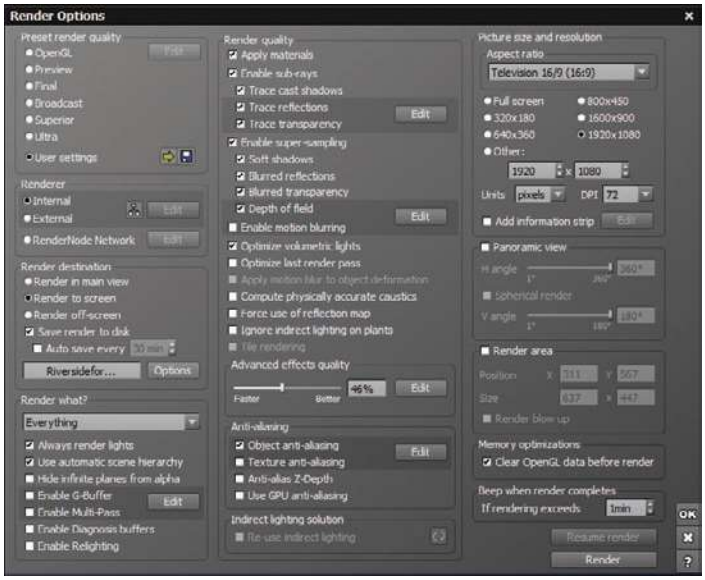
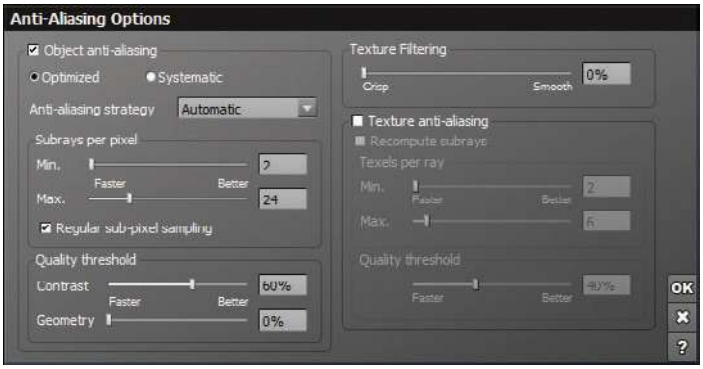
RENDER SETTINGS CONTROL

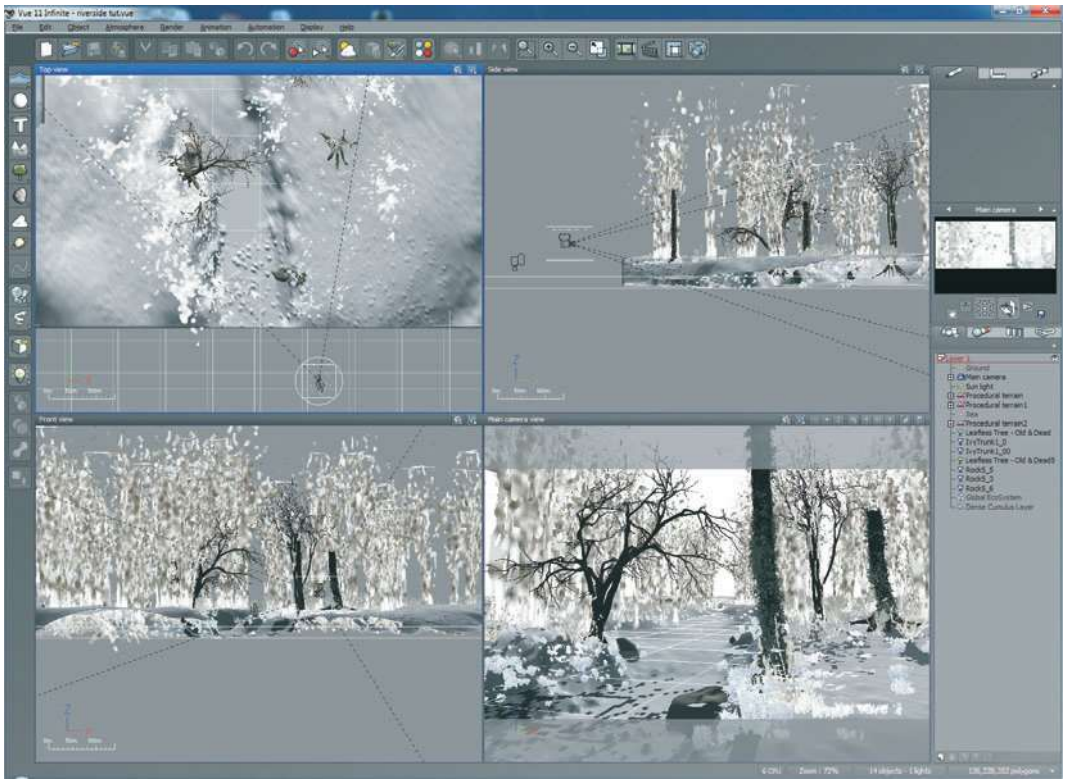
The final render was done in Vue 11 Infinite with my personal settings which are shown in the screengrabs. The first render was done at 1980 * 1080 and was very quick in just about an hour. The second one, for publication, was at 3556 * 2000 and took 3 hours and 40 minutes.



General render options in Vue 11 Infinite.



Anti-Alias render settings.



Screenshot of the final setup of the scene before rendering.

For the blur and the depth-of-field the settings are set to hybrid 2.5 instead of distributed raytracing with just one pass to keep render times low as this only affected the snow particles.

The Anti-Aliasing, or super sampling of the objects to reduce stair-step, jagged edge effects was set to automatic but the subray maximum and the quality threshold were raised. Texture filtering was not necessary for this render so not ticking that box also saved on the render time.

The only post production work done to the render was copying the picture and adding the copy as a Multiplying layer with 30% Opacity to enhance the contrast a bit.

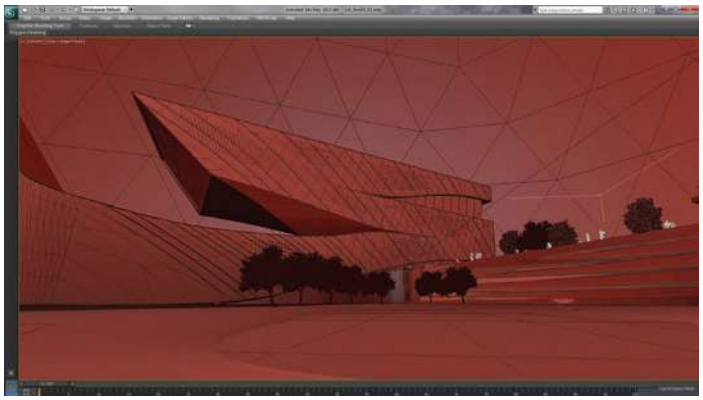
“This was my personal work, not commercial, that was modelled and rendered in my spare time. The project idea was to practice creating a photo-realistic 3D landscape and rendering it. As a reference, I used an existing villa in Norway called Villa Storingavika, by Saunders Architecture, but I changed the landscape to my liking and did all the modelling.”

PROJECT	VILLA STORINGAVIKA
SOFTWARE USED	3DS MAX , VRAY, MUDBOX , PHOTOSHOP, AFTER EFFECTS
RENDERING TIME	12 HOURS
ARTIST	DMITRY LEONOVICH
COUNTRY	ISRAEL

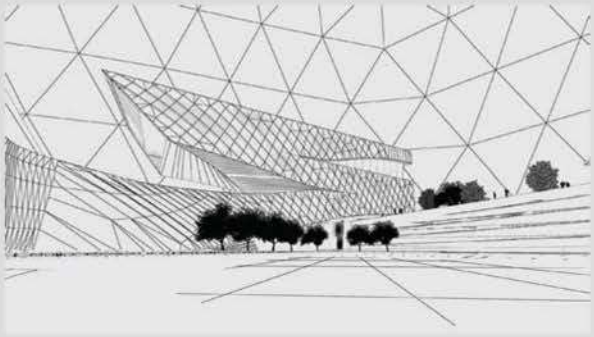
The idea for this project came when I looked at the model of these small blocks of flats, just wondering which would be perfect for people to use and enjoy nature where they could perform outdoor activities. So I tried to create an image of a natural environment in 3D where there was something happening – in this case people flying kites in a contest. The people were the only 2D elements in this image and they were added later using Photoshop. Everything else was entirely created in 3ds Max and rendered with Vray.

PROJECT	CUBUS HOUSE
SOFTWARE USED	3DS MAX, VRAY AND PHOTOSHOP
RENDERING TIME	6 HOURS
ARTIST	SÉRGIO MERÊCES
COUNTRY	PORTUGAL

This is one of four images for our winning competition entry for the Dalian Public Library in China. Being a visual communication department in a very busy architectural firm, one needs to learn every trick in the book to be able to successfully create effective yet still visually pleasing renderings to extremely tight deadlines. I had only three short days to produce four visuals for this amazing project. Fairly happy with the result given the short time frame.



PROJECT	DALIAN LIBRARY
SOFTWARE USED	RHINO, 3DS MAX, VRAY, PHO
RENDERING TIME	2 HOURS
ARTIST	SHANE DALE
COUNTRY	SOUTH AFRICA (LIVING IN HONG KONG)



VILLA S BY Juan Carlos Ramos Figueroa

CREATING STYLISH ARCHITECTURAL LANDSCAPES

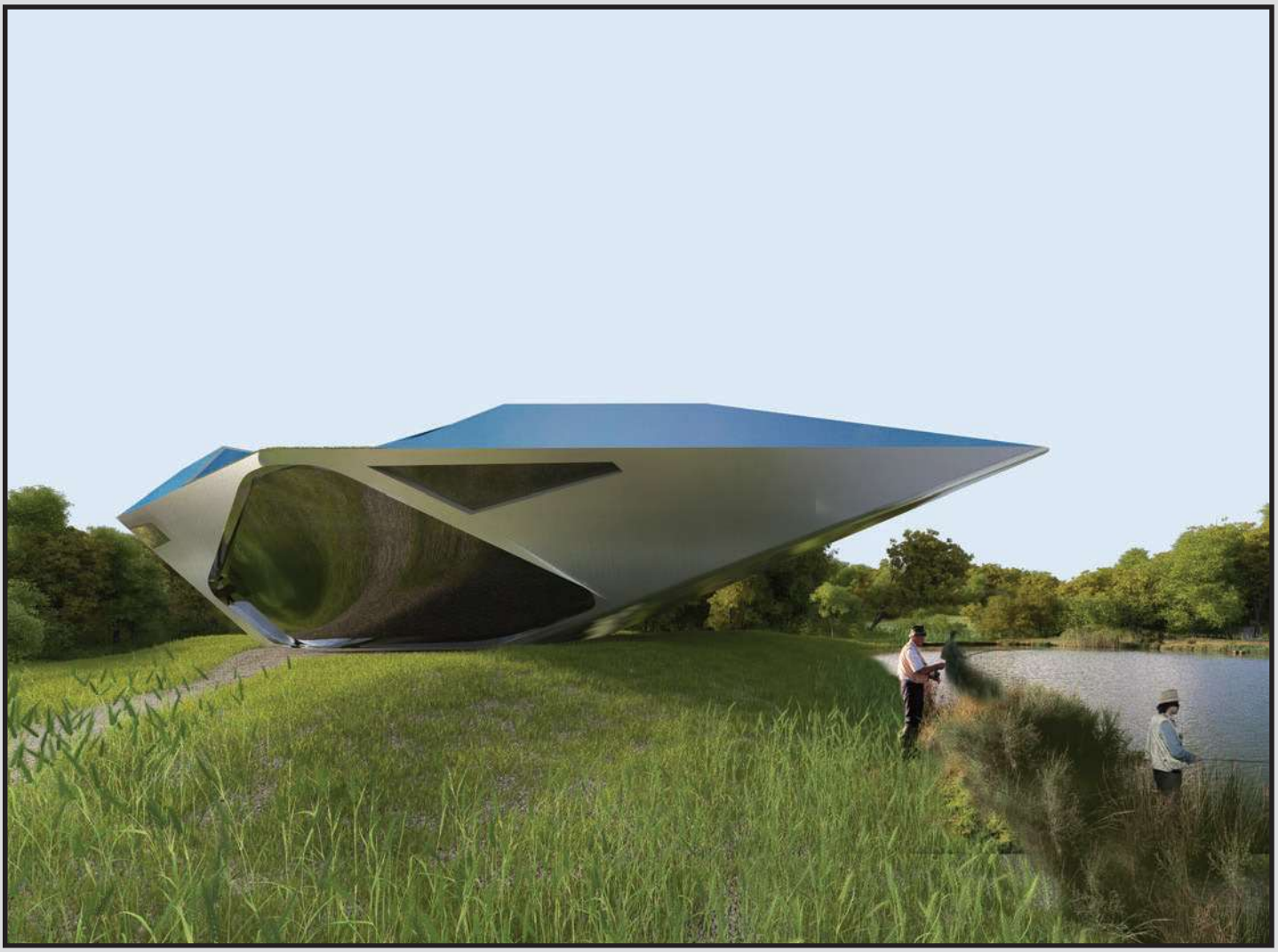
Discover how Juan Carlos designed and rendered a commercial arch viz project with a realistic landscape.

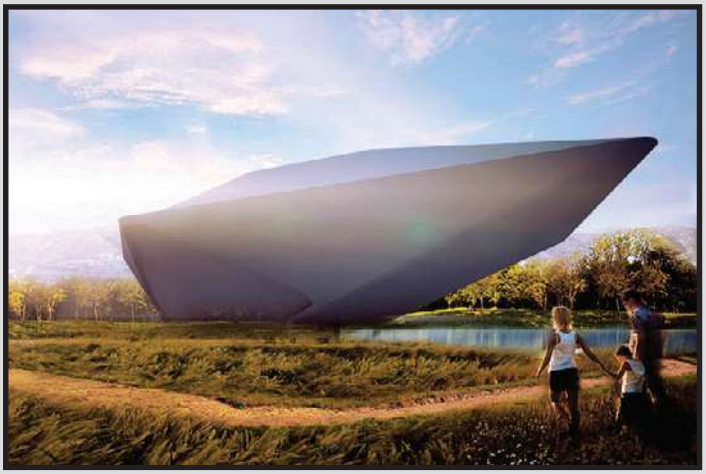
BEHIND THE SCENES

Villa S was a sustainable housing project located in Mexico City. The project was developed by the Mexican office of architecture, FREE, or Fernando Romero Enterprise, with which I collaborated in producing animation and rendering. My purpose was to create an artistic image, putting aside photorealism and looking for a result that would be closer to painting and visual arts, but using digital media.

I am originally from Michoacán, State of Mexico which has vast natural wealth, with beautiful sunsets and lush vegetation. I wanted to capture the essence of these environments and proposed a very dramatic sky with an intense light that highlighted the formal contrasts and materials of the villa. Also, it was important to create a good dialogue between the project and its context. To achieve these objectives I made several sketches, some with a lake next to the town, but in the end I decided to make a field full of vegetation. If you refer to the end of the tutorial you can see some of variations that were considered before the final image was rendered in its current form.

PROJECT	VILLA S
SOFTWARE USED	3DS MAX 2012, VRAY 2.0, MULTISCATTER, AFTEREFFECTS, PHOTOSHOP
RENDERING TIME	14 HOURS
ARTIST	JUAN CARLOS RAMOS FIGUEROA
COUNTRY	MEXICO

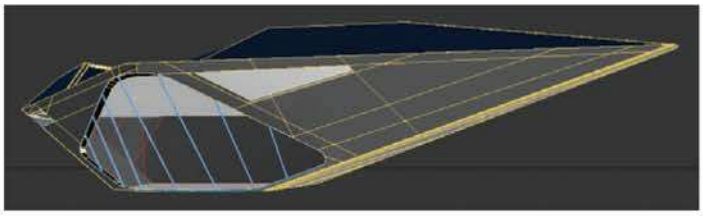




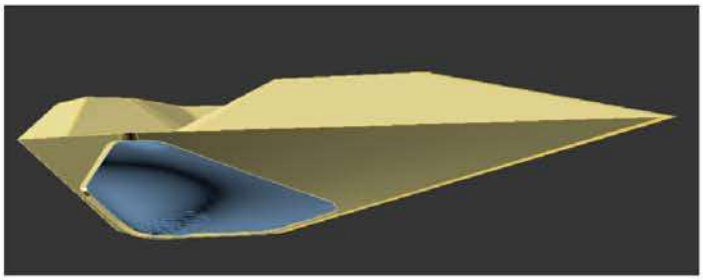
These are the source images for the type of location under consideration and some rough sketched overlays showing how the building would sit in the environment.

MODELLING THE ENVIRONMENT

The model of the building was created with 3D printing in mind and was delivered in Rhinoceros format (NURBS modelling program). So the first stage was to export it to 3ds Max. Once exported to my work platform I made some adjustments to the model and added many details to elements like windows and floors.



The model as it was imported from Rhinoceros where the basic modellling was carried out.



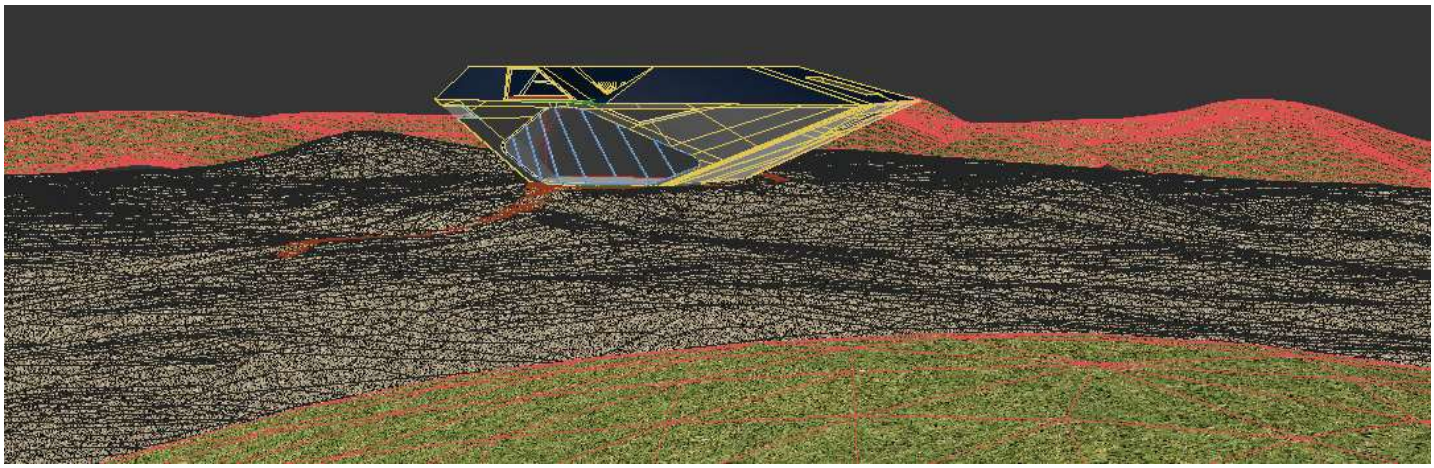
The model once in 3ds Max, where it was expanded with extra details added.

To create the interior I used existing libraries of furniture from http://www.evermotion.org/Archmodels. This made it very easy to have ready a general model of architectural design and I then spent most of my time creating the natural environment.

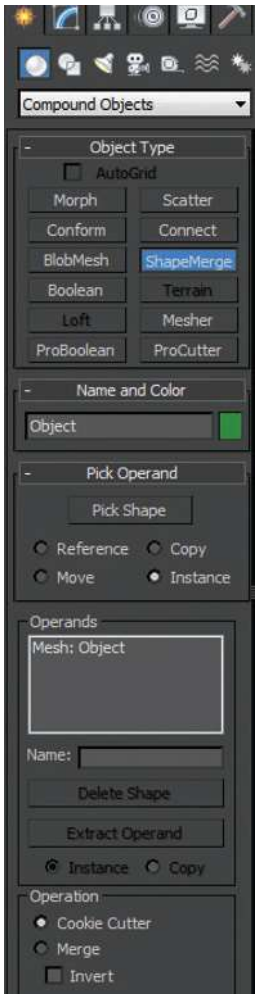
For the natural environment in the surrounding terrain it was modelled to a basic level with a plane of many subdivisions converted using Edit Poly. The uneven ground was created by using the Push command within the Paint/Deformation tools. Also a slight amount of Noise and Turbosmooth were added to smooth out the geometry. A line was then drawn to create a path to the village and the plane geometry was cut with a modifier of Compound Objects called Shape Merge. This created the landscape with the path appearing to lead through it. The same kinds of procedure were used with the landscape in the distance, which then meant it was time to start adding vegetation.

The models for the trees and grasses came from the iTrees and iPlants libraries at http://rendering.ru. They were scattered around and placed on the landscape using the 3ds plug-in called Multiscatter (see www.multiscatter.com) which uses a form of instancing to place lots of vegetation models on the scene without overloading the polygon count. There were six multiscatters covering the grasses, bushes near the villa, trees near the villa, distant bushes and distant trees. The vegetation included lawn grass, elm trees, generic trees and lilacs. The other advantage of the plug-in is that you can place, rotate and scale models randomly, thus effectively creating a simulated ecosystem. Once planted, the vegetation placed Polylines linked to each multiscatter to mark off areas to contain or exclude the plants. These were use, for example, in the trees so that there was room for sunlight and in the Secale plants to prevent them from being planted around the plane surrounding the villa. The field in the foreground was entirely populated using the multiscatter plug-in.

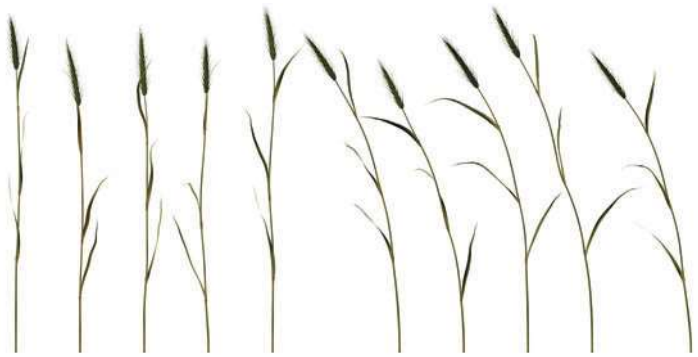
These are some of the objects that were used from an online library, making it much quicker to finish the project.



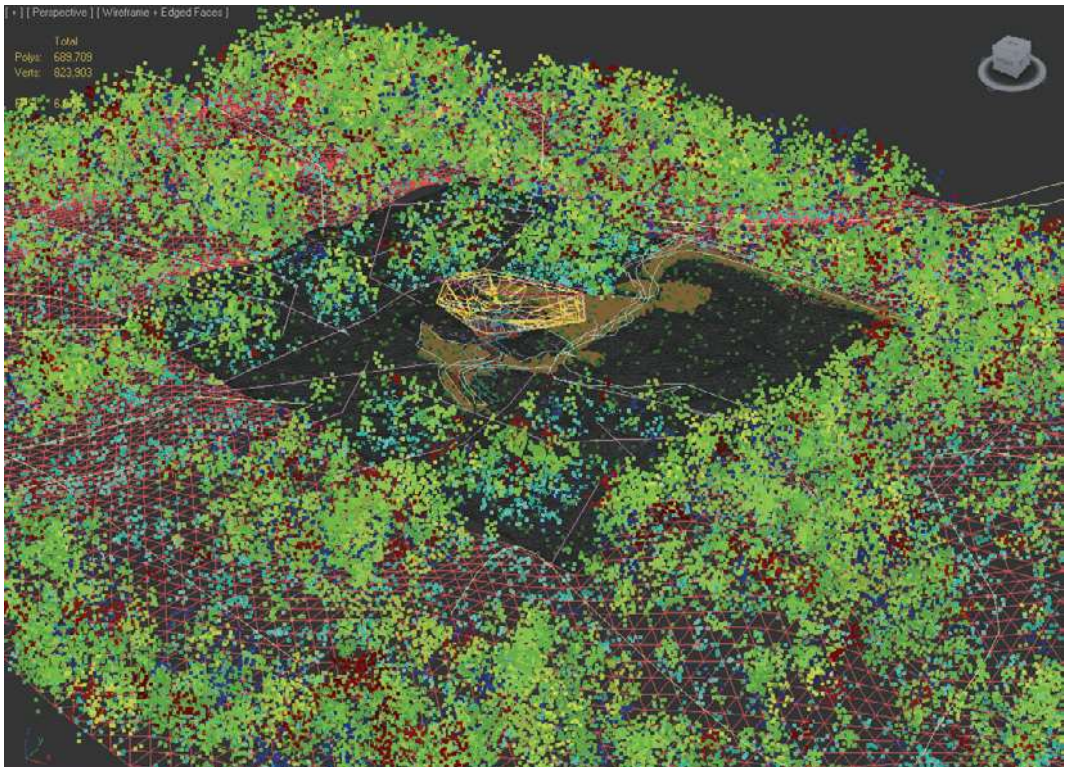
The landscape was created to be uneven with a path leading through it to where the house was placed.



The Shape/Merge tool dialogue box showing some of the parameters used when placing vegetation around the scene.



The various plant and tree models that were used with the multiscatter plug-in to populate the terrain.



The various plant and tree models that were used with the multiscatter plug-in to populate the terrain.

TOP TIP – EXPORT MODEL FROM RHINOCEROS TO 3D MAX

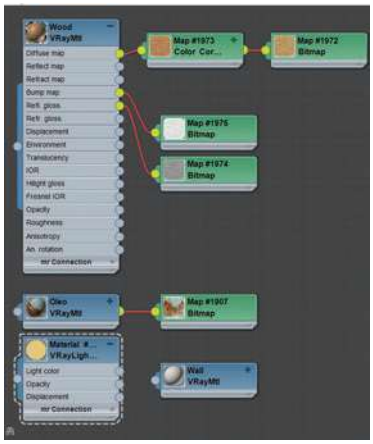
Eporting very large models with many layers from Rhinoceros to 3D Max can be a pain if you use 3ds files because it divides the geometry into elements. But if we export the model in *.DXF format, the file keeps the layers configuration and keeps the original weld geometry.

TEXTURES AND MATERIALS

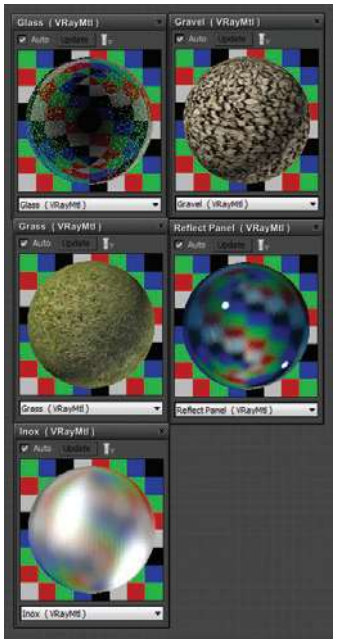
To edit the materials the Slate Material Editor was used as it allows better organisation of the textures and makes working with them more dynamic. The materials themselves are quite simple in the scene as there are only nine of them in total. For the indoor elements there were just four materials including wood, the paint on the wall, the walls and a Vray light material. The wood was sourced from www.cgtextures.com and edited in Photoshop prior to being used. The parameters set for it were Diffuse: 100, Highlight Glossiness: 0.6, Reflect Glossiness: 0.65, Subdivisions: 36, Reflect Glossiness Map: 100, and Bump Map: 100. The wall painting was a Google image and used Diffuse: 100 and Bump Map: 30. The walls themselves were white and set to Diffuse: RGB 191,191,191, Reflect: RGB 112,112,112 with a Fresnel Reflection.

The Vray light material was used for the warm light lamps inside so that the interior had a welcoming feel. This used settings of Diffuse: RGB 221,170,60 and Intensity: 0.9. It was also compensated against the camera exposure to make it bright enough.

Materials used for the interior of the building included wood, white walls, a wall painting and the lighting.



The textures for all the objects outside the house were deployed in the Material Editor of 3ds Max. These included those for the house itself as well as the vegetation. The main ones were glass, reflective panels, gravel and grass. The settings for these were as follows, starting with the Glass material: Diffuse: RGB 0,0,0, Refraction: RGB 155,155,155, Reflect Map: Falloff – Fresnel, Affect Shadows, Affect All Channels. The Gravel material used Diffuse Map: 100, Reflect: 03, Bump Map/ Normal Bump: 12 and Vray Displacement to model: 1". The Grass was set to Diffuse: 100, Reflect: RGB 13,13,13; Reflect Glossiness: 100, Bump Map: 30 and Vray Displacement to model: 2". The reflection panel needed to be very glossy and reflective and used Diffuse: RGB 0,3,10, Reflect: RGB 183,183,183, Highlight Glossiness: 0.9, Reflect Glossiness: 0.82, Reflect Map: Falloff/Fresnel with sky texture.



The materials used for the exterior of the building and the scenery in the Materials Editor.

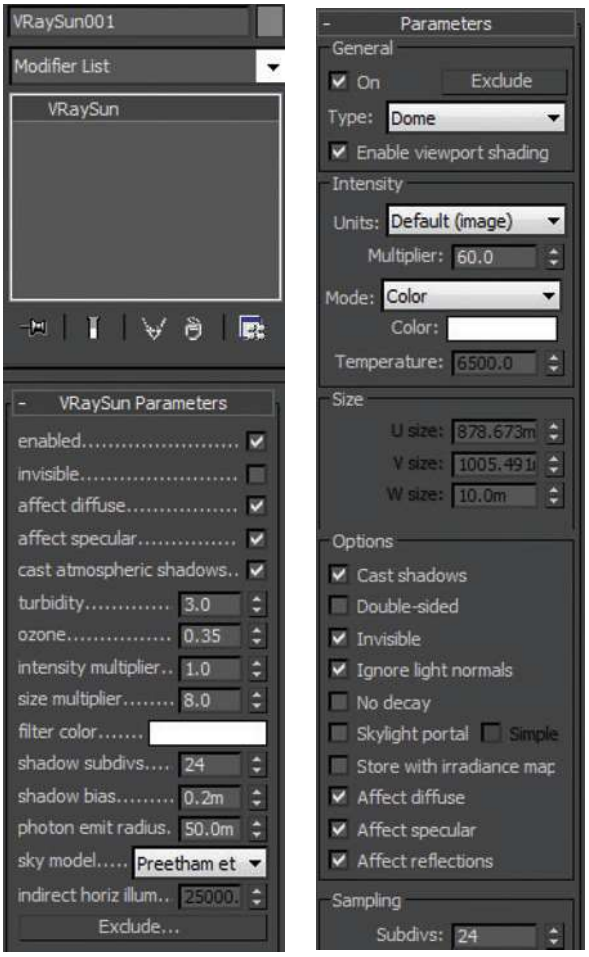
TOP TIP – MATERIAL VARIATION

When using a lot of vegetation in the scene it's good to vary the tone a bit. For this you can duplicate the material and apply a Color Correction Map on the Diffuse Map. This map provides tools such as Hue, Brightness, Contrast and Gamma. Thus you can slightly change the tone map and increase the variation in the vegetation without leaving 3ds Max.

CREATING DRAMATIC LIGHTING

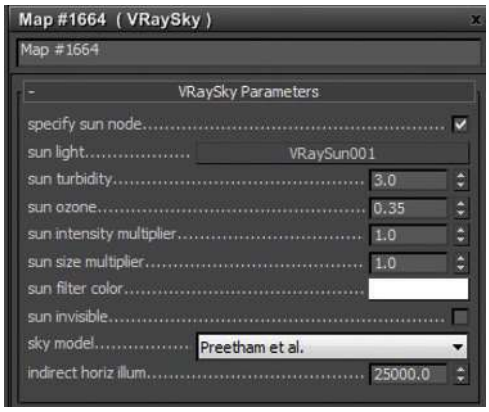
The idea for the lighting was to achieve a very dramatic sunset, that would create glare and a caustic, metallic sheen. It would also create shadows from the human figures and help give the scene a sense of scale. To achieve this a Vray Sun was used to create the effect of dusk and this was linked to a Vray Sky which changed colour in response to the tilt of the Vray Sun.

To improve the reflections in the scene it was tested with an IBL model. Image Based Lighting is a geo-spherical model with Vray light material that simulates the atmospheric light. However, after several tests it was decided to use a Vray Dome Light linked to a HDRI stock image that you can find at www.viz-people.com. The Vray Dome has the option of being invisible to the camera and replacing the sky with alpha channel support. Also, the Raw Vray Global Illumination channel tab under Render Elements in the settings was tweaked to improve the final quality of the Vray render in post production.

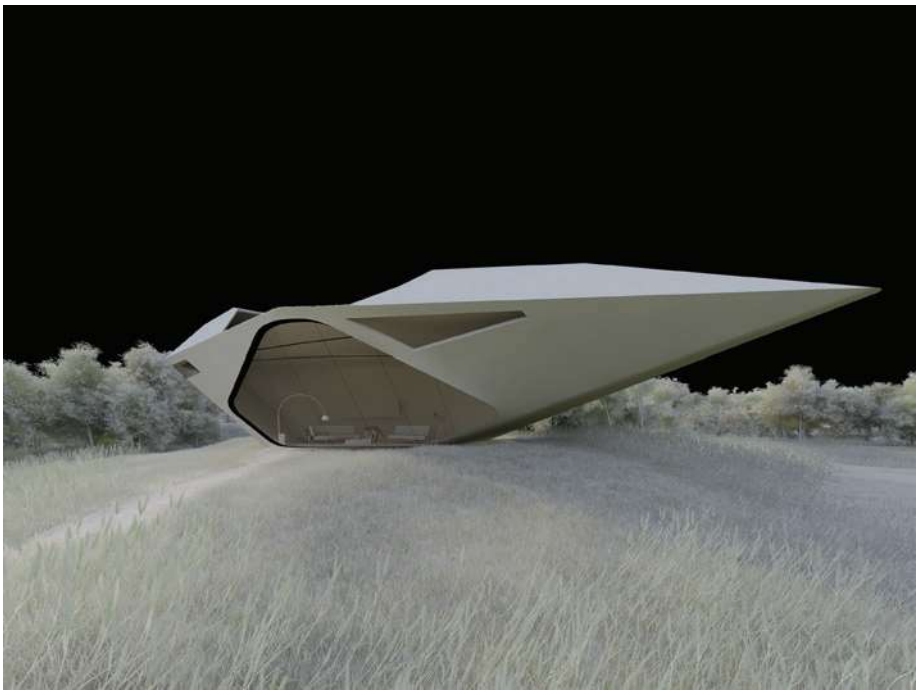


The settings used for the Vray Sun.

After some deliberation a Vray Dome was used for the sky.



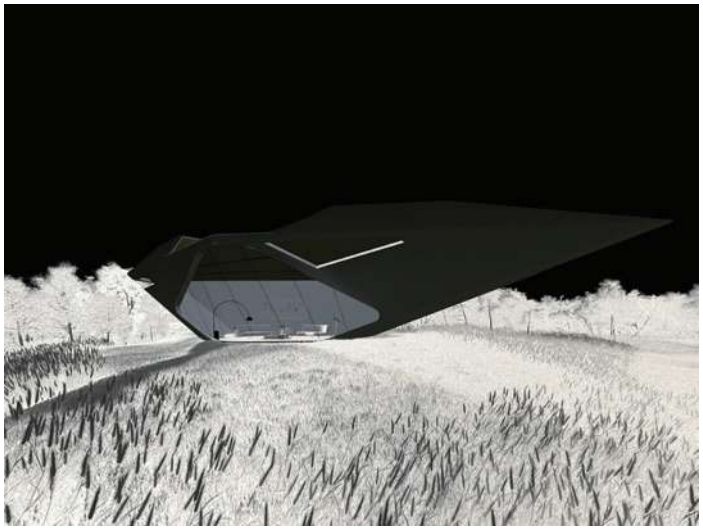
The settings for the Vray Sky to help create that dramatic sunset.



A pass from the Vray Raw global illumination model.

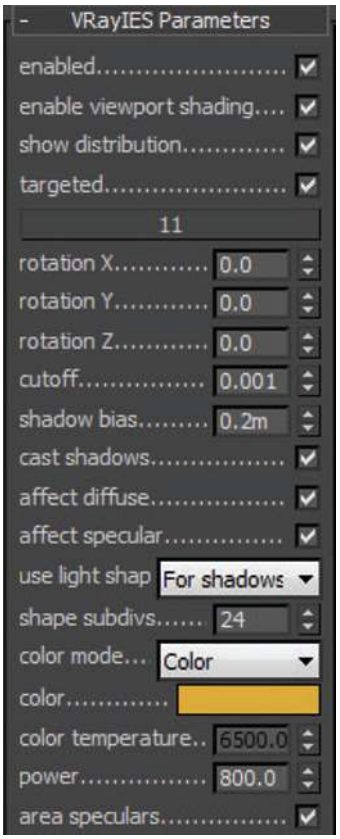
The High Dynamic Range Image was linked to the Vray Dome light to create a wide range of tones in the scene.

As far as the lighting inside the building goes, the Vray IES Light was used to emulate the lighting of lamps and three Vray Light Spheres were also used to improve the general interior lighting. Otherwise there would have been too many shadows and dark areas so this filled it all out. In addition to the Raw Vray Global Illumination channel, Raw Vray Shadows and Vray Specular channels were used to improve the look of the materials and the lighting in the post-render processing. Finally, in combination with the Vray Sun and Vray Sky, a Vray Physical Camera was used which is very good at emulating a real photographic camera with regards to exposure and sharpness.



