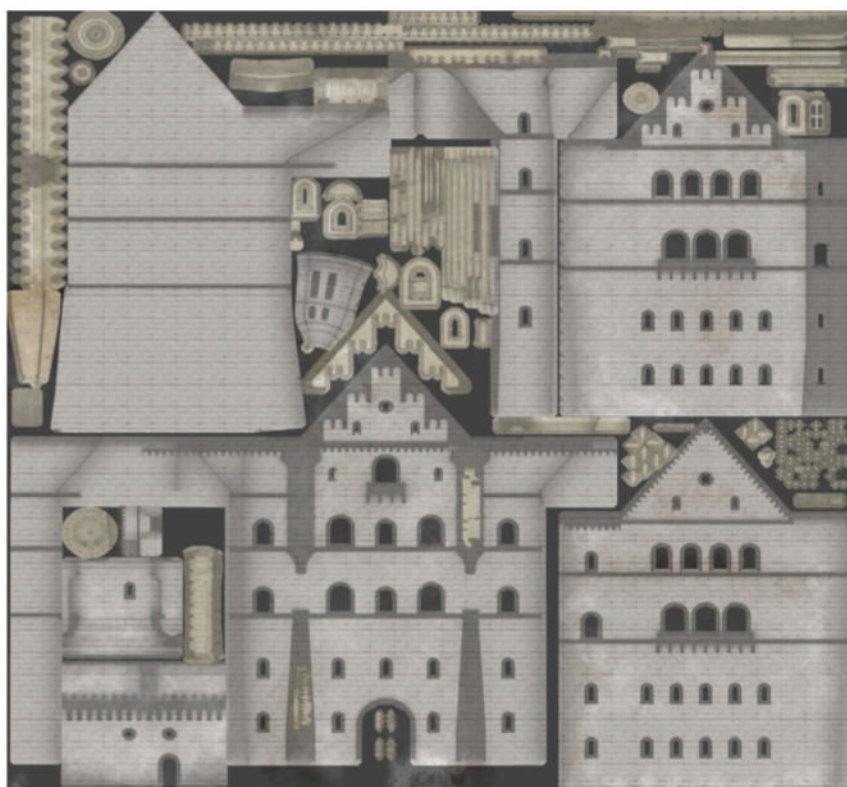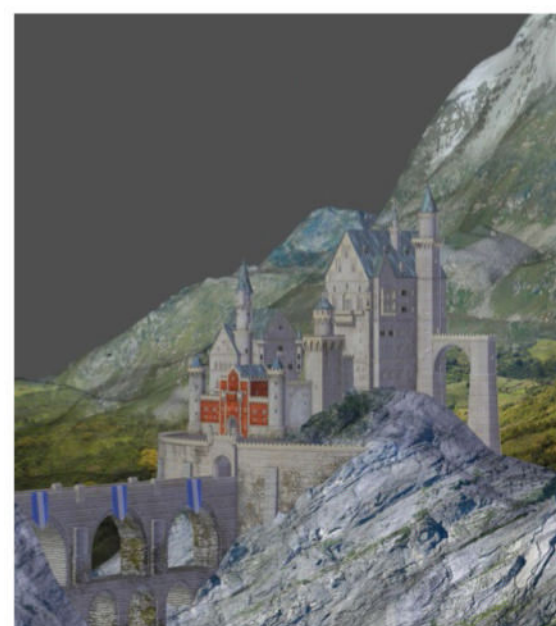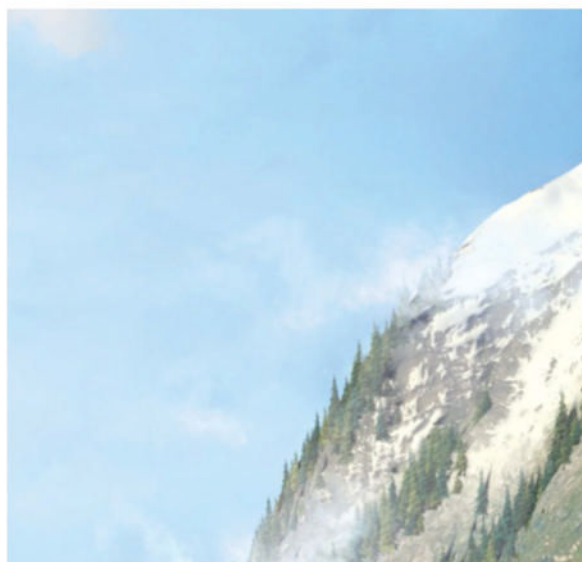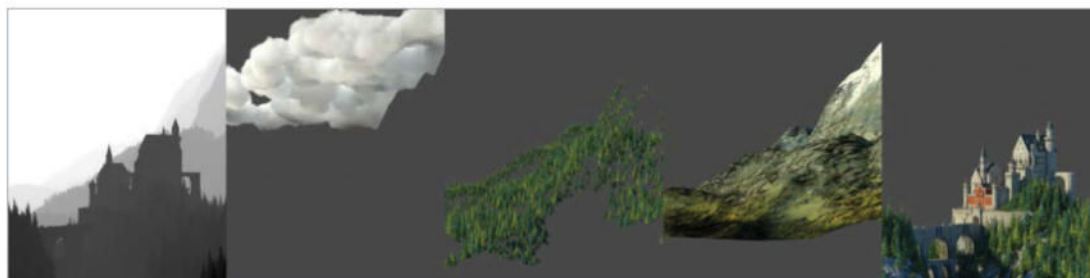
15 **Bake textures for the castle** Returning to the castle, we have already unwrapped each chunk to a texture sheet, so switch render engine to Blender Internal temporarily (Cycles has only started supporting texture baking in the latest dev builds, so I stuck with BI) and bake out a few maps. For each chunk of the castle, bake an Ambient Occlusion map, as well as a few different seamless brick and concrete textures. As well as this, bake out a Groups map for each chunk of the castle, assigning different colours to areas we want to paint with different materials. This makes selecting different areas easier for texture painting and masking textures.

16 **Combine texture baking and painting** In Photoshop, combine the baked maps, using the group's map to mask different areas of the texture with different base textures (different kinds of brick or concrete). Next, multiply this with the AO map on a low Opacity to add some basic grunge, then paint in some further variation and cloning in grunge from other sources. The result for each part of the castle should be a nicely aged texture with a consistent brick pattern that doesn't look too repetitive overall.

17 **Texture the landscape** For the landscape, take a slightly matte-painted approach, creating the landscape texture from the camera perspective to save time. Grab images of mountains, grassy hills, and rocky cliffs from texture websites, and use different bits of each to cover the landscape, blending them together by adjusting their colours manually and cloning parts together. Create two separate textures for the foreground and background of the landscape. You don't need to worry too much about large areas of texture looking entirely plausible, as most of the landscape is going to be dominated by the forest in any case.

Create
clouds

We want to add clouds to the sky, which can be done using Blender's Cloud Generator plug-in, as well as some painting thrown in when compositing the final image. In a separate scene within the blendfile (into which we linked our landscape objects and camera), loosely model streaky clouds, then convert them to clouds with the Cloud Generator tool. This add-on turns a mesh into a cloud object with a pre-configured material for rendering in Blender Internal. Render the clouds as a separate pass that we can eventually composite into the final image. For my image, it didn't look amazing as just a basic render pass, so I did a fair bit of messing about with it in Photoshop later on.

18 **Render passes** For the final render, split the scene into a few different passes, with one for the foreground of the scene (including the castle itself), another for the background landscape and a third for the background trees as a separate layer. It's also worth rendering out some clouds and a simple Z-Depth pass that we can use to add some aerial perspective to the scene.

19 **Composite the final image** Using Photoshop, we'll composite the final image. Layer in the different render passes and combine them with gradients, a slight vignette and some colour grading to create a final image that you're happy with. Try painting in the odd wisp of cloud or erasing the occasional stray tree by hand. You could also add a slight bloom effect by creating a merged copy of the layers, blurring it and tweaking its Levels before adding it back onto the scene to create softer lighting in the scene.

Landscapes

Concept

Construct a landscape from photos

Learn how to work with fragments of photos to create a fantasy scene

Learn how to use Photoshop to create a fantasy scene with this tutorial. We'll start with creating a sketch. Try to experiment with different ideas and choose the most interesting option. It's important to think through all the details before you start work. We will combine fragments of photos to create a background and unique objects to create a fantasy environment. Creating scenes isn't easy when you're working with different source photos. You will need to use colour correction elements and effects so that the image becomes attractive and convincing. You will also learn how to manually create sunlight and shadows, as well as achieve uniformity across all elements.

In order to successfully complete this tutorial you'll need a base knowledge of Photoshop. We will be using different tools, such as selection tools, layer masks and adjustment layers, colour corrections (Curves, Color Balance, Selective Color and more) and brushes. Use a pen tablet if possible – using a mouse will make the process longer and more difficult. This tutorial has been completed with Photoshop CS6, but you can use most other versions.

Artist
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Nadegda Mihailova is a digital artist and creative retoucher from Russia, specialising in environment illustrations. Milhailova is currently working as a freelance digital artist.

Software
Photoshop

Source Files
On FileSilo you will find all the images needed to complete this tutorial.

Preparing the background
Use multiple images to create a background

01 Create the sketch The first step is to create a new document: File>New, set document size to 2,950x4,200px. Then create a sketch. At this stage it is important to make a decision on composition and the location of all objects in the scene. Think through all the details before you start work; you will need to decide on the overall colour of the image and light sources.
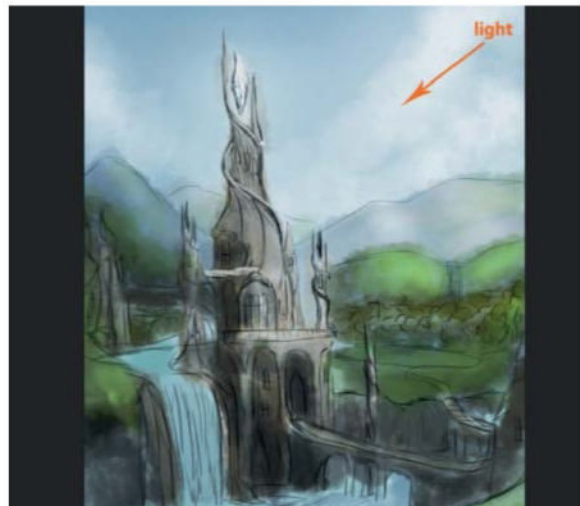
**02 Make the background**

Open the image 'IMG_02-1.jpg' and cut the mountains with a Lasso tool, and then move them onto your scene and scale accordingly. Duplicate this layer and modify the shape, remove borders around it with soft Eraser tool, and merge into the scene. Then select Image> Adjustments>Curves, lower the contrast and add more blues and lower the saturation using Hue/Saturation. Note that the further away the object is, the less details you should see.

