

Bachelor's thesis

Media Arts

Digital Arts

2011

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PAINTING DIGITALLY

- With Photoshop's brush tool



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The reason I wanted to study Photoshop brushes is that with the right settings you can not only paint faster but also create more unique painting effects and styles. Photoshop is my main tool when painting digitally, but I noticed that I tend to use only the same type of default brush for everything I paint, be it smooth surfaces, organic shapes or modern structures. To be a concept artist you have to be able to paint fast. This means you need good tools to speed up the painting process. Looking at the brushes other digital artists use, there's a huge range of different brush types that give paintings a unique look. In this thesis I want to expand my own brush library and get used to the different possibilities there are when creating your own brushes. I use Photoshop daily both at work and at home and want to master this tool as well as possible to be able to use it to its full potential. A good brush library and knowledge of the tool will help me create concept art and personal images more efficiently.

Photoshop is a program that is used in many different ways, ranging from photo editing and manipulation to game textures, graphic design, web design and digital painting. Yet its menu and tools look fairly simple and seems easy for first time users. The program's true potential is hidden in smaller menus and windows. You often see people using and knowing only the main features, but those who know the program well can do very interesting things with it. When it comes to painting in Photoshop, by tweaking and adjusting the brush options in the Brushes panel, there are countless possibilities for new brushes. You can turn any shape or picture into a brush. Some of the most common custom brushes are texture brushes, custom shaped brushes, scatter brushes and smooth surface smudge brushes.

Digital artists often share their own custom brushes on their websites, where they are free to download. Usually these are very useful if you don't want to make every single brush yourself, but sometimes when a brush is too unique, it can only be used properly by the person that created it. Reasons for this can be different types of tablets, software versions or simply each person's own way of holding the stylus, their pen pressure and hand movement. Some artist's have created brushes so unique that their whole way of painting is defined by them and their galleries really stand out because of this.

KEYWORDS:

Photoshop, digital painting, brush, concept art

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Halusin tutustua paremmin Photoshop brusheihin siksi että oikeilla asetuksilla voit sekä piirtää nopeammin että luoda ainutlaatuisempia efektejä ja tyyliä. Digimaalaamisessa Photoshop on tärkein työkaluni, mutta olen huomannut että minulla on taipumus käyttää samaa default brushia kaikessa mitä maalaan, olkoon kyseessä sitten sileät pinnat, orgaaniset muodot tai modernit rakenteet. Konseptitaiteilijana sinun tulee olla nopea, mikä tarkoittaa sitä että tarvitset hyviä työvälineitä nopeuttaaksesi piirtämisprosessia. Tarkasteltaessa toisten digitaiteilijoiden käyttämiä brusheja, löytyy valtava määrä erilaisia brush-tyyppejä, jotka antavat kuville ainutlaatuisen tyylin. Tässä opinnäytetyössä haluan laajentaa omaa brush-valikoimaani ja tottua käyttämään erilaisia mahdollisuuksia omia brusheja luodessani. Käytän Photoshopia päivittäin sekä työssä että kotona ja haluan hallita tämän työvälineen käytön niin hyvin kuin mahdollista pystyäkseni hyödyntämään sitä tehokkaasti. Hyvä brush-valikoima ja sen tuntemus auttavat minua luomaan konseptitaidetta ja omia kuvia tehokkaammin.

Photoshop-ohjelmaa käytetään monella eri tavalla, ulottuen valokuvamuokkauksesta pelitekstuuriin luomiseen, graafiseen ja websuunnitteluun sekä digimaalaamiseen. Vaikka sen menu ja työkalut näyttävät melko yksinkertaisilta sitä ensi kertaa käyttäville, ohjelman todelliset käyttömahdollisuudet ovat kätkeyty pieniin menuihin ja ikkunoihin. Usein näkee piirtäjien käyttävän ja tuntevan ohjelman vain pääpiirteittäin, mutta ne jotka hallitsevat ohjelman hyvin voivat luoda sillä mielenkiintoisia asioita. Photoshopilla maalattaessa brush panelin tehokas käyttö ja soveltaminen luovat lukemattomia mahdollisuuksia uusille brusheille. Voit muuttaa minkä tahansa muodon tai kuvan brushiksi. Yleisimmät itse luodut brushit ovat tekstuuri brushit, scatter brushit ja smooth blending brushit.