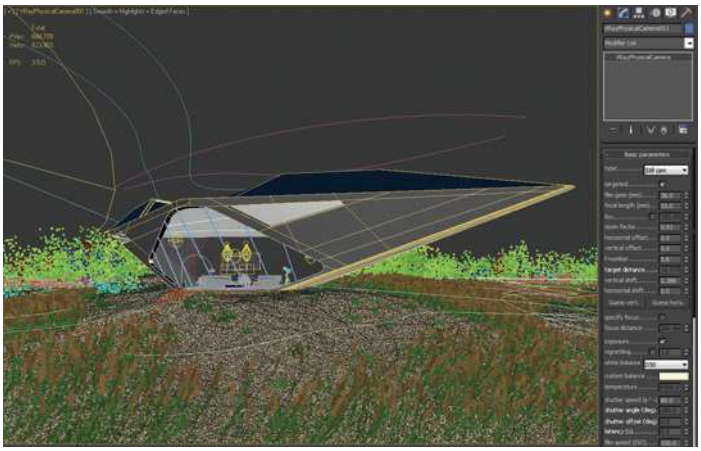
The shadow pass from the rendering engine to create depth and shadows.

There's not much in the way of specular highlights, just the reflection off the corner of the building.



The settings for the Vray IES light that was used in the interior to simulate the table lamps.

A Vray Physical Camera was used with a 15mm focal length at f/5.6 aperture to give a wide field of view and limited overall depth.



TOP TIP – GEOSPHERE LIGHTING WITH IBL (IMAGE BASED LIGHTING)

A simple trick, but useful to illuminate the Geosphere is to remove the option Visible to Camera, found in the object's properties. It allows the scene to be illuminated without displaying the Geosphere in the render, so the sky can be changed in post production.

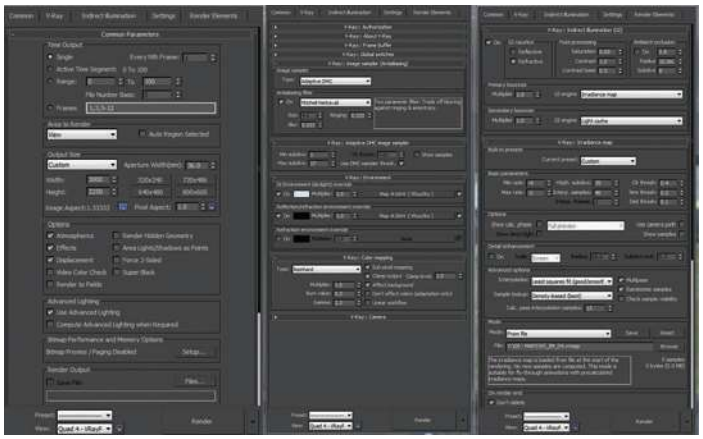
RENDERING OUT THE IMAGE

As mentioned in the lighting section, the rendering engine used was Vray 2.0. It's my personal favourite because the rendering engine offers excellent quality in respect of the time it takes to render. It is also one of the most popular engines so you can find a lot of information, tutorials, tips and materials for free in the internet. Any problems you have with respect to the engine you can solve through forums where experts comment on their experiences and resolve the challenges that are thrown up when you work in architectural visualisation every day.

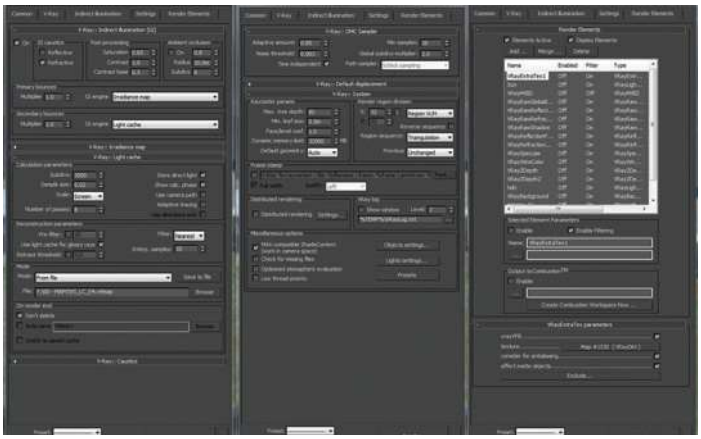
Into the settings then and the Vray Frame Buffer was set to work with gamma correction to 2.2 to get a clearer picture with more natural colours. In the Anti-Aliasing options, Adaptive DMC with Mitchell-Netrevali was used to create a good definition of the image volumes. For the Color Mapping I used the Reinhard setting and in the indirect illumination Irradiance Map with Light Cache was used to improve and enhance the overall colour saturation.

In the main Settings tab the Noise Threshold was set to 0.003 for improved sharpness and the Min Samples was changed to 16 and Global subdivisions multiplier to 2.0 to improve the general subdivisions reflexes.

Finally in the Render Elements tab ambient occlusion lighting, reflections, refraction, specular gloss, lighting and depth-of-field were all used to improve the channels for post production.



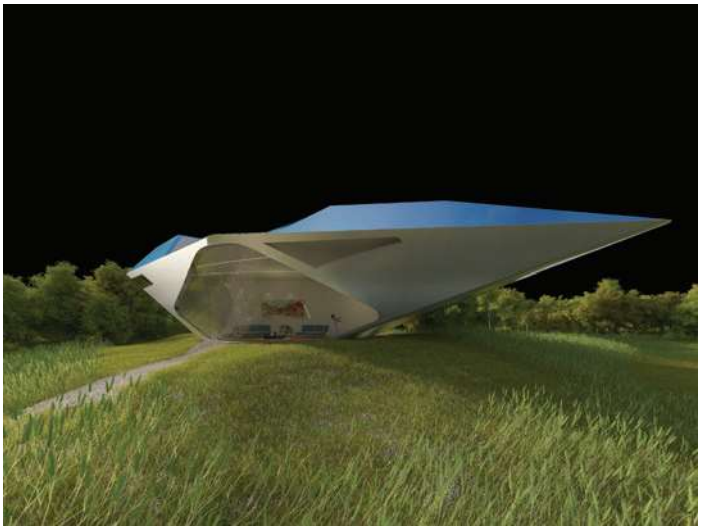
The first of the Vray rendering settings uses advanced lighting parameters to help create that dramatic sunset.



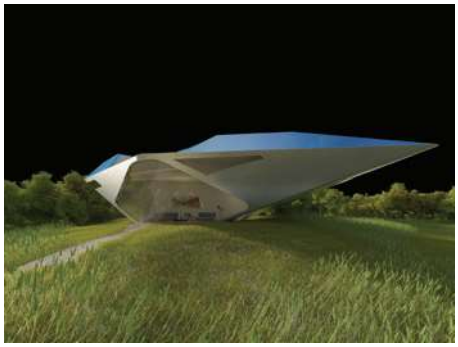
More settings, including those for determining how the light cache was used and which Global Illumination engine was used.

COMPOSITING AND FINISHING OFF

Once all the separate elements had been rendered they were imported into After Effects to do the compositing, then exported to Photoshop to add details like human figures, solar panels, clouds, birds and mountains. Finally, the Photoshop file was sent back to After Effects to do the final colour correction, depth-of-field, brightness, contrast and intensity, grain and chromatic aberration correction. One final tweak was the addition of a flare effect from the sun. This was created with the Optical Flares plug-in from Andrew Kramer – www.videocopilot.net. It can be a little tricky to import and export between After Effects and Photoshop, but it has worked very well in correcting the render when there were changes in the model. In this way I simply replaced the old files with the new ones and the overall effects were updated automatically.



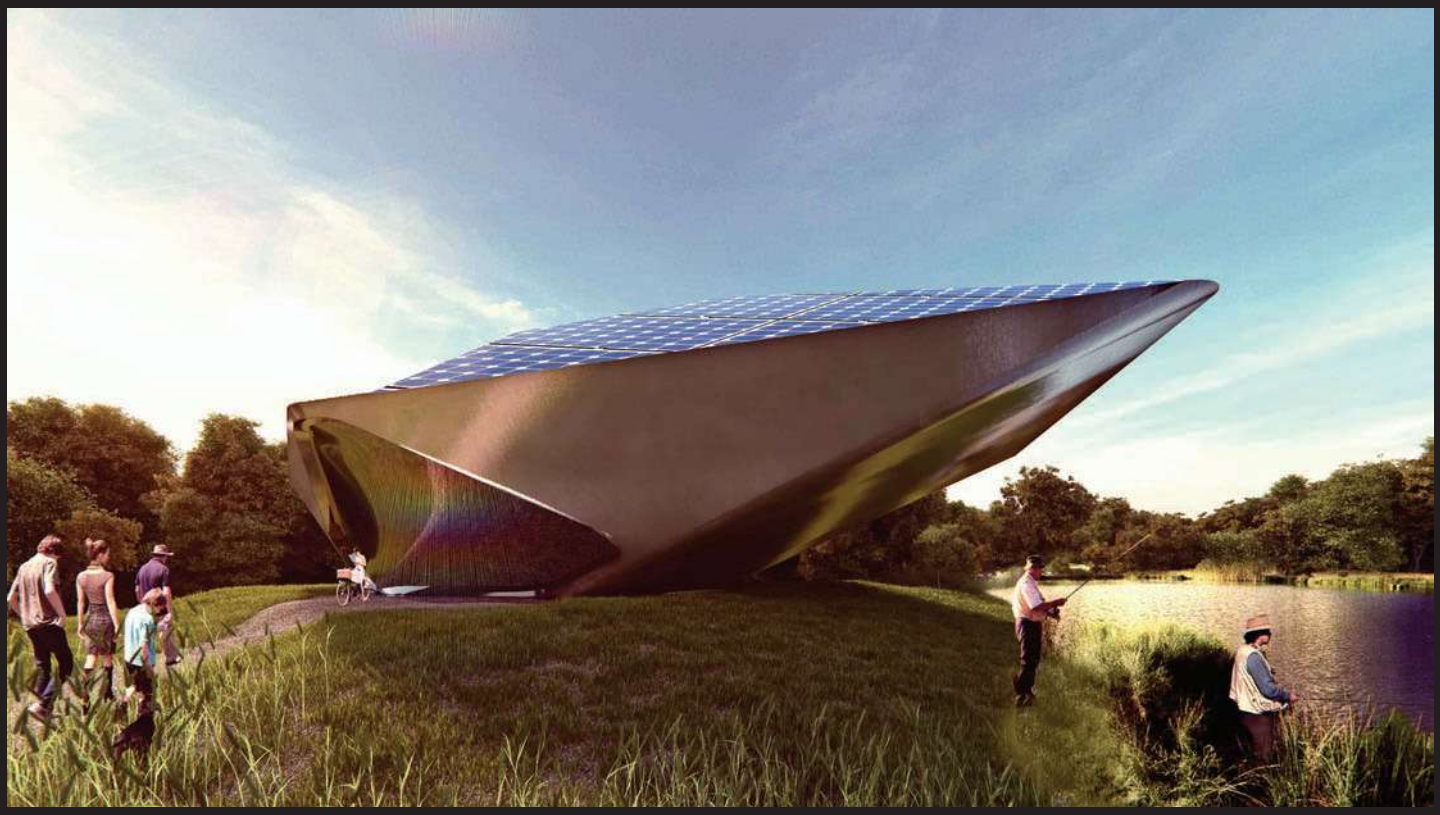
The raw render still has a lot of work to do and additional elements to add.



The raw render still has a lot of work to do and additional elements to add.

The layers and render passes being assembled in Photoshop as well as using various adjustment layers.

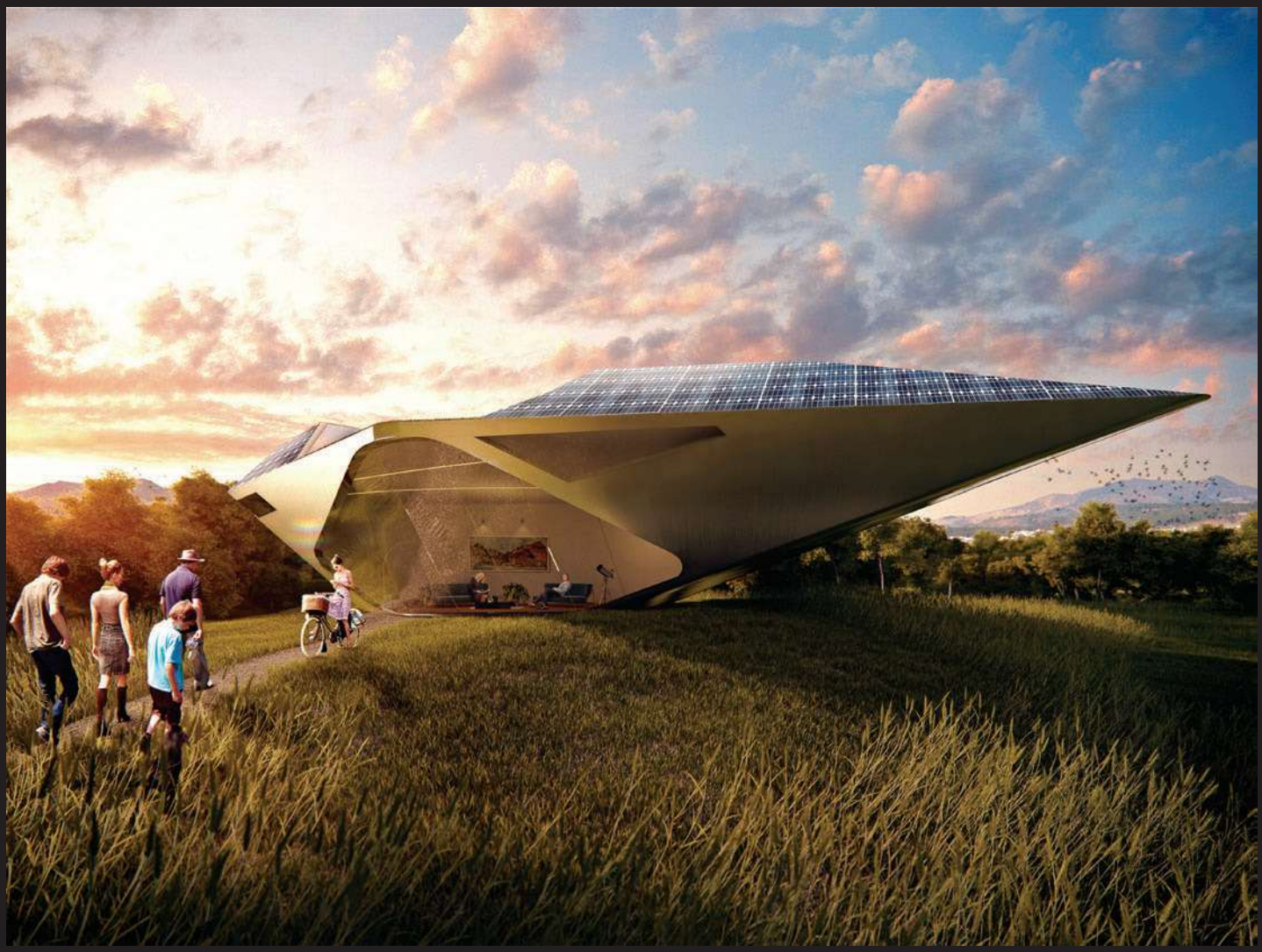
Then the project was exported to After Effects for visual effects and colour correction.



One of the concept shots from early on where the building was going to be placed in front of a lake.

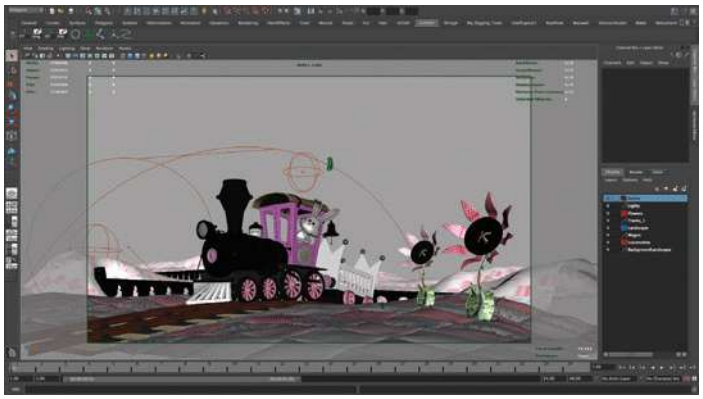
The lake version with the background, sky lighting and birds added.

A render pass with override material using the Vray Edge Text.



The final, completed image, with people, a sunset, interior lighting and composited mountains in the background.

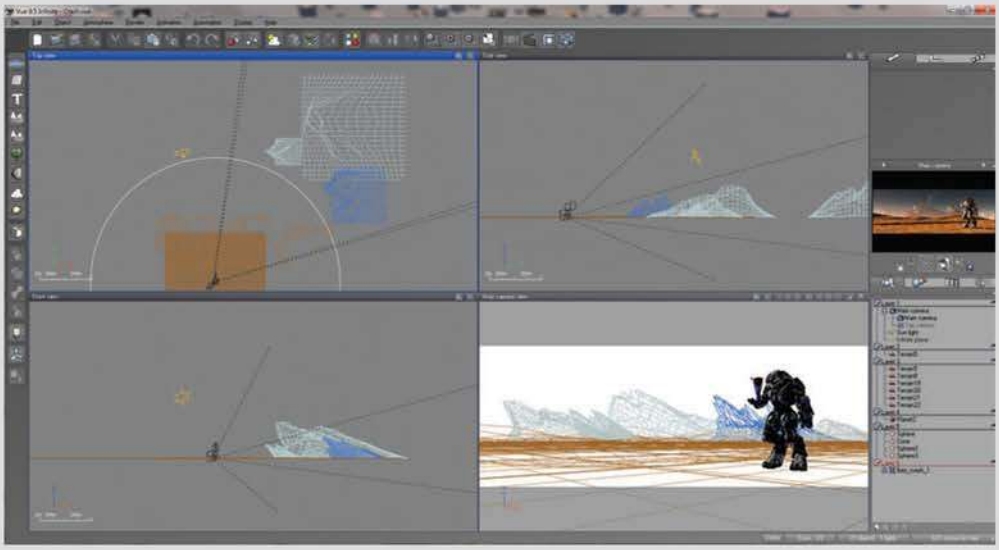
“This scene is called Fenna Land and was modelled in Maya, sculpted in Mudbox and rendered with Vray. In October 2012 I became an uncle so I decided to make something for my little niece. It is a kind of dreamworld inspired by Disney’s Lullaby Land. The landscape represents a blanket that my mother-in-law was making at the time and the wagon is the crib that my mother made. It is a poster-sized image and it is hanging on the wall of her room so when she is older she can look at it and dream away.”

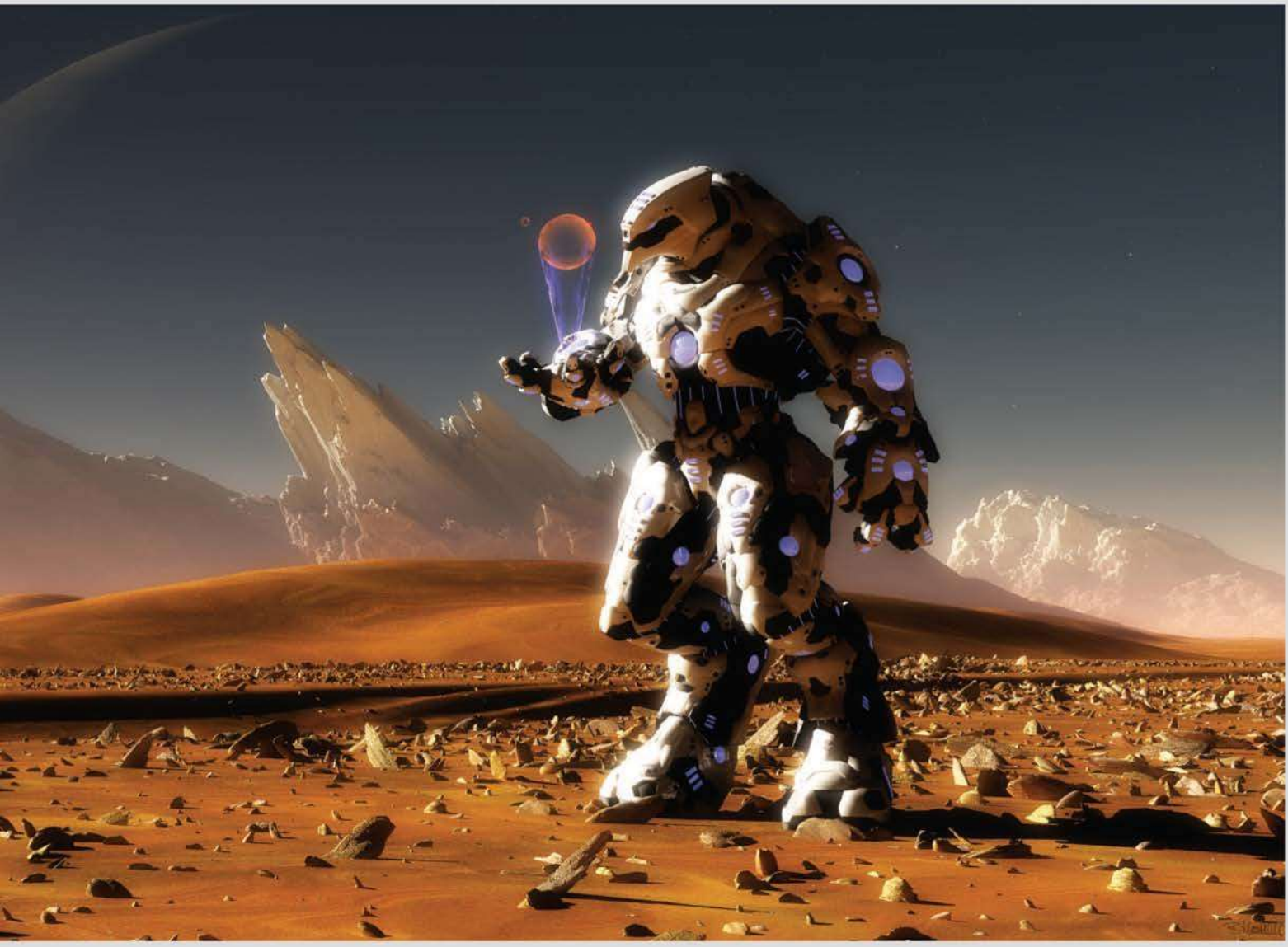


PROJECT	FENNA LAND
SOFTWARE USED	MAYA, MUDBOX, VRAY
RENDERING TIME	20 HOURS
ARTIST	JONATHAN KRIJGSMAN
COUNTRY	THE NETHERLANDS

> This image is the result of a series of renders where each contained an element from the previous image. In this instance it was the distant mountains. These were the product of a series of experiments intended to produce unusual formations just using the standard Vue terrains.

PROJECT	LANDMARK
SOFTWARE USED	VUE 9.5 INFINITE
RENDERING TIME	2 HOURS 2 MINUTES 13 SECONDS
ARTIST	BARRY MARSHALL
COUNTRY	UNITED KINGDOM





CHARACTERS IN THE LANDSCAPE SHOWCASE:

The work is devoted to two cute ponies called Lira and Bon Bon. This was my attempt to create a cartoon-style image with a surreal landscape and two very cute characters. The inspiration for the scene, and especially the style, was one of my favourite TV cartoon series, *My Little Pony: Friendship is Magic*. I modelled all the elements including the two ponies, house and tree. Some of the leaves were scattered to give the impression of wind on a sunny day. The ponies use simple materials while the house in the background is textured for the facia and thatch roof.

VIKTOR ALEXANDROVICH BUCHYNSKIY

PROJECT	SUN AND PONY
SOFTWARE USED	3DS MAX 2012, VRAY
RENDERING TIME	3 HOURS
ARTIST	VIKTOR ALEXANDROVICH BUCHYNSKIY
COUNTRY	UKRAINE

CREATING BUILT-UP SCENES WITH CHARACTERS

Ognian Bonev details the process required to build up a complex village scene with characters to add scale, detail and points of focus.

PROJECT	UNDER THE BRIDGE
SOFTWARE USED	3DS MAX, PHOTOSHOP, ZBRUSH, MENTAL RA
RENDERING TIME	4–8 HOURS
ARTIST	OGNIAN BONEV
COUNTRY	BULGARIA, NOW USA

Some research photos showing people and the medieval town structures that were to form the basis for the image composition.

DEVELOPMENT SEQUENCE

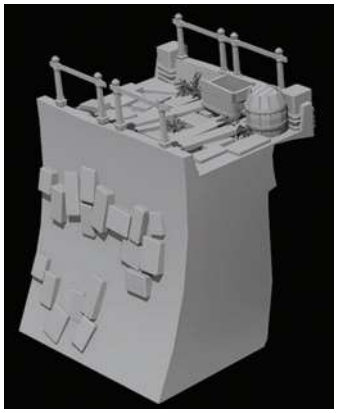
The goal for this project was to create an environment illustration representing the everyday life in a small, fantasy-like medieval village. The idea of this environment was to try to drag the viewer into the imaginary world represented by making them look, observe and want to discover more with a variety of small details and activities surrounding the lives of the village inhabitants. There were two aspects to this village then: the arrangement of the buildings and the placement of the characters to add scale, life and focus to the entire image. To help build the atmosphere and increase the liveliness of the image the scene also had a lot of additional small props and objects such as barrels, boats, casks and lanterns.

Being an environment artist myself, when working on a single image like this I usually imagine that it could and should be a part of a bigger world and that it represents a tiny portion or fragment of this world setting. That's why I usually start by designing an environment set of different connected modules and props which can complement one another. They could be used to create multiple varieties of structures to expand and enrich the story behind the illustration and to give me an option quickly to expand or change the environment itself.

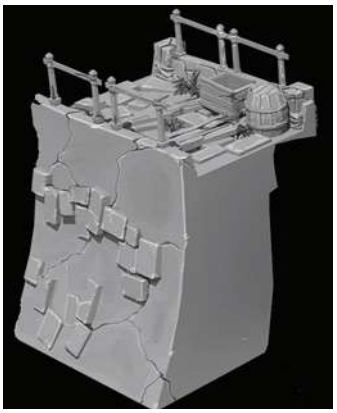
After formulating the overall idea of the project in my mind the first step was to search and gather a database of some reference images. They helped by giving me a better idea of which were the important elements and details that could help to make the illustration more believable. Even when making an imaginary environment it's always a good idea to base it on multiple elements from real life that the viewers could, sometimes subconsciously, connect with. Such elements, in this case, were typically medieval: architectural shapes of the house rooftops, watch and bridge towers. Then there were typical objects from everyday medieval life such as barrels, lanterns, small tools and so on. The overall look and planning of a medieval small town or village, the way the shapes and volumes of the buildings overlap each other and the silhouette of the entire village, were drawn from reference images, thus helping to determine the placement of the focal point and where to place the characters in the final image.

INITIAL GEOMETRY MODELLING

After identifying the important assets for the environment the next step was to start creating some concept ideas for them. For this stage, and for the rest of the project, I used a combination of 2D and 3D techniques, pushing the final art style of the image along. The first step was to create actual 3D models and geometry to use later in building the final environment for the image. To speed up the process I started by building very rough shapes in 3ds Max – just basic primitives like cubes and cones – then rendering them with a single direct light and pasting them into Photoshop as templates and base images. The goal was to trace a very rough silhouette of the props using a perspective view and a simple light for shadow direction guidance. Using these templates in Photoshop I then quickly painted details, changed the shape and finalised the overall colour, texture detail and art style of the main elements.



The inital template shape plus some added details to start the modelling.



Working in grayscale in Photoshop small details such as cracks are being painted in.

Using solid colours in a separate layer. This is the paint layer showing where it is being added.

With the layer set to Overlay blend mode the colours are then added to the model and give it colour variation and detail.

Additional layers were then used to add a photographic image using Overlay and Multiply blend modes.

The result was to add a lot more detail and make the prop look considerably more realistic.

The next step was to use a Hard and Soft light blend mode and to paint on some opaque detail.

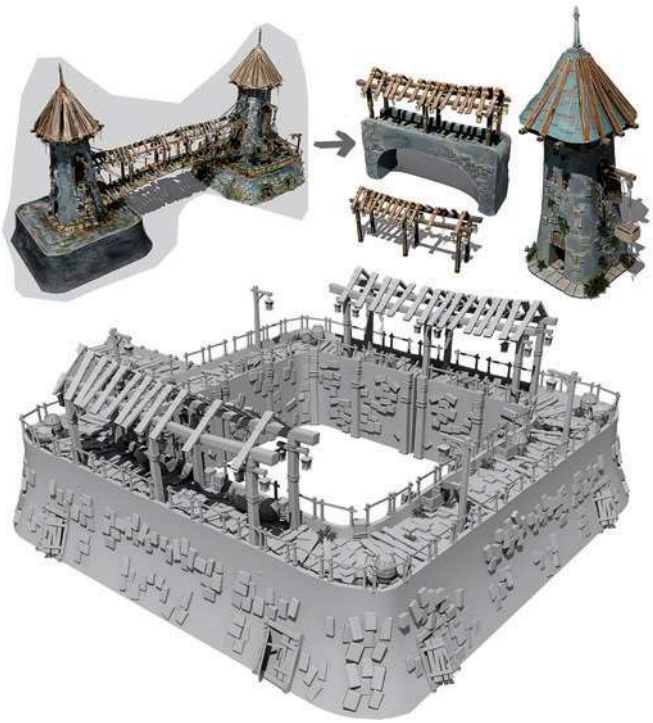
The result of this was to add lighting volume to the object without having to address this in the 3D stage.

Using the combination of 2D and 3D techniques the art style and models of the props set were created. These could then be used to populate the environment for the village without having to use complex lighting setups or extensive, finely detailed modelling. The props were all designed to be modular so that they could be used in combination or separately to create a completely different looking environment every time. This saved a huge amount of time in the construction of this and subsequent scenes.

After creating the basic geometry of all the main details used to populate the scene it was time to create some textures and begin building the scene itself by creating the terrain and overall look and plan of the village.

TOP TIP – FIXED TEXTURES

Rather than spend time creating UV-mapped textures if you are working on a static illustration with a fixed camera, create the textures in Photoshop and paint them directly onto the props. It's much quicker and isn't noticeable in the final image.



Individual assets once complete with simple lighting and then painting work in Photoshop to add extra details.

The final set of props as initial geometry with colour correction, tone and added detail. All were then available to use populating the 3D scene.

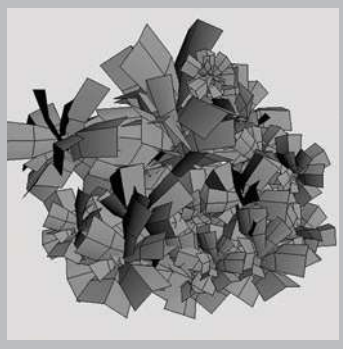
TEXTURING AND ADDITIONAL

I started by creating various tileable brick and wood detail textures that were used, sometimes in Overlay mode, to add detail to the tree trunks, building walls and various elements. Firstly a single brick object was created in Photoshop. Then, a tileable texture was created in ZBrush and added to the brick by scaling, moving and adjusting the brick itself. A Normal map for the brick was created in ZBrush and then the process went back to Photoshop. Here the Normal map from ZBrush was used as a base image and colour was added using the Overlay blend mode. There were selective colour and level adjustments to make it more distinctive. Finally the Diffuse map was created and applied to the bricks.

The brickwork was created in ZBrush and had various maps applied using Photoshop blend modes.

For the majority of the vegetation I painted a small set of leaf textures and mapped them on differently arranged low poly planes creating clusters and sprites to form various tree-crowns.

The Color and Diffuse map and Alpha channel painted on directly in Photoshop.



Low-poly planes forming a cluster of leaves for a model, prior to adding the textures.

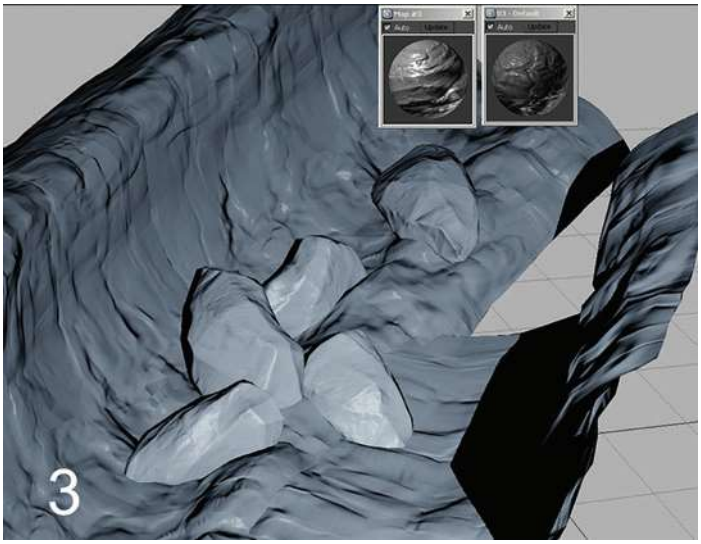
The cluster of leaves with textures mapped onto the geometry with alpha channel present.

The completed tree geometry with the cluster of texture-mapped leaves on top.

For some parts of the terrain and river bed where there are small rocks some geometry patches with Normal maps generated from the high-resolution poly geometry were modelled in ZBrush. Firstly the low-polygon mesh was created with a mapped Normal map, then extra detail was added and colour corrections were performed to make it match the tone of the rest of the scene.

TOP TIP – PAINTED DETAILS

Rather than spending time with tricky modelling of extra details and increasing the polygon count it's possible to add the little details using Photoshop and export the models from there. It cuts down on render times for all the elements.

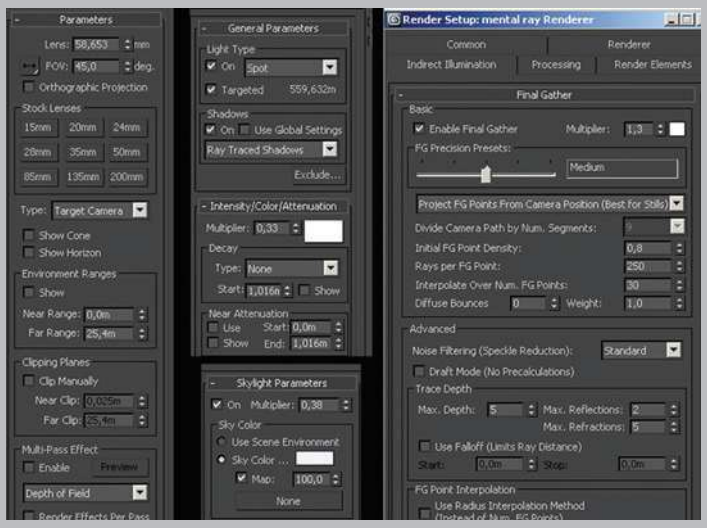


Terrain sample mapped out with additional detail and colour corrections.

CAMERA AND LIGHTS SETUP

As the majority of the final light processing and colour correction, environment effects like fog, soft lights, and final post production adjustments were to be done in Photoshop the light and camera setup was actually very basic. The main purpose of the light setup in this scene was to provide a good light and shadow direction and push or define the volumes of the objects. Only two simple lights were used in the end. There was a target spot light to create the shadow direction with ray traced shadows turned to on, and a skylight for better light distribution with Mental Ray's final gathering.

The position of the main camera at the front of the scene, looking into the valley and the village.



The Skylight to add more light to the scene so that it gave a better result when rendering with Mental Ray.

The settings for Mental Ray for the render. There was only a spot light and the Skylight for the entire scene.

SCENE BUILD UP AND FINAL PRODUCTION

Having prepared the set of props, textures, camera and lights setup, the visual art style and keeping in mind the image references of the overall planning and silhouette of a small medieval village, it was time to propagate, arrange and adjust all the elements in the final stage.

I usually separate the different elements by type such as buildings, trees, vegetation, characters, water planes and so on, and areas, in separate layers. This is so that the various areas such as the front, middle and back, or highly complex areas, can be rendered in separate passes and have multiple images with alpha channels in Photoshop for better working organisation. Then, if, for example, I needed to adjust the colour on the trees' crowns I could easily do that if they were in a separate layer with their own alpha channel for a quick selection.

Additional detail was painted in Photoshop in Greyscale mode, using tiled and Normal map textures as a base to paint onto for some of the elements. Colour and water refraction effects were then added to the water plane using a Colour Dodge blend mode in Photoshop. The same kind of process was used for other assets and elements on a separate Overlay mode. Solid colours were painted onto the layer and this added colour variation to the assets when blended together. Added to that there were background details from a combination of photo images. The layers used selective colour, level and contrast adjustments to blend the photo images into the overall colour, tone and detail of the image. A standard brush with a soft, feathered edge was used to paint additional fog onto the background image. This used separate layers in Lighten and Soft Light blend modes with a white colour to add this level of depth and ambience without having to add extra lighting and the overheads that would imply.

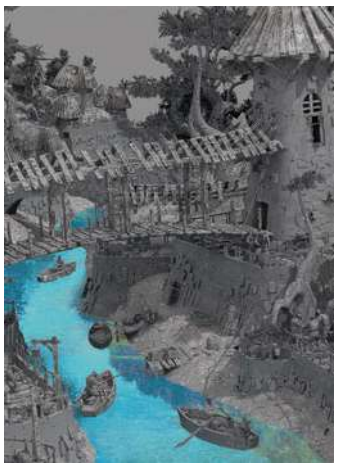
The next step was to push further the overall light and shadow levels and distribution using the shadows cast by the initial direct light – the target light from the 3ds Max file – as a guidance for the light and shadow directions. This was done again by combining multiple layers with soft brush strokes in Hard and Soft Light blending modes. A final touch was to sharpen the image to bring out the smallest details. Everything was then flattened and the image saved out.

TOP TIP – SHARPENING UP

Use the Smart Sharpen filter to bring out details at the end without causing halos or artefacts. Alternatively duplicate the image on a separate layer, convert it to Greyscale, then apply a High Pass filter with the desired pixel radius settings and use it in Overlay blend mode to sharpen the image.