03 **Add the sky** Use images IMG_03-1.jpg - IMG_03-5.jpg to create the sky. Cut out sky fragments and add them to your scene. Then select Edit>Transform>Warp and change their shapes as needed. Now make the sky more consistent by selecting Curves and adjust the brightness, contrast, and colour for each element. Use the Eraser tool with soft edges and Clone Stamp tool to eliminate seams. Merge these layers and slightly darken the upper portion of the image.
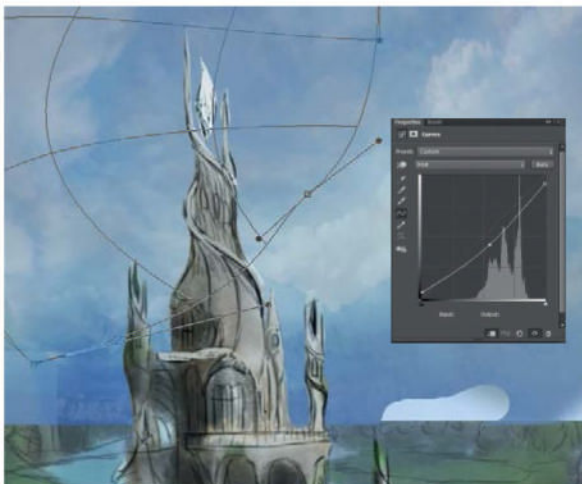
04 **The landscape** Insert the mountains from IMG_04-1, IMG_04-2 and IMG_04-3.jpg to your scene. Add more blues using Color Balance and lower the contrast. Create a new layer then draw some fog in the right of your scene using a light-blue Brush tool with soft edges, on 10% Opacity. Paint the mountain edges and peaks with the same brush. This should add more consistency to the entire scene. Add the forest (IMG_04-5.jpg), the bridge (IMG_04-4.jpg), and the grass (IMG_04-6.JPG) in front of the mountains. Adjust brightness, contrast, and colour for each element by using Curves, Color Balance, and Hue/Saturation for the desired result.
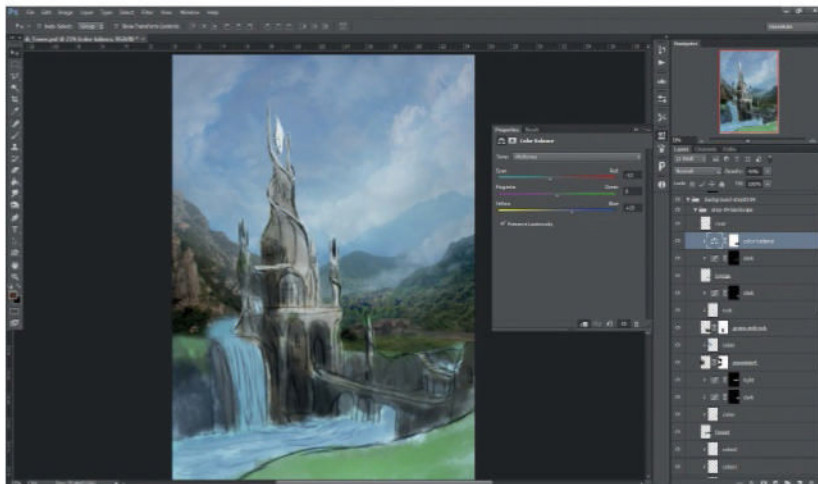
05 **Form the tower** Create the tower shape out of stone textures by cutting stone texture fragments from images IMG_05-1to IMG_05-4.jpg. Use Transform and Warp to change their shapes and sizes. Make brightness and colour consistent among all the fragments. Now draw a spiral on top of the tower. Merge these layers and "heal" the seams with Clone Stamp tool. Select the Brush tool with soft edges, change the blending mode from Normal to Multiply, set Opacity to 10-25% and darken the bottom and left parts of the tower. Add the riverbank from IMG_05-1.jpg to the right side, then select Hue/Saturation and reduce saturation and lightness.


06 **Add details** Cut out elements from IMG_06-1.jpg (1) and place balconies around the tower. Make the left and right sides darker and the central part of the balcony lighter. Then repeat to create the second balcony. Place the window from IMG_06-2.jpg (2) in the center of the tower. To add smaller windows use IMG_06-3.jpg (3), adjust Color Balance and Curves to make the windows' colour and brightness consistent with the stone texture. Make the window sides' upper and lower parts darker. Decorate the tower facade with elements from IMG_06-4.jpg (4). Reduce the brightness by adding reds and yellows using Color Balance.

Edit with layers

Use adjustment layers as clipping masks for editing elements. This means you will have the opportunity to go back and edit part of your image – you can weaken or strengthen the impact if necessary.

07 **Top of the tower** Create a new layer and draw ridges (1). Take a colour sample from the stones. Place the pattern from IMG_07-1.jpg under the ridges (2). Then select Transform>Warp to change the shape as needed. Adjust brightness, saturation and colour for all added elements. Add shadows on the left and under the ridges using a brown soft brush in Multiply mode with 10-20% Opacity. Copy the small windows from the previous step and place them on the tower (3) then add decorative stone elements (IMG_06-4.jpg) to the tower facade.
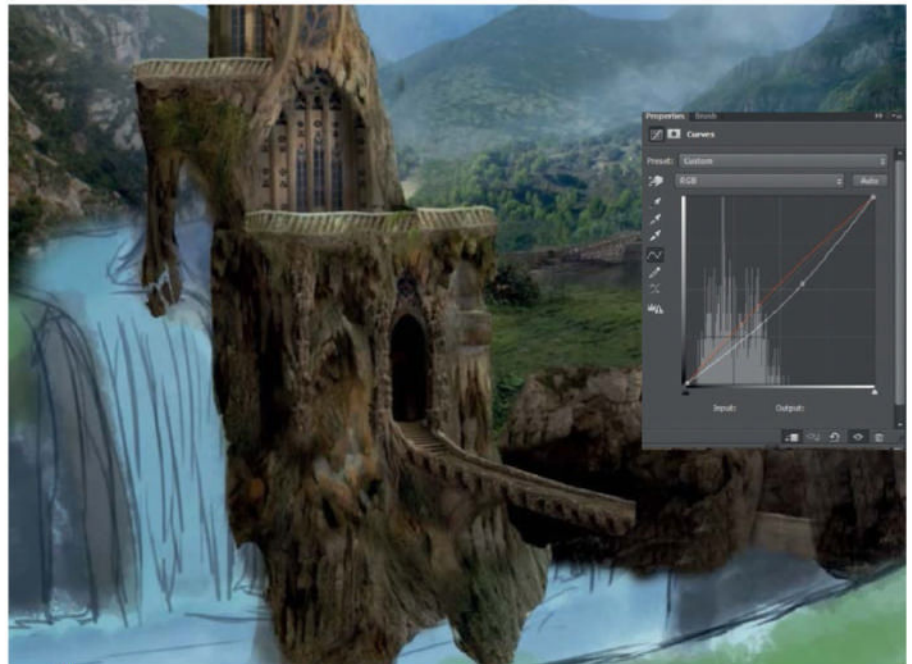
08 **Bottom of the tower** Use elements from IMG_08-1.jpg to create columns and add them to the facade. Select Image> Adjustments>Hue/Saturation to decrease saturation and lightness. Use IMG_08-3.JPG to create the gates and place them under the layer with columns. Use Curves to decrease the brightness then add yellows and reds. Copy the balcony and place it between the columns, reduce its brightness. Place the stone elements (IMG_08-2.jpg, IMG_06-4.jpg) and windows (IMG_08-4.jpg) on the tower. Add the bridge (IMG_08-5.jpg) and draw stairs on the right side of the bridge. Adjust brightness, contrast, and colour for these new elements.

Adding more elements
Create the tower and other elements from fragments of photos

09 **Add more volume**
Select the layers that relate to the tower and merge them. To add more volume, create a new layer, change this layer's blending mode to Multiply and set Opacity to 30-40%. Use clipping masks, so that you can apply effects to only this object. Right-click on the layer and select Create Clipping Mask. Use a soft brown brush to darken the bottom and left parts of the tower as well as areas under the spiral. Increase shadows on the windows and brighten the central part of the tower using a Curves adjustment layer.
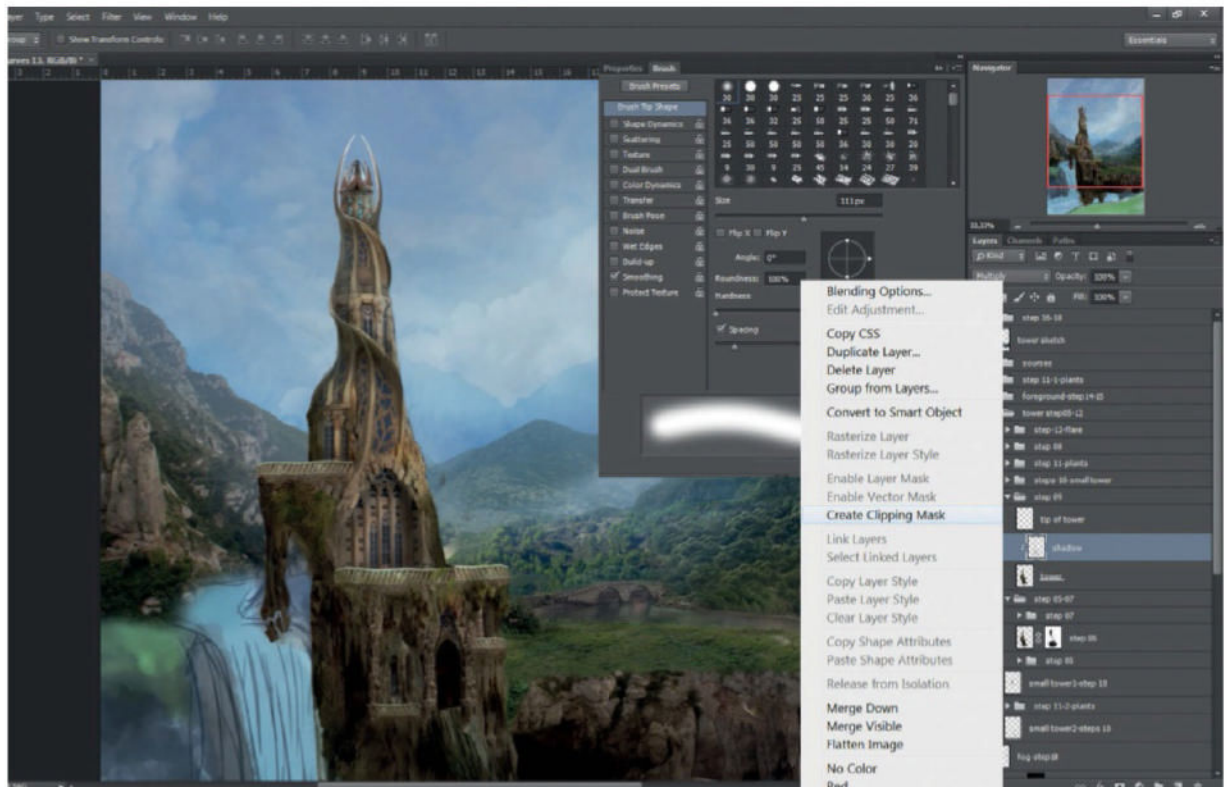
10 Create small towers Create small towers in a similar way. Copy the stone texture from the main tower and change its shape as needed using Warp and Transform. Draw the spiral and tower peaks. Then add building fragments from IMG_10-1.jpg, reduce brightness, and add yellows and reds using Curves. Insert the tower top, IMG_10-1.jpg then adjust colour. As in step 09, adjust light and shadows for more visible volume. Merge the layers related to the small tower, duplicate the layer and place it above the left balcony. Make it darker and erase the bottom part. Use images IMG_10-3.JPG, IMG_10-4.jpg to create the remaining small towers.
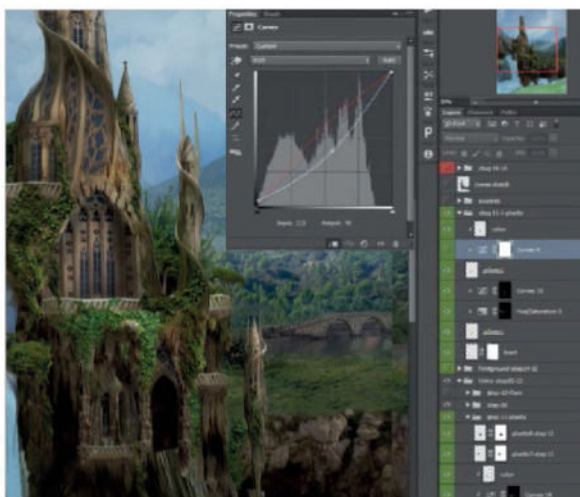
11 Add Plants Add plants IMG_11-4.JPG, IMG_11-5.JPG behind the tower then reduce brightness, contrast, and saturation. Place the plants from IMG_11-1.jpg, IMG_11-2.jpg, IMG_11-3.jpg on the tower surface, adjust their brightness and colour balance. Create a new layer, change its blending mode to Soft Light and set Opacity to 30-50%. Create a clipping mask on the layer with plants. Go over the plant edges with brown soft brush. Then create a new layer under the plants, set blending mode to Multiply and Opacity to 20-30%. Paint shadows under the plants.

12 Lights on the tower Create new layer and fill it with black. Select Filter>Render> Lens Flare from the menu, set Lens Type to 50-300mm zoom and apply the filter. Change the layer blending mode to Screen. Transform the layer by scaling it down and squeezing it a little. Place a flare onto the tower top then add flares to smaller towers in a similar way. To enhance the glow create new layer, set blending mode to Overlay, Opacity to 50-70% and add stamps around the flares on the towers with a big light-yellow soft brush.