The initial render with the camera and light setup in shaded mode.

Using Normal maps as a base that was painted on with Photoshop in Greyscale mode.

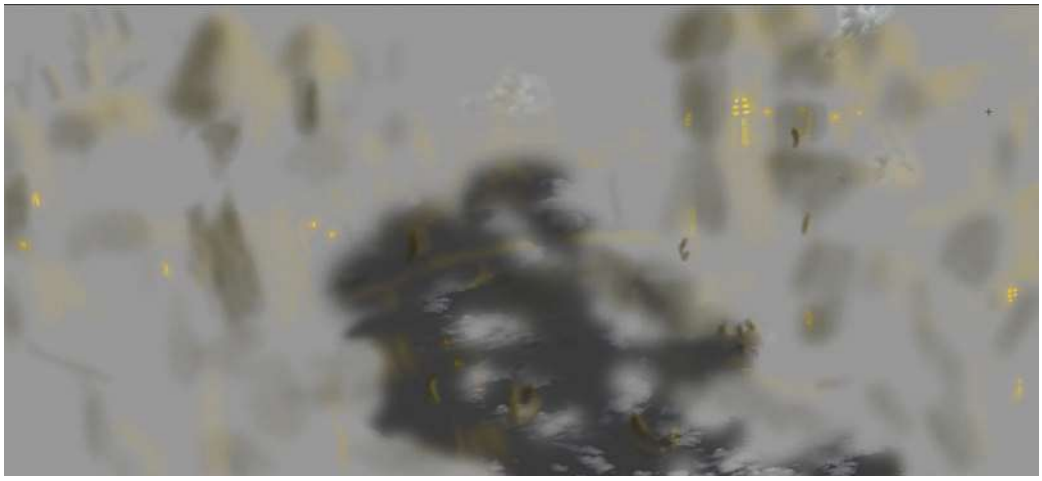


Additional colour and water refraction added to the water plane using images in Colour Dodge mode.

Additional colour variations added to the different types of asset using separate layers shown in solid colours.

Water plane and scene elements with added additional colour and detail.

Background added using combination of photo images with selective colour, level and contrast adjustments.



It may look like a foggy day but this rough painting adds colour, contrast and highlights when used as a blend mode.

Light and shadow adjustments added to the image using Soft and Light blending modes.

The Sharpen filter was used at the end to push a bit more of the small details into view.

UNDER THE BRIDGE BY OGNIAN BONEV

MAX, PHOTOSHOP, ZBRUSH, MENTAL RAY

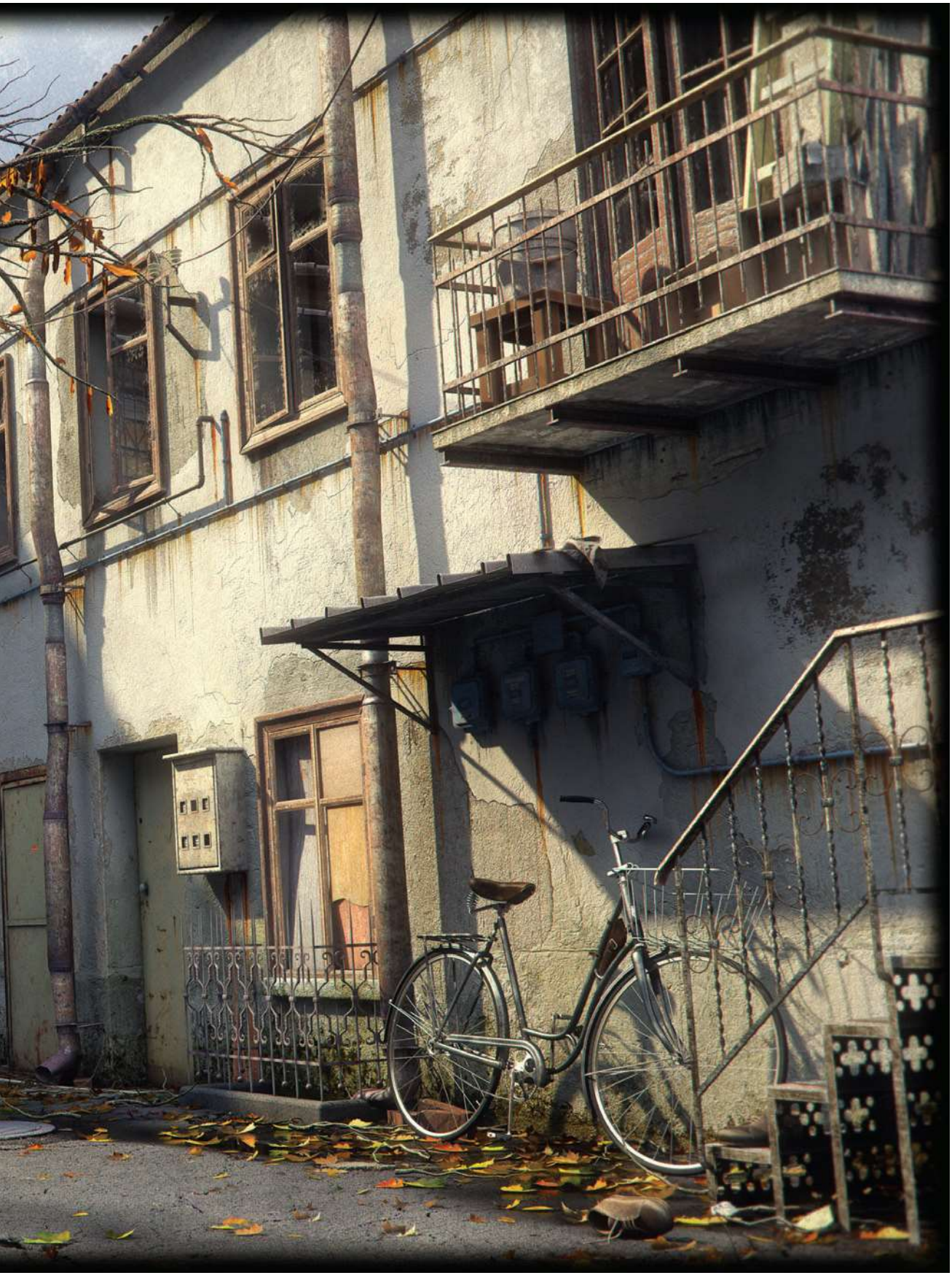
4-8 HOURS

“The autumn is possibly the loveliest season of the year. It was a cold day in the fall when I was walking along a beautiful street in my city. I decide to recreate the street in 3D, using my imagination to help bring it alive. The first sketch was done on paper and then I drew it in AutoCAD. After finishing the 3D modelling it was imported into 3ds Max. There I tidied up the del and created the textures for the scene and the shader. Various passes were rendered and finally composited together in Photoshop. The alternative images show other areas of the same street outside the immediate camera view which were also modelled. I hope you enjoy!”

PROJECT	LOVELY AUTUMN
SOFTWARE USED	3DS MAX, VRAY, PHOTOSHOP
RENDERING TIME	12 HOURS
ARTIST	AREF RAZAVI
COUNTRY	IRAN

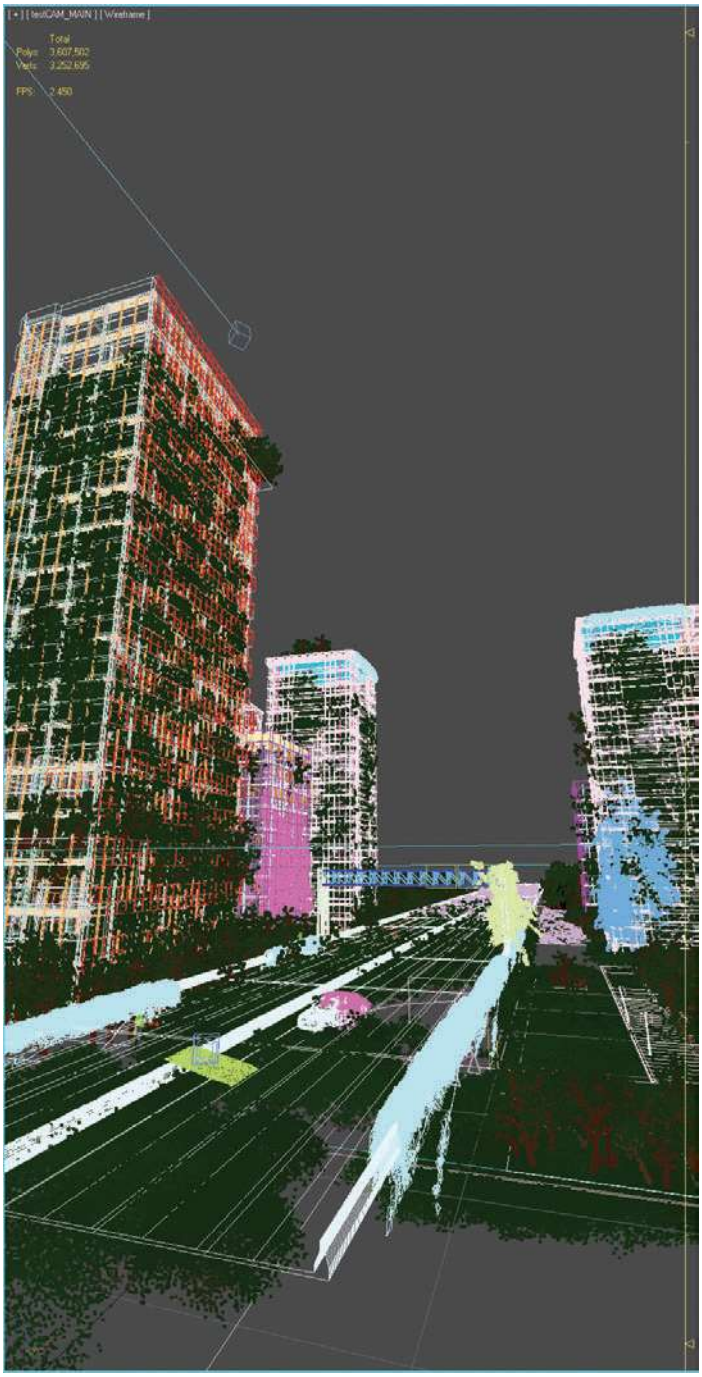
“Odessa’s Old Yard was made for fun and development of my skills rather than as a commercial project. The idea was to convey the atmosphere of the old yard, which I really liked. I wanted to practice my skills at good texturing and modelling. Absolutely all the models in the scene were made by myself because I did not want to use any models from libraries. The texturing was given special attention and took up most of the time spent on the project.”

PROJECT	ODESSA'S OLD YARD
SOFTWARE USED	AUTODESK 3DS MAX, MUDBOX, VRAY, PHOTOSHOP, AFTER EFFECTS
RENDERING TIME	4 HOURS
ARTIST	MAX LEVIT
COUNTRY	ISRAEL



I was inspired by some 3d art I'd seen on the subject of post-apocalyptic ruined cities which reawakened a love of the subject that goes back to my early teens. I wanted to create a city that looked over grown with vegetation but didn't show any signs of war or obvious destruction, to imply that our extinction was perhaps less predictable or more mysterious. Other inspirations were the movies *Logan's Run* and *I Am Legend* as well as the TV show *Life After People*.

NAME	100 YEARS ON
SOFTWARE USED	3DS MAX, V-RAY, PHOTOSHOP, FOREST PACK LITE, IVY GENERATOR
RENDERING TIME	8 HOURS
ARTIST	ANDY WALSH
COUNTRY	UK



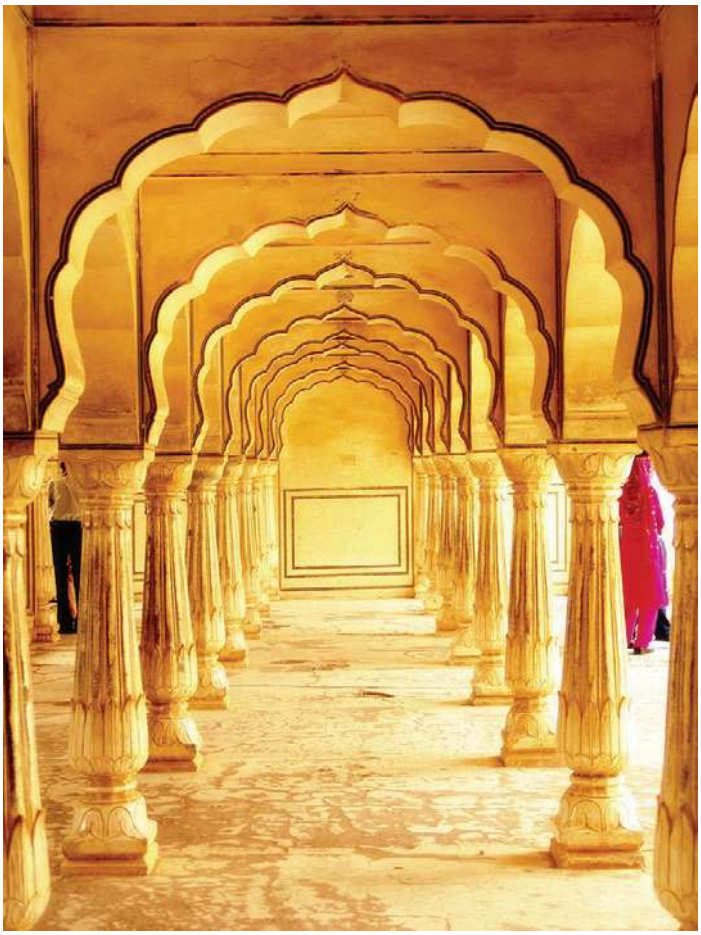
CREATING URBAN ARCHITECTURE

Gurmuck Basin explains how he created the towers and minarets of a fantasy mosque.

BEHIND THE SCENES

In creating the Fantasy Mosque image, I aspired to incorporate aspects of my own heritage, while exhibiting my love for architecture itself. My father is Indian and as a teenager, I was fortunate enough to experience living in India for a few years. This inspired me to create a piece that would display a special place of worship like the ones I visited during my time spent there. To me, religious structures always radiate a magical and heavenly feel, irrespective of the religion they represent or what geographic region they are established in. The detail that is reflected in the building, the hand-crafted feel to the construction, the history felt in the space, and the love that people have for these enchanted buildings were all qualities I wanted to portray in my artwork.

As well as a historical element, I set out to blur the line between reality and fantasy in this piece. To add to the dream-like feeling I always get from religious structures, I set out to create something realistic in architectural detail, yet hint at the unbelievable with the use of exaggerated overall scale to the design of the entire Mosque.



The Sharjah Library provided reference for the columns and smaller archways.

Architectural reference for the large archways that I planned to incorporate into the image.

Sheikh Zayed Mosque in Abu Dhabi. This image became the major inspiration behind the piece. The domes, towers and architectural details were borrowed from this beautiful building to recreate my Fantasy Mosque.

MODELLING THE DOMES

I started this project as I do with all projects, by finding reference images of different temples from the Middle East and India, as well as reference images from different artists who have covered similar topics in their work. During the creation of Fantasy Mosque, architectural reference images were very important. I wasn't trying to reinvent historical architectural elements such as the arch, dome or patterns but instead I borrowed the design of these iconic architectural elements and built myself a kit of 3D assets in Maya. The idea was to use these to build my own religious building. While looking through reference images I came across the Sheikh Zayed Mosque in Abu Dhabi and discovered which architectural elements I needed to design my piece. I also found some Middle Eastern and Indian patterns which I wanted to include in my design. Since this was a personal project and I already had an idea of what I wanted to create in my head, I decided to skip the sketching phase and immediately jump into 3D modeling.

Middle Eastern and Indian patterns. These patterns were used in the design of the 3D handrails.

Middle Eastern and Indian pattern. This was used to create the 3D mesh for the meditation rooms.

Architectural detail. This was used to add detail to the outside of the meditation rooms.

TOP TIP

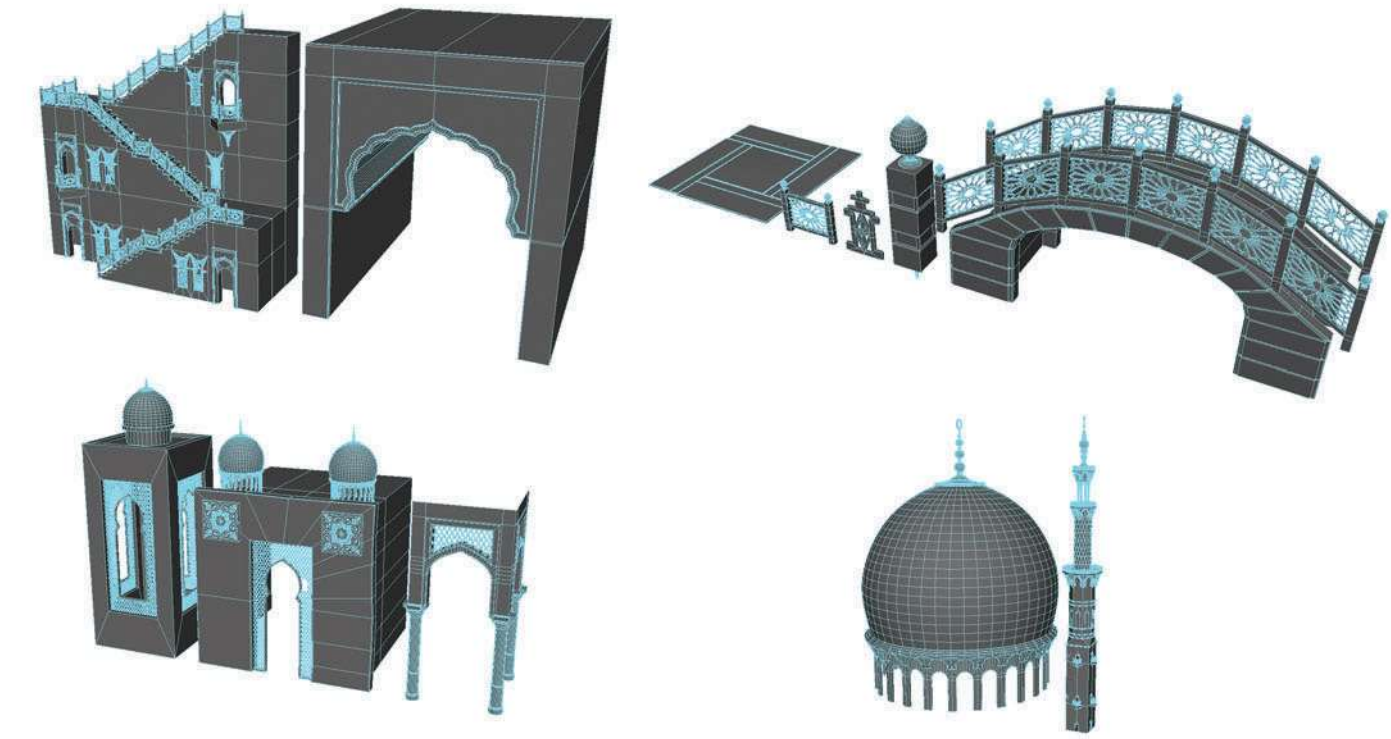
When referencing artists, it's important to not let their work influence your design. I only use reference artwork to help me decide on camera angle, composition, mood and colour palette.

I made a list of assets, most of which I could repeat and vary in scale, and soon began to model. My list of parts included a dome, a tower, a large arch, a small arch, a switchback staircase with windows and balconies, a bridge, a handrail, floor tiles, two different types of meditation room, doorways and the ornamental details. Once all the assets were modelled, I started with the basic massing and positioning of the large arches. I knew that these arches would be the most important parts to grounding the project and influencing where the other assets would be placed. From there I would be able to set up my final camera angle before designing the overall building.

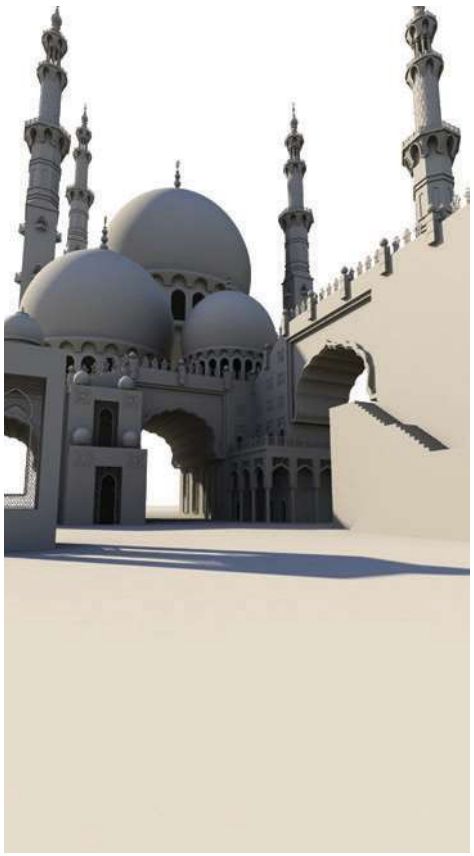
TOP TIP

Figuring out the camera angle early helps to inform you which parts you have to model and which parts you can hide. All of the domes and towers in the background are just floating in space and are placed where I thought they looked best for the overall composition of the image.

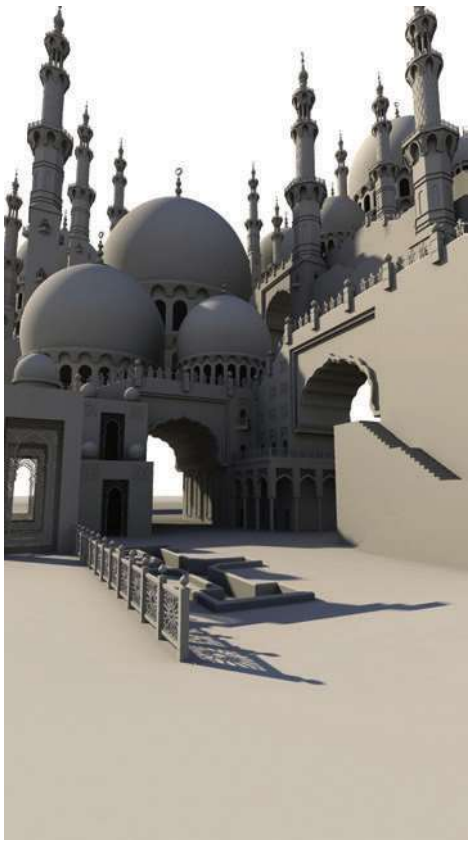
Next I added three large domes that varied in size, four towers and I started to build up the front stairs and spaces in the foreground. Originally, I wanted to use a realistic number of these assets and was thinking to keep the building to three domes and four towers, but each time I looked at the image, I didn't feel the excitement and prestige I was attempting to portray. I then started to play around with the 3D model by adding more towers and domes to the back. By adding an over-exaggerated number of towers and domes, I felt I was able to bestow the fantasy and magical feel I set out to create from the very beginning.



Wireframes of all 3D assets in the project laid out onto one screen.

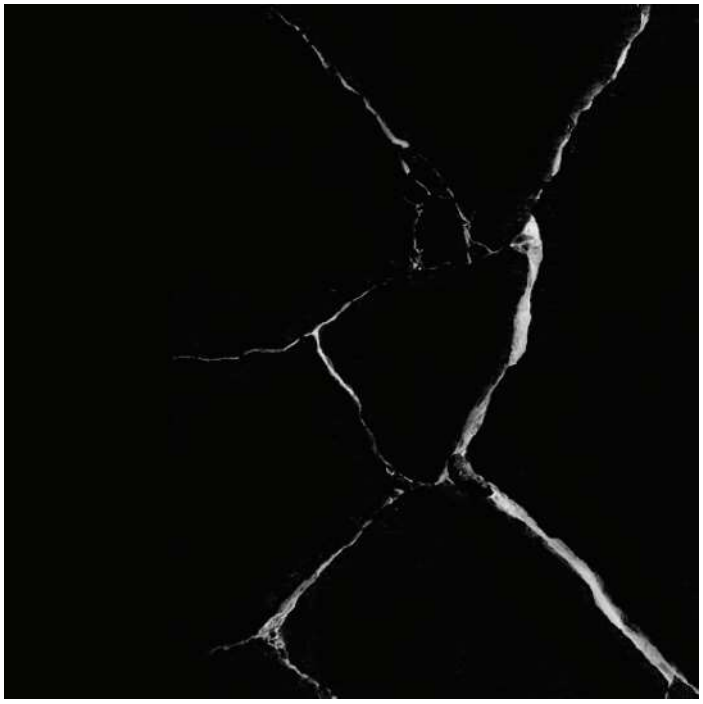


The initial process of creating the composition by putting all the models together.

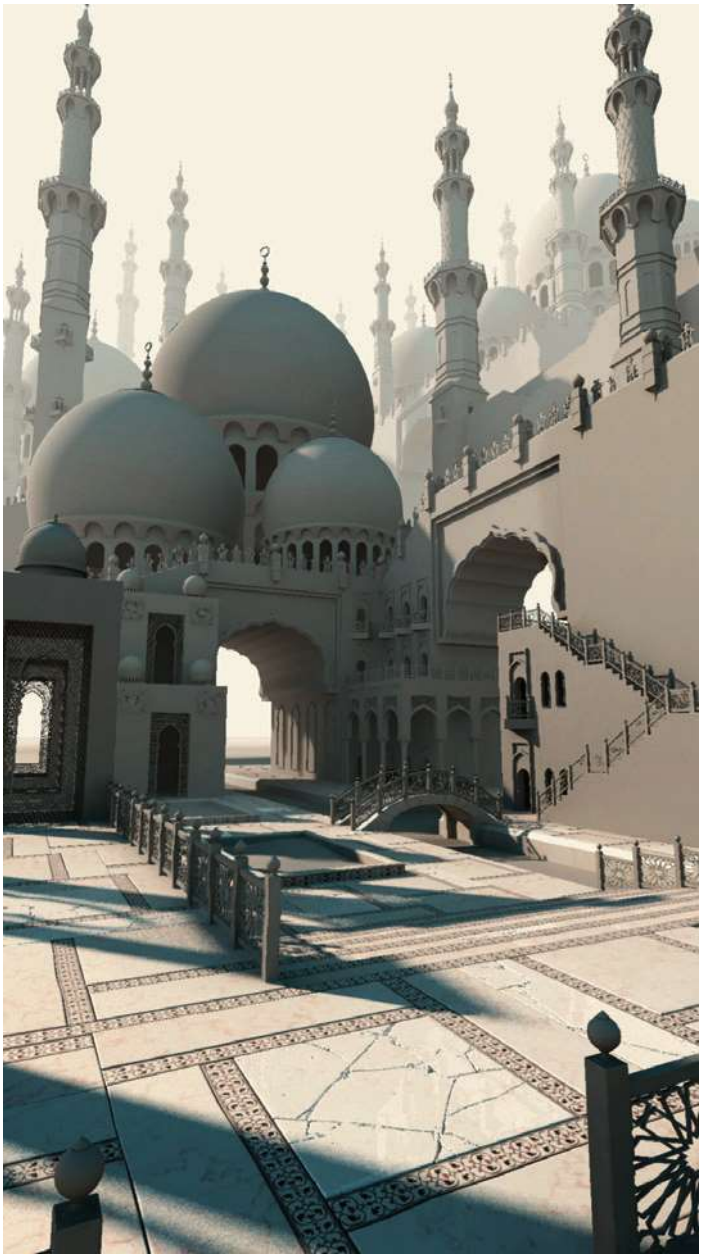


Adding more foreground details and objects. The background is now full of towers and domes.

Once I was satisfied with the background, modelling and detailing the foreground space was my next task. I used repeatable floor tiles to add some detail on the horizontal plane and I manually distorted a few of the tiles in the front to break up the perfect hard lines that 3D modelling gives you. A displacement map was used to model cracks to specific tiles to show natural wear and tear to the environment. Two planters and a river were inserted in the courtyard to add a splash of colour to the overall image. I added a bridge over the river as a fun way to add variety to the circulation in the image. Windows, doorways and balconies were added to the switchback stairs and arch walls to soften up the building and to portray the fact that this place was occupied by many people with lots of activities going on beyond what was superficially visible to the eye. I then finished adding all the rails and architectural ornaments to add details on a micro level. At this point, all the modelling was almost complete. Soon after, I was able to show the piece to a few friends and the feedback I received was that there were too many domes and towers. I decided to do a basic test render to play with depth and atmosphere and to get an idea of how the image would look for the final render. It was important to get the final composition and the numbers of structures right before I went onto texturing and finishing up the render.



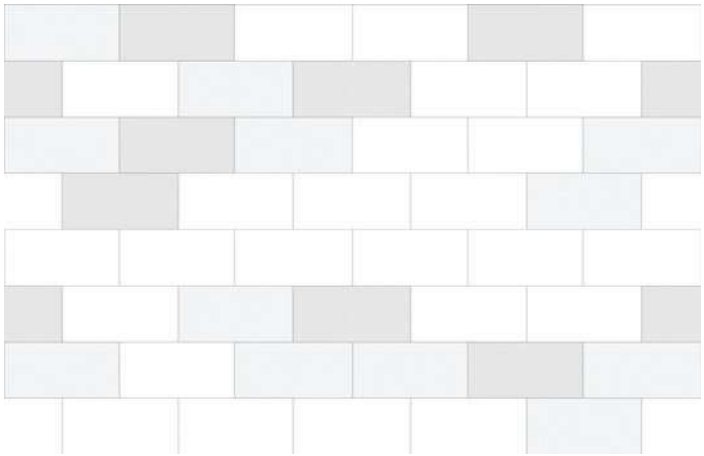
A displacement map for the cracks in marble floor tile.



The third part of the 3D massing stage including a test render for the atmosphere.

TEXTURES AND MATERIALS

For the Fantasy Mosque I used one simple texture of marble brick with a bump map for variation for the majority of the buildings. Since the final output of the project was going to be a still image, I knew I was going to paint in dirt and variation to the materials, so didn't want to spend too much time making the UVs for this project. I decided early on to texture the assets after I had modelled the entire building, because I wanted to make sure that the parts I had scaled larger or smaller had possessed the same brick size, while looking like they were made out of the same materials. Simple projection mapping was used to apply the brick texture to the geometry, while making sure all projections had the same base point 0,0,0, and scale. This would ensure that all the textures would line up seamlessly. A repeatable, but subtle, pattern was used on the floor tiles to insinuate some visual excitement.



Marble brick texture map made in Photoshop that could be used to seamlessly tile areas.

SETTING UP THE LIGHTING

A simple physical sun and sky was used for the lighting. When setting up the lighting, the most important part for me was how the domes were to be lit. I wanted them to be lit from behind on the top left. I liked how this lighting setup enhanced the curvature of the domes with a bright highlight and a nice curved gradient. The lighting setup was created early on as soon as the first three domes in the project had been modelled. The sun was only moved around slightly for the final image. I usually keep my lighting setups rather simple in Maya because it's so much easier to adjust the lighting in Photoshop, especially if the final output is going to be a flat image.

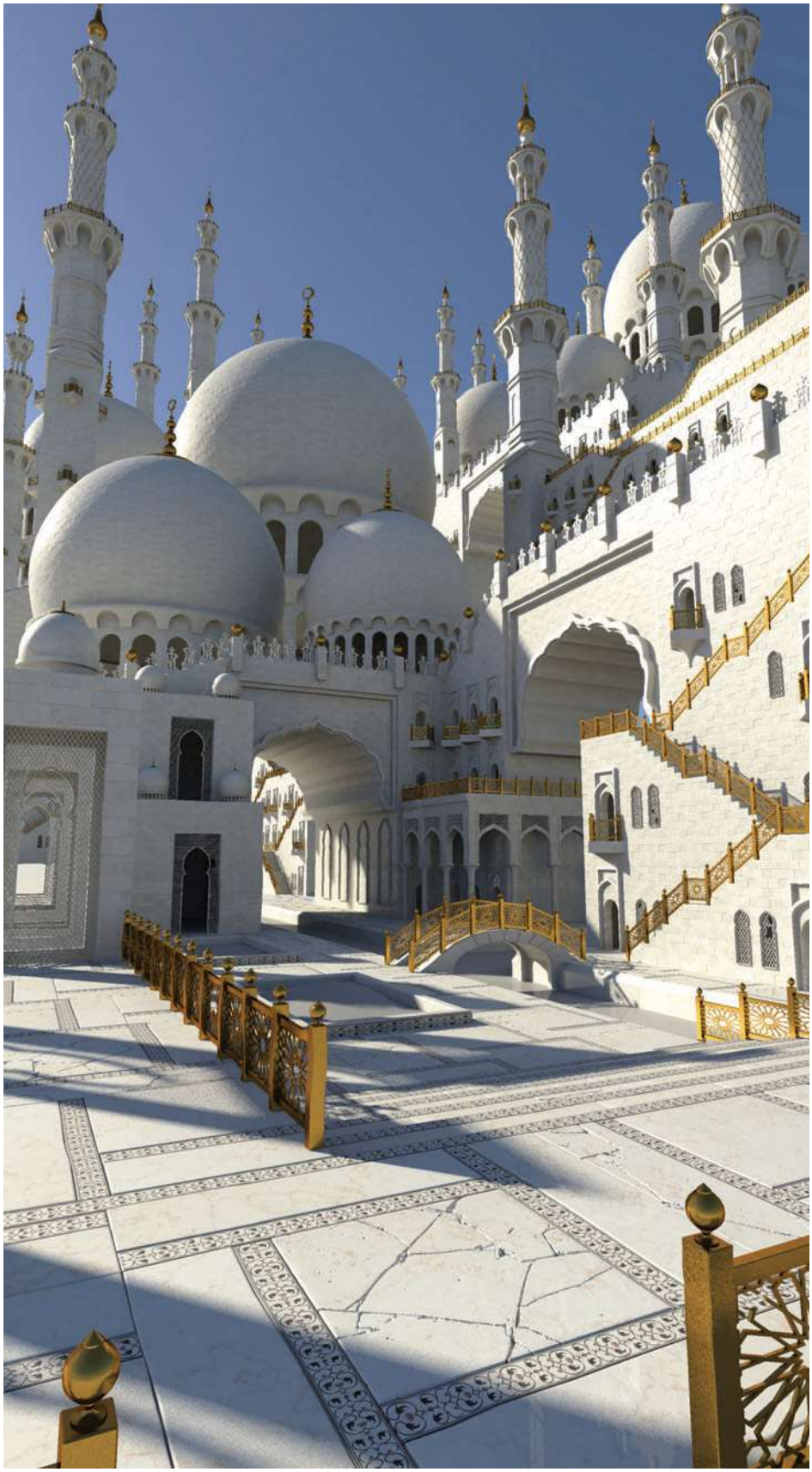
Marble brick texture map made in Photoshop that could be used to seamlessly tile areas.

Tileable floor tile detail. This pattern was used to add a kind of opulence to the flooring.

RENDER PASSES AND POST PRODUCTION

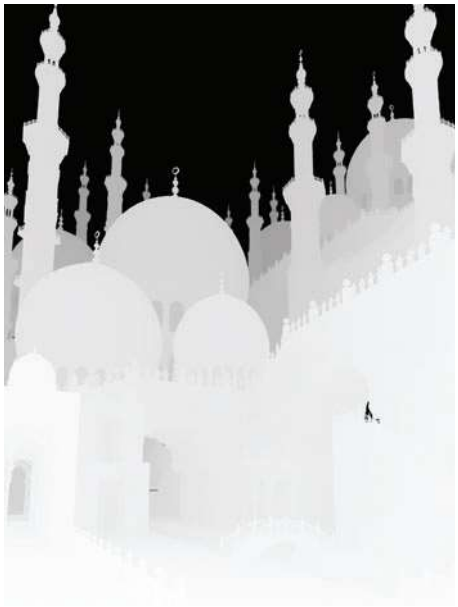
Mental Ray was used to render and only a few passes were used for the final composition. I rendered out a Base Beauty pass, an Occlusion pass, a z-depth pass and some material ID passes for easy selection in Photoshop. Once all the render passes were done, I composited them in Photoshop, while adjusting hue and saturation, curves, brightness contrast and photo filters to figure out the overall mood I wanted to deliver in the final piece.

It was at this point that dirt, destruction and texture were painted onto the scene in Photoshop to break up the repetitiveness of the brick texture, while adding some life to the piece. Some grass was added to the cracks in the floor tile and some water to the river. The painted details softened up the clinical lines of the 3D render and added a slight painterly feeling to the overall piece.



Base Beauty pass onto which everything else would be composited.

The Occlusion pass for creating depth of shadow.

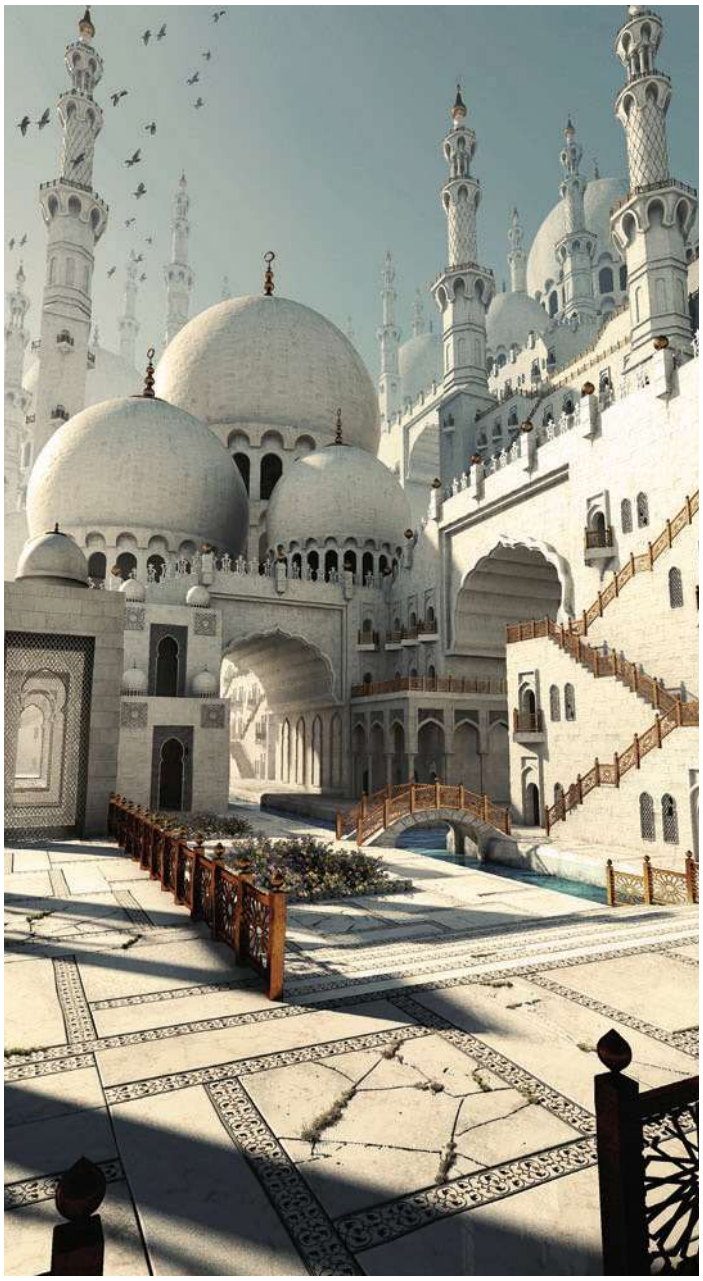


The z-depth pass is useful for varying the depth-of-field. White is nearest, black, furthest away.

This was a test render to see what the mood of the piece looked like.

Some grass in a crack to add as a post production detail to make the image more natural.

Source photo for adding water to the small canal that runs through the image.



A test render using lower quality settings to see how it came out prior to the main rendering passes.

TOP TIP

When creating digital 3D art, things look very stiff and overly perfect. In the real world no two things are exactly the same, so digitally painting over a base render is an easy way to add variation, mistakes and life to the image.

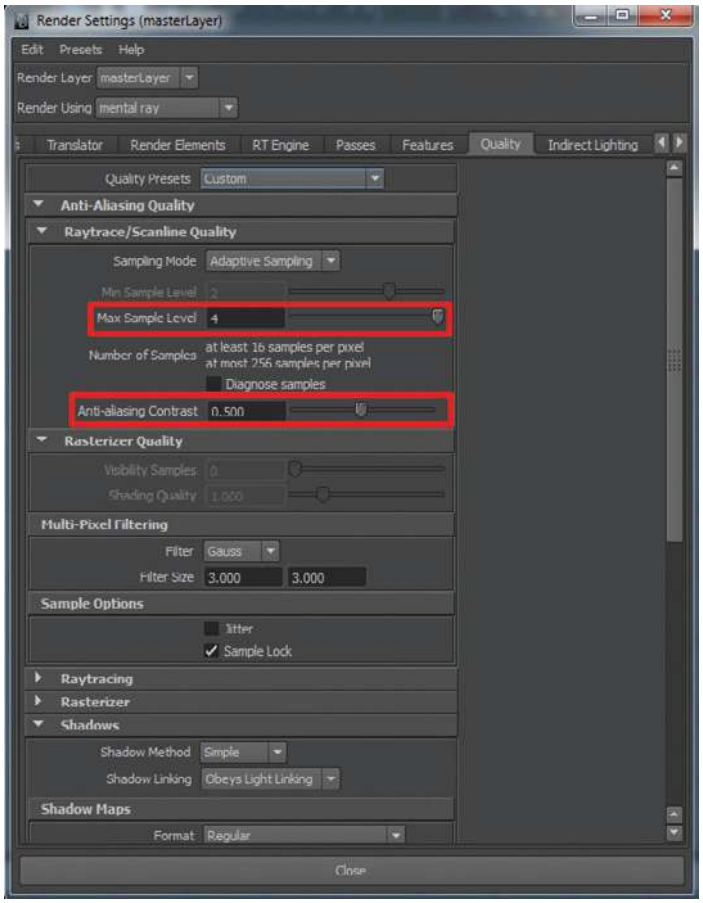
At this point, I believed I had completed the image and went along to post it in numerous places on the internet. I received some great feedback, which brought to my attention how low the quality of my render settings were. An experienced individual told me that I should increase the levels and samples in my render settings in order to get a crisper and clearer final output. At first I wasn't going to re-render the project because my old computer could barely handle the file since it had around three million polys in the entire scene. However, I had just built a new PC and decided that I could use this piece to test out the strength of my new workstation. The levels and samples were increased to maximum settings and the new image was rendered out in two hours. The difference was noticeable right away and so I decided to rework the final image. The old render was muddy, overly yellow and the sky was too plain. The overall colour was adjusted with hue and saturation, a photo filter, and I added some clouds and more birds to the background.

TOP TIP

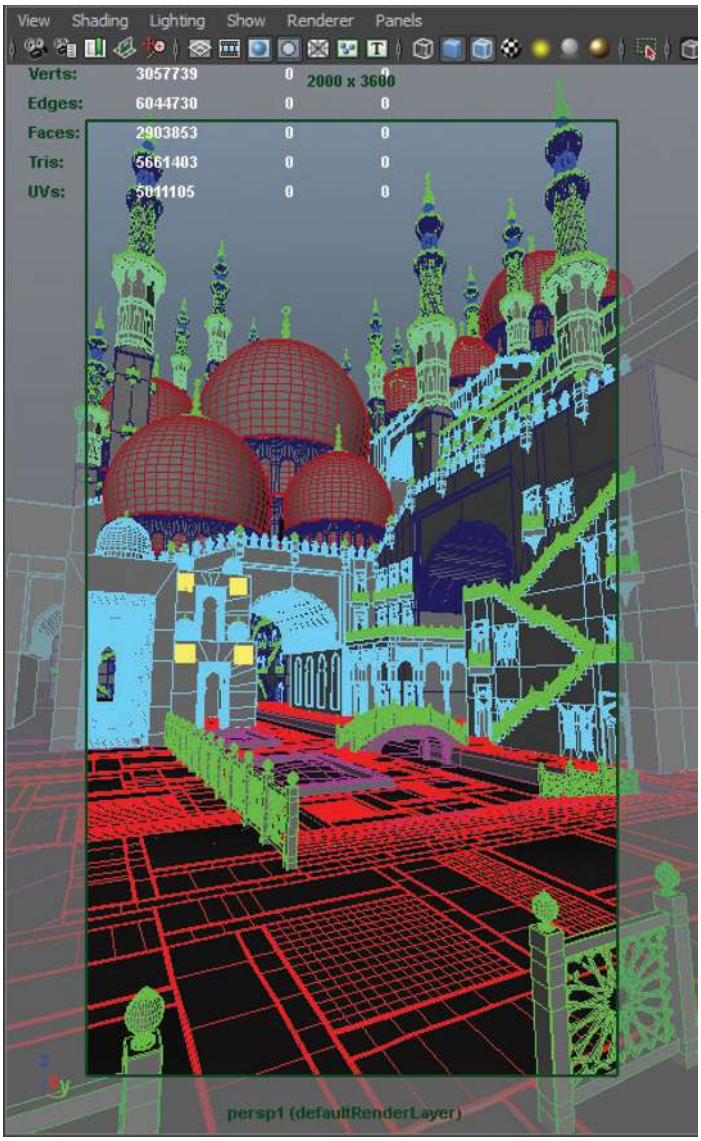
When adding a sky image to the render it is important to make sure the colours in the sky match the colours of the render. The colour of the sun and sky is subtly reflected in the architecture. What I do is adjust the sky image until the blues in the sky match the blue colour that is rendered out of Mental Ray. Then I use hue and saturation to adjust the colour of the overall image completely. This way your sky doesn't look out of place and fake behind your render.

And after all that, the image was finally done! I always strive to learn something new when constructing personal pieces. Usually, I make a list of things I need to master and figure out what the next step will be in order for me to master these skills. For this image, I learned a lot about render settings, pushing my computer to its limits – which required me to buy a completely new one – and figuring out how to cut corners.

I don't always stick to modelling with quads when poly modelling, I just do what is quick and easy, because in the final render, the difference is miniscule and not visible.

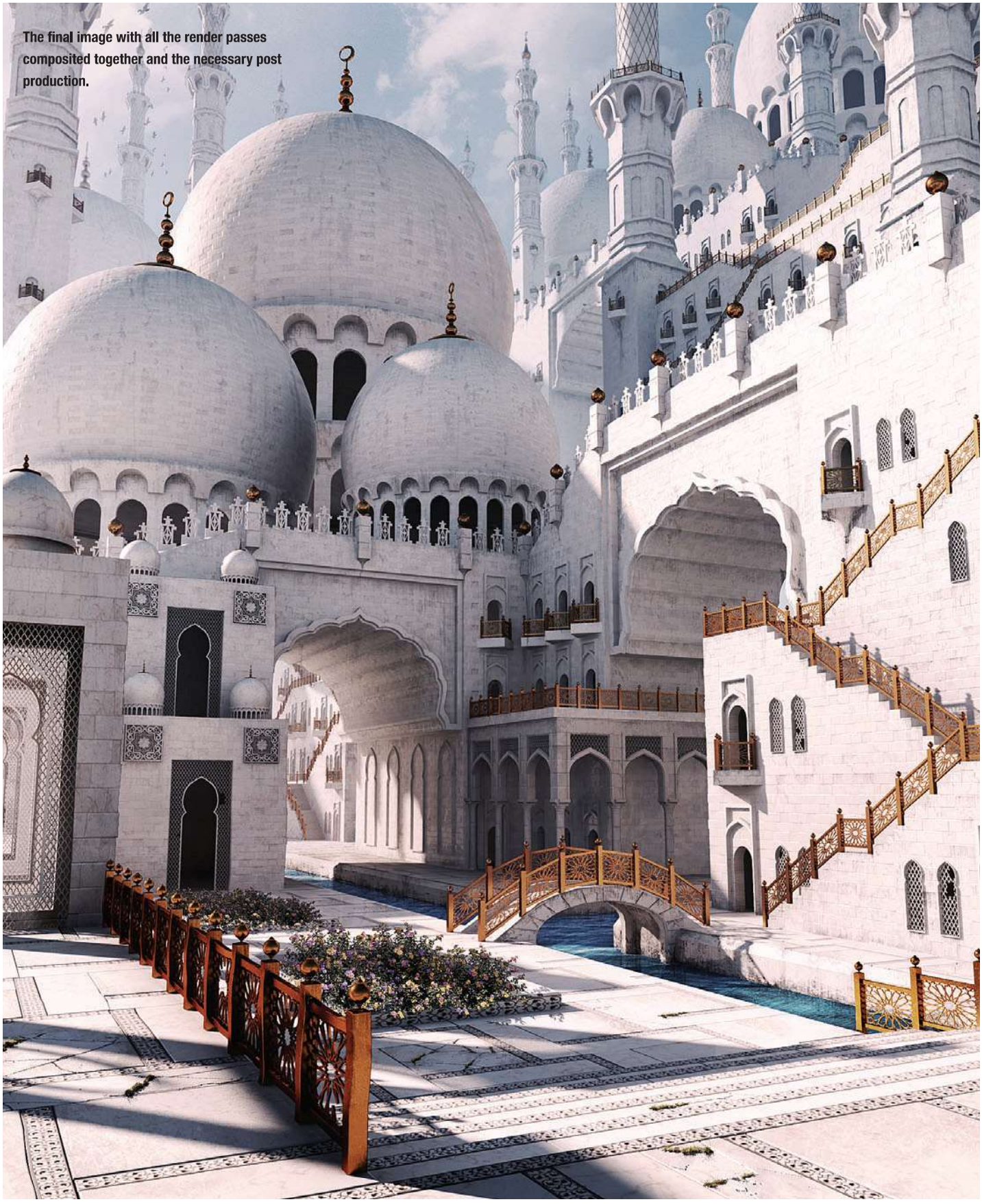


The Levels and Anti-Aliasing Contrast in Anti-Aliasing Quality were increased substantially.



The wireframe of the entire scene showing the poly count.

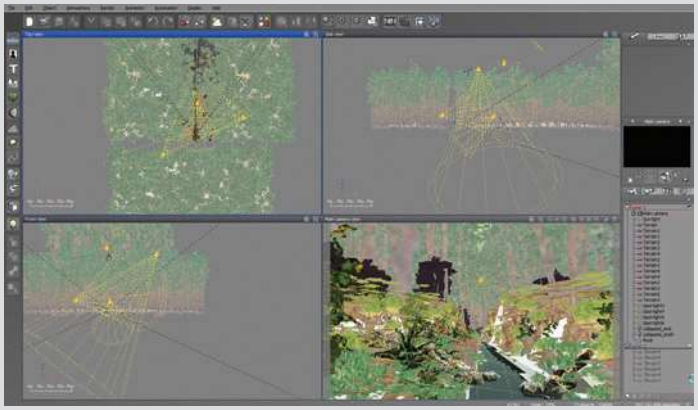
PROJECT	FANTASY MOSQUE
SOFTWARE USED	MAYA, RHINO, MENTAL RAY, PHOTOSHOP
RENDERING TIME	2 HOURS (100 HOURS FOR ENTIRE PROJECT)
ARTIST	GURMUKH BHASIN
YOUR COUNTRY	UNITED STATES OF AMERICA



The final image with all the render passes composited together and the necessary post production.

“This image is a part of a series of forests that I wanted to do for a long time. To make it I looked at many photos of forests in the wet and rain with the wind blowing. I tried to extract key features from them that I used to make my forest. In this image I tried to make a wet atmosphere, and a forest that was almost alive and agitated.”

PROJECT	WILD FOREST
SOFTWARE USED	VUE INFINITE
RENDERING TIME	5 HOURS
ARTIST	DANIEL RESPAUD
COUNTRY	FRANCE



I have always been fascinated by New York and especially by vintage black and white photos of the city. The project started out quite differently but during the modelling process I decided to go for a fictional street scene inspired by 1950s New York. When I made the main character I was inspired by a famous photo of James Dean walking on Times Square. The entire concept is one of wet, slick pavements in the cold winter season, reflecting the neon lights back as the character hunches up against the cold.

PROJECT	NEON CITY
SOFTWARE USED	3DS MAX 2012, VRAY, MUDBOX 2012 AND PHOTOSHOP
RENDERING TIME	SEVERAL MONTHS IN ARTIST'S SPARE TIME
ARTIST	DENNIS KAYA IVERSHOLT
COUNTRY	DENMARK


CROWN BAR
BAR
BEER ON TAP
RESTAURANT
ARENA BAR
TENDER STEAK
SANDWICH
Quincy's
RESTAURANT
ORIENTAL
ORPHEUM
DANCE PALACE
TONIGHT
ADMIRAL
TV APPLIANCES
RALPH'S
BOOKSTORE
ADMIRAL
TV APPLIANCES
MANNY'S
RESTAURANT

COLD WEATHER EFFECTS

Olivier Vernay-Kim explains how he created a winter wonderland scene, complete with a blanket of snow.

BEHIND THE SCENES

At first, this image was an environment I did for a Fable 2 cinematic shot at Blur Studio. I really liked the subject of a peaceful winter scene in the countryside, so later I decided to take the project a bit further by adding more details and atmosphere. It was also a good exercise for snow modelling. My goal was not to make an ultra realistic image, but rather giving it an illustration look that suited the subject.

Since it was originally a professional project, I had a concept design (not always the case) which gave me roughly the composition of the image.

From this point I gathered some reference of a typical countryside: trees, fences, mud paths, preferably snow covered. The image was supposed to be in medieval times, so modern structures like electric poles were prohibited.

PROJECT	HEADING SOUTH
SOFTWARE USED	3DS MAX, MENTAL RAY, PHOTOSHOP, TERRAGEN
RENDERING TIME	7 HOURS
ARTIST	OLIVIER VERNAY-KIM
COUNTRY	USA

HEADING SOUTH BY OLIVIER VERNAY-KIM

This is a concept art made by Chuck Wojtkiewicz from Blur Studio. It was open for interpretation.

I used a lot of reference pictures, which helped me visualise specific details and objects.

TOP TIP – EXPERIMENTS BOOST CREATIVITY

When working on a personal project with no deadline, don't be afraid to move objects around, try new colours and objects, even if it seems weird at first, or when you think you're close to the final version. You might discover a great idea which you'd never have thought about before and that you will take pleasure in developing.

MODELLING THE BASICS

The scene was divided in three distinct parts: foreground with the muddy path and detailed trees, mid-ground with the farm and mud path continuation, then background with distant hills and mountains. This way it was really easy to manage the level of detail according to the distance from the camera.

The ground consisted of one plane with both the ground itself and the snow layer integrated in the modelling. It was more difficult to change the snow distribution this way, but it allowed better control of the snow/mud transition when texturing.

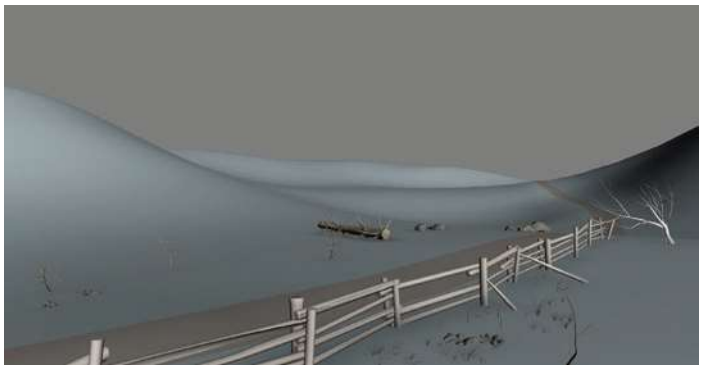
At first I roughly modelled the snow using the Paint Deformation tool in Editable Poly. Then, satisfied with the basic shapes, I added a lot of details simply by using a Displacement map on top of the original modelling.

The foreground trees are Xfrog models. Adding a believable snow layer on these was a little tricky. For me, the most logical way of doing it was to pour some particles on the leaves, using Particle flow (with speed at 0 after the collision), but this was way too slow, even after a good mesh optimisation. I ended up using Blobmesh (in Compound Objects), which basically creates a sphere on each vertex of a selected object then melts the spheres together to form a single mesh.

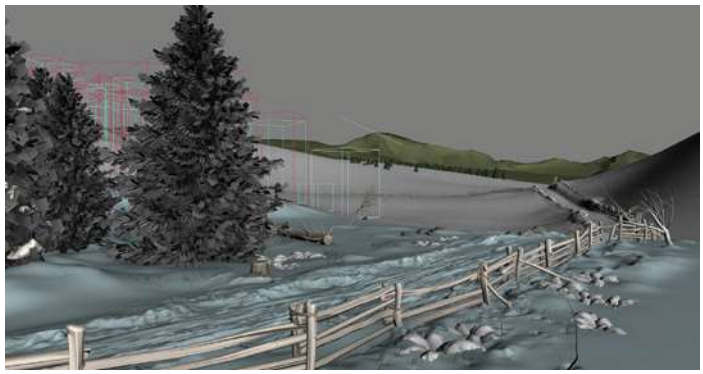
I applied Blobmesh only on the most exposed leaves. I had to find a balance between not enough details and too many. With too much resolution the Blobmesh tends to look like the leaves shape, which is a simple plane with opacity map. Some modifiers like Relax, Turbosmooth and a little bit of noise were also added.

A simplified version of that technique was then used for the smaller vegetation. Most of the small vegetation models were grabbed from older projects. The tall grass was just painted on the ground using the script Advanced Painter. The rocks were very old meshes I did about 10 years ago (it's time to make new and better ones, maybe for future projects). For the snow, I used a Landscape shader, which is a kind of Top\Bottom material but with many more parameters – part of the Lume shaders, and works only with Mental Ray I think. This shader was applied as a mask for the rock/snow material and as a Displacement map. The same technique was used for the fence, with an additional extruded mesh from a selection of, theoretically, the most exposed polygons to the snow.

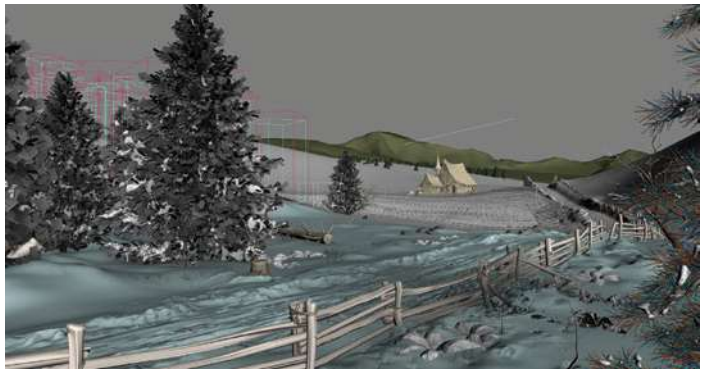
For the mid-ground and background some long grass, custom billboard trees and bushes were scattered around. It's a fast process, but it's worth looking at the reference pictures as much as needed and to try to have a global view of the result at all times to keep the overall consistency.



Very early version. Simple ground and fence modelling to block composition. Temporary vegetation and rock placement (although some rocks made it through the final version).



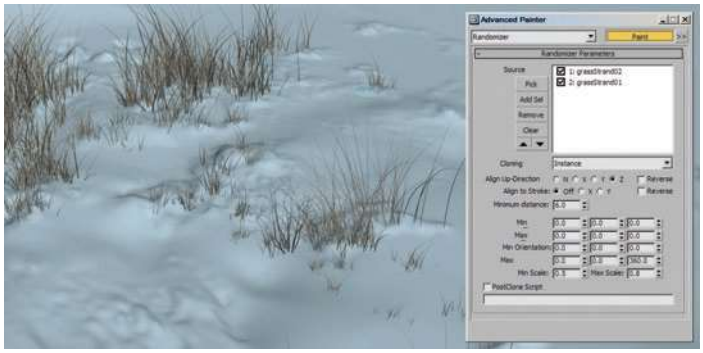
Some trees are placed and the road sculpted with Edit Poly's 'Paint Deformation'. Background mountain added (simple edit poly mesh).



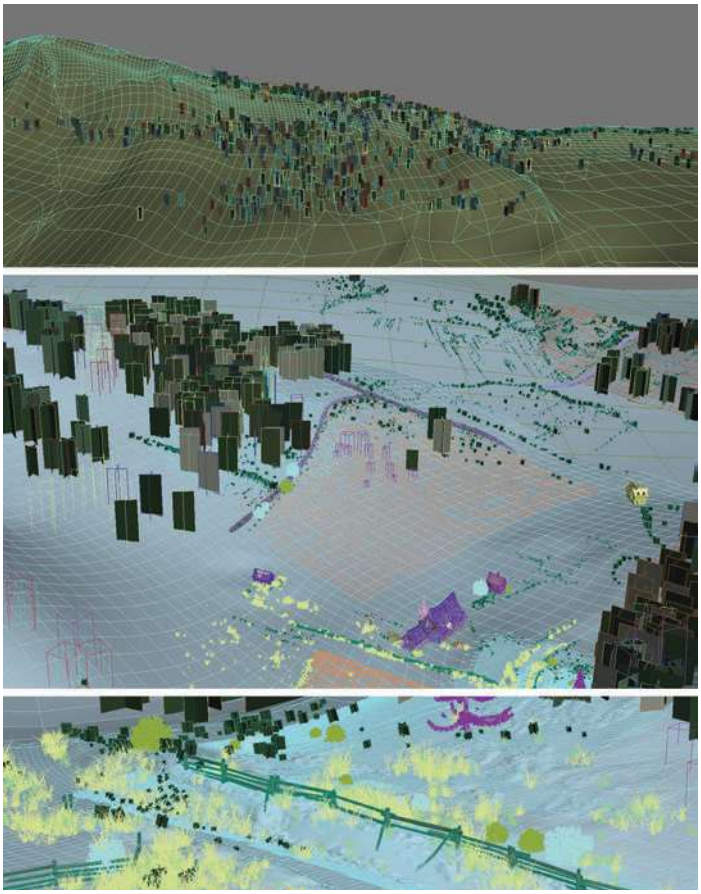
Snow on trees, early version of close-up tree on the right side, mid-ground detailing with farm and displaced plane for the field.

Final fence modelling, billboard trees placement, more rocks and vegetation added. Snow modelling on foreground fence.

Snow on trees, early version of close-up tree on the right side, mid-ground detailing with farm and displaced plane for the field.



Using two basic grass models to paint the grass on the ground. This technique works great for scattered objects. To place millions of instances it's advisable to use a dedicated tool like ForestPack.



Advanced Painter was also used to scatter trees and bushes (actual meshes, but mostly billboard objects for the background).

TOP TIP – HOLD BACK FOR A SECOND!

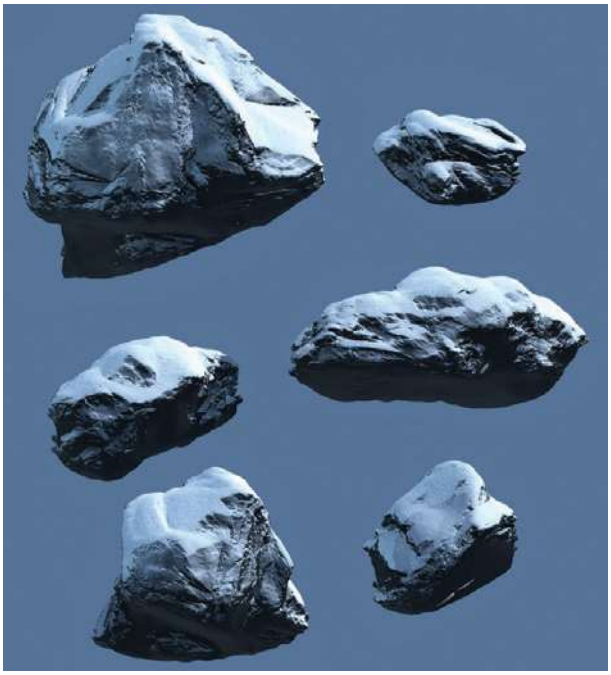
While being a perfectionist is often a requirement to reach a certain level of quality, working for too long on small details can drive you away from the main composition. Always check how your new object or texture fits into the globality of the picture: scale, harmony of colours, meaning, etc.

Only modelling is shown here, without displacement.

Wireframe render. Some areas on the ground are more defined because Mental Ray uses a subdivision technique for displacement. It can take a lot of memory so I prefer to manually subdivide specific areas where I want more details, while keeping low displace settings.

The three distinct parts of the scene. Very convenient to manage level of detail.

Rock models can be rotated in any direction to add variation. The displacement shader always creates a snow layer on top, whatever the orientation of the models.



CREATING THE SNOW AND MATERIALS

The snow material is a simple white standard material. I did some tests using an Arch and Design material with sub-surface scattering, but it increased render time without really improving the look of the snow. In the end I did use A&D materials, but only for objects with opacity maps, as A&D's Cutout works better with Mental Ray than Opacity in the standard material.

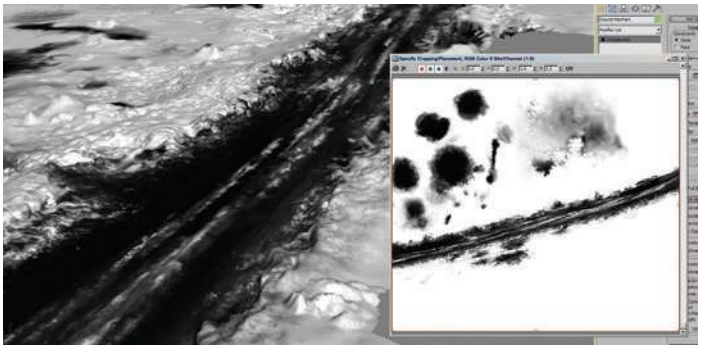
I think with this type of lighting (sunset with a low and relatively dim light), the modelling is more important than the shader to make it look believable. Also, using a simple shader was much easier to manage than a complex one. Indeed, as almost all of the objects had at least one snow material on them but with different maps, they had to look exactly the same.

I was not quite satisfied with the snow covering the pine trees in the foreground. There was clearly a lack of details compared to the scale of the trees. I tried to completely remodel the snow using a new selection of leaves and some tweaking in the Blobmesh parameters but that didn't work out too well. So after testing a couple of possible solutions the best way I found was to use a Landscape shader in the Opacity slot, so when rendering we see only the upper part of the mesh.

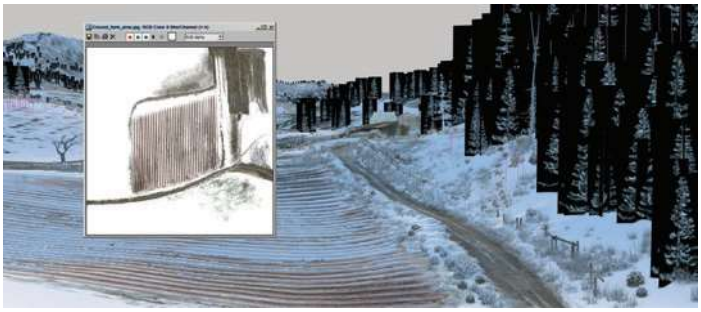
Another trick to simulate a snow layer on the trees was to bake a set of lights placed on top of each source tree using Render To Texture. The resulting black and white maps were used as masks in the leaf materials. These maps could have been used for snow displacement, but I did some tests and it took a bit too long to render.

The map for the field and road in the mid-ground were painted in Photoshop, as something specific was needed for this part of the environment. In the background was a satellite view grabbed from Google Maps and edited in Photoshop for contrast, colour correction, adding and suppressing some details here and there. Same for the mountains in the background, with a different map.

Some of the materials used in the scene. Most are very simple standard materials with hand-painted textures. No fancy reflections or sub-surface scattering were needed.



Some of the materials used in the scene. Most are very simple standard materials with hand-painted textures. No fancy reflections or sub-surface scattering were needed.



The mid-ground part of the ground texturing consists of a single diffuse map; no mask used here.

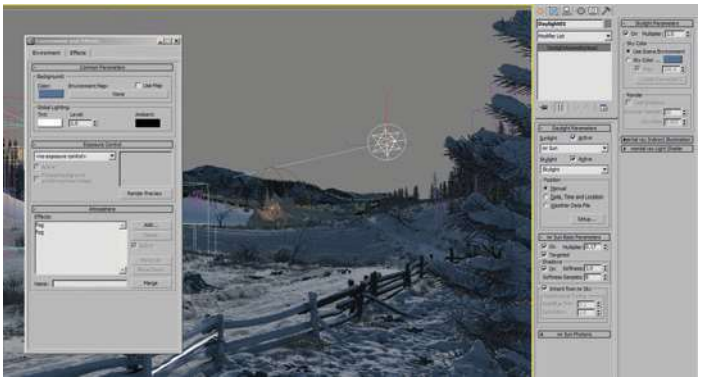
I didn't want heavy snow, so an opacity map helped to remove the excess (using the shader 'Landscape' as a mask).

Final version of the main tree with snow.

APPLYING A LIGHTING SOLUTION

Lighting is a single Mental Ray sun and a plain blue Skylight. I did some test renders with HDRI maps, but wasn't really satisfied with the results. There's also a warm-coloured omni for the farm.

At first I tried to use some photographs for the sky, but none of them really matched what I wanted in terms of cloud shapes, colours and lighting. So I tried with Terragen 2, and after a lot of time experimenting with the many different parameters, I got the desired result. I could have painted it, but it was a good opportunity to test the possibilities of Terragen 2 for skies. It's also much faster that way, but of course you don't get as much control as with a painting. The final sky consists of two 2k renders assembled in Photoshop, as there is no panorama export option in Terragen. I used a wide ratio to adjust it freely into the image composition.

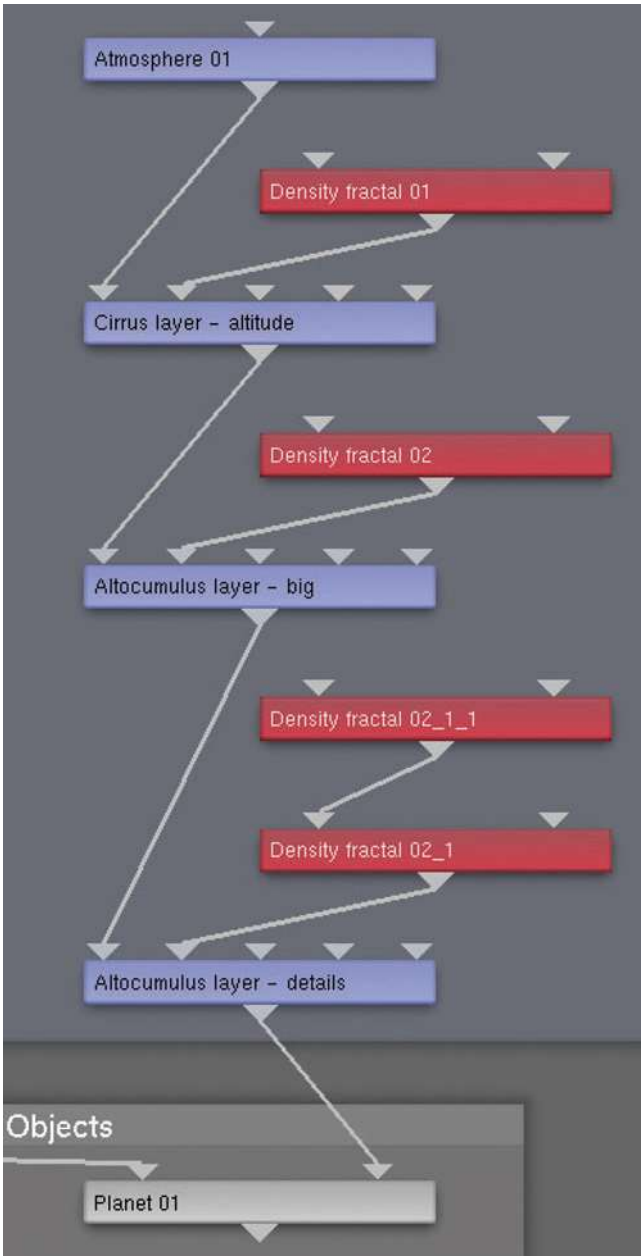


I used a daylight system that combines a sun and skylight. The sun multiplier is set at 0.17 because I wasn't using exposure control or linear workflow.

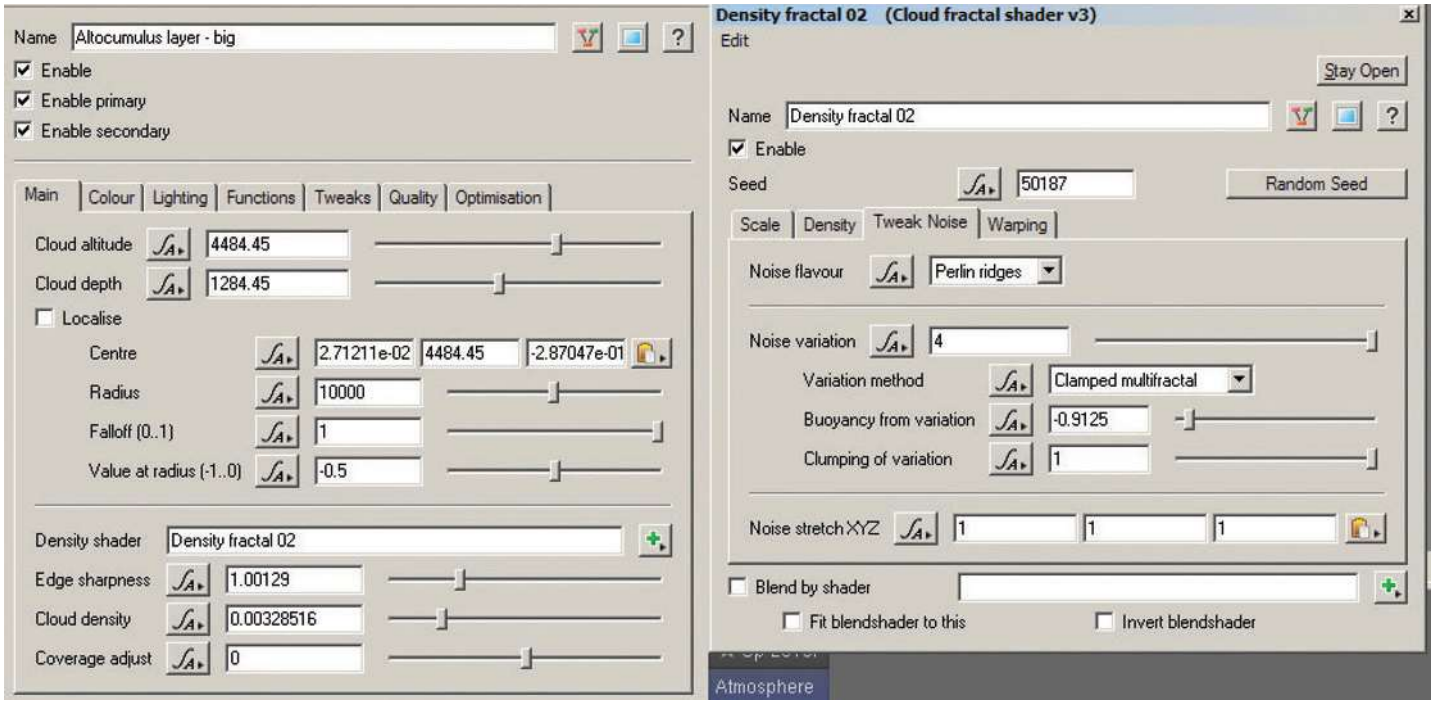
Early version of the sky in Terragen. Placing the sun and tweaking parameters to obtain good looking clouds.

Clouds are almost final, but need some refinement. The tricky part was to tweak parameters without altering the overall shapes.