"Do not forget to adjust brightness and colour for all the elements you add"

13 Build the rock Copy the gates from the main tower and paste them onto the rock and reduce contrast. Now cut out part of the stone texture to create the bridge. Use Warp Transform to change the shape as needed – erase any unnecessary areas. Then make the right and bottom parts of the bridge darker. Add columns from IMG_13-3.jpg (1), reduce their brightness, add reds and yellows using Color Balance and make the bottom part darker. Insert windows from IMG_13-1.jpg (2) into the rock. Use IMG_13-2.jpg (3) to create the top of the building. Adjust the brightness and colour of these elements to make them consistent with the rock.
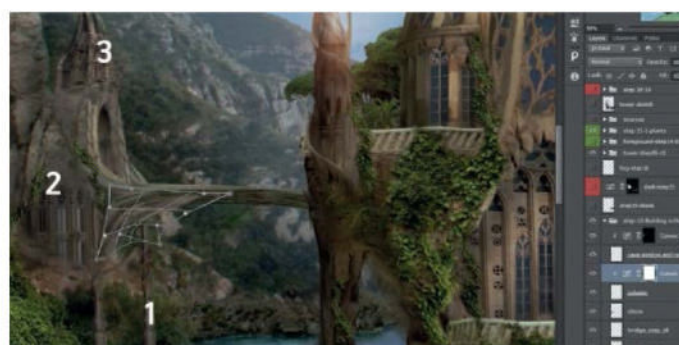
# Final editing
foreground and the finishing touches

14 **Waterfall and river** Use IMG_14-1.jpg to create the riverbank under the rock (1). Reduce brightness and add blues using Curves. Cut out water texture and paste it in the river. Select Hue/Saturation to decrease saturation of yellows then add blues using Color Balance. Add the waterfall from IMG_14-2.jpg (2) and adjust its brightness and colour. Now use IMG_14-3.jpg and IMG_14-3.jpg (3) to form the lower part of the riverbank. Change the rocks' shape as needed using Warp. Use Hue/Saturation to reduce saturation of reds and yellows.

15 **Create the foreground** Place the rocks from IMG_15-1.jpg in the foreground. Create the lower part of the rocks from the fragments of IMG_15-2.JPG and use the Clone Stamp tool to remove seams then merge these layers. Draw the entrance in the upper part and extend the bridge so it reaches the gates. Then duplicate the bridge to create the second one, place it to the right and reduce the brightness. Add the ladder from IMG_15-3.JPG and add plants on the right side of the riverbank with IMG_11-3.JPG. Do not forget to adjust brightness and colour for all the elements you add. They should be consistent with other the elements in the scene.

16 **Add more shadow** Now add more volume and depth as well as focus the viewer's attention on the tower. First, add more shadows. Remember that the light source is coming from the top right. Create a new layer and change its blending mode from Normal to Multiply; set Opacity to 50-70%. Use a dark coloured brush, not black, and add more shadows to the left side of the tower, lower part of the riverbank, the areas behind the tower and to some of the foreground. Add shadows to the small elements and plants.
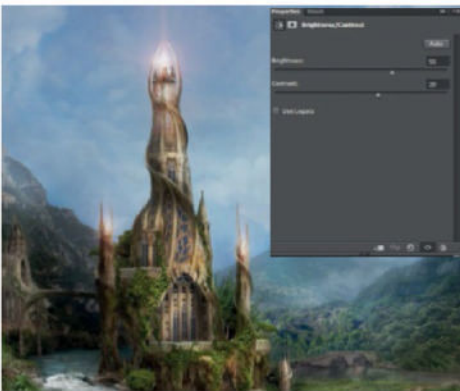

17 **Highlights** Create a Brightness/Contrast adjustment layer, set Brightness +60 and Contrast +20. Invert the layer mask using Cmd/Ctrl+I and paint darker areas inside it with a soft brush using white. Add flares to the central parts of the tower, tower tops, bridge, waterfall, landscape on the right, and to the foreground. You can lower the adjustment layer Opacity to 80-90% to make it weaker. Add a new layer with blending mode set to Soft Light and Opacity to 50-70%. Select a light-orange colour and add coloured flares using a brush.
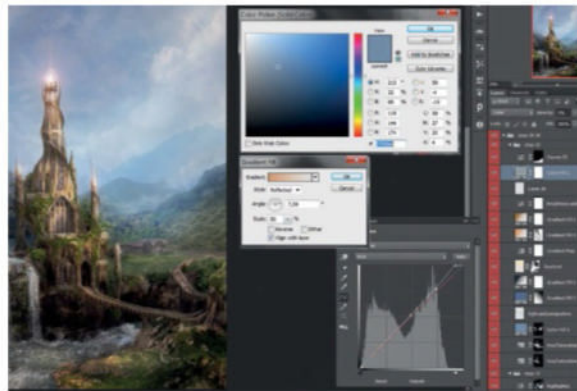
18 **The final correction** To add more depth to the image, reduce the contrast of the background. Create a new layer and using a light blue soft round brush, Opacity 10%, paint over the background and behind the tower several times. This will add more depth and separate the tower from the background. Now you will need to add more consistency to all the elements. Try to experiment with adjustment layers for Solid Color, Gradient Fill, Gradient Map and various blending modes and Opacity. I selected a blue Solid Color and set blending mode to Soft Light and Opacity to 15-30%. Then select Gradient Fill, set colour to orange and set blending mode to Overlay in order to enhance the sunlight coming from the right. To finish, add more contrast using Curves.

Hide the drawn elements with noise

When you draw the small details, it is important that they do not stand out among photorealistic elements. To disguise them create a new layer filled with 50% grey and set the blending mode to Overlay. Create a clipping mask then go to Filter> Noise>Add Noise, and set Amount between 1-7%. Go to Filter>Blur>Gaussian Blur and set radius to 1-2 pixels. Or place a suitable texture instead of noise, reduce saturation, set the layer mode to Overlay or Soft Light then adjust Opacity.
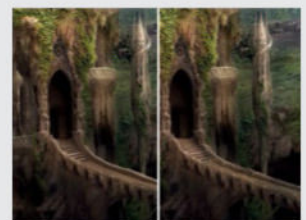
Optimise by using layer groups

Use layer groups to optimise your work. When you have too many layers, working with them can become difficult. It can be convenient to group layers that relate to each other. Select the layers and press Cmd/Ctrl+G to group them. You can also apply adjustment layers to the group.

Paint a digital landscape

Create a fantastical digital illustration using traditional painting techniques

Traditional paintings are exciting. They evoke energy, texture, dedication and passion. Through this tutorial, you'll learn how to paint an exciting fantasy illustration using only Photoshop, a graphics tablet and some imagination. No paint mess, turpentine spillage or sitting around waiting for your canvas to dry, just textured strokes and well-thought-out, bold colour choices that make people go "ooh". Using reference correctly is one of the keys to becoming a successful artist, and something we'll cover in this tutorial. Through studying the fundamentals, in particular composition, anatomy and colour theory, you can expand your visual libraries and improve the ideas you put down on paper. In order to prepare for a new painting, you should first research the topic; find images that relate to the subject matter and study them. Treat them as a resource to examine whenever you get stuck or need to reference directly. Before you begin, grab some images of paintings you like and look at how the artists applied paint; that's what you want to emulate here.

Artist
Paul Scott
Canavan
www.paulscott
canavan.com
Canavan is the art
director at Scottish indie
game studio Blazing
Griffin, and a freelance
illustrator when he gets a
spare minute.

Software
Photoshop

Collect reference pictures
Base your work off of the world around you

01 Collecting references Start by collecting references. These can be photographs relating to aspects of the image, for example skies, landscapes and waterfalls, or paintings that match the mood you want to create. Because we're going for a traditional look here, you could include work by painters such as John Singer Sargent, Thomas Cole and modern artists like Jaime Jones. Create a new document in Photoshop and simply drag your references in, arranging them to your liking. Save this file to refer to later.

02 Create an underpainting In traditional painting, artists sometimes create an underpainting as a base for subsequent layers of paint. This technique applies nicely to digital painting; if you allow breathing room between your strokes, you'll get some of that colour and texture showing through. Create a new document at A3 size. Choose a colour that contrasts with your palette; in this case we used blue tones. Grab your favourite textured brush and start loosely filling the canvas! There's no need to be clean here – you want those imperfections.
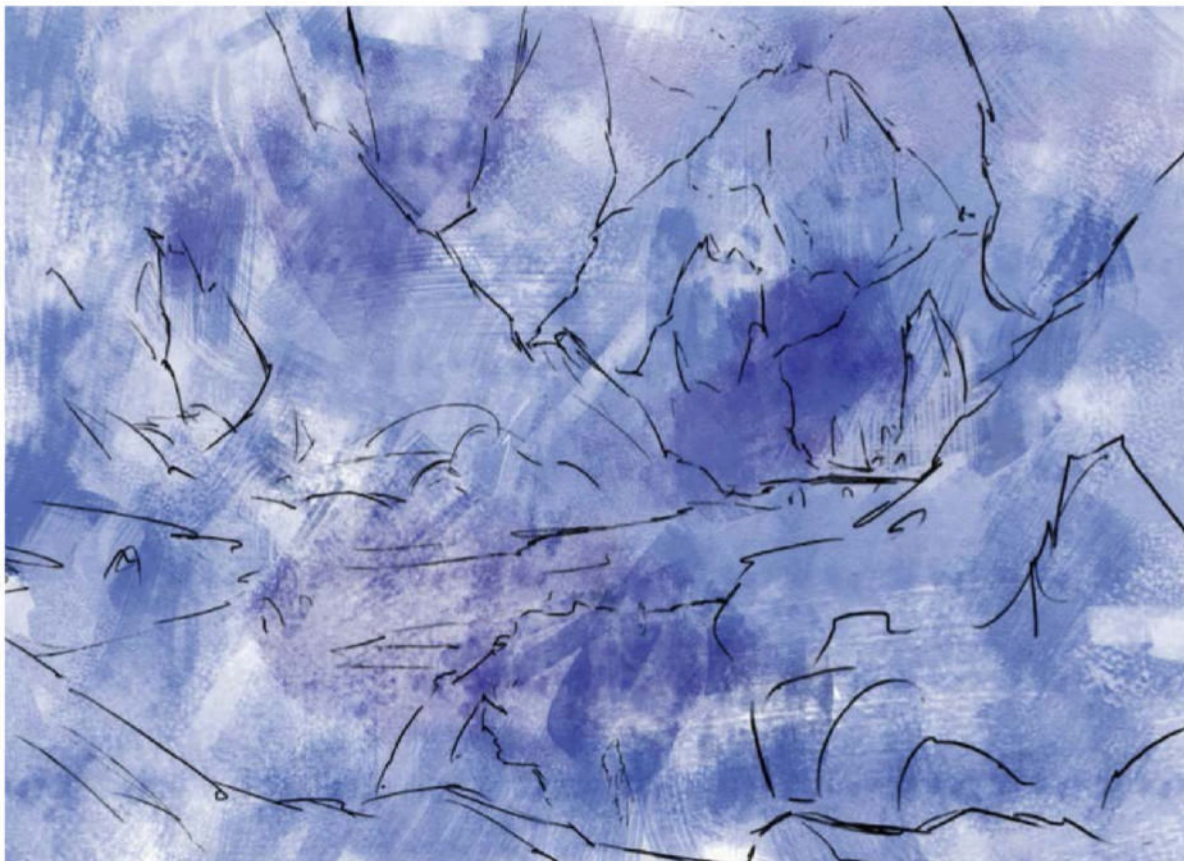
03 Sketch! Having spent some time absorbing your reference images and scribbling in a notebook, you should have a good idea of what you want to draw. Create a new layer above the underpainting and get scribbling. Think about the composition; you want to lead the viewer's eyes through the painting. The best way to do this is to use lines that lead directly to the focal point, in this case the mountain, and to use colour and value contrast to pop it out. Don't worry about being clean and careful, as you'll be deleting this layer later!
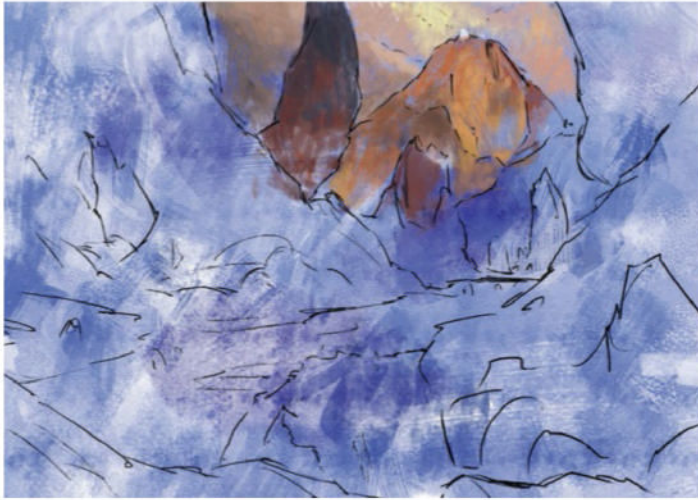
04 **Start painting** Choose a textured brush and reduce the flow to around 50% – this will apply less 'paint' with each brush stroke. Take your time and really think about each stroke you are applying; you want to leave some spaces between marks to let that lovely underpainting show through. Colour choice is important, as it'll help drive the viewer through the image. The sky defines the palette of the whole painting, so paint that with yellows, oranges and other warm colours, while the rest of the image will take on some colder blue tones.