Final version of the sky, rendered at high quality settings and 2k resolution it took around 10 hours to render.



The three cloud layers with their respective fractal shader nodes, which serve as a base to define the shape of the clouds.



On the left are the basic cloud layer parameters, and on the right the fractal shader parameters. It can be sometimes difficult to understand which parameter does what, so I rely heavily on the preview window.

A very useful preview window. It's a top view of a single cloud layer, with the camera displayed.

RENDERING LAYERS

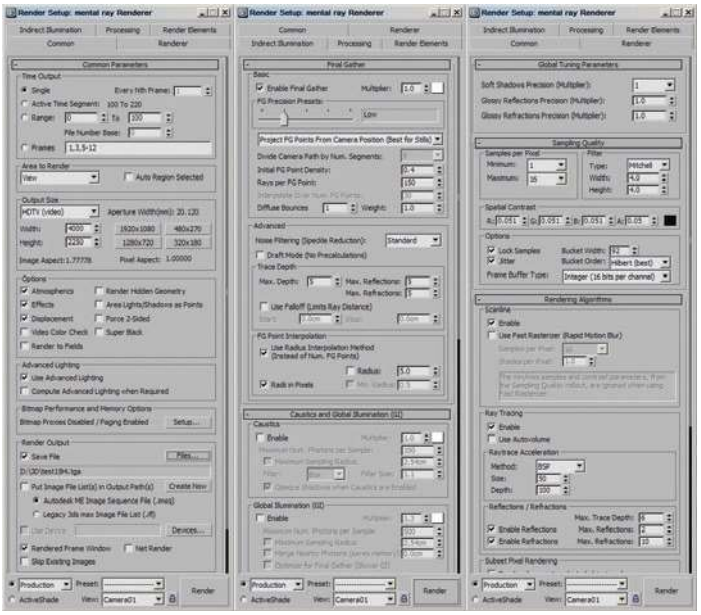
Mental Ray was used for rendering due to the high-quality results. Settings were very basic, Final gather was set to Low, and Use radius interpolation method was checked under Fg point interpolation. That way it rendered relatively fast at 4k resolution – around 7 hours on an Intel Q9550 – while providing good ambient shadow detail.

I wanted to keep the compositing process very simple, so there were only two passes: the beauty pass, which contains everything including the sky, and a distant fog pass, which is used as a layer mask with a blurred version of the sky. Fortunately I had enough memory to render everything at once.

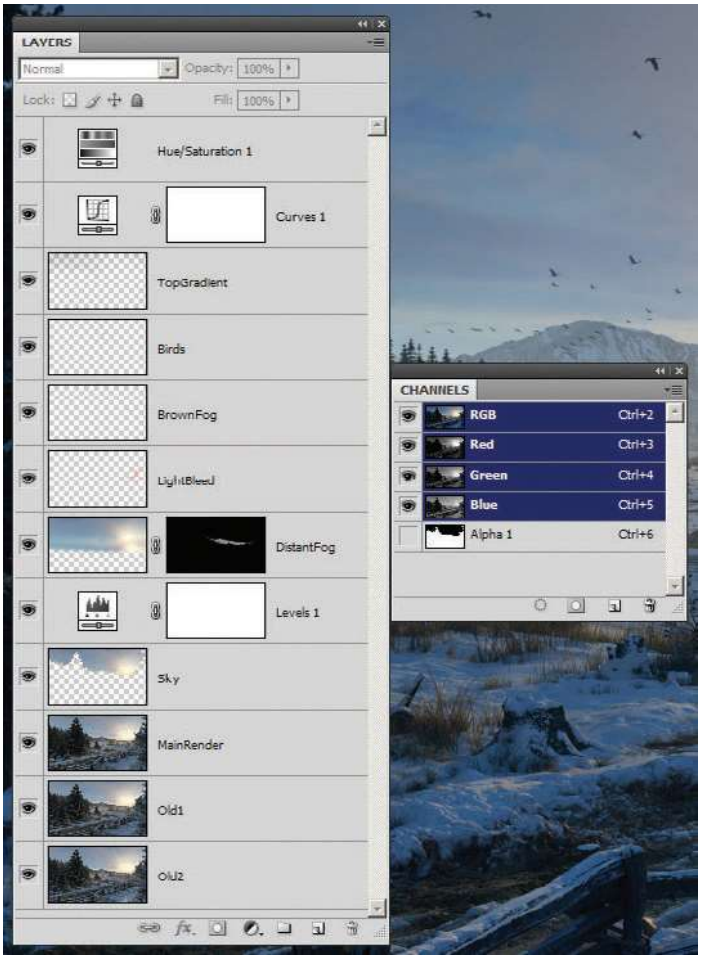
Once the beauty pass was rendered, the scene was updated in Max while starting compositing in Photoshop. From this point I rendered only small regions of what changed and integrated them in the PSD file.

There were also two layers for older versions of the beauty pass – I like to compare the latest version to older ones, so I know if I'm still going in the right direction – and one layer for the birds (cranes), taken from a photograph. I colour-corrected them and changed their position individually for better integration and composition.

Then the beauty pass was painted over to fix some minor issues that would have taken too long to do in 3D. The rest was mainly colour and contrast correction.



These are the parameters I used for final rendering. I also have a preset for draft rendering.



This shows how layers are organised in Photoshop. I did some paint overs directly on the main render, with a copy of the original render for reference and recovery.

Work in progress version with a temporary sky. I like to work on every aspect of the scene from the beginning. Placeholders are helpful to give an overall look of the scene.

I tried several different skies but wasn't really satisfied with any of them. But it was great to see the same scene with different ambient colours and lighting.

This one was close to the atmosphere I was looking for, but to me the sky felt too realistic compared to the rest. At that point I decided to use Terragen to generate the sky.

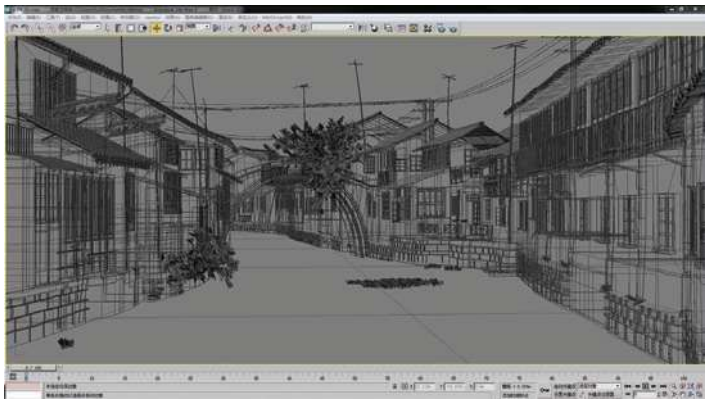
Final version of the image. It's always hard for me to tell when an image is final, since I always find something wrong in it. It's a matter of finding the balance between quality and having a life!

HEADING SOUTH BY OLIVIER VERNAY-KIM

3DS MAX, MENTAL RAY, PHOTOSHOP, TERRAGEN

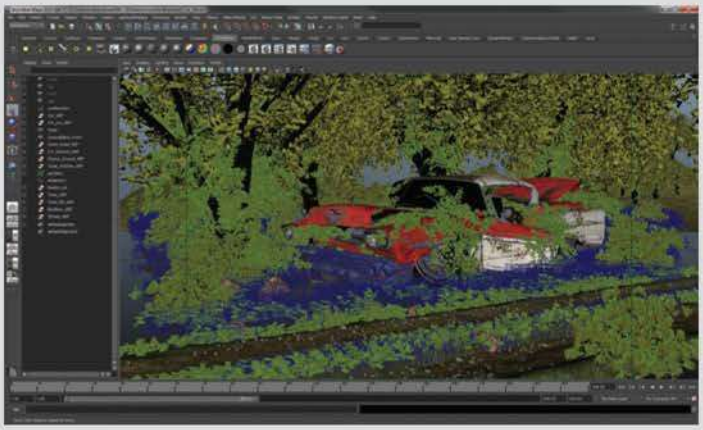
7 HOURS

“The picture was inspired by a place called Wuzhen, somewhere in South China. All along the river used for commerce are old houses in a post-industrial setting. It’s a combination of the old town, where the industry related to the river has moved on, and nature is starting to blend back into the modern setting. These kinds of old building in China have a strong historical and cultural feel and you can almost hear the buildings whispering stories about the past.”



PROJECT	TOWN'S WHISPER
SOFTWARE USED	3DS MAX, MAYA, PHOTOSHOP, V-RAY
RENDERING TIME	20 HOURS
ARTIST	JING WU
COUNTRY	CHINA

I wanted to improve my skills in creating environments. While doing some research I came across some pictures of old car graveyards. That got me inspired to make a tribute to an icon, the Chevrolet Bel Air. I started to create a library with different types of vegetation so I could use these to fill up my scene after I built the car. I rendered out a diffuse, occlusion, depth and a matte for the car pass and composited it in Photoshop. A mini making-of can be found on: http://www.jochemaarts.com/abandoned-bel-air-making-of/



PROJECT	ABANDONED BEL AIR
SOFTWARE USED	MAYA, MUDBOX, RENDERED IN MENTAL RAY, PHOTOSHOP
RENDERING TIME	12 HOURS (DIFFUSE, OCCLUSION, DEPTH AND MATTE PASS). TOTAL TIME FROM START TO FINAL IMAGE WAS ABOUT 7 DAYS
ARTIST	JOCHEM AARTS – REALIZM CREATIVE
COUNTRY	THE NETHERLANDS

THE ABANDONED GAS STATION

Recreate the classic American refuelling stop in the desert as Eugenio Garcia explains how he modelled and textured the scene.

PROJECT	ABANDONED GAS STATION
SOFTWARE USED	LIGHTWAVE3D, PHOTOSHOP
RENDERING TIME	3 HOURS
ARTIST	EUGENIO GARCIA VILLARREAL
YOUR COUNTRY	MEXICO

ABANDONED GAS STATION BY EUGENIO GARCIA

THE STORY OF THE STATION

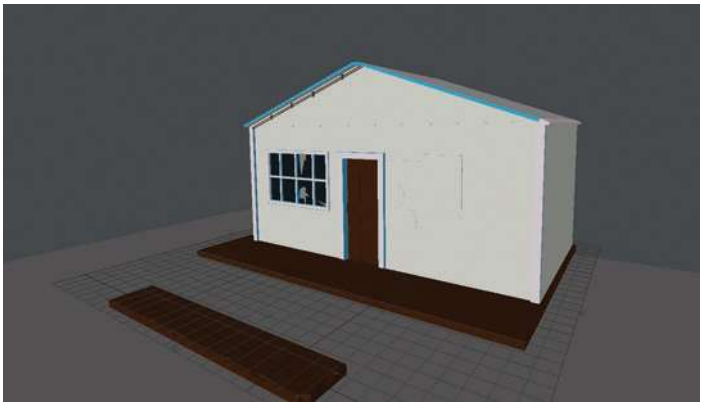
In the 1950s the booming west coast of America was mainly accessible by road, and along those dusty highways sat the eponymous gas station. These gas stations provided fuel and refreshment for travellers and often were accompanied by diners and motels. Out in the desert though, the main function was to keep your car running. As time passed and new highways were built, traffic dwindled on those old roads and the gas stations closed and fell into disrepair. That's the starting point for this image, completed with signs and the colour scheme of the era. One of the ideas I had was to create a complete 3D scene into which I was going to composite a model from a photoshoot. The first step though was to assemble reference images and plan the layout for the scene.

MODELLING THE PUMPS

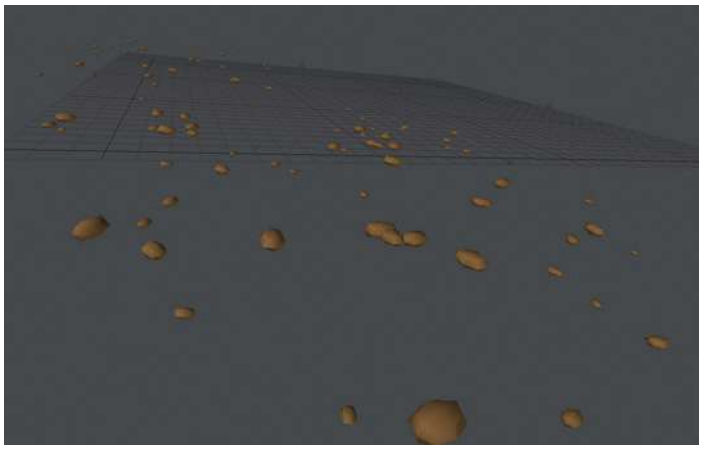
The modelling is basically box shapes for most of the buildings, objects and pumps. The exceptions are the plants, which were either modelled separately or bought in from xfrog. The modelling package used was Lightwave 3D which has a very intuitive system for building objects and then creating the curves and shapes. It also has a very clean and uncluttered interface, especially compared to something like Maya which is just overloaded. With Lightwave you can really just concentrate on creating things.

The gas pumps all started as simple boxes and then, referring to my source photos and images online from the era, the edges were tweaked and manipulated to form the curves and smooth surfaces. The gas station building is the same thing, just on a bigger scale. Here a number of the more interesting tools in Lightwave were used to create the various features. The Knife tool, for example, was used to create the broken window effects while the Multishift, Bevel and Band Saw Pro tools helped shape the outline. The rest of the objects were virtually all created in Lightwave separately and then added to the scene. The only one that wasn't is the skull, which was created in Zbrush. All the objects were modelled first, using the reference materials. During the process I decided I needed more details so simply looked online for more photo references. Once everything was completed, only then did I start actually putting the composition together. This was then just a matter of arranging them to form an effective composition.

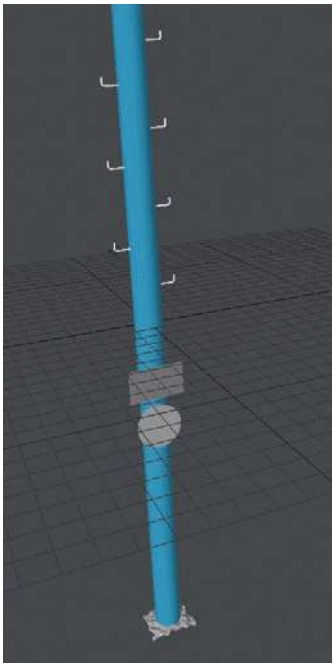
The most important objects to model were the gas station pumps as these are a focal point in the image.



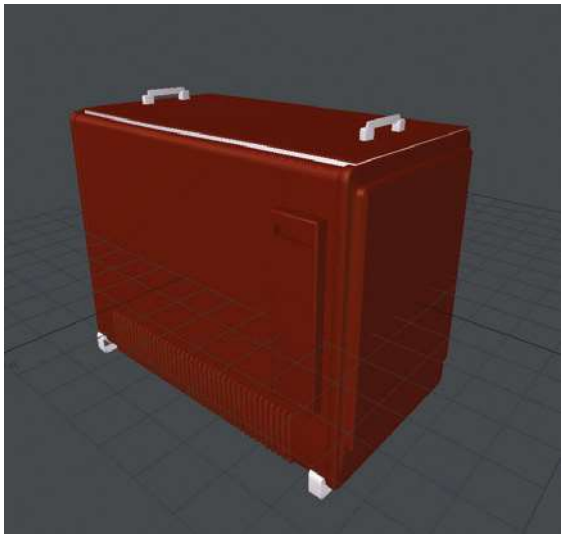
The station itself is quite a simple box shape with some windows and a doorway. The Knife tool was used on the windows.



Here there are some rocks scattered across the scene which form part of the foreground decay.

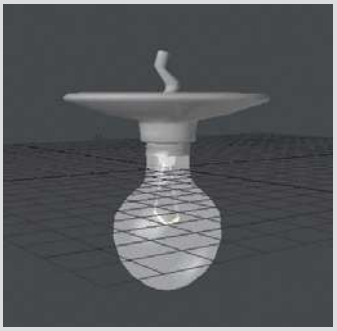


A telegraph pole with some hooks in it is simply a tube-based model.

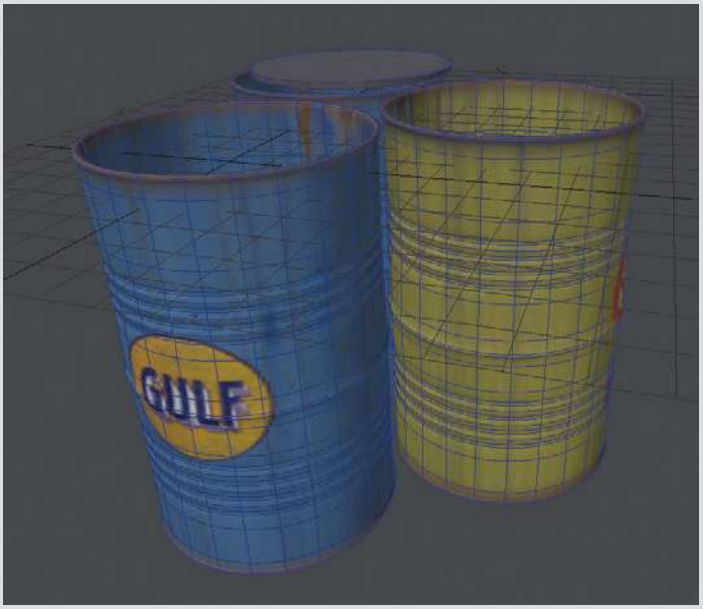


This funny-looking box is actually the cooler for bottles of Coke. The shape itself was quite quick to create.

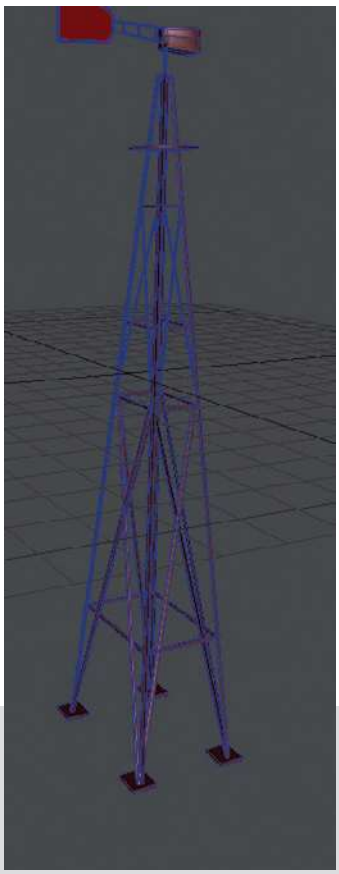
No gas station front is complete without a chair for the proprietor to sit in.



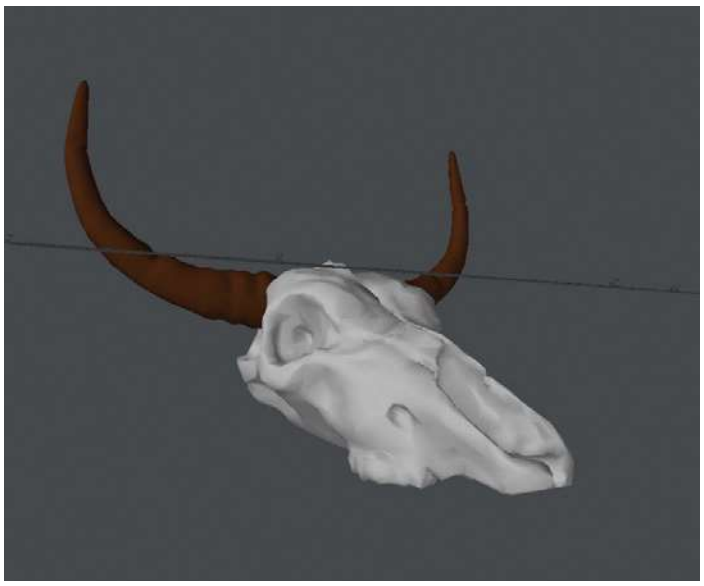
One of the light fittings in the station. They were modelled after those seen in the source photos.



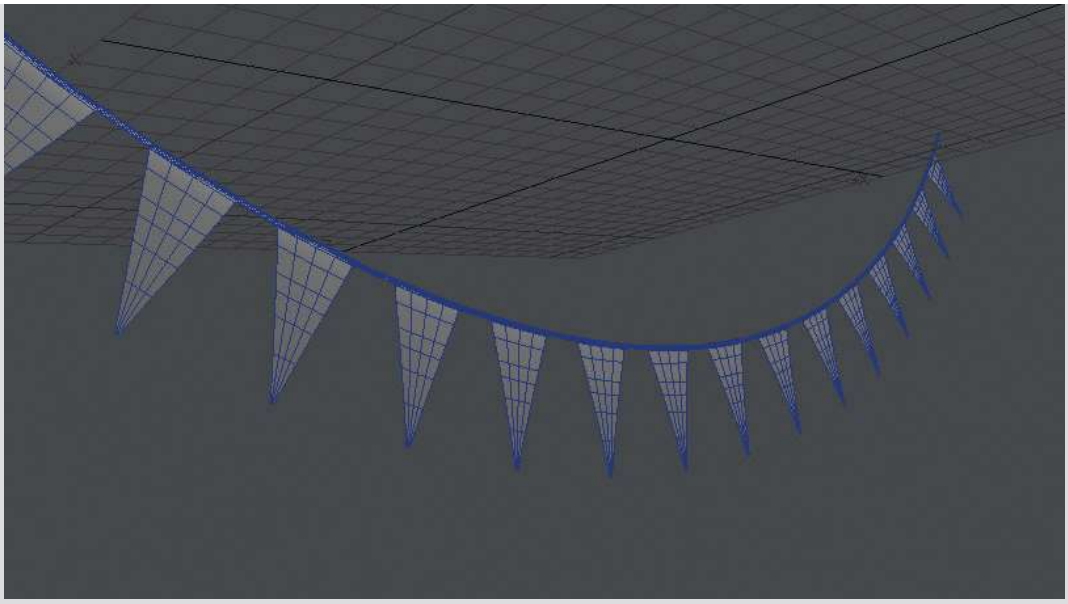
Barrels of oil are simple tube shapes with some extra ridging to form the banding.



You know it's old and abandoned out in the desert when you have a rusty old weather vane flapping about.



The only thing not modelled in Lightwave was this steer's skull, which was created in Zbrush.



Finally on the modelled object front, a line of old pennants to hang from the telegraph pole.

TOP TIP – HANDLING TOOLS

Lightwave has a lot of tools that you might not think about using but they all have specific purposes and once you know what they all do it can speed up the modelling workflow tremendously. My advice then is to experiment and see what they do so that during your next project you'll suddenly remember a tool that will make that process a lot quicker.

CREATING TEXTURES AND LIGHTS

The key aspect of this project was the weathered textures and also the vintage logos and product signs. Without these, it simply doesn't work. There were two invaluable websites that I used: www.cgtextures.com and www.brandsoftheworld.com. I also used Google images to find vintage logos. The CG Textures site provides some great textures for the dirt and the wood for the gas station itself as well as rusted metal sheets. The Brands of the World website has various logos in .ai format that can be downloaded and used in your projects. Photoshop was used to merge several of the textures together and then those that looked too clean were aged using the Burn and Colour Dodge tools. When the textures were added, all the large models in the scene use basic UV mapping so the textures wrap properly and don't distort.

When it came to shaders for the materials I simply used basic ones and tweaked the preset materials to make them look a little better. There was a displacement map for the ground though to make it look more bumpy and realistic. Over the top of this there's a particle layer using stones and gravel. The Spray Point tool and the Point Clone tools were used in Modeler to add a sprinkling of stones and gravel to give it a more authentic desert feel.

For the lighting there's a basic area light which creates soft shadows. It has an orange colour to give the impression of impending sunset. The second light in the scene is a point light. Perhaps the biggest influence on the scene though comes from a textured environment image which was used to give typical desert colours to the entire scene. This is a simple but effective way to give the right kind of colour ambience to an image.

Here's a basic render of the scene without the textures so you can see all the models clearly.

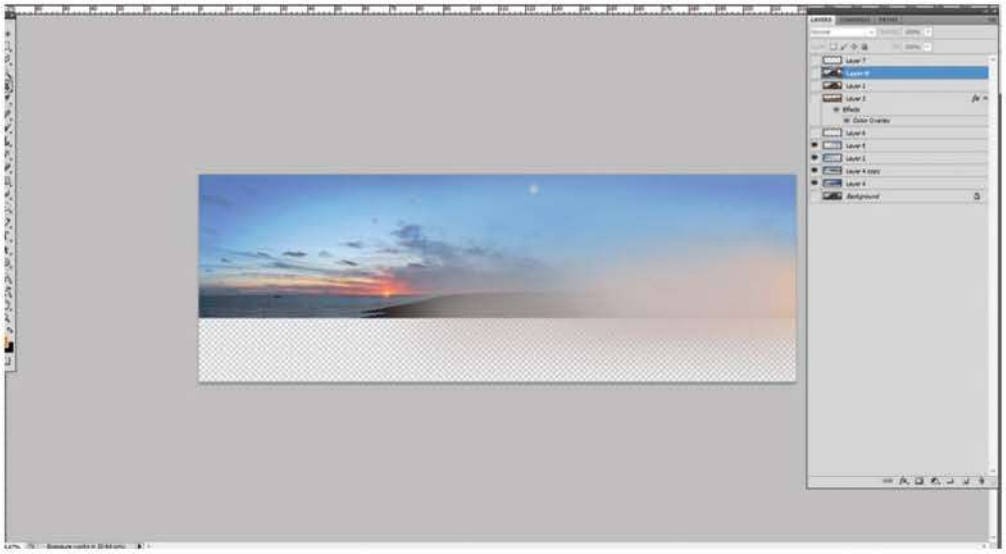
With all the textures added the scene looks much older and more worn. A displacement map made the foreground more uneven.

A close up of the front porch of the gas station. All the logos and product signs are accurate for the period.

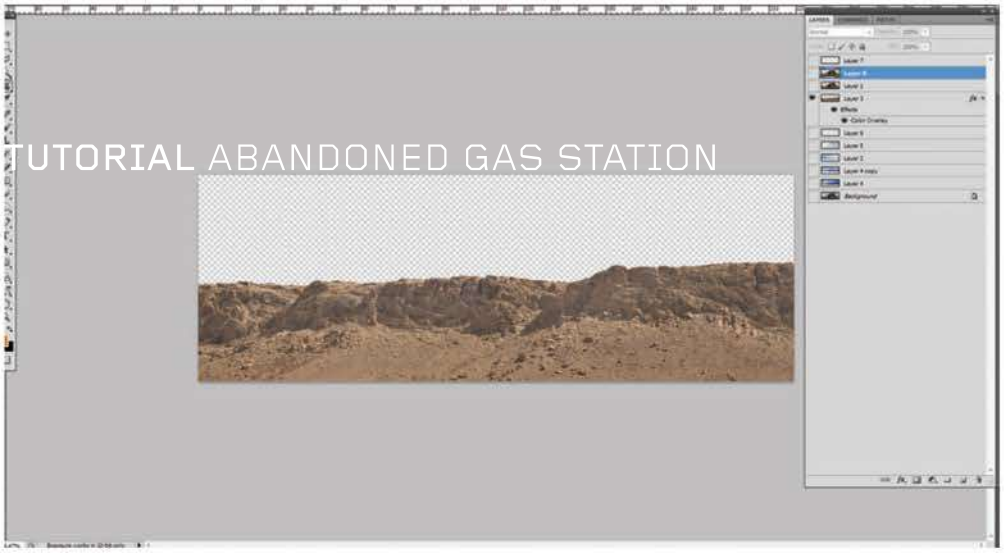
FINAL POLISH AND COMPOSITION

A number of render passes were made and imported into Photoshop, where the colour was corrected. The Levels were then adjusted and some photo filters such as Color Efex Pro were used to give the image more of a period feel. Something straight out of the render engine always looks too clean, regardless of the textures used. All the modelling concerns the fore and mid-ground, there's nothing in the background. The idea here was to use a stock photo of an actual desert mountain range and possibly use a photo of a real sky as well. I normally go to www.cgtextures.com for my background sources. Photo backgrounds add a nice feel to the project and also save time considering you're spending enough of it modelling and texturing everything else. After some looking I found a mountain range scene that fit in with the perspective of the gas station foreground and also had similar light in the sky so that it matched the conditions in the CG world.

Once everything was in place the Dodge and Burn tools in Photoshop were used to provide specular highlights in certain places and add or darken shadows in others. The layers were then merged as I prefer to use as few as possible otherwise projects can simply get bogged down as you try to work out what each one is doing. There was some more retouching with adding spots of light and glow to areas that needed to be brighter. Also the Sharpen brush was used selectively to sharpen up some of the textures. There was around eight hours of post-render work before finally tweaking the colour values and adding some more photo filters to get that slightly washed out and dry look. The entire project took around three days from start to finish and offered a good lesson in using textures. It was a challenge to use the large number of particle elements for stones, bottles, gravel and glass as well as getting some of the details to really stand out sharply.



One of the options was to use a different sky. Here parts of it are being blended into the image.



This is the mountain range that forms the background scenery. As you can see, it excludes the sky.

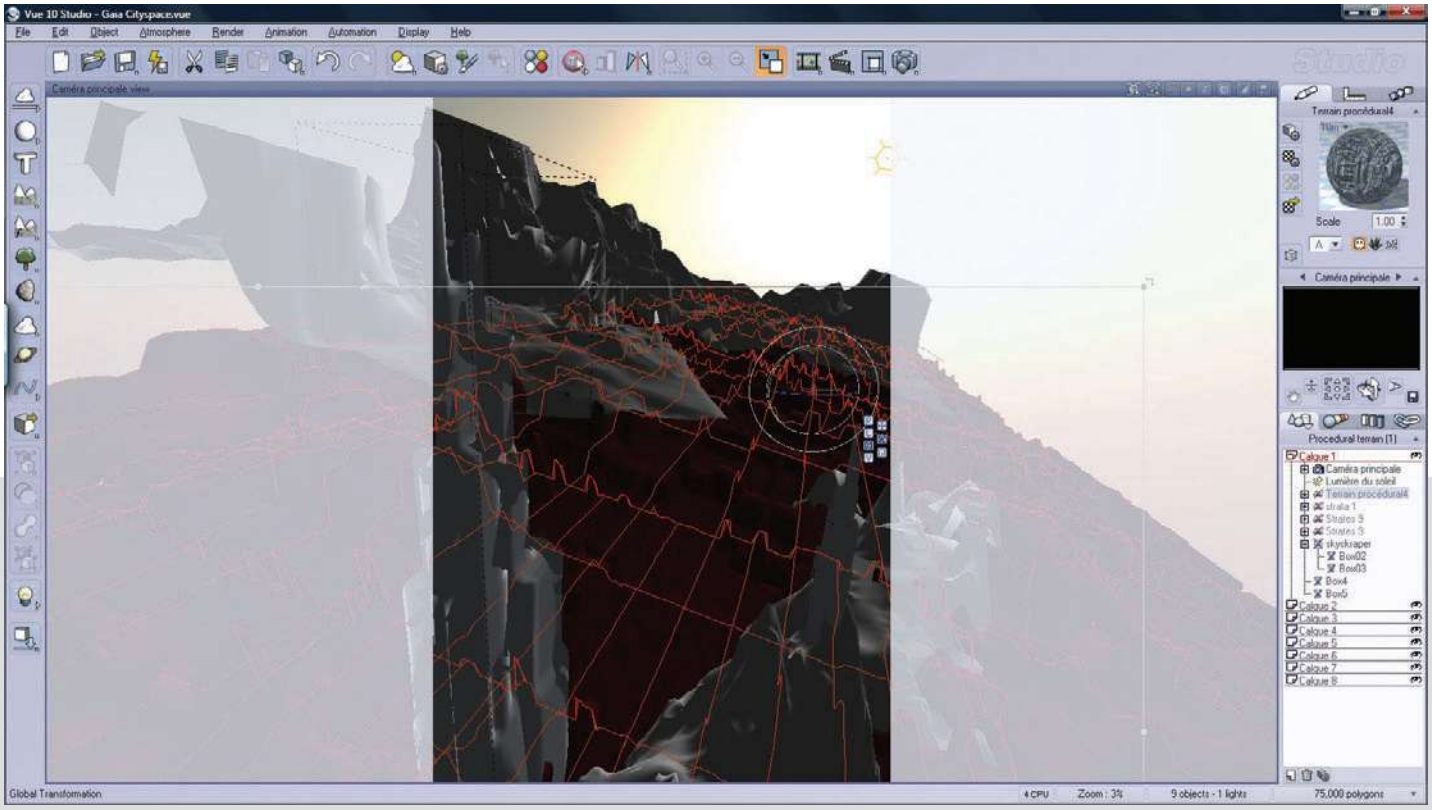
The CG foreground now has the rocky mountain background from the photo added, which suits the scene.

Photoshop was used to sharpen up some of the textures so that they had a little more bite.

ALTERNATIVE VERSION

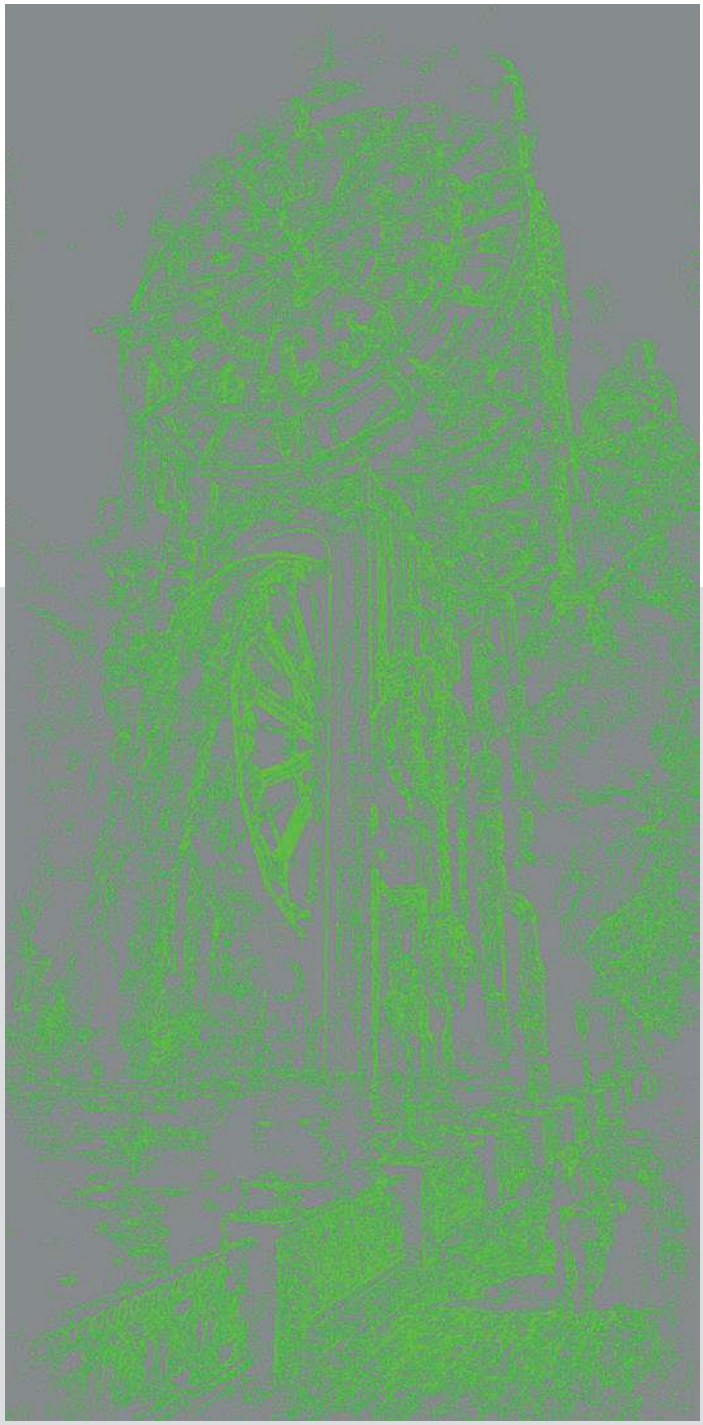
Here's an alternative version of the completed Gas Station, this time using some retro filters and layers to make the colours more faded and washed out, plus adding some print deterioration and a funky edge.

> A piece made for the art collective of The Luminarium. The exhibit theme was Gaia and Nature. Republic fighter inspired by the artist Warren Fu.

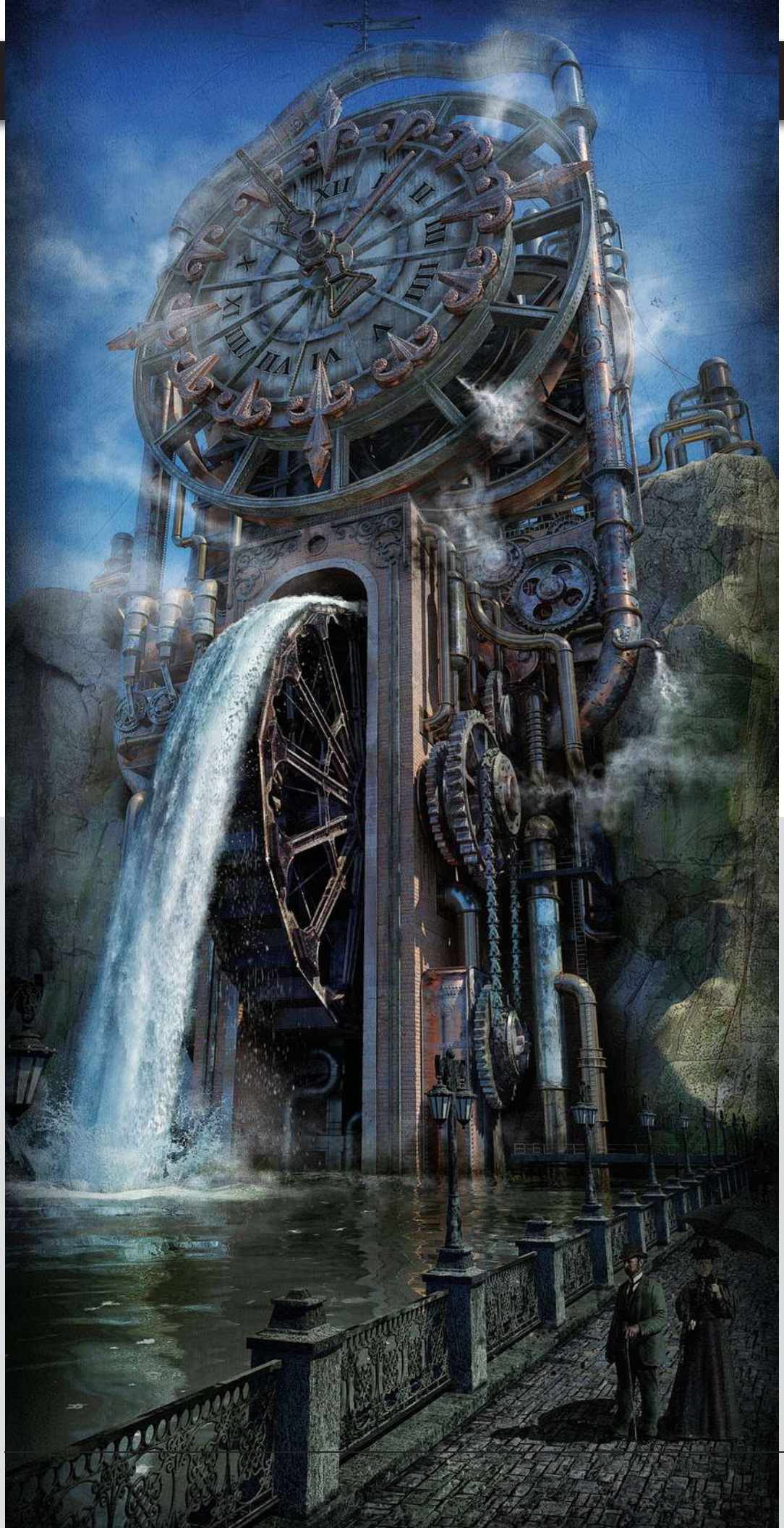


PROJECT	THE VALLEY OF GAIA
SOFTWARE USED	VUE 10, 3DS MAX 2010 AND PHOTOSHOP CS3
RENDERING TIME	AROUND 3–4 HOURS
ARTIST	SEBASTIEN HUE
COUNTRY	FRANCE

I'm a big fan of the Steampunk style and like to draw or create 3D with this kind of flavour. The image here is based around the concepts of the Aquarius Zodiac sign, but done in a Steampunk style. This makes it into a giant waterwheel, driving the mechanisms for a clock. There are a couple of Victorian-era people in the foreground to add a sense of scale. The image also has some painterly filter treatment to add subtle scratches and give it a more aged look rather than the very clean and sharp style of a 3D render.



PROJECT	THE TIME MACHINE
SOFTWARE USED	AUTODESK 3DS MAX
RENDERING TIME	NOT KNOWN
ARTIST	DMITRIY FILIPPOV
COUNTRY	THE RUSSIAN FEDERATION



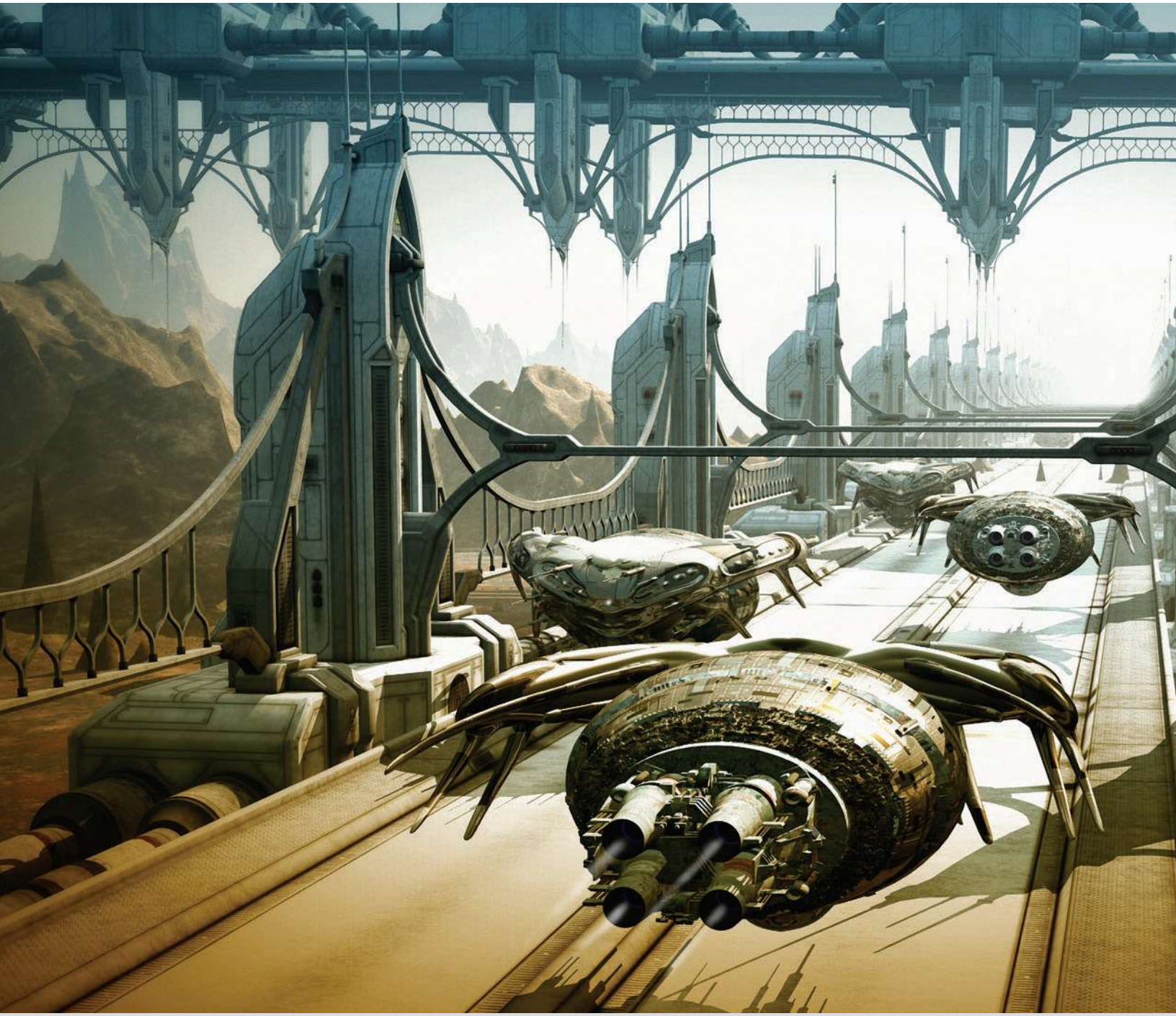
This is my future city works series with the theme of parasitic environments.

First of all, I think, after the deteriorating environment, the city is how the future has turned out. In my mind the future city becomes more and more a deep shade of horror, as if the end of the world is warning us.

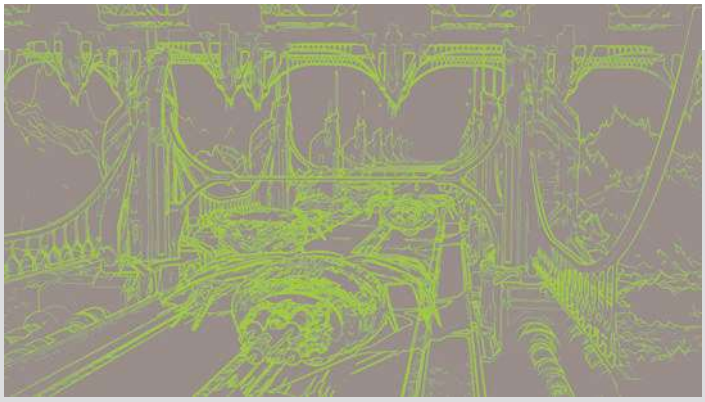
In this series of images, I used cool colours. The first image was called the Biochemistry Crisis – Evolution, the second, Future City – The Way Home. I like the cool colours as they can make me calm down and think clearly.

In this work, I first created three different cities from near to far. I added more details of the construction as it developed. For some of the building concepts I imagined that they were not built by humans. Some are floating in the air and may also belong to alien races with their own spacecrafts. In the distance, volcanoes, lightning and a storm have destroyed homes making the city full of sadness and the human beings question whether they have any hope at all.

PROJECT	FUTURE CITY – PARASITIC
SOFTWARE USED	3DS MAX 2012, PHOTOSHOP CS3, VRAY 2
RENDERING TIME	ABOUT A WEEK
ARTIST	LIANG BO LONG
COUNTRY	CHINA



This image was an experiment in vanishing points and ship building. I created new spacecraft using engines from 3ds spaceship models and blending them with Zbrush objects. I love breaking things apart and mixing them up to create something new. The terrain was basic because it's just a backdrop with lots of mist to dirty it up a bit. It's an old trick of traditional matte painters.



PROJECT	ON DA BUS
SOFTWARE USED	VUE 10 XSTREAM, ZBRUSH 4, PHOTOSHOP
RENDERING TIME	2 HOURS ON AN INTEL QUAD 4 WITH 8GB RAM
ARTIST	SHANE PERRY
COUNTRY	NEW ZEALAND

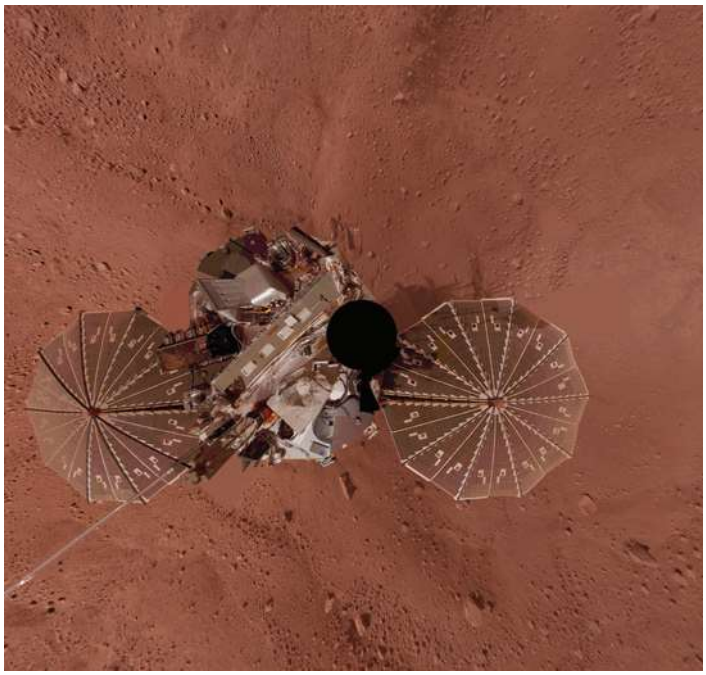
CREATING A SCIENCE FICTION COLONY

Shaun Williams reveals the secrets behind modelling outpost buildings and creating the environment for a desert planet.

SCI-FI INSPIRATION

Final Approach was created for fun and also for a graphic promo. The main aim for the project was to create an Earth-like colony on a desolate, desert planet. I had seen various Sci-Fi worlds and colony concepts in films, games and artwork and decided to do mine a little differently. It needed to have lots of buildings, a desert-based surface and a dusty atmosphere. After playing with various strata terrains in Vue I set out to make a realistic-looking environment that could be used for an animation as well. I had modelled many assets and was armed with a variety of colony bases and ships that could be used in the scene. Final Approach was set in the CDF (Colonial Defence Force) universe and this piece featured the Sirrus 3 Colony. The artwork was developed as a promotion of the CDF fleet and website which features the wiki about the CDF universe.

Typical dusty environment with rocky formations found in deserts that would be inspiration for the image.



The NASA Phoenix Lander on the surface of Mars showing how rocky and coloured the surface is.
Credit: NASA/JPL-Caltech/University Arizona/Texas A&M University.

MODELLING THE BASES

I have made many, many models over the years, some of which I have released commercially. This huge stock of assets ranges from space ships to HGV. As with all my models the initial concept is designed first then it is modelled and textured. The style used for the Sci-Fi models is unique, with a very detailed and practically designed craft. My ships are inspired by all Sci-Fi such as *Star Wars*, *Star Trek*, *Babylon 5*, *Stargate*, *Battlestar Galactica*, *Aliens*, *Event Horizon* and so on. I take elements which work well together and model my ships like the 80s-style models which are packed full of detail the closer you get. The ships have many features such as docking bays, satellite dishes, antennas, gun turrets, vents, escape pods and numerous other details. The Colonial Defence Force fleet I have modelled is comprised of over 20 ships and has specific ships for specialist roles such as frigates, carriers, destroyers, drop ships, fighters, transports and so on.

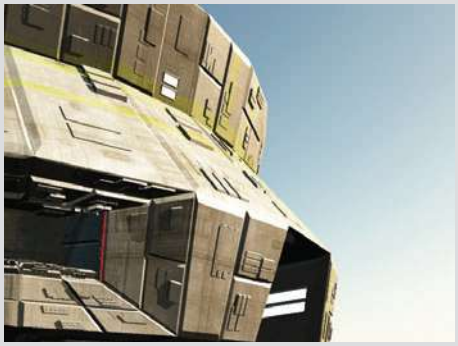
Although I've used many different software packages for modelling and 2D over the past 20 years, over the last decade in particular it has been 3ds Max for modelling and Photoshop for textures and general artwork. I have used Vue for a few years now, which I use for its great terrain and realistic environment lighting. Importing my own model assets into Vue has produced some nice results in showing off the colony bases and futuristic environments. When it comes to scenes set in space it's better to use 3ds Max though for the greater modelling ability.

For the Final Approach scene I needed a colony base, or structure, and a small shuttle-type space craft which would be flying towards the base. I also wanted to include a huge base structure for the background to give it some depth. When the scene was nearly finished I decided to add a vehicle and a couple of people to emphasise the scale of the shot. The model I decided to use was my moon base alpha model for the colony structure as it fitted a large landscape well with its modular design and lots of antennas and communications equipment. I used a different main texture on the model to give it a grey, dirty look. The next model was the CDF Shuttle which was used in the foreground. The engines were quite detailed on the CDF Shuttle

and made it ideal for a camera shot from the rear of the craft. I decided to use the Base Omega model as a main base structure because this was one large, tall structure with lots of detail. It emphasised the scale of the scene whilst keeping a similar style to the colony base. After putting the scene together with the terrain and effects I then decided to add the CDF Recon Vehicle and one of my spacemen models to lend some perspective to the scene so the viewer could appreciate the relative scope of the base.

This is a render of the main colony base with all the modules.

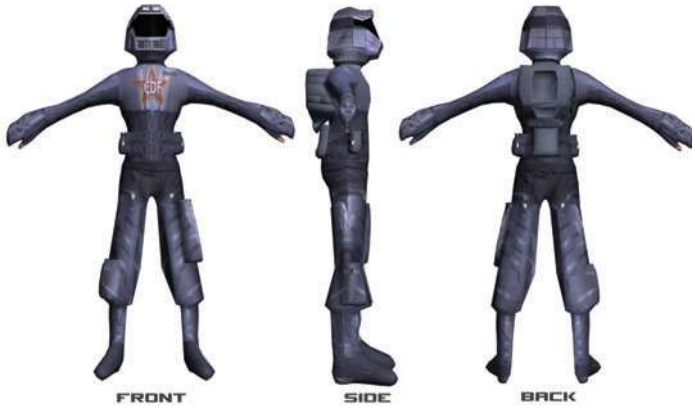
This is a close up render of the main colony hub so you can see more of the detail.



This is a close up render of the Base Omega model that can be seen in the background of the scene.

The front end of the CDF Shuttle; you only see the rear of the craft in the scene. If you look closely at the final image you can see another shuttle on one of the docking pads.

The CDF Recon Vehicle which can be seen at the bottom of the final render.

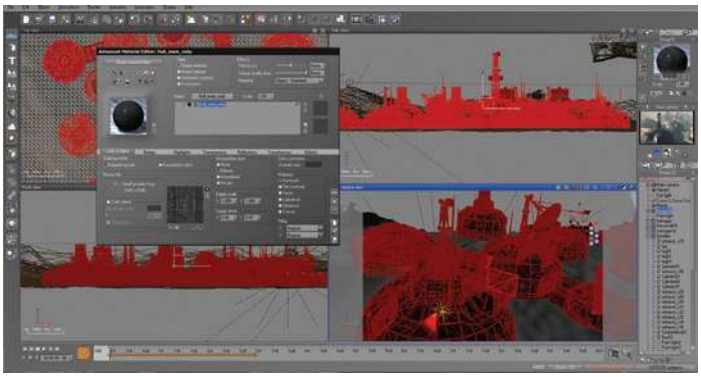


The figure in the image is a very basic, low-poly model of a spaceman I did for a game. As the people are very small in the final render they didn't need to be of high quality.

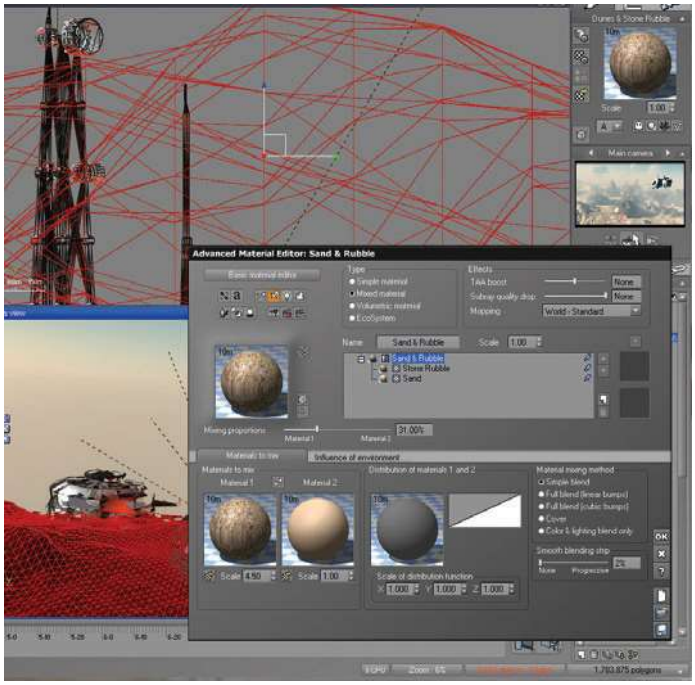
ADDING TEXTURES AND MATERIALS

As with all my models I use and produce my own textures. I use both UV mapping and tiled procedural mapping. The Colony Base was the only model where I changed the texture to make it unique and suitable for the scene. When I import models into Vue I normally set up a new material for each texture or UV on the model to make a metal texture look more like a metal material, make a light texture glow and so on.

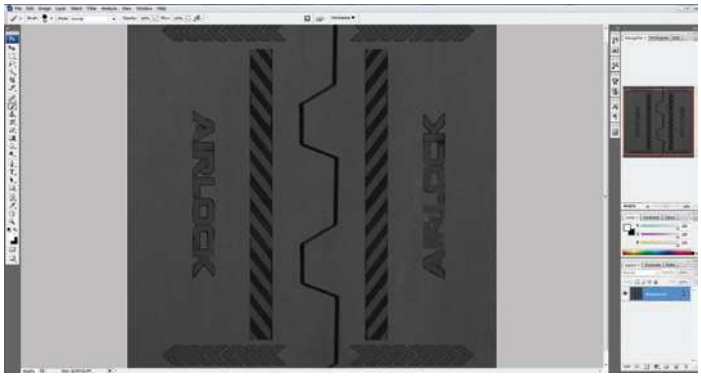
While there are some good stock materials in Vue such as metals, woods, water and so on, I generally make my own materials using the diffuse, spec and bumps maps to give it detail. Some of my textures use a panelled effect, for example, so loading my bump map texture for this slot in Vue's Material Editor enabled some nice looking materials while still using the same texture used for the model. For the terrain itself I used the standard desert texture which comes with Vue as this was ideal for the look of the terrain. Using a strata effect, mixed with a fractal effect, I managed to achieve the right look for mounds and scrapes and paths in the sand. There are no clouds because it was intended to be a dusty planet. Instead a dense spectral fog layer was used, leaving enough open gaps in the sky to make the moons visible. Over 60 textures were used in the materials created for this scene.



A darker material was used for the base to give a little more contrast, as the scene is a bright hazy day.



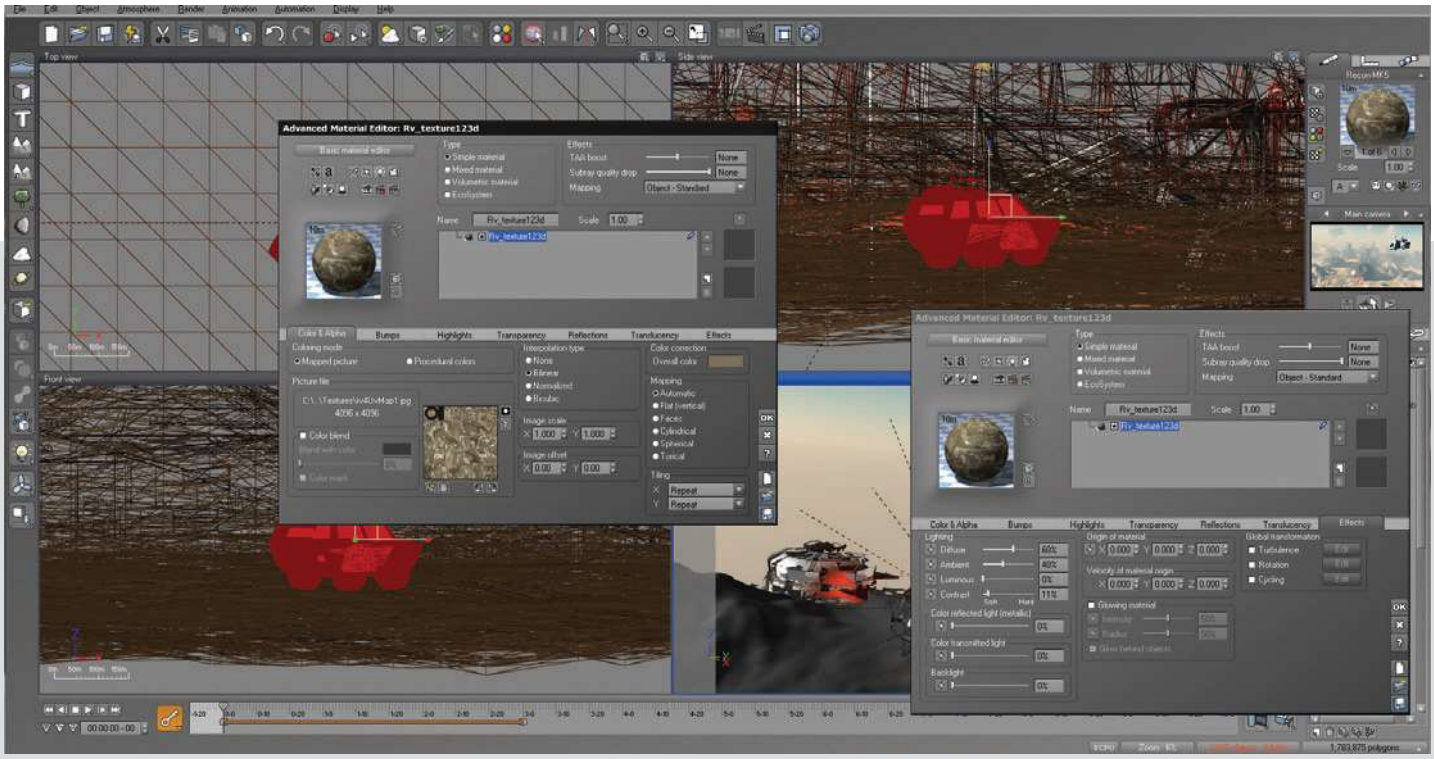
For the terrain, the simple stock sand material was used and a few settings were tweaked.



Photoshop was used for both UV layouts and the tiled textures.

TOP TIP – SIZE OF SCALE

Scale is very important in a scene where large outdoor scenes look better and more believable with a reference to size. Using windows, doors and characters can all give the viewer an indication of how big something is meant to be. In this scene you will notice I have used windows as well characters to give the viewer a clear scale of the shot.



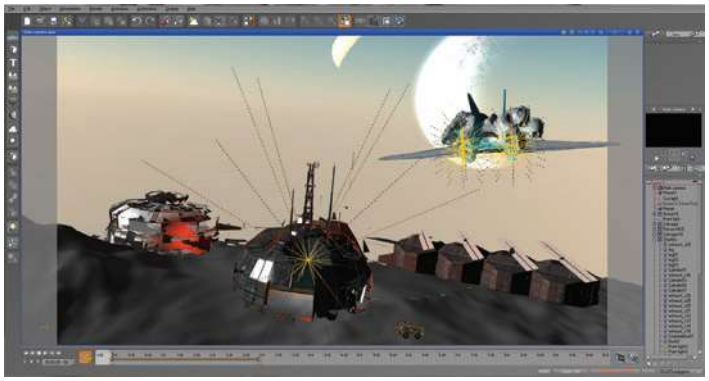
Setting up the textures with the materials in Vue is very simple. A custom texture was imported and tweaked.

LIGHTING THE DESERT

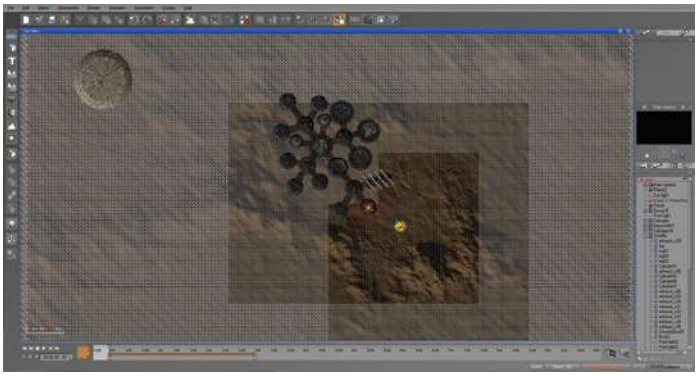
The lighting, as with most renders, is the key to a realistic and successful image. The lighting in this scene was too well lit to show off the terrain and the structures. Because this was an alien desert planet I wanted to keep similar lighting to deserts here on Earth with a dusty and sandy atmosphere. There is one main dominant light in the scene - the sun - that casts all the light. I used a spectral light setting in order to get some lighter and darker areas through the sandy fog effect. As well as the main light I ended up using a few more lights in the scene, the first being several point lights on the engines of the shuttle. Although the actual engine effects were done later in Photoshop I wanted to emit a small amount of light from the engines to illuminate parts of the engines at the rear of the ship. The only other light in the scene was the red light emitting from the garage module of the Colony Base structure.

By adding a small vehicle and a couple of people it made the scene more believable and added scale, as you can see where they have just left the main building.

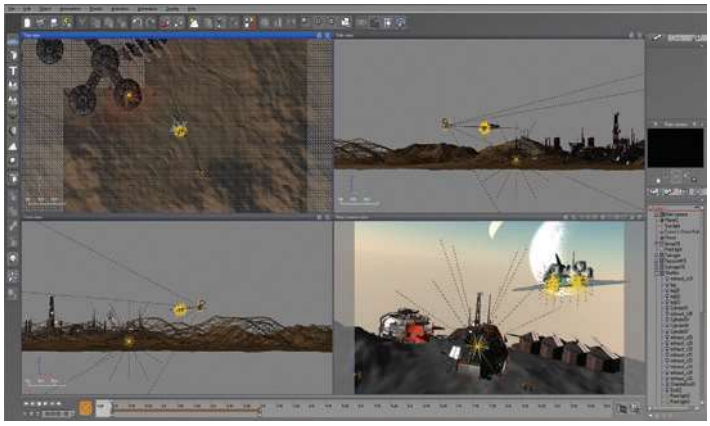
Making the scene with just a single light source can make the image look bland and desaturated, so adding a few different coloured lights helped lift the scene a little. The main lighting was shining from the left of the picture and gave the best overall results. If the light had been in the middle of the shot then all the base structures and shuttle would have been too dark and unnatural. Fill-in lighting would have not produced as good a result. As with all imagery lighting is the key to most scenes, I always try to put a lot of emphasis on the lighting and try and keep it as real as possible.



Numerous point lights were used on the shuttle and in the garage module of the Colony Base.



The main lighting of the scene came from the sun to the left of the camera.



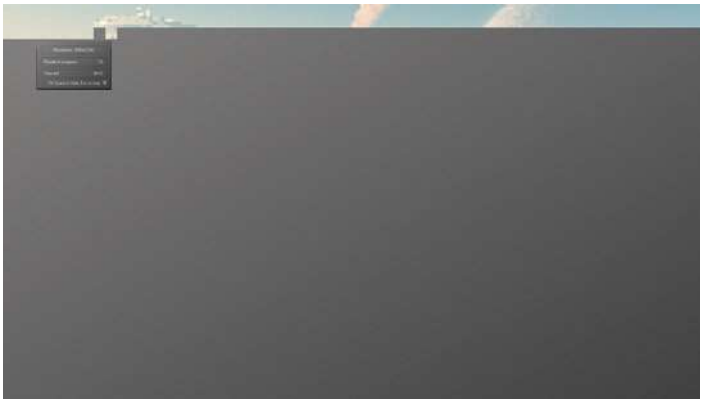
It took a little time to get the lighting just right for the scene with the dusty atmosphere.

TOP TIP – ATMOSPHERE

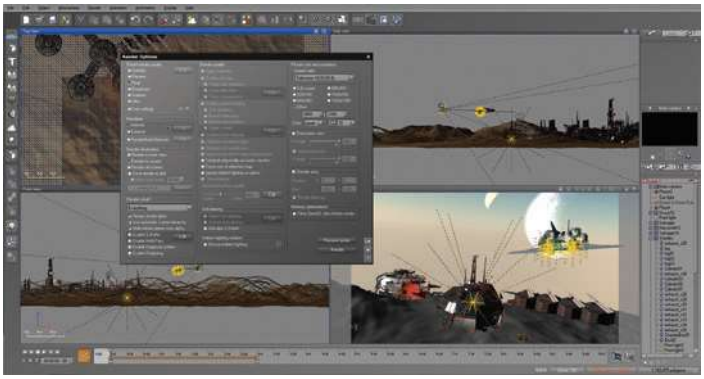
Over the years I have found that giving a scene some atmosphere really helps lift it. If it's a dusty desert type environment like Final Approach then making the air look dusty and sandy makes the scene more believable. If it's raining for, example, make the air moist and thick and add extra gloss to give wet and shiny impression.

RENDERING COMPLEX SCENES

Rendering the final scene was quite a lengthy process. After using the Vue engine to render the scene I found that it was very resource intensive and for high-quality renders could sometimes take days at a high resolution. For a lot of my renders I use 3ds Max and VRay – these are great for interior shots but not as good at large outdoor scenes as Vue. Similar results can be achieved in 3ds Max but it takes a lot more time to get it all right. It is the final result that matters and Vue's excellent lighting and environmental systems made it a great choice for this scene. The preview renders only took minutes but the final renders took six or seven hours. For the final render I used Ultra quality settings mode and a lower resolution and it still took over 14 hours to render. I always do preview renders when building the scene to make sure everything is just right at every stage. As high-quality renders take a long time you only need a preview of how the final render will look.



It took almost 10 minutes to finish a basic preview render. Numerous previews at various stages were required to make sure everything was right with models, lighting, colour and so on.

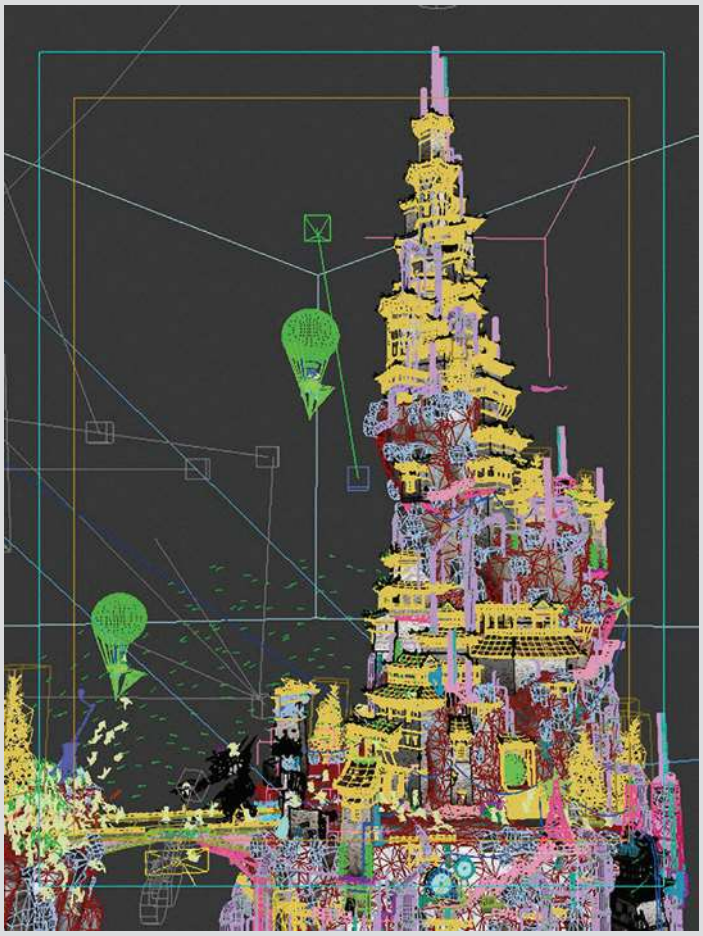


A Final quality setting render was used for the main image render because using the preferred Ultra setting would have taken days.

A final render without any post-production work which added glow to the spaceship exhaust and other tweaks.

PROJECT	FINAL APPROACH
SOFTWARE USED	3DS MAX, PHOTOSHOP, VUE
RENDERING TIME	14 HOURS
ARTIST	SHAUN T. WILLIAMS BA
YOUR COUNTRY	UK

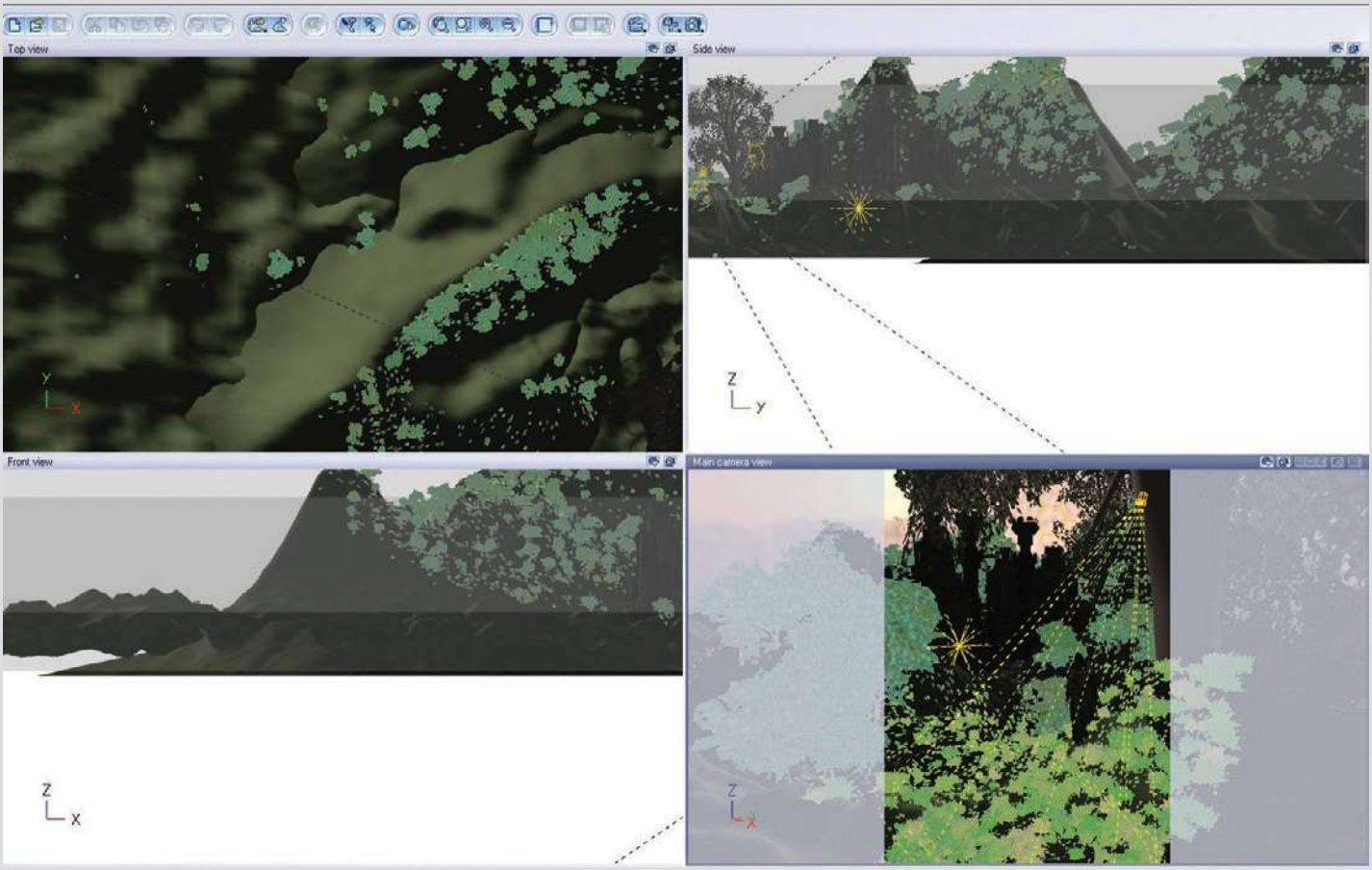
“The background story for the image is that the towers of the Steam Magi are located away from human eyes. These wizards have learned to use ancient technology for their own purposes. But nothing lasts forever and the young, rapidly expanding empire wants to get its hands on this magic. The project was made for a contest on the render.ru website. I decided to create one of the Steam Magi towers and position the strength of the empire against it. This image won first place in the competition.”