05 **Focus on big shapes** At this stage of the painting you don't want to get caught up in details. By focusing on big shapes you'll be able to cover the canvas quickly, which makes it easier to see if the composition and values are working. Use big brushes when you are blocking the forms in, around 300 pixels plus at times! Don't be afraid to make mistakes, as you can still use Photoshop's toolset to help you out here (the Eraser is your friend, but remember to switch the default brush it uses to a textured one!).

"Take your time and really think about each stroke you are applying"

06 **Light and rendering** With the painting blocked out, you can start to think about how light affects the environment. Use the Eyedropper tool (I) to select colours from the sky, then paint highlights where they would naturally fall. A nice balance of shadows and highlights will create interest, so bear that in mind when you paint the rocks. Match your stroke direction to the shape of the object you are painting to enhance the 3D effect: paint mountains with vertical strokes, curve around forms and then move to horizontals when you get to the ground.

07 **Don't zoom in!** A good chunk of the hard work is done at this stage, but resist the urge to zoom in and start adding details! Work at 50% zoom or less until near the end; if you start detailing too early it's easy to lose control of the composition. A strong painting should read and be interesting to look at as a thumbnail image; frequently zoom right out to check the composition is working, or alternatively open a navigator window by going to Window>Navigator in the top toolbar.

Landscapes

08 Use your references

To create realistic, tangible forms in your environment, you can reference photographs directly. To do this, open the reference file you created in step 1 and place the image beside your canvas. Treat sections of your painting as mini studies to help you define areas such as the rocks. Try to learn while you work; pay close attention to the way light and shadows fall over the stone, but bear in mind that this might be different to the palette and lighting you are painting!

Learn masks

In Photoshop, Layer Masks allow you to control transparency simply by painting in black and white. They're great for adding texture, blending layers or making adjustments that don't affect the whole image. Instead of using the Eraser, just go to Layer> Layer Mask>From Transparency and experiment to what suits you… you won't go back!
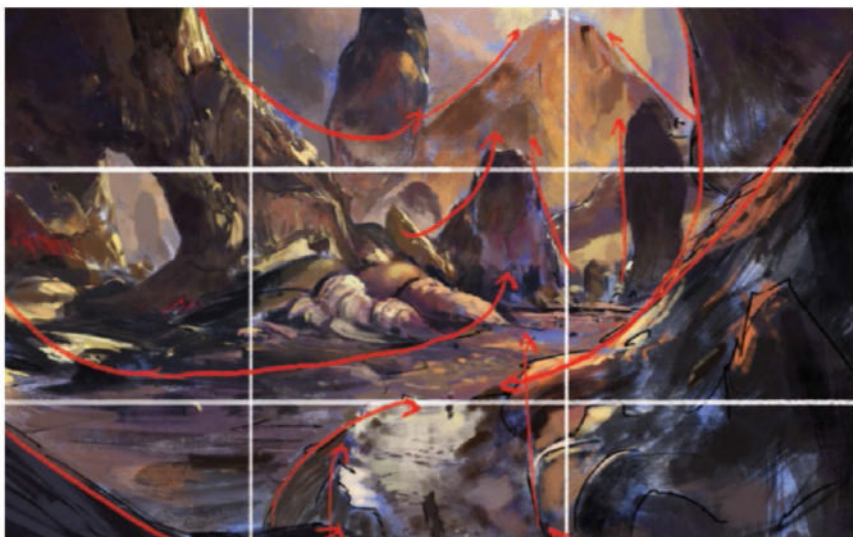
09 Composition tips

This is an example of the flow through the painting. White lines indicate the rule of thirds, a commonly used composition breakdown in which you place items of interest on the lines and in particular where they intersect. You can see in this image that the focal point sits on an intersection and a line, while the character sits dead centre in the lower horizontal. The red lines indicate how the rock shapes are intended to drive your eyes through the painting.
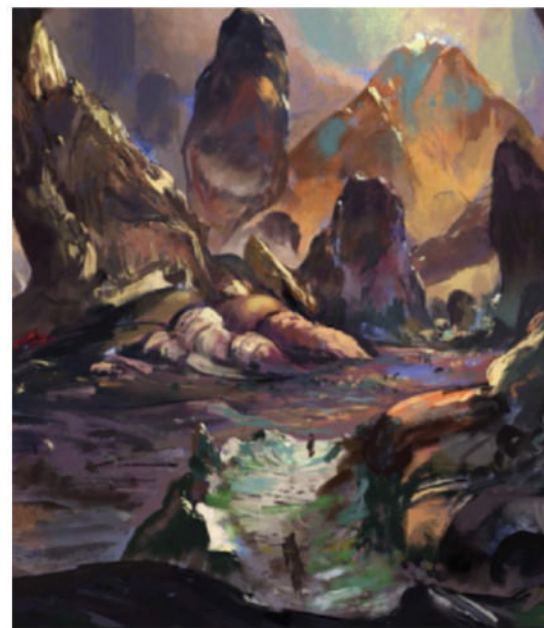
10 Adding detail

With most of the elements of the painting blocked in nicely, it's time to focus on individual areas. Bring your attention over to any part of the image you think is lacking and start to render it out. Remember, you aren't going for incredible detail here, more the illusion of detail; you want to save areas of highest detail for your focal points. Change your brushes frequently to add varied texture to the painting and don't be afraid to be bold with your strokes.

11 Cloud rendering

To paint the clouds, use a hard square brush to lay in the forms in combination with the Smudge tool to soften and stretch the undersides. The mixture of hard and soft edges lends believability and weight to the shapes even though they're still quite abstract. The Smudge tool can be used for painting rocks and other forms too – experiment with different brushes in conjunction with it! John Silva has some fantastic smudge tool presets available at **johnsilva.deviantart.com.**

12 **Atmosphere** A nice way to separate the elements of your painting and give the illusion of depth is to add atmospheric fog or haze. Take a large soft brush set to low opacity (10-20%) and select a light tone from the sky. Use this to gently paint in atmosphere behind the rocks to separate them from each other, increasing in thickness as you recede back through the image. Erase or use a layer mask to tidy this layer up when you are finished; less is more.

13 **Check your values** Now that you're nearing the finish line, it's a good time to check your values – essentially to look at the image in black and white so you can see how well it reads. Go to Layer>New Adjustment Layer and select Hue/Saturation. Slide the Saturation slider to -100. Remember – you want your focal point to pop out, so increase the contrast in those areas using the Dodge and Burn tools sparingly, or by adding a Brightness/Contrast adjustment layer in the same manner as before.

15 **Finishing touches** Use adjustment layers to fine-tune your painting. Bring the saturation up slightly using Hue/Saturation and adjust contrast with a Levels adjustment layer. Use the Color Balance adjustment to add yellows (+8) to the highlights and blue (+20) to the midtones; experiment with these settings until you get the overall colour tones you desire. As with the atmosphere, less is more when it comes to adjustments. Apply some Sharpening (Filter> Sharpen>Unsharp Mask) to the final image to pop out some of the texture detail and you're done!

Remember to take regular breaks

It's important to rest your mind every hour or so, both to maintain energy levels and to return to the image with fresh eyes. Often you'll notice glaring errors when you take even a short break, which you might have missed otherwise.

14 **Character painting** Save the best until last – it's time to look at the characters! Striking the balance of adding detail without ruining the painterly effect isn't easy, so try to be bold with your strokes and feel out the shapes. Adding little elements like the ball of light, interesting clothing designs and poses will help add story to your painting. Think about who the characters are, where are they going, what this world is. The more thought you put into the designs in your painting, the more exciting it'll be for viewers.

Imagine epic fantasy worlds

Combine photo elements and painting techniques to create photoreal concept art

Learn how to use a 3D block mesh, photo bashing and digital painting techniques to create an epic fantasy kingdom scene. The combination of Maya and the renderer Chaos Group V-Ray will help you to set up the perspective and basic lighting for the final scene. The use of photos will help you to create the first details for the image and generate

a photoreal touch. You will then use digital painting techniques to match, merge and change the photos to the way you want them, which will help you to create a final concept.

This is an advanced Photoshop tutorial, for artists who have a bit more experience with this program or someone who wants to push their

skills to a new level. You will be using photos to make up most of the base, which you can find on the web. Here, stock sites like CGTextures, Texturepilot or deviantART were used. Shop around to find images to suit your own scene. On the FileSilo, you will find the 3D render and all passes. When you have these downloaded, you're ready to begin.

Artist
Tony Andreas Rudolph
www.zulusplitter.de

Rudolph is a concept artist and digital matte painter working in the feature film industry. He has worked on projects like *Guardians of the Galaxy*, *Jupiter Ascending* and *Captain America 2*.

Software
Photoshop

Source Files
On FileSilo you will find the source files needed for the tutorial, from the base image to all the added photos.

Landscapes

01 **3D Block Sketch** Create a new document with a size of 5661 x 3669 pixels and 300dpi. You will start by using a 3D render. The 3D render was created with Autodesk Maya and V-Ray. You can use other 3D programs and renderers to create a similar image, like CINEMA 4D or Google SketchUp. The 3D mesh will help to give you the basic composition, perspective and lighting for the scene. For this painting, the 3D part was completed in around two to three hours. Render out different passes like Diffuse or RGB.

02 **First Photobash** The next step is the background. For a better overview, create a group by clicking the group icon in the Layers panel. To browse the photos you want to use in the image, the best way is to use Adobe Bridge or Adobe Mini Bridge. To activate the Mini Bridge, go to File>Browse in Mini Bridge. When you find the right images for the background, double-click on the thumbnail in Mini Bridge to open them. Use the Move tool to move the image into your PSD file.

> "The 3D mesh will help to give you the basic composition, perspective and lighting for the scene"

Use quick selection

If you want to select a part of a reference image you picked for the painting, use the Quick Selection tool to create a fast and accurate selection. Sometimes the Quick Selection tool creates better results than Color Range selection or the Magic Wand tool.

03 **Extend the photos** The next stage is the extension of photo elements by copying the images and painting on top of them. Duplicate the sky image with Cmd/Ctrl+J and put it under the original sky. Than use the Move tool to move it to the right. Make another copy and move it down. After that, merge the sky layers together and use the Brush tool with a chalk brush to paint a seamless edge between all the sky parts.

04 **Match the elements** Now it's time to match the mountain with the sky. Hit Cmd/Ctrl+B for Color Balance to match the colours. Select Shadows and add a bit of cyan to the mountain. Press OK and open the Hue/Saturation dialog with Cmd/Ctrl+U. Go to the cyan and blue channel and pull down the Saturation. Create a new layer behind the mountain layer. Use the Lasso tool to make a shape for the distant mountains. Pick a shadow colour from the mountain and fill the selection with this colour.


05 **Add the waterfalls** Other than the sun rays, the background needs another interesting element – the waterfalls. To create these, use two different waterfall images. To paint the shapes of the waterfalls, create a layer mask by clicking on the layer mask icon in the Layers panel and paint with the round brush in black to change the shape. It's important to look at the size of the trees – the waterfalls shouldn't be bigger than the trees on the mountain. After that, match the colours again with Color Balance.

06 **Overpaint the waterfalls** Now you need to match the waterfall size by painting on top of the waterfall. Create a new layer on top of the waterfall layer and use a chalk brush. Pick a dark colour from a nearby area and just paint some lines on the waterfall. Then add some smaller islands and stones. Go to Image>Image Rotate>Flip Horizontal to have a fresh eye and check the perspective and scale. Create a new layer and set it to Lighten. Pick the sun colour and paint some highlights over the waterfall where the light hits.
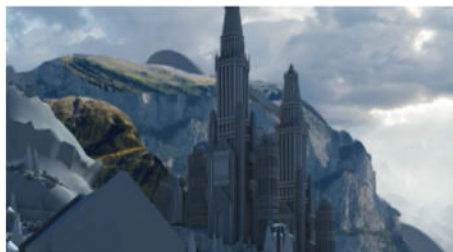
07 **The middle background mountain** Now you can repeat the same techniques as used in the steps before. Try to match the shape of the 3D render to the scene as much as possible, as well as the lighting direction. Create a new group and call it something like 'midground mountain'. Import the images into your Photoshop file and place them by using the Move tool. Then create a layer mask for every image you want to add and paint the shapes. Here, tree images were used to create a base for the mountain.
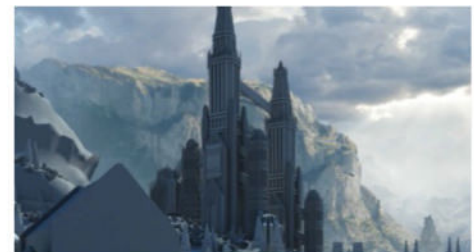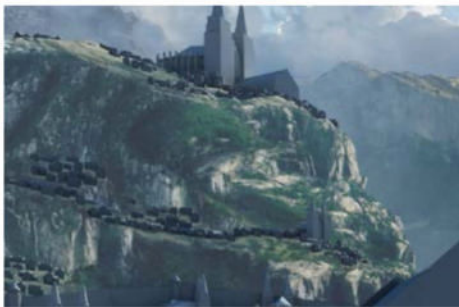

08 **Overpaint the mountain** The next step is another overpaint and colour matching. You need to match the grassy top and the forest to the rocky mountain image. To match the colours, use the Match Color adjustment. Go to Image>Adjustments>Match Color. Select the PSD file as a source and the layer you want to match this layer. After you have done this, create a new layer for the overpaint and paint the edges between the images, as well as painting in some trees on the light side of the mountain.

09 **Paint the snowy distant mountains** Flip the image again to get a fresh eye. Create a new group. Use the 3D part as a base, but extend the shape a bit more with the Lasso tool. Import a snowy mountain and put it into the PSD file. Use Color Balance to match the colours. When you have done this, create a new layer over the mountain. This layer will be a cloud layer. Use the Brush tool and a cloud brush. Pick a cloudy colour from the sky layer and paint the clouds.

10 **Midground mountain** Create another new layer. Select the part of the mountain you want to add details to with the Lasso and click on the mask icon in the Layers panel. Now the group must have the mask in nearly the same shape as the mountain. Import some more grassy mountain images. Here just two different ones were copied and moved around so that they did not look like duplicates of each other. Create a mask for every image and paint some areas away if it ever starts to look too similar.

11 **Paint the sun and sky** Create a new layer inside the mountain group. Pick the colour of the darker cloud and change the layer mode to Multiply. Fill the layer with the colour and paint the elements away on the mask where the sun hits the mountain. After, create a new group with a mask. Inside this group, add a Color Balance adjustment and match the light side of the mountain with the sun colour. Then create a new layer in Lighten mode, picking the sun colour, and paint the sunny side of the mountain.

12 **Final details of the mountain** Here, some rocky parts of the mountain didn't match the buildings and smaller cathedrals. Create a new layer on top of the latest layers you created. Pick a colour from the rocks and start painting on some rocks near the buildings to create something like platforms that the buildings are built on. Be sure to repaint as much as possible, like the existing rocks. Use a chalk brush with a texture for this part. The result should show nearly no difference between the original rocks.

13 **Cloud cover** Look for some cloudy mountains. Use the Quick Selection tool to select the cloud and move it into the PSD. Match the colours with Color Balance. Move one cloud on top of the mountain group and one behind. Paint in some details on the top cathedral. For the foreground, use three images for the water and two for the riverside in front of the gate and copy them three times. Merge the images again by painting on top of it. The colours are matched with Color Balance.

14 **Main cathedral, gate and riverside** Create a new group. Select the main cathedral and make a layer mask out of it. Use cathedral textures to add some basic details and paint on top of it. Do the same with the bridge and the wall. For these elements, just use some old stone textures you can find at CGTextures or Texturepilot. Copy the image from the riverside on the left and put it between the tree images you added before. For the tree, use just one image and paint on top of every layer to create randomness.

15 **Final step** Now add some textures to the remaining parts. Create a new layer and paint some city smoke with a cloud brush. Use a knight image, scale it and paint on top of it to create some randomness. Then create another new layer, pick the sun colour and paint all the sunny parts with a soft brush to create a moody feeling. Press Cmd/ Ctrl+Opt/Alt+Shift+E to create a master copy. Then go to Filter>Blur>Gaussian Blur set 4%. Change the layer mode to Lighten at 75%. Done.

Render out passes

When you work with 3D, be sure to render out as many passes as possible, including Diffuse, Ambient Occlusion, and shadow and light passes. You can then combine these passes with the layer blending methods in Photoshop, like Multiply, Darken and Lighten.

Work with matte painting

Learn how to create a realistic matte painting using layer and clipping masks

Telling a story with a single image can be a challenge, but this tutorial will show you how to do just that. You will learn how to create a photorealistic digital matte painting that could be used as a book cover, film poster, on a website or any other media that uses images that are not primarily moving.

Photoshop's first job after its creation was to create the first digital matte paintings at Industrial Light & Magic, and since then its photomanipulation and painting functionalities have been standard procedure in VFX studios around the world. This tutorial will show you how to combine all these techniques together, using the Brush tool, clipping and layer masks to overcome any problems you may face when matte painting. You will also find some tips and tricks for colour matching, idea exploration and sketching, using elements to tell a story, combining and merging photos seamlessly and many more. Photoshop allows you to use different creative techniques and bring them all together to create one image. But before you start building an image like this, have a look at some existing images that could provide inspiration.

Artist
Tony Andreas Rudolph
www.zulusplitter.de
Rudolph is a self-taught digital matte painter and concept artist working in the VFX industry. He has contributed to projects like *Guardians Of The Galaxy, Jupiter Ascending* and *Captain America 2*.

Software
Photoshop

Source Files
On FileSilo you will find some of Rudolph's photos to help complete this tutorial.

Landscapes

01 **Inspiration and basic idea** Inspiration is the first thing that will help you to create a unique image. It can be found in all types of media, from other art to films and books. Browsing your own photo library can help too. Adobe Bridge is usually the best tool to do this. If you are in Photoshop, go to File>Browse in Bridge.

02 **The path** Once you have your inspiration, you need to decide what kind of image to create. You'll need a good set of reference images, and often using your own photography works the best. First, create a new document at 5000 x 2613 pixels. For fast browsing, use Adobe Bridge. It's quick and easy to use and you're able to give every image a specific tag. After you have found the right image to start with and an interesting light situation, open it in your document.

> "To match the colours, use a combination of Color Balance, Levels and Hue/Saturation adjustment layers"

03 **First direction** The next step is to integrate a more interesting foreground. To create an image with a sense of narrative, it is important to give the eyes of the viewer a path that they can follow, which has been achieved here with the path on the left-hand side. Make sure that the light direction is the same as in the base plate you used. To match the colours, use a combination of Color Balance, Levels and Hue/ Saturation adjustment layers. You will find all of these under Image>Adjustments.

04 **Integration** Now it's time to integrate the two images into one. It feels like a small step, but it helps to make your image believable. Create a layer mask (click on the layer mask icon in the Layers panel) to start painting on it. Use the Chalk brush with Pen Pressure turned on, which you will find in the Brushes panel. A round brush will create a perfect edge, which you don't want because there are a lot of trees in the image.
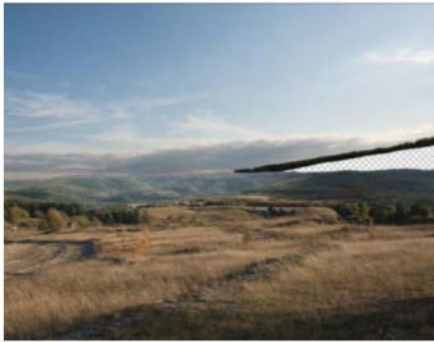
05 Sky replacement The next step is to replace the sky. Rudolph used his own photos to do this. Again, it is important again to choose a sky with a similar light direction as the current one. Use Color Balance, Levels and Hue/Saturation adjustment layers to match the colours. To create a good-looking edge, use a layer mask on the mountain layer and put the sky behind. Then start painting on the mask.

06 Sky extension After you have finished painting the mask and matching the colours, it's time to add some sky on the right-hand side. This step should be very easy and straightforward: just use your current sky and move it to the right. Then create a new layer mask again and paint on it with a 250px soft brush to create a smooth edge. Don't use the Gradient tool because the result will look too vague.

07 More clouds for the sky To create a focal point in this area, you have to add more clouds. Here, cirrus uncinus clouds have been used, which have a very neutral and clear formation. To extract the clouds from the previous sky, use the Color Range selection tool, which you can find under Selection>Color Range. Then click on the clouds. To refine the edges, create a layer mask again and paint in it with a soft brush. To match the colours, use the technique from the previous steps.

Match colours

When you want to match the colours and values of different photos, it's best to create two major adjustment layers: one Hue/ Saturation with Saturation at 89% for matching colours, and one Hue/Saturation at -100% to match the values. Put these on top of all your layers.

08 Sketching All the next steps will be done using the current image as a base. You don't want to get into detailing the image too quickly, so create a new layer (Layer>New>Layer) and use a Chalk brush with Pen Pressure on for the first sketch. Begin to paint very roughly on the image to create smooth brush strokes. The result doesn't have to look perfect. It's only important to create realistic shapes, which could fit with the rest of the landscape.

09 Refining the sketch Once you're happy with the result, insert the mountains to add a sense of depth to the image. Now it's time to refine the sketch and add storytelling elements to it, like the flying rocks and mountains, which are moving towards the sun. The brush strokes should now be more accurate with higher Opacity. Use the pre-existing values and colours from the image to add the 'final' colours to the sketch. The brush used here was the Chalk brush again.

Landscapes

11 More rocks and more depth At the moment the image still doesn't have enough depth. The clouds, the path and the mountains you added before all help, but they don't create enough depth and motion in the image. On a new layer, start to paint the shapes of the flying rocks with the Chalk brush again, but this time make them a bit more defined, as you want to use these shapes directly for details you'll add later on. Make sure that all the rocks are different sizes to create the depth you want.

10 Adding the first details Start with the big rocky element on the left side. Use the sketch for the basic shape of the rocky wall. After, find the right rock texture. Use the selection from the sketch to create a layer mask again. To create a crunchy, sharp and more defined edge, use the Lasso tool. To match the colours and values, use the same technique as before with Color Balance, Hue/Saturation and Levels. If the texture isn't big enough, use the Clone tool to extend it.

Copy it!

When you finish a painting, make a master copy by hitting Cmd/Ctrl+Shift+C and then Cmd/Ctrl+V. This automatically creates a new layer. After that, go to Filter>Blur>Gaussian Blur and set the Amount to 2%. Then set the layer to Lighten and pull down the Opacity to around 25%.

12 The first mountain
Create a new layer with Layer>New>Layer, then select the sketch layer by hitting the Cmd/Ctrl key and clicking on the layer in the Layers panel. Now the shape must be selected. The next step is to fill this with colour using the Paint Bucket tool. Now find a mountain or rock image and add it to the PSD file, turning it into a clipping mask (Cmd/Ctrl+Shift+G) for texture. If you don't have enough to cover it, use the Clone Stamp tool and extend the texture.

Before you start, find inspiration from films, music, photos or books. This will help you to create a unique idea

Colour match different images together using Color Balance, Hue/Saturation and Levels adjustment layers

The composition of an image is the magic behind it. Control the eyes of the viewer and lead them through the image

Don't go directly to a final image. Use simple shapes and a rough idea to create a clear view to your goal

13 Replacing the right mountain After changing the middle mountain, now it's time to replace the sketch of the mountain with a real one. When you want to add or replace something, look at the details of your current image. In the current painting, the trees create a good focal point. Look for images with the same sense and form of the trees you already have. The mountain itself should be in the shadow, like how you want it in the matte painting.
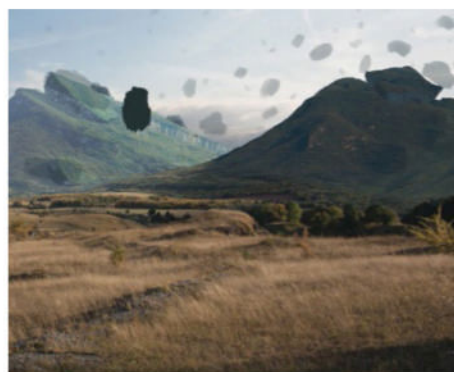
14 First storytelling elements There is a piece of floating rock above the right mountain, which broke off from it. Now do the same with the middle mountain. Go to this layer and use the Lasso tool to select the part of the mountain you want to break off. Hit Cmd/Ctrl+J to duplicate this area and with Cmd/Ctrl+T, you can move and rotate it a bit. Than create a new layer under it and use the Lasso tool again to create a shape.