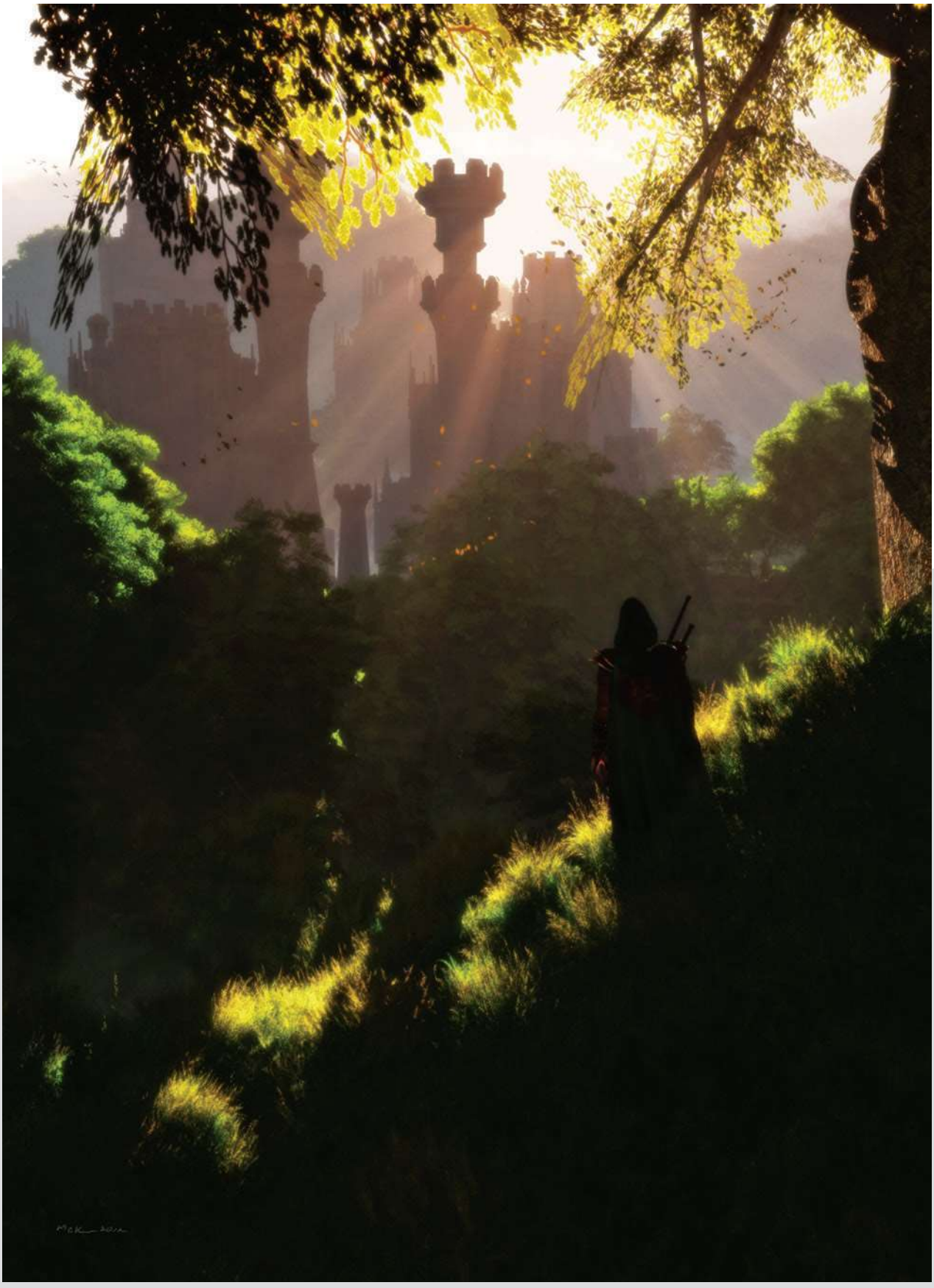


PROJECT	STEAM MAGE TOWER
SOFTWARE USED	DS MAX, PHOTOSHOP, VRAY, ZBRUSH
RENDERING TIME	60–90 MINUTES
ARTIST	ANDREY SEREBRYAKOV
COUNTRY	RUSSIA

> This was a private commission for a book; it's an RPG inspired work. I was after an epic and vast feel, and used lights and shadows heavily to achieve the end result. The lighting also really added to the overall mood and tone of the image itself.

PROJECT	THE HUNTSMAN
SOFTWARE USED	POSERPRO2010, VUE 7.5 PRO STUDIO AND PHOTOSHOP
RENDERING TIME	40 HOURS
ARTIST	MELISSA KRAUSS
COUNTRY	USA





“The Gnome House was inspired by the world of gnomes and elves and a general fantasy feeling. The house is on top of some small rocks for protection for the occupant. The rocks were sculpted in Mudbox while the house was modelled in 3ds Max. Photoshop was used to composite various passes together and also to add the background sky.”

PROJECT	GNOME HOUSE
SOFTWARE USED	3DS MAX, MUDBOX, PHOTOSHOP, VRAY
RENDERING TIME	8 HOURS
ARTIST	RAPHAEL BALDINI
COUNTRY	BRAZIL

> I've always taken inspiration from classic fantasy artists like Ken Kelly or Boris Vallejo and I wanted to do a fantasy scene where you see something that makes you think about the story happening in the image. It was done purely for fun and also to practice in some areas that I haven't touched before.

PROJECT	DRAGON CAVE
SOFTWARE USED	3DS MAX, VRAY, PHOTOSHOP
RENDERING TIME	2 HOURS
ARTIST	RICHARD HOMOLA
COUNTRY	CZECH REPUBLIC

HOW TO CREATE WEATHERED RUINS

Chris Lomaka describes how he created a fantasy castle, eroding away in a cliff-top location.

THE LAST SENTINEL BY CHRIS LOMAKA

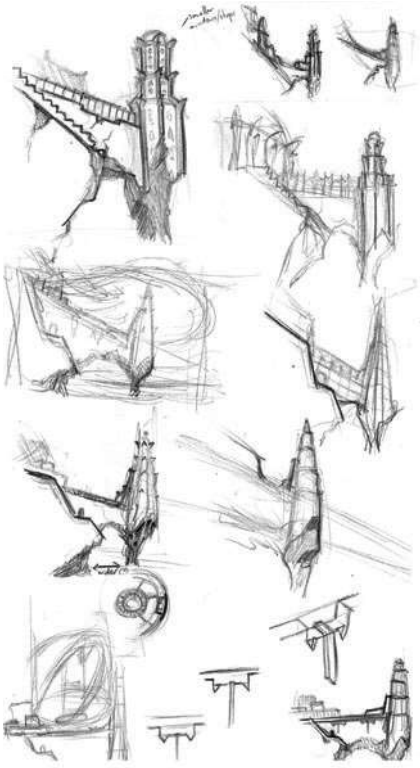
IDEAS FOR THE CASTLE

This piece wound up being a mix of several ideas I've had floating in my head for a while. Part of me wanted to do a *Lord of the Rings* inspired castle in ruins, part of me wanted to do something with the idea of a rock formed into an arch by massive erosion, and part of me had been enjoying doing weathering effects in zBrush, so I wound up combining them all into a piece that made me quite happy.

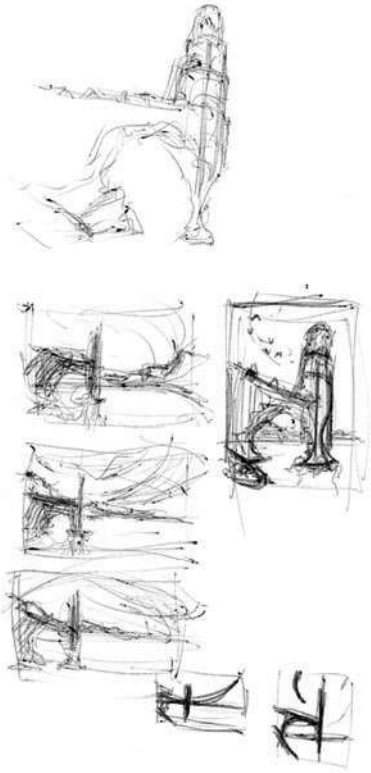
I always try to sketch out at least part of my designs before working on them in 3D. Initially I started with the basic idea of a crumbling tower. I considered having it in a jungle with trees growing out of the top, but I opted for a tower collapsing into the ocean. Then I sketched designs for the tower, with all the fiddly bits around the windows. Then I worked some more on the overall composition of the piece. One great advantage of knowing what the final image will look like is that I can know all the stuff I can ignore because it will never be seen. I didn't need to waste energy designing a door into the tower because I knew it wouldn't show up from where I would be placing my camera.

A typical castle in an elevated position. The idea was to incorporate ruins into a dramatic location.

PROJECT	THE LAST SENTINEL
SOFTWARE USED	STUDIO MAX, LIGHTWAVE, ZBRUSH, PHOTOSHOP
RENDERING TIME	8 HOURS
ARTIST	CHRIS LOMAKA
YOUR COUNTRY	USA



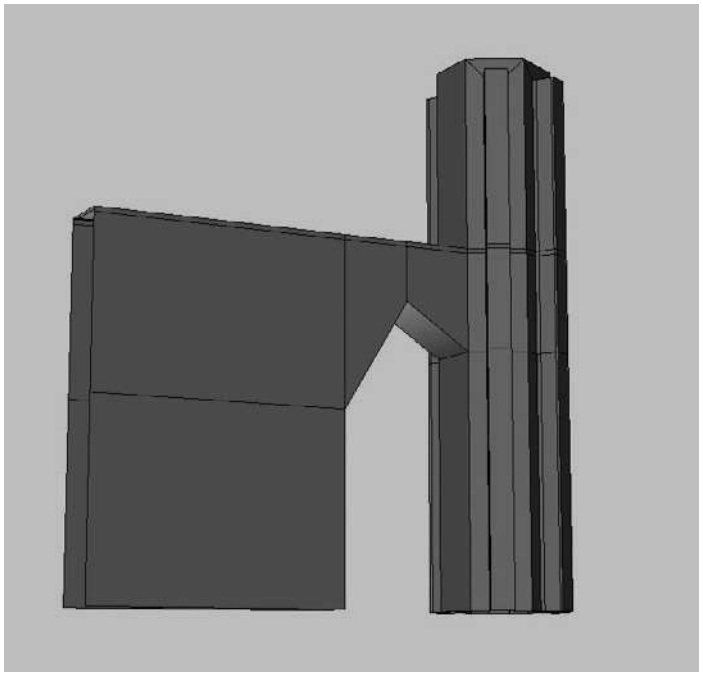
Early sketches exploring silhouettes, wall details, and even a staircase.



Compositional sketches for figuring out the flow. At the bottom are two super-simplified sketches of the major lines for both vertical and horizontal orientations. These helped me know where to add birds, mountains and clouds.

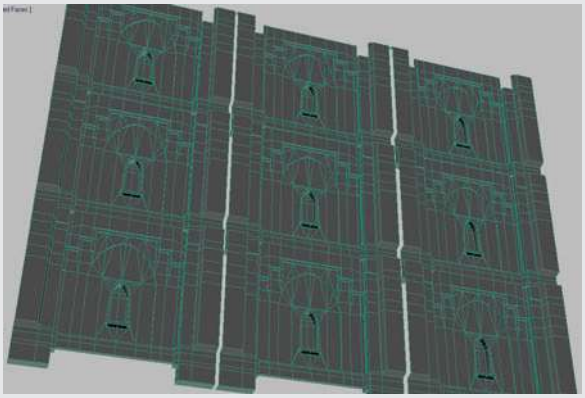
CREATING THE CASTLE

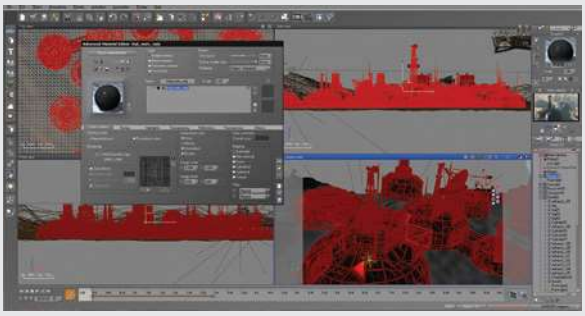
Now that I had a pretty good idea of what I was making, it was time to create some actual geometry. I chose to model in Max simply because that was what I was using at work at that time. After a couple of false starts where I worked on a single wall piece only to discover that the scale wasn't right when I bent it into a cylinder, I made a really basic shape defining the shape of the wall and the size of the tower and buttresses. This was good for two reasons: first it let me quickly test whatever piece I was modelling and see how it fitted into the whole; and second it was something I could take into zBrush (when I was getting frustrated with my designs) and play around with, knowing that in the end it would be productive because everything was getting built around this basic shape.



The base shape used for size and proportion reference, and brought into zBrush for detailing.

Once the rough shape of the tower was established I began working on the walls. With a whole wall of instanced wall sections I was able to design the join between floors to gracefully interlock. The gaps on the left and right sides are where the buttresses were to go. Once happy with the design, I put a bend modifier on them and stuck them into place around the base shape. After enough of the model had been built up, the locations for the tiers was decided and a quick roof and dome were added. The same process was used for the buttresses and the wall decorations.

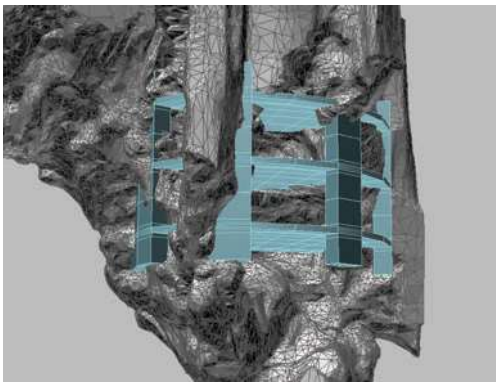
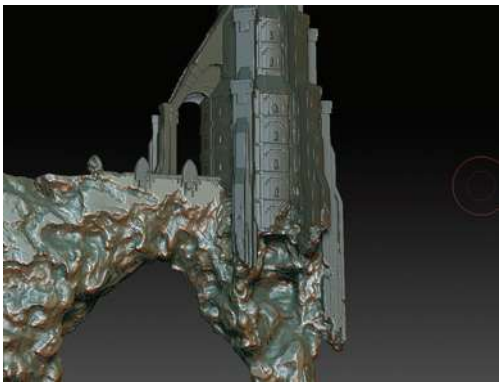




The evolution of a single wall section into a whole tower. The tower was gradually was formed from the modelled walls.

To prepare for bringing everything into zBrush, I had to decide what parts were going to need erosion and what were not. Everything that didn't need work (like that back flying buttress) got exported as one piece, and everything else got exported in logical groups (all the walls as one piece, the buttresses as another, etc.). Bringing them into zBrush as separate subtools made things a little easier on my computer and let me get into some of those tight corners.

Eventually I decided that I wasn't happy with the resolution of the detail in the floors exposed by crumbled rock so I brushed it out of the subtool, went into Max to construct new floor pieces, and brought them into my zBrush project as a new subtool.

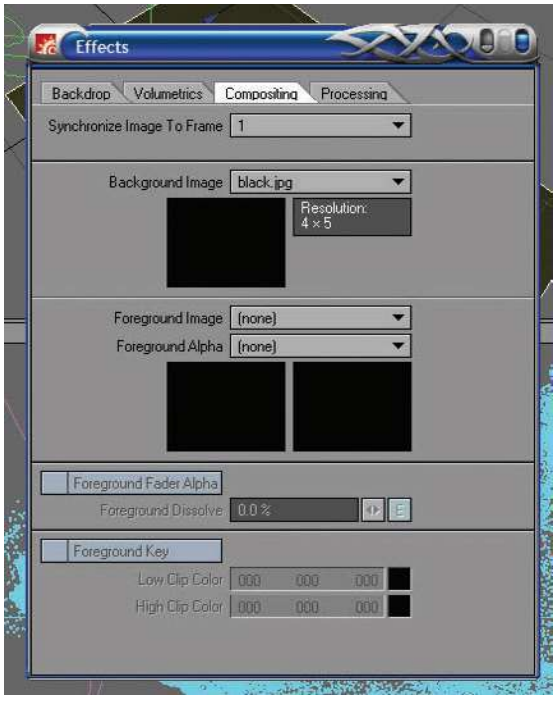
The erosion was going pretty well on the main piece, except for the exposed floors, so a new subtool was made with just the exposed floors.

A new subtool was created for each new piece needed – the various debris in the water, the wall section broken off, and a small rocky chunk to be used later to add detail to the silhouette (and cover up spots I didn't like). When everything was done, each piece was decimated down a little and exported out.

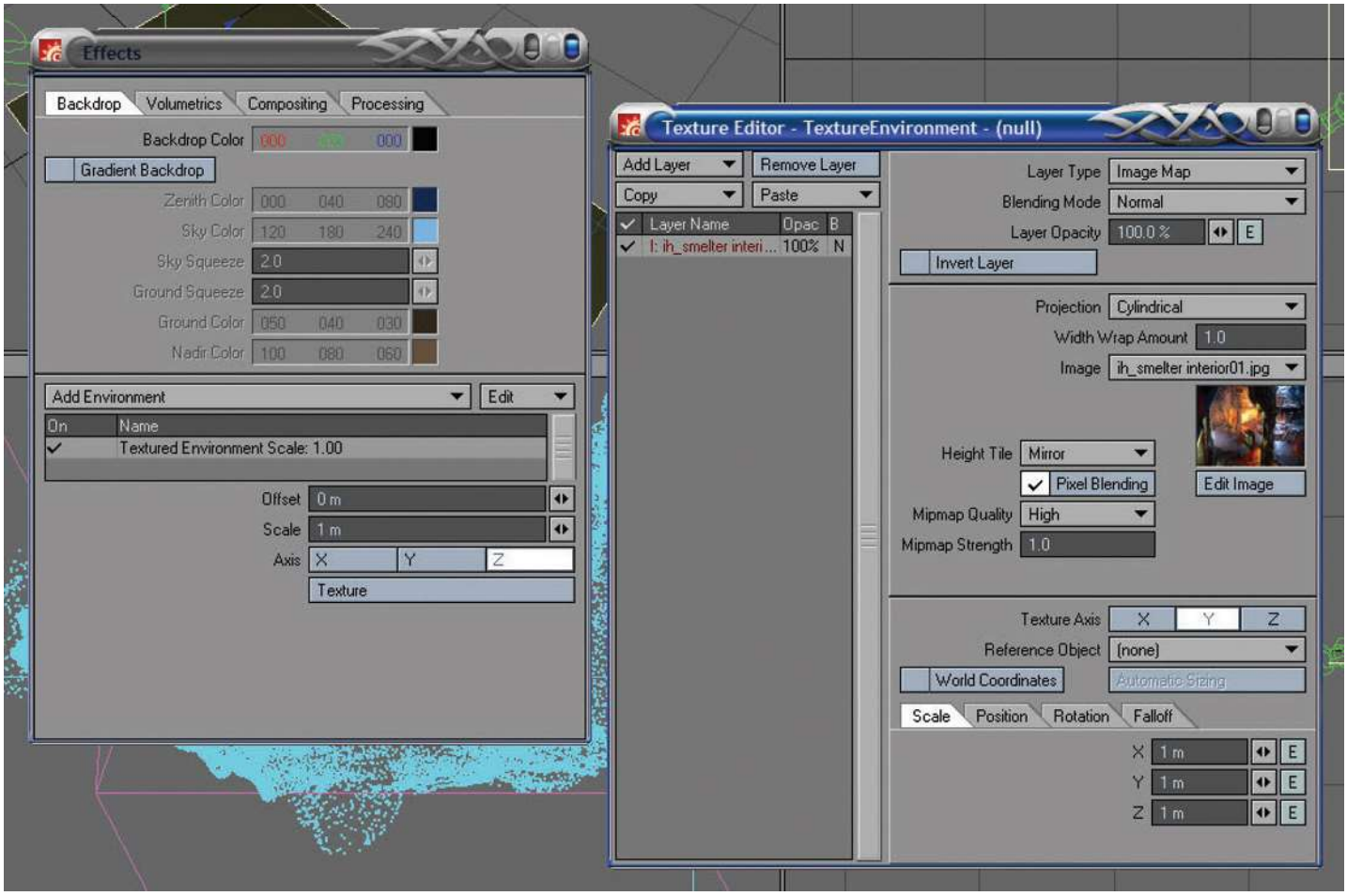
INITIAL RENDERED ELEMENTS

All the pieces were brought into Lightwave for rendering. Placing the camera was pretty simple since I knew what view I was going for from the start. Then the placement of all the ruins was tweaked – adjusting a piece's angle here, duplicating a part and placing it on the other side, things like that. A fair amount of the shoreline is composed of pieces of ruins that were duplicated and strategically placed.

Rendering with Global Illumination can take a while, so before the textures started to be added, which would make the render much slower, all the materials were made of a simple medium grey so I could concentrate on the lighting. Since I knew that whatever image I used for global illumination would probably not be what I wanted appearing in the background of the final image, I went to the compositing options and loaded a black image. That way the lighting on just the model could be evaluated without me getting distracted by seeing the image that is doing the lighting.



In the backdrop settings a textured environment was added and some images were loaded up to give potentially interesting lighting. These could be any kind of image, I was mostly looking for one that had a good contrast of light and dark and a variety of cool and warm colours.



Loading an image Global illumination in the backdrop options.

I turned on Global Illumination with some really low settings and did some quick renders at a really low resolution. This let me quickly evaluate whether the image would work or not, and I quickly tossed out most of the images I tried. I settled on one that was dark with one light spot with warm colours surrounded by a dim area with cool colours. This gave me a render that felt a little like the beginning of a sunset with warm light all over and blues creeping into the shadows. Once I decided on the global lighting, I added an area light about where the sun would be so that I could get some nice shadows.

TOP TIP – MODEL WITH INSTANCES

It's important to use instances/clones to quickly and easily see how changes affect the overall feel. Changes made to one piece will also be reflected in all the instances. This also means that you only have to do UVs for one piece.

TOP TIP – REMEMBER THE VIEW

Check your work often from close to the angle you expect it to be rendered from. It's easy to get carried away detailing things from the best view to work from, only to discover that an area is going to be hidden from view or that your work just doesn't look quite right from the point of view of the final piece.

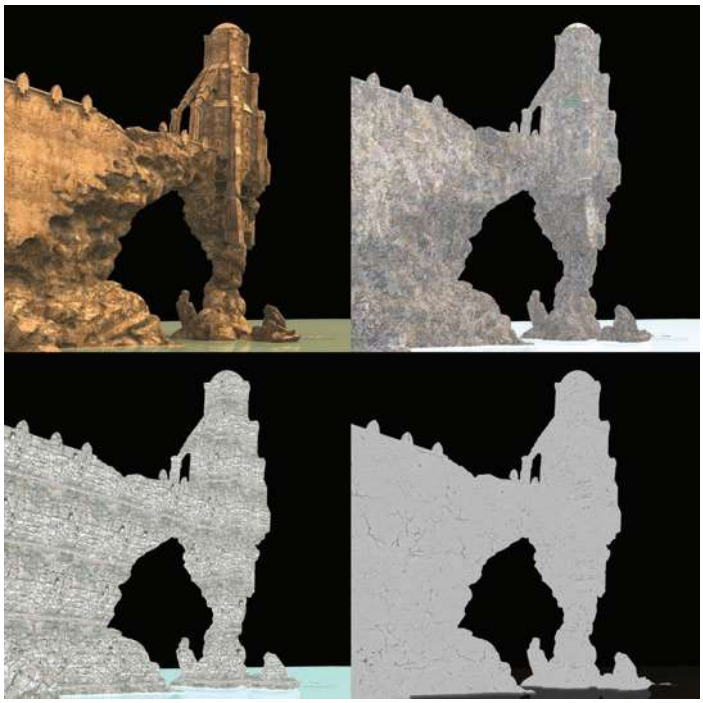
TEXTURING THE SURFACES

With the lighting figured out I moved on to texturing. I attempted to texture everything all in one go, masking out areas for clean stone, crumbled stone, wet stone and so on. This did not work very well for a number of reasons: trying to get the mask images perfect was incredibly difficult, and it slowed my render down a lot because it had to load and process all the images I was using. Instead I decided to break my render down into several passes and opt to blend everything together in Photoshop.

The first three passes were some of the fastest to render. There was a depth mask for use in adding some atmospheric perspective, an alpha pass used for compositing in a sky and also a pass of the model with no textures for ambient occlusion and specular information.

Depth, alpha, and ambient occlusion/spec passes rendered out separately to be composited in Photoshop.

Then I worked on creating the various surfaces I wanted. I applied the surface to the whole model knowing that I'd be blending them in Photoshop later. I applied a diffuse texture with its matching specular and normal images. Most of these images were taken from my texture library. I checked to make sure there were no seams on the diffuse and then created the specular and normals from that. Some of the various materials I rendered out were a couple of versions of slightly worn down stone, rough stone, exposed bricks (which tile horribly but would only be seen in a few tiny spots), barnacled and chipped rocks, and even a few passes of cracks.



Some of the many material passes rendered out, from smooth stone to rough and craggy rocks.

Renders of just the tiered roof for deciding on the best option.

There were also some renders of just tiny portions of the whole image so a couple of options could be checked out without having to render the entire thing. This was done for the dome and the tiered roof. I didn't really think about it much while I was modelling so it was time to finally decide what I was going to do here. Wood shingle would never have survived as long as this tower has, so I needed to come up with something else that would be interesting and fit with everything else. Plate mail made cool shingles but they didn't match the rest of the architecture. Herringbone bricks worked but I felt that they were kind of boring. What I decided on turned out to be a sort of cinder blocks – the pattern worked well with everything else and it was a little unusual.

POST-RENDER BLENDING

Once everything was rendered out, all the objects and passes, it was all loaded into Photoshop. I decided to start with the render where I tried to blend all the materials at once – it wasn't perfect but it gave me a place to start. A few interesting sky images were loaded into place to check out. Most of the sunset sky images in my library did not have good clouds in the positions I wanted, so I grabbed a few blue sky images that did have clouds that would work with the composition I wanted. It reminded me of bright sunny days by tropical waters so I thought I'd give it a try.

Compositing in a sky and sea thanks to the alpha image rendered out.

With brightness and specularity pass added to the image to give it highlights.

Since the entire background is separate from the renders the canvas could be expanded to whatever dimensions I wanted without having to re-render everything out again. I decided to make the image wider as I could always crop it back again later. The tower was way too dark for the sky so I created a Curves adjustment layer to brighten things up. I also add in the Specular render and set it to Overlay blend mode. The result lightens up the tower and brings out more detail, especially in all the eroded rock. I also worked in some blue into the shadows using a Colour Balance layer.

Small tweaks to the colours help blend the tower into the background.

Some mountains were added to the background and the image as a whole was worked on – lots of little things to help balance the picture out. I made the background have a little less contrast and the tower more, with more light and shadows on the buttresses.

Mostly little adjustments to make sure the viewer focuses on the tower.

Now for the last little touches, or so I thought. Using my composition sketches as a guide, I used a bird brush to add in some wildlife. I used Ron's Splashes brushes to add the spray on the rocks at the bottom.

Adding a little life to the image also suggests scale. At this point I thought the image was virtually finished.

After putting the piece aside for a week or so, I decided that the tower was a little too plain – too monochromatic and the un-eroded wall uninteresting. I brought in all those other texture renders and played with the layer styles, using masks to blend it all in. I also added paint to help draw the view's eye around the tower.

I can't stop myself from adding more textures, but I found that the eroded rock really needed smoother textures to show off my work.

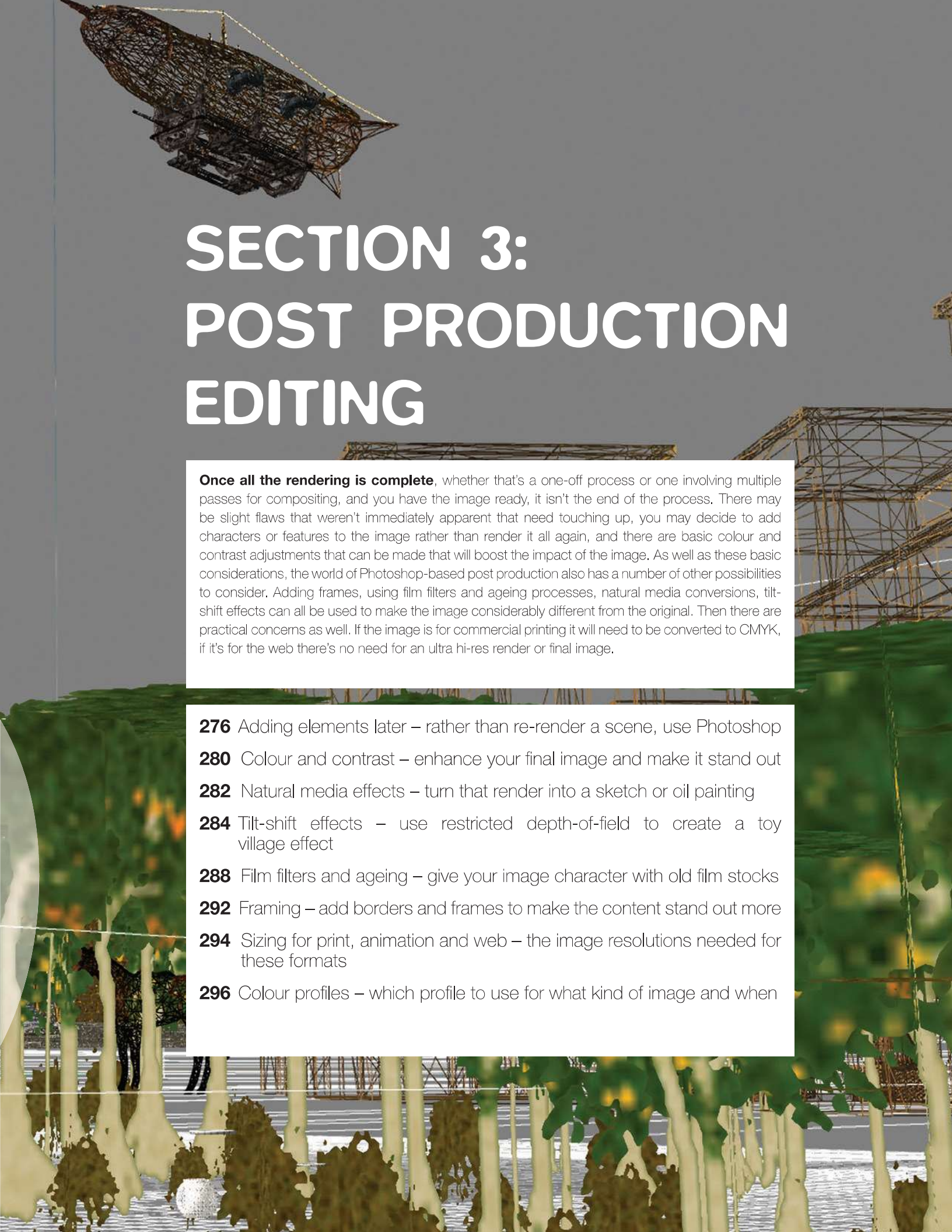
Now for the final touches for real this time. I added in some more splashes and some rainbows. Using the bird shapes I had quickly brushed in, I went around and painted in their tails and heads, and added a few more for the viewer to find. A few more cracks and crags to the silhouette and it was time to call it a day. I keep a wide version of the image for use as a desktop, but crop it down to a vertical composition for show since that really focuses the viewer on the tower, which is the main element.

THE LAST SENTINEL BY CHRIS LOMAKA

STUDIO MAX,
LIGHTWAV E, ZBRUSH,
PHOTOSHOP

8 HOURS

The final image with all the corrections and enhancements added to show off the rocky texture.



SECTION 3: POST PRODUCTION EDITING

Once all the rendering is complete, whether that's a one-off process or one involving multiple passes for compositing, and you have the image ready, it isn't the end of the process. There may be slight flaws that weren't immediately apparent that need touching up, you may decide to add characters or features to the image rather than render it all again, and there are basic colour and contrast adjustments that can be made that will boost the impact of the image. As well as these basic considerations, the world of Photoshop-based post production also has a number of other possibilities to consider. Adding frames, using film filters and ageing processes, natural media conversions, tilt-shift effects can all be used to make the image considerably different from the original. Then there are practical concerns as well. If the image is for commercial printing it will need to be converted to CMYK, if it's for the web there's no need for an ultra hi-res render or final image.

276 Adding elements later – rather than re-render a scene, use Photoshop

280 Colour and contrast – enhance your final image and make it stand out

282 Natural media effects – turn that render into a sketch or oil painting

284 Tilt-shift effects – use restricted depth-of-field to create a toy village effect

288 Film filters and ageing – give your image character with old film stocks

292 Framing – add borders and frames to make the content stand out more

294 Sizing for print, animation and web – the image resolutions needed for these formats

296 Colour profiles – which profile to use for what kind of image and when

ADDING ELEMENTS LATER

No matter how good the preview or test render there's often times when after many hours, the final result contains some unforeseen flaw that needs correcting.

Lightness, colour and toning are all the kinds of things you might expect to tweak once the rendered image has finished. The problem is, preview versions aren't accurate or detailed and after anything from a couple of hours to a couple of days rendering it's only then that the flaw is spotted. It might be that your tree roots are showing where they shouldn't, that the object you thought was positioned accurately now appears to be levitating, or that the composition lacks something. The small elements are relatively easy to fix and shouldn't cause any sleepless nights. If you decide you want to put something large back into a scene – like a person – then there's all manner of considerations. The first thing is that the nearer the camera it is, the better the technique has to be to do it. If it's going to be right at the front of the scene the viewer has every opportunity to see any flaws that give away the game. Now, the sensible thing to do is re-render the entire scene with the missing object, but sometimes that's not possible. Maybe it's an old file and you have the render, but not the scene file; maybe you just don't have time.

TOP TIP

If you can, render a depth-map to go with the image. This can then be used to create shallow depth-of-field later.

The first consideration is lighting. The lighting on the new object has to match the direction and angle of incidence of the lighting in the scene. The more lights in the scene, the harder it gets. If you've decided to render something separately, then pay attention to the original scene and try to set the lights up to match. A secondary issue is the colour of light. A figure rendered in white, studio-type lighting will look out of place in a sunset where the colour temperature is much lower.

Tied into the lighting is the issue of shadows. Any strong lighting source is going to cast shadows and these have to be applied to the composited scene as well. If you're placing someone at the front of the scene then it's possible to get away without a ground shadow if they are placed so you can't see their feet. This also solves a secondary problem of integration. The new object has appear to sit on the ground (unless it's a bird or other flying object) and merge with the scenery. In case of buildings, you can mask off areas around the bottom to allow bushes, weeds, flowers and the like to appear next to or in front of it.

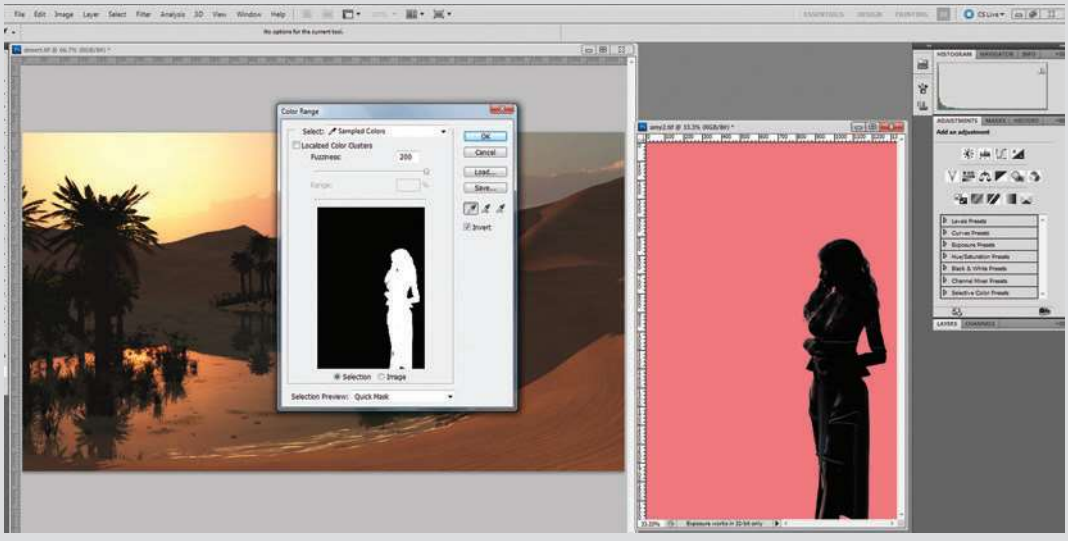
This brings us on to the practical issue of combining the elements. If you are rendering your new object against a white background, create an alpha channel for it as well because this can be used as a layer mask, removing all the white background, just leaving the figure or building. If you are looking at simply combining two elements then you need to either mask the second one to place it, or select it first to get as tight a fit as possible before adding it to the scene.

ADDING A FIGURE TO THE LANDSCAPE

Here's how to add someone in the foreground where you don't have an alpha channel to provide the mask. The figure is against a white background which needs to be removed.