15 The rocks The small rocks help to sell the idea that the rocks and stones are flying towards the sun. Create a new layer and use the sketch as a base, but now you want to add more small ones. Create the rocks with the Lasso and the Brush tool. Pick colours from the image to make sure they have the right values. To add details, create a new layer and make it a clipping mask with Cmd/Ctrl+Shift+G. To add realistic details, use rock photos and use them as clipping layers.

16 **Adding references** Now it's time to add more interesting shapes to the image. First, add a field to the background mountain to make the foreground mountain look a bit bigger. Then make a part of the mountain fly to create a sense of movement. Last but not least, break up the horizon with a big rock in the foreground. For all new changes, create new layers, and change the shapes with a layer mask.

17 **Integration of photos** The added rocks will now be the right shape and colour, but they don't feel like a part of the image. Create a new layer and put this on top of the rock layer, then create a clipping mask with Cmd/Ctrl+Shift+G and paint with a black coloured soft brush on top of it. Do the same with the rock on the left-hand side. For the details on the bottom of the rocks, paint with a new layer on top of the rock layers using the Clone Stamp tool.

> "To create some more highlights, add a new layer and paint on top of it with a soft brush"

18 **The flying rocks** Now it's time to start working on the rocks. All details added should be on separate layers as clipping masks. For these rocks, use images of cliff walls in Thailand or Vietnam. Use the sketch shapes as a base and add the details on top of them. To create some more highlights, add a new layer and paint on top of it with a soft brush, with the layer set to Overlay blending mode.

19 **Refining details** This step has a massive update. But to create this, you just have to use the same techniques you used before. The sunlight helps to explain the story behind the image. Add some smaller, smoky clouds to the rocks in the foreground. This helps to add a bit more motion to the image. Use as much as you can from the elements you already have in the image, as you can see on the rocks coming out of the ground.

20 **Final touches** The last step is for finalising and adding the last touches. Add some stars to the sky to create a romantic feeling. Then add some dirt and very small rocks to the rocks to suggest that they are coming directly from the earth. The very last step is to add some noise to create a photographic feeling. Create a new layer, fill it with a mid grey and go to Filters>Noise>Add Noise, set to 400% and Uniform. Set the layer to Overlay mode and set the Opacity to 5-10%.

Master pro painting techniques

Learn how to paint a futuristic, eco-friendly cityscape using Photoshop's brushes and tools

Anticipation, literature and painting have for centuries been the main source of creative inspiration when thinking about the future. In our times, this is a genre of illustration that has become a dominant form of expression thanks to the burgeoning growth of the videogame and sci-fi cinematography industries. However, it's usual to find the very same ideas depicted in different industry projects time and again, so the continuous search for original points of view is a must in this kind of work.

Photoshop is clearly the best tool choice. It is the ideal application to simulate traditional painting techniques, which get improved through the program's powerful colour correction, masking, filtering and brush tools. Consequently it allows you to work at lightning speed compared to some traditional mediums. Photoshop is also a great environment to work with your visual references and elaborate your ideas from them. However, keep in mind that there is no digital replacement for artistic research and planning, which will always be the foundation of good design work, independent of your medium.

In this tutorial, you will learn how to plan and paint your own futuristic vision in Photoshop, from documentation and sketching to the final stages of a fully detailed painting, working extensively with brushes, layering and adjustment tools.
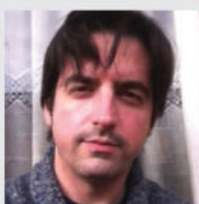
Artist
Andres Avaray
www.avaray.com

Andres Avaray is a digital artist who has worked mainly in the videogames industry, animation, short films and illustration. He especially enjoys conceptualising mad and unique fantasy ideas.

Software
Photoshop

Plan your painting
From reference to painting the base layer
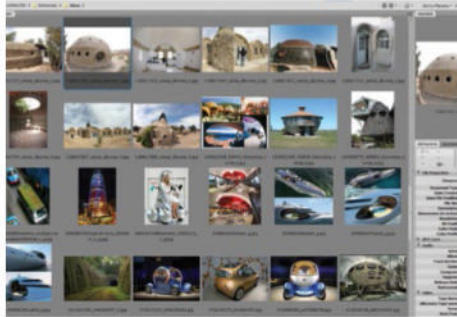
01 **Reference for imagination** I store a personal archive of thousands of real world pictures gathered over the years. They are about history, architecture, nature, art and real people. It is important to store in both the unconscious mind and hard drives whatever boosts your imagination, and revisit it when researching a new artwork. Adobe Bridge is a nice tool for browsing references.

02 **Thumbnail ideas** Sketch ideas after you become inspired. Work on a parcelled-out canvas like this and play with the references, looking for overall forms, not specific details. It is a time to enjoy, so that is why you shouldn't be too worried about what brush tool you are using at the moment. Whatever suits and flows is okay at this stage.
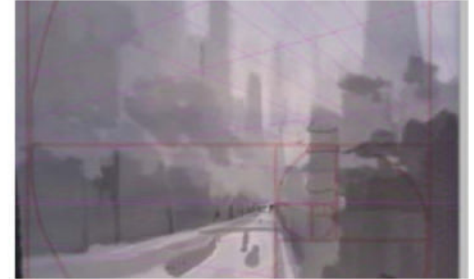
03 **Plan the composition** Time for a strong composition. You can learn about this from Andrew Loomis books and articles about the golden ratio and rule of thirds. Use a low-detail tool like a wide Conte brush, working out the element placement and overall feeling. Working in black-and-white allows us to define rough compositional depths. Overlay guide layers to check that the composition and perspective is really working.

04 **Sketch and light a new view** Use a simple brush and draw on a new layer on top of the stack. It is time to combine all the previous planning in a sketch that will serve as the foundation for the work ahead. Avoid too much perfectionism, remember it's only a sketch not a final piece of art. On a lower layer, place a suitable base colour that matches the atmosphere. Over this one, place a new layer in Overlay mode and paint using shades of grey to rough out a first lighting and value setup.
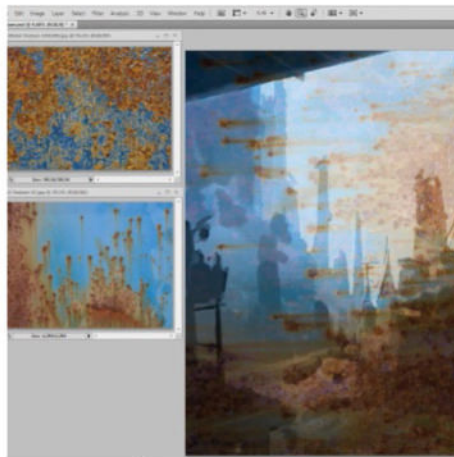
05 **Set up the colour palette** A quick way to create a colour palette for this kind of work is to choose a few textures that, when blended over the desaturated value layer, provide some basic tones and grainy detail. The sketch base colour was a deep blue, so the chosen textures are blue with some details in a contrasting colour: orange or red. Masks, blending modes, and Levels and Curves adjustment layers (Layer>New Adjustment Layer) are powerful tools for fine corrections in order to obtain a full palette that serves well at all picture depths.
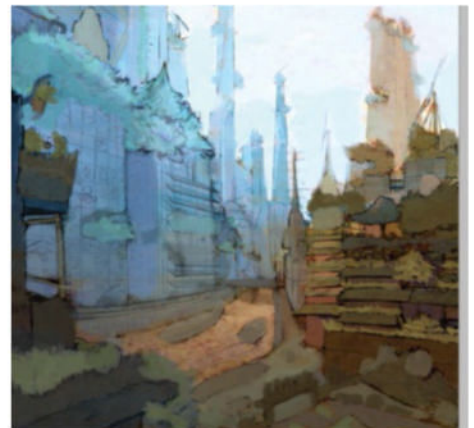
06 **Create a first base layer** Collapse the base colour, value, textures and adjustment layers into a single one – the base layer. Place your sketch layer over this one to serve as a painting reference from now on. Prepare a soft brush with a low flow (20%) and medium opacity. The Eyedropper tool is an ally at this step, because now we proceed with picking up tones and painting with them, defining our sketched shapes with colours. After finishing, do not hesitate to use Curves or Levels adjustment layers in order to achieve fine corrections.
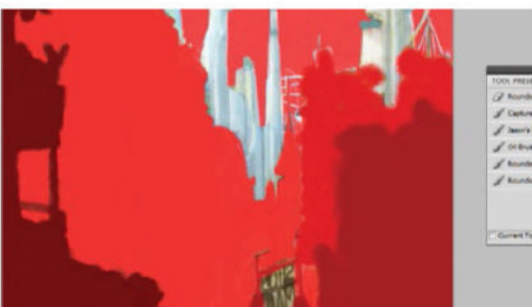
07 **Prepare a group of mask layers** This is a long range picture, with a lot of overlapping elements placed from near to far away. In this kind of work it's crucial to keep a correct sense of depth as it's easy to lose it in the painting process. As a preparatory step, create a group of masking layers. Every layer matches a group of elements at a certain depth. You can do the same by saving pixel selections, Select>Save selection, but this way is a more visual and immediate one.

Apply depth

Checking depth is very easy in black-and-white images. Place a Hue/Saturation adjustment layer over all your work. Set the Saturation slider to -100. Make this layer visible every time you need to check that the depth and perspective are working.

The painting process in depth
## From base layer to a finished painting

08 Create depth with adjustment layers Traditional methods for creating depth require you to individually stroke colours, varying saturation, hue and value until the correct depth is achieved. A far quicker way is to use our recently created masking layers in combination with new Hue/Saturation and Levels adjustment layers. This way you will obtain the colours that provide the correct depth. Do not hesitate to stroke rough details, adding new colours or modifying elements if you feel like it. When finished, merge all onto the base layer in order to maintain a neat layer stack, lower file size and cleaner memory scratch disk.

09 Begin the real paint work We've finally got two solid sketch and base colour layers. It is time to start the real painting work! With a soft brush, define volumes and details using darker and lighter tones picked from the base layer. This will make the painting start to come alive.

Paint layers from far to near. The parts of the painting that are furthest away should be at the bottom of the stack. This helps control overlapping strokes

Work first on the medium and dark tones in your painting. Highlight strokes should be the last ones that you use, lighter colours will act as a guide

Do not get too obsessed with any particular detail. Change among painting elements from time to time to keep a global view

> "Use contrasting colours to guide the eye through the composition"

10 Check before detailing Now the painting should be working nicely but still lack details and look flat. However, this result is the foundation for the following detail steps to work. Feel free to re-paint or add any elements that may improve and boost your painting's composition, value, depth and design. Use contrasting colours to guide the eye through the composition. In this case, warm orange and yellow colours are placed strategically so the eye is guided to the central building in the painting.