Step 1 ↘

Load both images. The figure is facing the wrong way so use Image > Image Rotation > Flip Horizontal to turn her around. Then go to Select > Color Range and put a tick in the Invert box. Increase Fuzziness to 200 and click on the background.



Step 2

Click on OK and then go to Select > Modify > Contract. Enter a value of 1 pixels. Then go to Select > Refine Edge. Put a tick in the Decontaminate Colors box. Feather slightly and increase edge contrast a little. Click on OK to apply.

Step 3

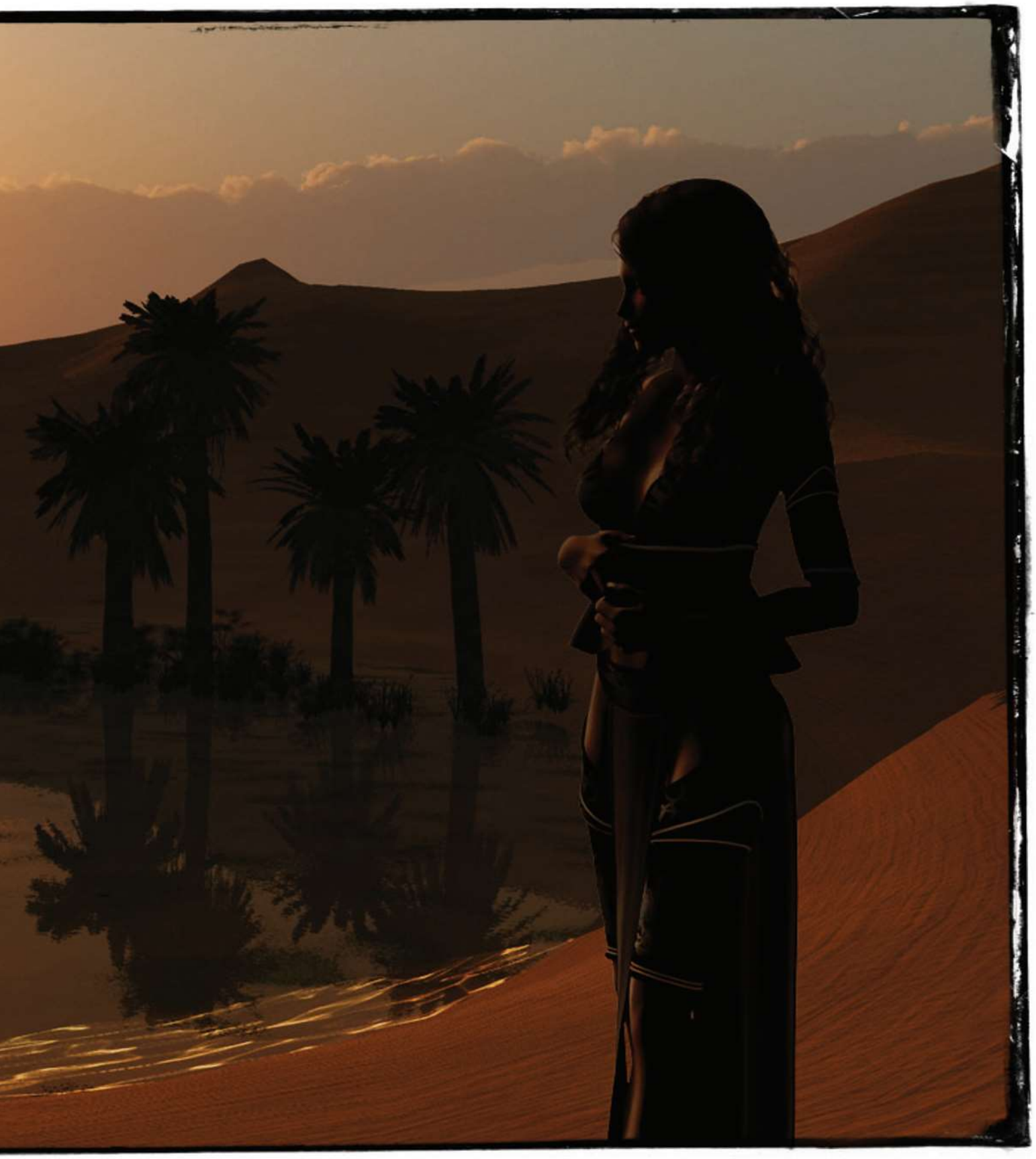
Select the Move tool, grab the figure, drag her to the main image and let go. At this point she is clearly too large for the scene so go to Edit > Transform > Scale. Click on the Maintain Aspect Ratio button then drag from the corner carat to scale down.

Step 4

Position at the bottom of the screen to avoid shadows. Select the Paintbrush with a black foreground colour, 40% Opacity and 25% Hardness edge. Zoom in and click on the layer mask for the figure. Touch up any elements that need more transparency, specifically around the hair.

Step 5

Finally, go to Image > Adjust > Color Balance and add more red and yellow. Then increase the Saturation with Hue/Saturation. Check the contrast of the figure and also consider adding some grain to the entire image to help the blend.



COLOUR AND CONTRAST ENHANCEMENTS

Maximise the impact of your final render by increasing the colour saturation and contrast.

Whether your render just needs a tweak to improve it, or a dramatic upgrade in terms of colour and contrast, making those final adjustments can make the difference between a striking image and one that looks flat and uninteresting. There's also the opportunity to alter the colour balance selectively so if the sunset isn't red enough or the sky isn't blue enough, these can be adjusted independently of the rest of the image. There are numerous ways to do this in Photoshop, from adjustment layers with layer masks to making selections with Color Range, to overall Color Balance adjustments on duplicate layers, using layer masks to control the areas being affected. The same applies with contrast. It isn't enough to just use Levels to maximise the tonal range in an image, a Curves adjustment layer can boost contrast while using the built-in layer mask prevents losing highlights or modifying the effect in certain areas.

The other consideration is one of time. After spending a few hours churning out a render is it really worth spending another four or five doing it again just because you adjusted the decay colours for the clouds in the sky? Or is it better to make a simple adjustment in Photoshop that takes 5 minutes? Obviously you always want to get as good a job for the render as possible, but ones involving multiple passes are all going to be composited and adjusted in Photoshop anyway.

ADJUSTMENTS IN PRACTICE

1

A duplicate layer was created for some minor retouching and then a Curves adjustment layer added to boost the contrast.

2

A Vibrance/Saturation adjustment layer was used to increase the warmth of the colours and make them more saturated.

3

A Color Balance adjustment layer was then used to put a little blue back into the sky with the mask used to block off the effect on the rest of the image.

NATURAL MEDIA EFFECTS

At the opposite end of the imaging spectrum to CG is the natural media look. Here's what it has to offer.

While for the most part your CG images will stay as nice and shiny as the day they were rendered there is a case for giving them a different look and feel. Using film filters is one such route but another is where the image particularly suits being given a natural media finish. These tend to be landscape images with classical themes and there's a movement afoot to give them treatments that conjure up thoughts of the old masters of painting. For this we're talking about oil painting, pencil and charcoal sketches and watercolour effects. The effect can be subtle so it gives the image a fibre-based look or it can be full-on, natural media treatment to make it look as naturalistic as possible. While there are some built-in filters in Photoshop CS that offer a modest job of this – and the oil painting filter in CS6 does a good job of impasto effects if nothing else – it's mainly third party plug-ins that are your port of call here.

↑ This image has had the detail reduced, and oil painting and hand-drawing effects applied to give it a natural media look.

DIFFERENT LOOKS

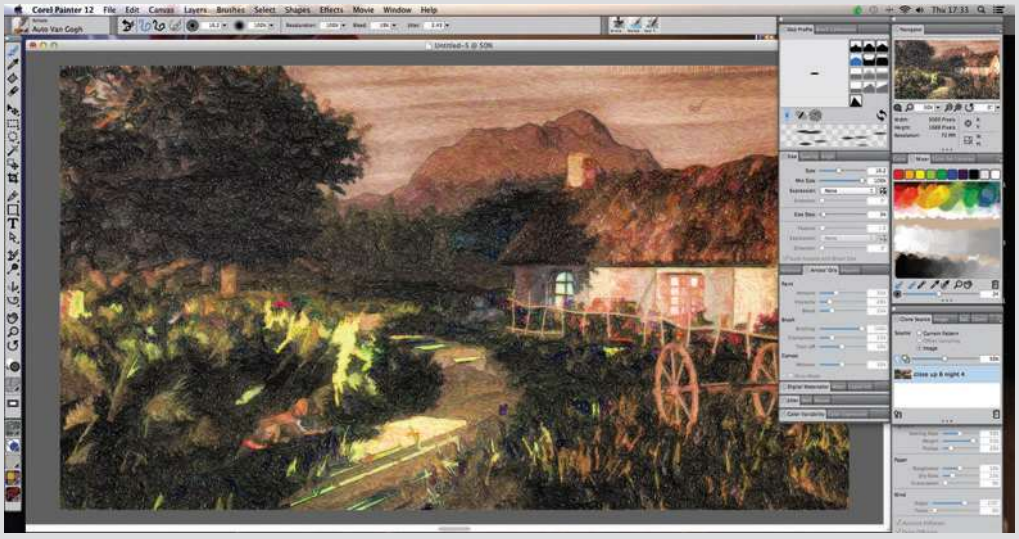
So here are a number of different treatments for the same image

1 OIL EFFECT

A duplicate layer was created for some minor retouching and then a Curves adjustment layer added to boost the contrast.

2 SKETCHING

Again, the detail has been removed with Simplify 4 and then the Graphic Pen filter in CS6 gives a hand-drawn, ink-pen effect.



3 PAINTERLY STYLES

An alternative to Photoshop is to import the image into Corel Painter and either clone the source and then hand-paint over the top yourself, or use the Auto Van Gogh painting system.

TILT-SHIFT AND OPTICAL EFFECTS

Try some lens effects in post production that give your rendered image a completely different look.

One of the most popular lens effects of recent times is Tilt-Shift, otherwise known as the toy or miniature village effect. It is used to create a parallel strip of focus in the middle and two out-of-focus strips on either side. When used from an elevated position of typical subjects like towns, it makes them look toy villages. To create this effect with a camera requires a specialist lens, which is why it's far more popular to do it in Photoshop. Now, 3D is ideal for this because you control the entire scene and can set the render camera up in an area where it would be impossible if you were trying to photograph a scene, unless it was from an aircraft or on an opposing mountain. As well as designing scenes that can be made to look like this, it's also worth revisiting existing scenes and perhaps changing the camera position to make it work. This usually requires some extra work though, as the scene will be set up to show what is in front of the camera, rather than having extra scenery out of shot. The other consideration is that for a medium height shot you need both lots of scenery to fill the view and also plenty of detail on the ground. This invariably leads to higher polygon counts and much longer render times. With long distance shots you can sacrifice some of the ground-based detail.

The problem for creating the effect inside 3D software is that the strip of focus runs across the entire image with a soft-edge, but abrupt transition to out of focus. A render camera with a wide aperture or shallow focus setting will have trouble emulating that because the transition tends to be more gradual. Still, it's worth trying because each software package creates lens characteristics differently.

The other thing to consider is post production lens changes. Instead of re-rendering an image, change the perspective and look of the image in Photoshop. Of course, you can just change the render camera focal length in your 3D software as well but in post production there's the opportunity to play around with perspective as well as the distortion from using a wider angle camera. One way to do it in Photoshop is to use a plug-in filter that is specifically designed to create the effect. The other is to create it using blurring and masking layers.

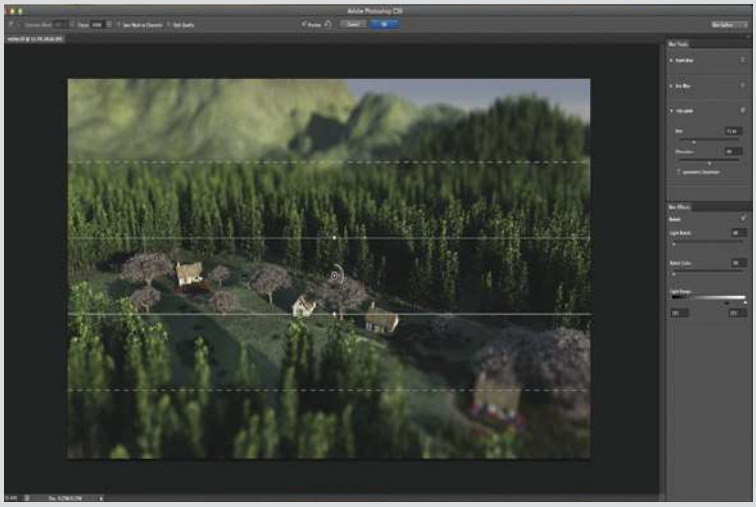
CREATING THE TOY VILLAGE EFFECT

Use the new Tilt-Shift blur in Photoshop CS6.

STEP 1

LOAD AND RUN THE FILTER

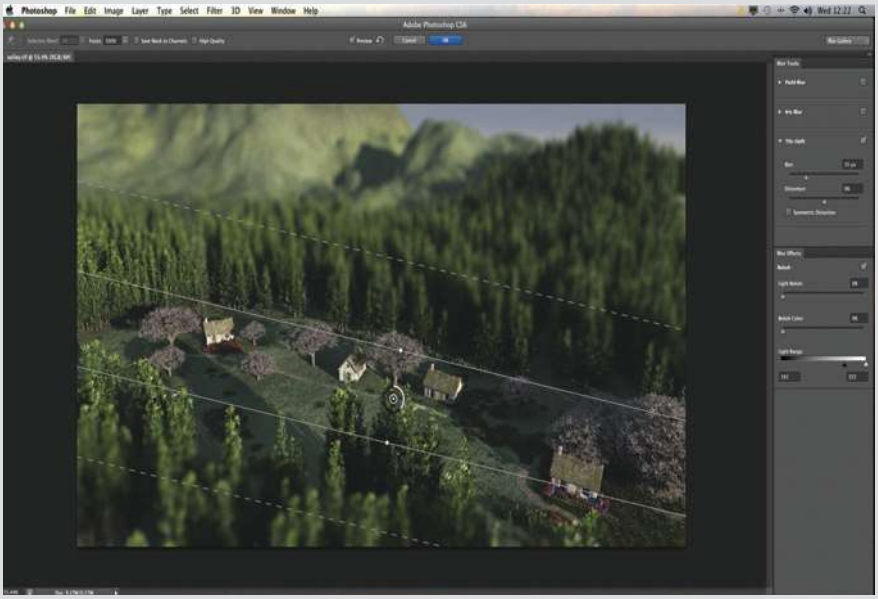
Load your image and go to Filter > Blur > Tilt-Shift. This is actually a combined tool allowing you to use it with Field Blur and Iris Blur at the same time. However, ensure that only Tilt-Shift is ticked.



STEP 2

LINE IT UP

As you can see, the starting position for the focus strip is horizontal. Move the cursor over the central control carat of either of the two focus lines to see it change to a rotate icon. Grab hold on the central control point to move the entire strip.



STEP 3

FINE TUNE THE EFFECT

Grab either of the completely out of focus, dotted lines, to make the transition more or less dramatic. Increase the Blur amount to maximise the toy village effect and use the Bokeh effect to add highlight circles where light is reflected. You can also click and add extra strips of focus.

BEFORE AND AFTER

FILM FILTERS AND AGEING

The thing about digital images is that they look just that: digital. One of the more interesting post-production options is to give the image a more distinctive look.

There are a lot of different options for changing the look and feel of an image in post production. Once past the usual tweaks of contrast, saturation and correcting any minor mistakes you can consider whether to apply film filters that directly simulate analogue film stocks. There's over a hundred years of different stocks and also photographic types that can be plundered, from super-saturated Velvia emulations to the blue tinting of Cyanotype. The important thing is to match the film stock type with the theme or feel of the image, so for example, industrial decay in Eastern Europe would suit a desaturated and bleak finish, compared to a tropical jungle which would benefit from increased saturation. In terms of sharpness, most lenses before the 1960s weren't very sharp so if you are creating a really old look then the image needs to be softened. Also, vignetting could be a problem depending on the type of lens and film used so adding that to the corners of the image could be considered. Grain is another feature of film to use as well as actual deterioration like colour shifts, surface dirt, colour bleeding, fading, even cracks and water damage. The older the intended image, the more deterioration you can apply.

While you can achieve these looks just through the manual commands in Photoshop, the use of plug-in filters make for better results, a lot more options and a much faster way of previewing and applying them. You can either get Photoshop actions, which use the built in functions, or actual third-party plug-ins which offer the most choice and power. However, the actions are interesting because if you come up with a combination of effects yourself that you like, you can record the process as an action, save it and run it on subsequent images as a script.

There are a couple of packages that can be recommended on the plug-in front, which can also be used in Lightroom and Aperture. The first is Color Efex Pro from Nik Software. This has an incredible number of different looks, styles, film emulations and special effects from adding fog to high key and cross-processing effects. There's another couple worth your time: one comes from DxO Labs and is called FilmPack, the other is from Alien Skin and is called Exposure. FilmPack is a more direct film stock emulation package, rather than the special effects of Color Efex Pro, while Exposure features generic stocks but concentrates more on classic processing types like Dageurrotype as well as general grunge, grain and dirt rendering. With a combination of plug-ins and actions you can give your renders a completely different and distinctive look, all without having to spend hours rendering different versions.

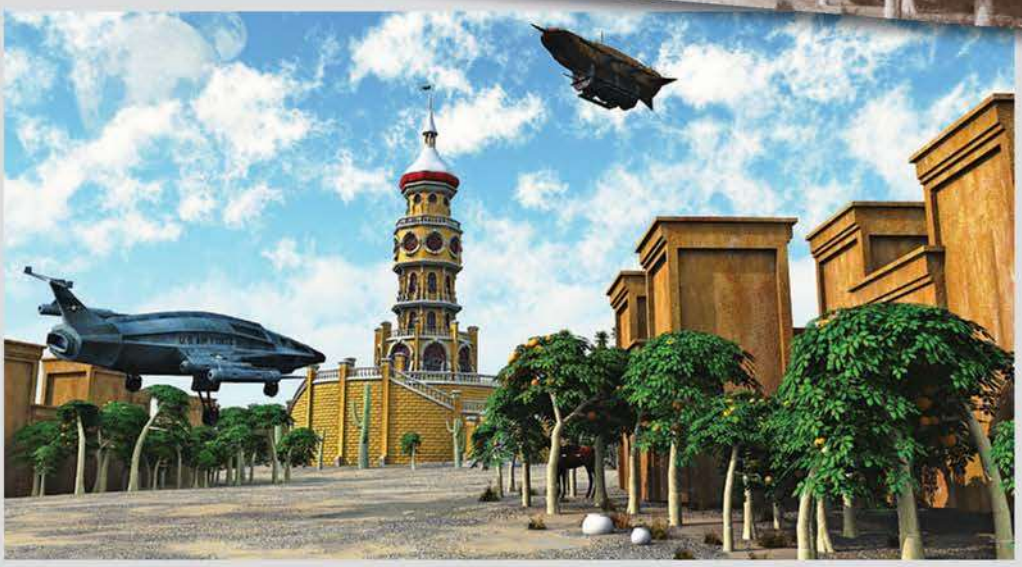
The original, untreated image, straight out of the rendering engine with no post production work at all.

CHANGE THE LOOK AND FEEL

Here's a number of different styles that can quickly be applied in post production.

Using Alien Skin's Exposure to create a cyan tone with scratches and fading of the emulsion.

For something more retro this image features sepia, grain, a little dust and a just-pulled-from-the-album frame.



The final exercise is to use a Velvia film emulation to completely saturate the colours and make the image jump out.


U.S. AIR FORCE

Here the colours are darkened and a vignette is applied to represent early colour film processing.

FRAMING THE IMAGE

Adding a border or frame to an image can help add polish or give the finishing touch to make it stand out.

In many instances, particularly if creating images for commercial clients, once the final render has been cleaned up and composited in Photoshop if necessary, that's the end of the matter. For showcasing images though, they can often be enhanced by adding a border or a frame. While borders can also be frames, they can vary from them by impacting on the image itself. A frame is simply a graphic that goes around the image. These tend to work better on images that hearken back to pastoral oil paintings rather than clean and modern images. A border can do the same but tends to be simpler, a small black or white rule, a white canvas extension. However, borders can also be destructive in that they overlay the edge of the image, obstructing or removing parts of it. The biggest use of this type of border is for film stock effects, wet print or old printing techniques, where the edge is eaten away by simulated tearing of paper or chemicals. The important point to bear in mind is that the type of border or frame needs to suit the style of the image, and that it shouldn't detract from it or overwhelm it. Used correctly, framing your image can enhance the impact it has.

↑ Lake House, © Anna Marynenko, Ukraine.

DIFFERENT STYLES OF FRAME AND BORDER

SIZING FOR PRINT, ANIMATION AND WEB

The audience for your image determines what resolution you need to render it at, and that decides how long your computer is going to be chugging away.

Of all the parameters that are involved in creating a 3D image, one of the most important is resolution. This determines the level of detail in the image and the amount of time it's going to take to render. What the landscape is going to be used for determines how much resolution you actually need. If it's for the web then 1024 * 768 pixels is plenty big enough, whereas for animation 1280 * 720px or 1920 * 1080px – full HD – may be required. The highest resolutions though are demanded by magazines, books and print projects. These typically print the image using a print density of 300dpi (dots per inch). Note that 300dpi is not an image resolution in itself, and on its own is meaningless. An image 300×300px could be printed one inch square and it would be 300dpi, whereas an image 10"×7" at 300dpi would need to be rendered at 3000×2100 pixels. So dpi is intimately tied to the target print size and without knowing that, doesn't mean anything. However, you can look at things conversely so that if you know the image is destined for print, you know it will use 300dpi, so therefore you are working on pixel resolutions with regards to how large it will print.

TOP TIP

If an image is only going to be used on the web and not for print, it wastes time to render it large and downscale.

The problems with larger resolutions for print are of course computer resources – will it have enough RAM and can the graphics card cope with a very large scene – and the time taken to render the image. The bigger the image, the longer it takes because if you double the image size then you quadruple the data in it. An image sized 2000×1500px has 3 million pixels. One that is twice the size at 4000×3000px has 12 million pixels – four times as many. So, any time you come to render an image, you need to know what the target format is and how large it really needs to be. For example, you're asked to create an image that will fit across an A4 spread. This is around 16" wide and 11" high. Printed formats usually require 300dpi for the images so the image resolution you would need to render to fit the requirements would be 16×300 or 4800px wide and 11×300, or 3300px high.

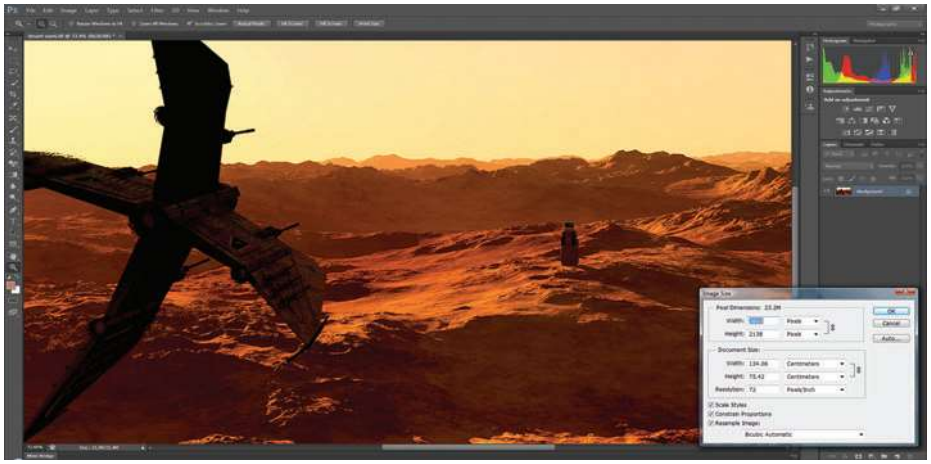
When you need to resize

Now that's all well and good in theory but there are times when you need a hi-res image and either your system can't cope or it takes just far too long to churn it out. Aside from investing in more powerful hardware the only solution is to either reduce the complexity of the scene so it has fewer polygons and can render faster, or to render it at a slightly smaller resolution and use specialist image resizing software to make it larger. There's a number of apps and Photoshop plug-ins that do this: Blow Up from Alien Skin, Perfect Resize from OnOne Software and Magnifier from Akvis are just three examples. Don't bother using the resize option in Photoshop because it simply isn't good enough. The practice of increasing image size like this is known as interpolation and the better the quality of the original image, the better the final result. Fortunately you can render the image as a TIFF to start with – not a compressed JPEG – and so have a very clean starting point. The specialist software packages do a very good job of avoiding jagged edges but the more you increase the size, the less convincing the result becomes. Who and what the final image is for really determines how much you can get away with. For a final image for a commercial client you really don't want to be doing this at all – but for a preview image or personal use you can easily interpolate 50% larger and retain most of the quality.

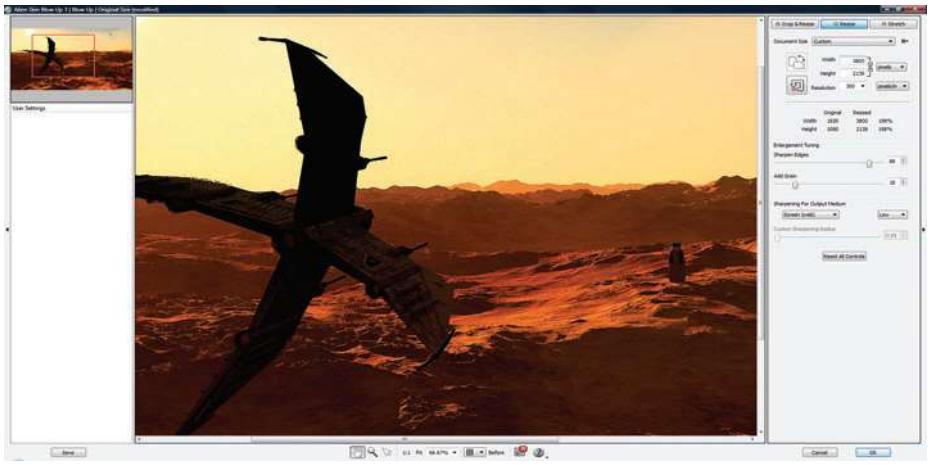
The flipside of this is when sizing images for email or the web. Here you are probably reducing the size of the image because if you are sending samples over email you don't want to be using hi res TIFFS. Instead resize the image to smaller sizes like 1024×768 and use JPEGs. For web use as well, smaller images are required, so again 1024×768 or 800×600, or widescreen versions of those image widths are more the norm. So here you're resampling and decreasing the size of the image but bear in mind that there's one consequence of doing this. The image will get softer. So, always check the image after downsizing and if necessary, use a sharpening tool to make it sharper.

MAKE IT BIGGER

So here's a typical example. The starting image is 1920×1080 but we need a higher res version for print. Let's have a look at how this pans out in photoshop against a dedicated plug-in.



This is what it looks like when you use Photoshop to interpolate anything larger. This is at 3800 wide, so nearly twice the original width.



With Alien Skin's Blow Up the result is much better because the landscape lines have been smoothed off. The more you do though, the more painterly the result.

This is the image when it has been rendered directly at 3800px wide. If your system can manage the higher resolutions, especially if the scene isn't polygon heavy, then it's better to render it this way.

COLOUR PROFILES

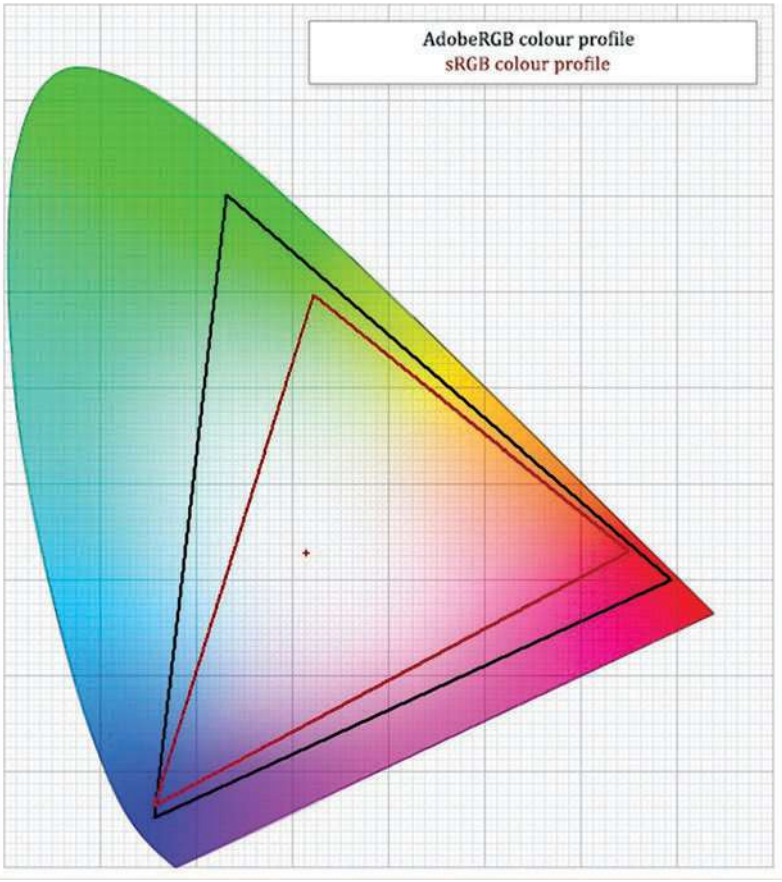
The delivery platform for your image dictates what colour profile you need to use, but it has implications.

There are two main colour profiles, with numerous interpretations of those in sub-categories. What your image is going to be used for dictates what it ends up as. To start, any images for use digitally, whether by projection, on-screen, on web pages and so on, will need to be RGB. RGB is an additive colour model where the displaying device adds red, green and blue colours together to create the finished spectrum. One of the issues with RGB is that it is dependent upon the device displaying it, and all devices render colour differently unless they have been colour calibrated first. For the 3D creator though, RGB tends to be the main platform for colour profiling.

There are a number of different versions of RGB, mainly for medical, scientific and technical sources. The two main ones for our consideration are sRGB and AdobeRGB. The former is used by web pages so even if your image is saved as AdobeRGB, only the colours in the sRGB spectrum will be displayed on the internet. AdobeRGB has a wider colour gamut than sRGB, which is to say it has a wider range of colours. Both models only have a finite number of colours they can display in a typical 8-bit file though, so in some cases you can find that an AdobeRGB image with very fine colour graduation across a wide spectrum suffers from banding, or gamut compression. Conversely, the sRGB image faced with colours outside its gamut may just clip them, known as gamut clipping, so you end up with blocky colour in places. In reality, it's rare that this happens, but it's worth noting that if your image features a very wide range of colours, AdobeRGB is probably better, and if it has fine colour graduation, then sRGB is better. All of which is irrelevant if the image is going to be displayed on the web because, as mentioned, it will only render the sRGB colours anyway.

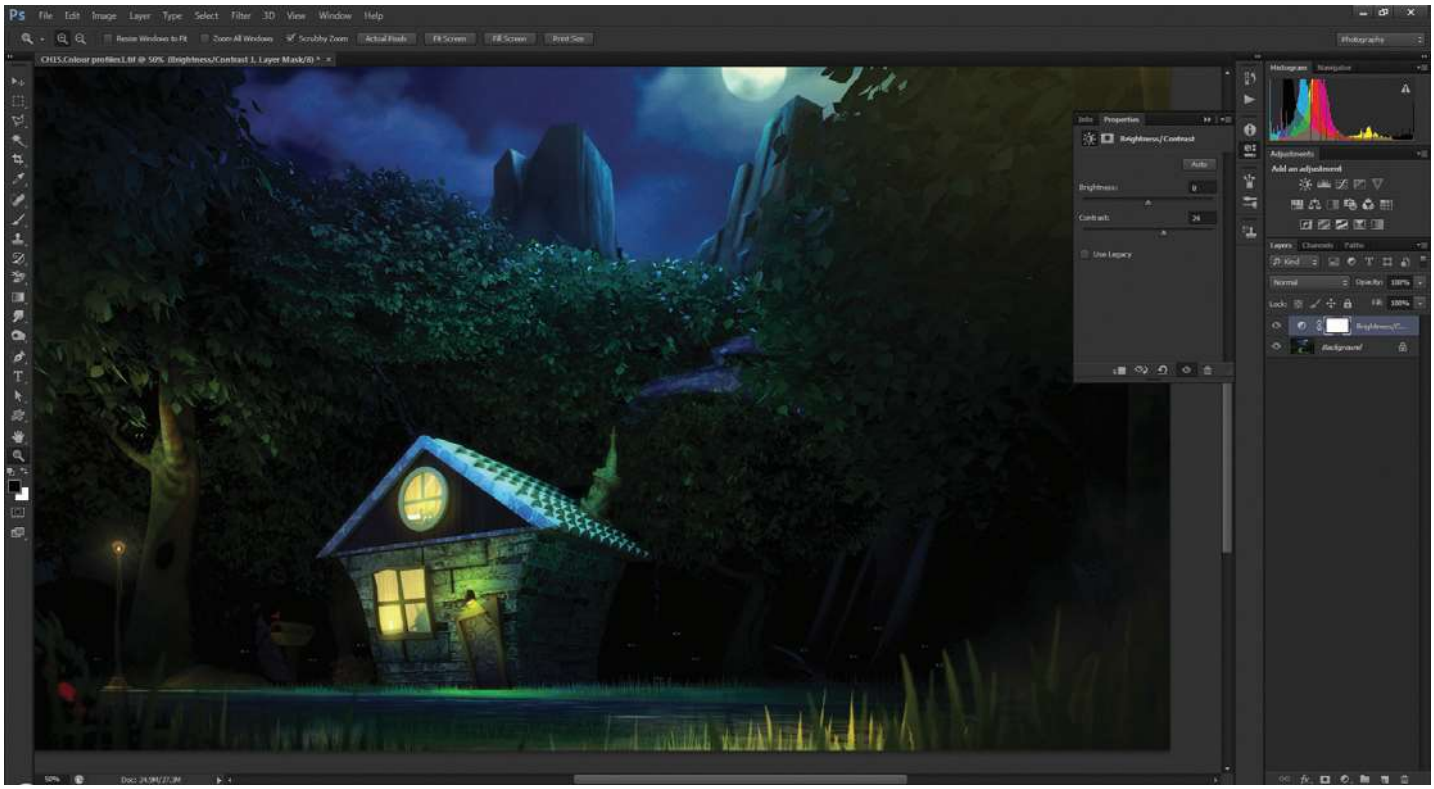
The alternative to RGB is CMYK which is a subtractive colour model consisting of Cyan, Magenta, Yellow and Key. This is used for print, such as for this book and for magazines. The problem for 3D artists is that CMYK has a much smaller colour gamut than any version of RGB, specifically in the bright or neon colour bands. Usually this isn't a problem in a landscape scene, but if you are rendering an urban scene with neon lights, expect those colours to degrade significantly when converting the image to CMYK. The only recourse is to increase the contrast and overall colour saturation, but you can't actually replace what the profile can't display. That's why, if your image is destined for print, it's better that you convert it to CMYK yourself first, so that you can control what it looks like, rather than leaving it to the mercy of an art editor or printing service.

Time to sleep by Peter Ang



A representation of sRGB versus AdobeRGB colour spaces. Ignore the actual colours as this is printed using CMYK.

With Alien Skin's Blow Up the result is much better because the landscape lines have been smoothed off. The more you do though, the more painterly the result.



APPENDIX – RESOURCES

Some handy places for information, free models and help

Digital Mayhem: 3D Landscapes
www.focalpress.com/cw/evans. The companion website for this book where you will find tutorials, downloads and links to the work of some of the exceptionally talented contributors to this book.

Cornucopia 3D
www.cornucopia3D.com. From the makers of Vue, the website offers help and advice on the forums, galleries to showcase your work and a world of models, plants, atmosphere's and lighting set ups to purchase.

Renderosity
www.renderosity.com. Site for enthusiasts with plenty of galleries for showcasing work and also free and paid-for models to populate your scenes with.

CG Society
www.cgsociety.org. The number one website for professional artists with features, jobs, galleries and forums.

TurboSquid
www.turbosquid.com. Leading site for paid-for models to use in your renders.

Free models
www.3dmodelfree.com. Plenty of free models to download.

e-on Software
www.e-onsoftware.com. Home for Vue, the number one app in still and animated CG landscapes.

Planetside Software
planetside.co.uk. The main alternative to Vue for pure landscape creation.

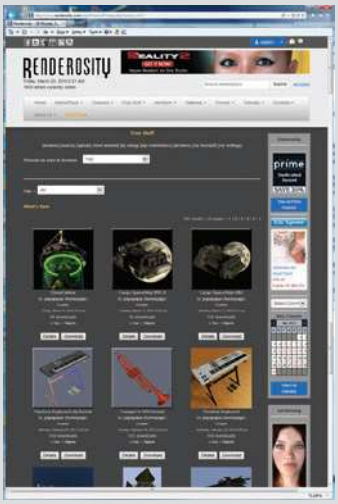
YouTube
www.youtube.com. There are hundreds of how-to-do videos on YouTube for all the popular makes of 3D software.

Autodesk
www.autodesk.com and www.autodesk.co.uk. Website for the biggest name in 3D with support for 3ds Max, Maya and Softlmage.

DAZ3D
www.daz3d.com. Home for Bryce 7 Pro, a very low cost introduction to the world of 3D landscape software. Also features an extensive shop for props and models, mainly people.

Geekatplay Studio
www.geekatplay.com. Lots of free and paid-for tutorials from an expert in the field of landscape creation.

D&D Creations
http://www.ddcreations.eu. High quality 3D environments, content and resources for your 3D landscapes.



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To those who wanted to contribute, but for one reason or another couldn't make it this time, don't you worry – this is the first in a new series so there's plenty more to come from the *Digital Mayhem* line.

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