11 Detail vegetation (1) Use a picture-based brush to place some trunks and branches. Then, lock transparent pixels in the Layers palette. Paint with the same brush in Overlay mode to add extra shading details. On an upper layer, create the foliage with a picture-based leaf brush. Use masked adjustment layers to create quick light and shadow gradients. Picture brushes sometimes give an artificial stamp look that is better to avoid; distort the stamped strokes with the Smudge tool. Use this method for nearby and more detailed vegetation.
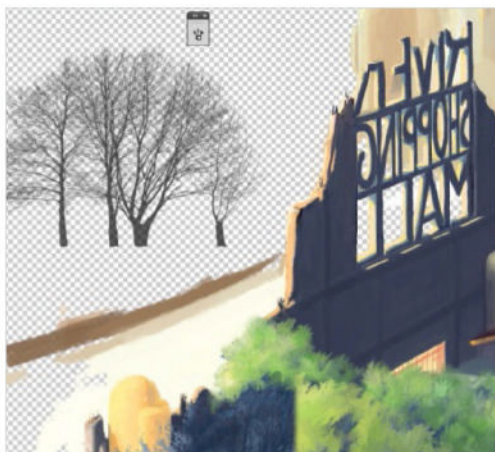
12 Detail vegetation (2) Another way of painting vegetation is to pick colours from our previous work and paint using a foliage picture-based brush. Again, avoid a stamped look by using the Smudge tool later. This method is suitable for grass and bushes, and also for trees placed far away. It is important when painting vegetation to use a varied palette of green, yellow and grey. Also, remember that colours tend to desaturate and get bluish with the distance. Study and use some vegetation references in order to make it look natural.
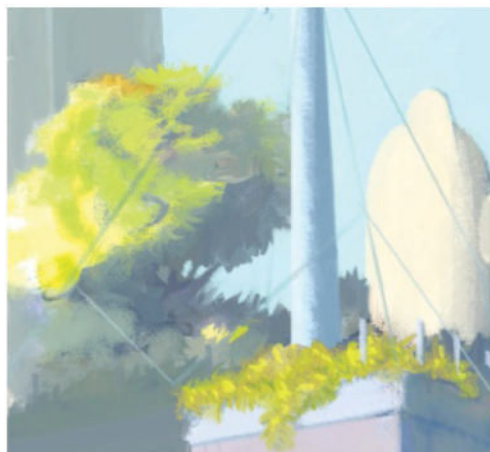
Make the paint bloom
Add fine details, textures and adjustments

13 Detail using texture brushes This painting depicts a world of constant recycling, where everything is re-used. That is why the painting should look as organic as possible in its details and at close range. To achieve that stroked texture effect, work on details using organic picture-based brushes. Use Size and Angle Jitters, Window>Brushes>Brush Tip Shape>Shape Dynamics, so the brushes make organic and random marks. You can create brush shapes from virtually any image using Edit>Define Brush Preset.
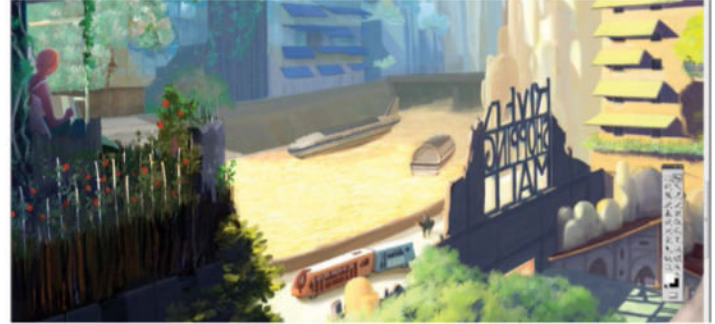
14 Make your world human Contextualising this new world is as important as the concept itself. People will have to live, move and work in this scene. Paint some human figures, vehicles or signs of human presence in the painting. Humanising your world will also provide a sense of scale that will turn the artwork into a more accessible one. Because this is a low energy world, vehicles should be manufactured from recycled old ones and electric-powered. Also, some people will have to use animal power for work and transportation.

15 Add fine details Small details add a lot of eye-catching value to a painting but can be a very time-consuming task. Place details strategically to boost the value of the final work, avoiding excessive detail that will get lost. Use this kind of detail to better explain the world. Windows, signs, urban art, lights or landmarks are all good possibilities. This is a world of constant recycling; that implies maintenance is done using different reused materials. Mix crystal with wood, or stone and concrete architecture in the same buildings.

16 Texture the image Do not place textures too soon. A painting should work fine without textures. After adding textures it will gain extra fine details but it should not depend on them. Place them using different blending modes. Overlay and Color modes will be the most frequently used followed by Color Burn, Hard Light, Lighten and Multiply. Different modes mix textures in different ways: choose wisely. Opacities should be lower than 50-60% in order to avoid textures catching the eye too much and altering the previous colour work.

17 Finish the sky The sky often works as negative space for an illustration. Also, it is possible to create interesting lighting and depth effects with it. First, create a painted mask similar to the ones from step 7. Select some sky photographs and place them over the paint to make the sky more interesting. Use masking and adjustment layers for a fine result that blends the original paintwork with smooth details from the texture combination.

18 Final adjustments Again, the quality of the final work must not depend on brute texture overlays and global adjustments, but should be slightly improved by them. Place some Levels adjustment layers and edit the Red/Green/Blue channels. Avoid making some parts of the picture too dark or burned. Layer masks are able to affect different parts of the image in different ways, simulating subtle light effects. A blurred texture with a similar colour palette placed over the work at low opacity will add some extra fine colour detail.

Shading efficiently

Shade objects in a structured way. Over the base layer, place a new layer to paint shadows and midtones. Create a new layer to paint highlights. Do not hesitate to play with blending modes to find better results. Another layer may be created to paint fine details. Clip the previous layers among them and use the Gradient Overlay layer style at a low opacity to create quick subtle lighting effects. Do the same with adjustment layers like Levels, Curves or Hue/Saturation. In order to keep the layer stack clean and your computer's RAM less full, collapse all layers into one when happy with the final result.

Landscapes

Create a landscape with brushes

Paint an epic landscape using your own custom brushes, captured through the CC app, Adobe Brush

Photoshop CC comes complete with a great selection of brushes, from traditional paint bristles to charcoal and airbrushes, but there's nothing quite like creating your own unique set to give your work that personal touch. In the past you would do this using Photoshop's built-in brush editor, but with the recent release of the Adobe Brush app for iOS devices, it's now possible to take photographs on the go with your iPhone or iPad and upload them instantly onto the cloud to use at home. Real paint marks, scribbles on

paper, toy cars, that pile of socks which never seems to diminish; you can make brushes out of anything you find around the house and pull them straight into Photoshop to play around with.

In this tutorial you will learn how to create brushes using Adobe Brush, import them into Photoshop CC and paint an epic, colourful landscape from scratch. The only things you require are an iOS device, Photoshop CC, an internet connection and some imagination. It's going to be a fun one so grab a cup of tea and let's get started!

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Paul is the art director at Scottish indie game studio Blazing Griffin, and a freelance illustrator. He likes dinosaurs and weightlifting.

Software
Photoshop

Source Files
On FileSilo you will find a small collection of files that have been made for this tutorial.

Start with a scribble
Make and capture your brushes in Adobe Brush

01 **Make some marks** Adobe Brush allows you to create brushes out of anything, so it's worth spending some time finding different materials and experimenting. For this image, let's keep it simple. Grab some nice pens and pencils and make some marks on paper. Don't worry about being neat – you can tweak these marks later.
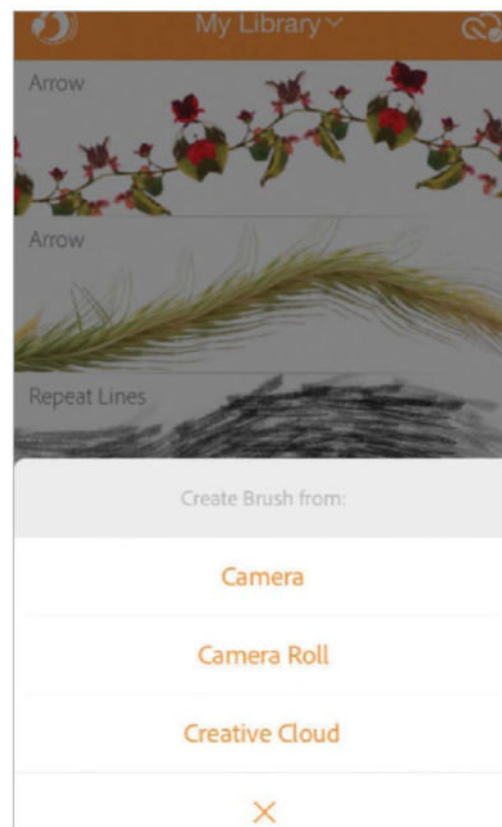
Texture your art

You can really go to town on the sort of textures you import using Adobe Brush. Don't be constrained by pencils and pens. Try photographing a ball of scrunched-up paper, your cat's hair, a dinosaur toy or a strip of tree bark.

02 **Import your doodles** Open the Adobe Brush app and click the plus button. Choose Camera and take a photo of one of your brush marks. You'll notice that you can now see your brush at the top of the screen – this is a preview window and will allow you to get a feel for how it'll look when drawn in Photoshop. Hit Next.

04 Play with settings Now this is the fun part. Here you can tweak various settings to define how the brush acts when drawn in Photoshop. Keep an eye on the preview window, and play with the pressure and spacing settings. For a good starting brush, set the Pressure to Flow, the Spacing to 15% and the Scatter to 30%. You can also add some jitter to the stroke to make it even more random, but make sure you keep it subtle (around 20%). When you are finished, hit Save to immediately save your new brush to the Cloud.

03 Crop and refine This screen allows you to clean up the photograph that you have taken. Follow the instructions to crop the brush, and then play with the slider in Refine to remove any background that you don't want. Ideally, the brush should sit happily on a transparent background, but you can refine this further in Photoshop.

Other uses

You can use your newly created brushes for more than just drawing or painting. The Eraser, Smudge and Dodge/ Burn tools can all be pulled from the Cloud Library too! Experiment with different brushes to give your smudges a rougher edge or your dodges a little more randomization.

06 Edit and save Now that your brush is selected, you can edit it further in Photoshop. Click on Window again and open the Brush panel. From here, you can edit any aspect of the brush, from how heavily it applies to the canvas to how scattered the strokes are. Go through each section and mess with the sliders and buttons, regularly testing it out by scribbling on the canvas. Once you are happy, click the 'Create New Brush' button at the bottom right of the panel and it'll be added to your library!

05 Import your brush Open Photoshop CC. Open the Window tab and select Libraries. You will now see a new tab on-screen which links directly to your CC Library – any brushes you have created and saved in the Adobe Brush app will be available here. To get started, select your new friend in the library window and it'll be selected as your current brush. Open a new Photoshop document (Cmd/Ctrl+N), give it a scribble and see what it looks like in practice.

07 **Brush examples** Here are some examples of the brushes that I created for this tutorial. You'll notice that by tweaking the settings in the brush panel, you can end up with extremely varied results. In fact, three of the brushes used here have come from the same scribble. Every time you save a new brush it'll be added to the Brush Presets panel, accessible through the Window tab. You can leave this open while you work to quickly change brushes, or alternatively Cmd/Ctrl+right-click on the canvas.
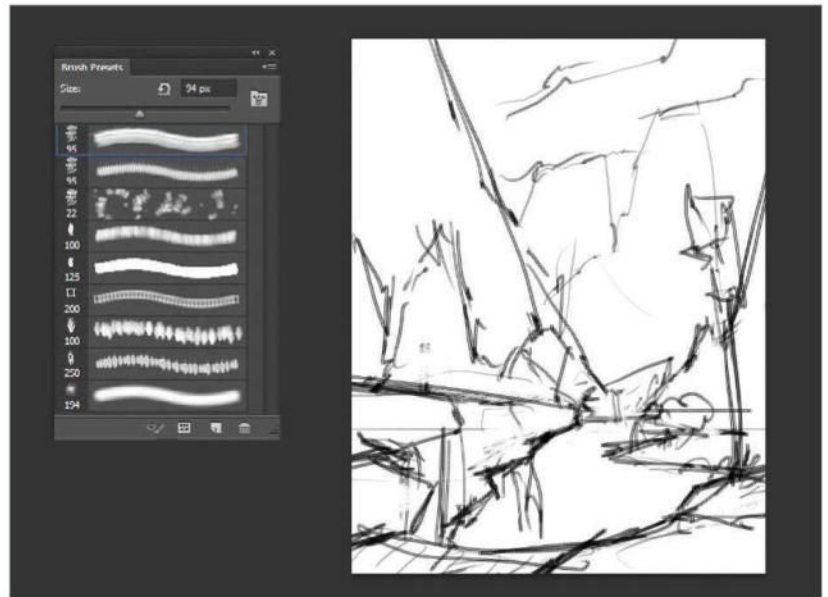
08 **Sketch your image** Choose a brush that works nicely at a smaller size and create a new layer for the sketch. You can use reference for this, it'll help you to understand how the real world works and add another level of realism to your painting. Try to create a dynamic composition – something that leads the viewer's eyes into the image and holds them there. Look at some master painters and see how they construct their images for inspiration! Every time you study a master painting you will learn something new about composition or colour application.

Use your brushes in Photoshop
Grab your brushes and start painting

Adding a touch of digital painting to photomanipulations is always a plus

For a successful change of colour, your original hair should always be light; if dark, the Overlay filter will not work

The SSS effect in hair gives more realism, but use it only according to your light source

10 **The sky** Once you have your entire canvas blocked in, you can start refining individual sections. The sky is often the most important part of your painting, as it sets the mood and colour for the entire piece, as well as the light source. Study some cloud photographs and paint in some rough cloud shapes using a big brush. Treat clouds as chunky 3D shapes and let them interact with the environment, passing behind and in front of the mountains.

09 **Start painting** With the line art complete, set the layer to Multiply. This allows the dark lines to show over any paint beneath them. You can lock this by clicking the padlock icon, so you don't accidentally draw on this layer. Create a new layer below the line art and paint using a large brush. Focus on the overall shapes and colours – don't worry about details. It's helpful to zoom your canvas out to around 16.7%.

Landscapes

11 Rock show With the sky loosely defined, it's time to start working into the mountains. The Lasso tool is useful here. Draw a rock-style shape and paint into the selection with a textured brush. Using this technique you can separate the different rocks easily. Just invert the selection with Cmd/Ctrl+I, choose a pale sky tone and gently paint in some atmosphere using your soft brush set to a low Opacity. This will help your rocks pop out from each other and appear more three-dimensional.

12 Refinements Continue working around the canvas, touching up any areas that need refinement. This is a very organic process, so work on a single area until you get bored or are happy with it, and then jump to something else. The foreground is typically a selling point as it can lead the viewer in to the scene – find some photographs of waterfalls online and use them as reference. The Smudge tool is extremely useful when painting water. Block out the overall forms and then smudge them in the right direction!
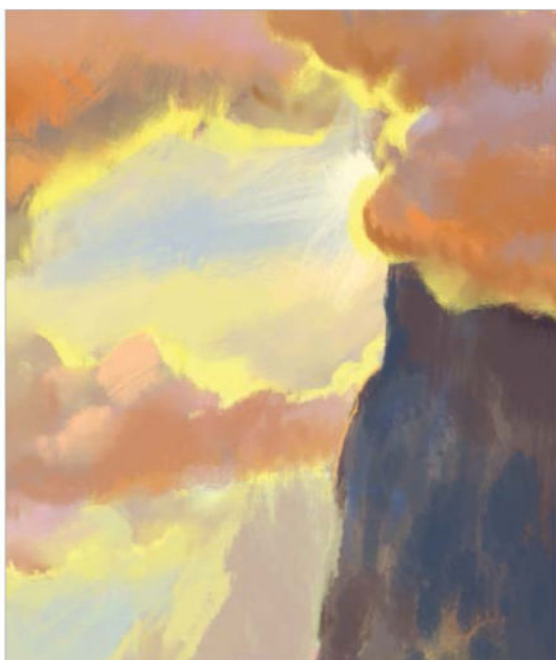
13 Smudge those clouds To make these clouds feel 3D, consider the light source and shade them as you would a rock or a character – the upper sections are hit by blue from the sky, while the shadows are a warm orange. It is common to use blueish grey in shadows, however, in this case it would darken the image too much. As the sun is behind the clouds, paint in a bright yellow rim light. Again, try to find reference if you can as it's easy to overdo this effect!

14 Tell a story At this stage, most of the painting is blocked out and working well. What's missing is a narrative. A nice way to figure out if your painting is working is to see if you can name it at this stage. Right now we have a "big spire with pretty lighting", which isn't very inspiring. Find an element in your painting that could be a defining feature and try to improve it. Creating a tusk-like protrusion from the rock inspired me to introduce more toothy rocks, and so Tusk Mountain was born.

15 Run with it Take the element you chose to theme the environment on, in this case sharp, toothy rocks, and introduce it into the rest of the painting. This will give it continuity and make it feel more like a real world. Always keep your lighting in mind. The sun is behind the mountain on the left so this area will be fairly dark. It would, however, be shining through and hitting the beach on the right, so let's highlight that. The contrast means that this is the ideal place to add characters later!
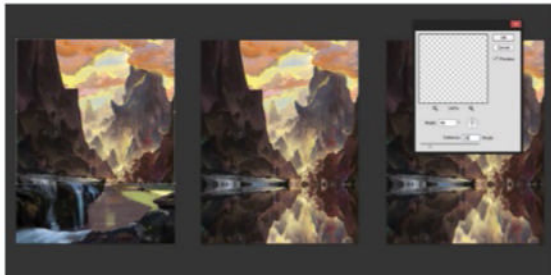
16 Paint reflections There are many ways to paint water and reflections, but this technique is a quick way to get good (if not always realistic) results. Draw a selection box around everything above the horizon. Copy everything within the selection (Cmd/Ctrl+Shift+C) and paste it onto a new layer (Cmd/Ctrl+V). Use the Transform tool (Cmd/Ctrl+T) to flip your reflection layer vertically, aligning it below the horizon. Erase any areas not covered in water, or better yet, use the Quick Mask tool to paint them out!

17 Take a break With the reflection positioned correctly, this is a good time to take a break from the image – have some food or go for a walk for an hour. When you return you'll notice lots of areas that could do with some extra attention. Paint in the waterfalls to make sure that they interact with the water. Go around the shore and paint in the small reflections, which the Transform method misses, as well as small details such as ripples on the surface.
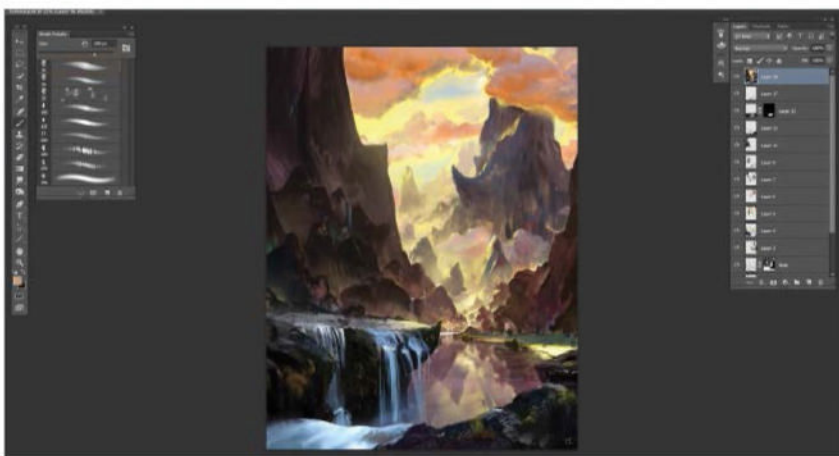
18 Finishing touches The final stage of any painting involves flattening it and playing with adjustment layers to bring the whole thing together. Adjust the Levels of the image first (Cmd/Ctrl+L). You want the sky to really pop out from the mountain, so raise the highlights a little with the right slider. Increase the Saturation (Cmd/Ctrl+U) by +10. Finally, use the Dodge tool set to Highlight and 30% Exposure to paint in any additional highlights or lighten areas that are too dark. Adjust until you're happy with how it looks.

The magic of masks

As mentioned in Step 16, the Quick Mask tool is generally more useful than the Eraser, and is very simple to use once you get the hang of it. Erasing is permanent, whereas masks allow you to paint details in or out at any time, and generally give you more control.

To use a mask, click the 'Add Layer Mask' button in the layer panel. This creates a small white image of your canvas next to the layer name. When this is selected you can only paint in black or white – painting in black acts as an Eraser, painting in white brings information back.

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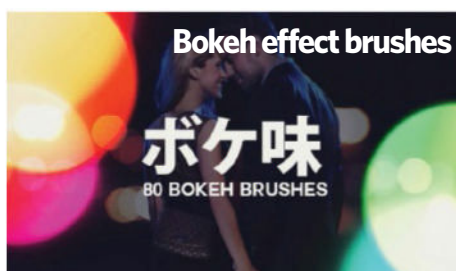
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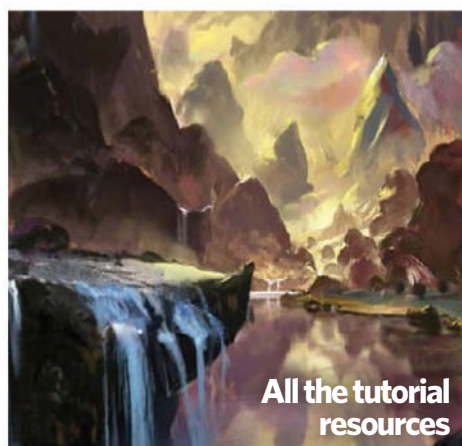
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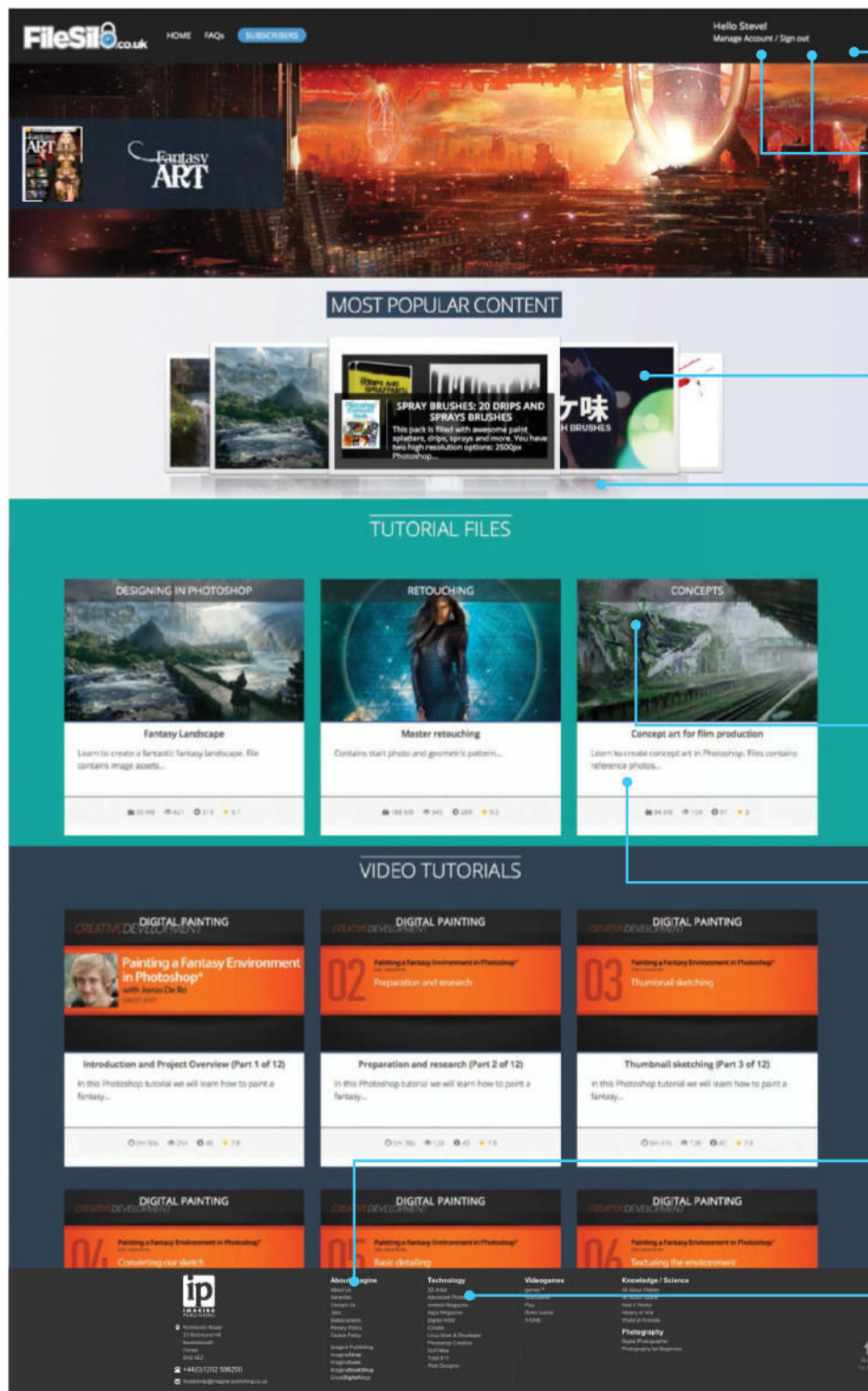
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