Digitaiteilijat antavat nettisivuillaan itse luomiaan brusheja toisille vapaasti ladattaviksi. Näistä voi olla paljon hyötyä jos et halua tehdä jokaista brushia itse. Tosin joskus hyvin erikoisia brusheja voi tehokkaasti käyttää vain henkilö, joka on ne luonut. Tämä voi johtua erilaisista piirustuslustoista, software versioista tai jokaisen omasta tavasta pitää kynää kädessä, miten kovin he sitä painavat ja käden liikkeistä. Jotkut taiteilijat ovat luoneet niin ainutlaatuisia brusheja, että heidän koko tuotantonsa määräytyy niiden mukaan ja heidän galleriansa erottuvat muista sen takia.

ASIASANAT:

Photoshop, brush, konseptitaide

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1 INTRODUCTION

As a base for this thesis I'll be using a traditional oil painting. I'll try to repaint it in Photoshop while creating my own new custom brushes for different parts of the painting. This serves as a demonstration on how much faster painting digitally is with the right tools. Several custom brushes will be needed since, for example, clouds and rocks have a completely different structure and therefore react differently to light. This makes them look different from each other to the human eye. The reason why I chose to repaint an already existing image is that it serves as a base to learn from a master environmental painter and it creates boundaries for this study.

In the first part of this thesis I will be analyzing the painting and will create brushes that I think would be the tools I need to paint a picture like this as a concept design. In the second part I will use the brushes I created to paint this image in Photoshop. The important thing to note during that painting process is the elapsed time and how much less it is compared to painting the actual oil painting. When painting the actual concept, I will see and take note how useful my created brushes were and what modifications I did to them.

The painting I chose to repaint in Photoshop is Thomas Cole's *A Wild Scene* (1831-32). Cole painted this picture of wild untouched nature with a group of hunters with spears and bows chasing a deer. I chose this painting because it has several different textures and elements. Cole's environmental paintings have a fantastic style that is easily converted into modern entertainment industry concept art and there is much to learn from his paintings. The style of his lighting and composition is one that has been rather popular in the past few years.

The sky alone can be divided into the blue sky and at least two types of clouds. The barely visible pink and orange clouds near the horizon are soft and blend into the sky. Above them are light clouds that are the edge of the storm, dissolving and separating into smaller groups, creating silhouettes against the

blue sky. Then there are the massive storm clouds that look rough and heavy. Similar to clouds are the water sprays at the bottom of the waterfall and the fog in the mountains, but they're all different enough to need their own brushes or at least altered settings in the cloud brushes. The same goes for the rocks in the foreground versus the mountain in the background and the small plants versus the trees. Even the trees differ from each other with their leaves. Other elements are the water's surface, tree trunks, roots, the small rushing stream and the vegetation below the mountain.



Picture 1: A Wild Scene by Thomas Cole (1831-32). Oil on canvas.

I will be studying both Cole's oil painting and reference pictures of each element to get a better understanding of the object's structure, surface, shape and how it reacts to light. Some things will seem too obvious to mention, but to learn exactly how they work, even the basics need to be studied. I'll also look at the ways other digital painters used brushes to paint these elements and test some of the brushes that are available for download.

2 PHOTOSHOP BRUSHES

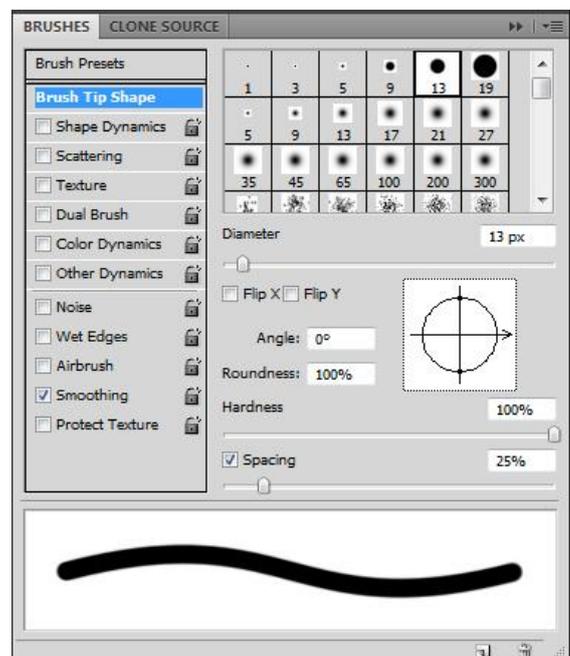
Photoshop's main painting tool is the brush tool. In addition to this tool, painters also use the pencil, paint bucket, smudge, gradient and other tools. In this thesis I will focus only on the main brush tool and its settings.

The brush tool works basically like a particle system in a 3D or animation software. A base shape is chosen as the brush tip and is then given information in the brush panel on how to act when a brushstroke is drawn. These settings define the way the brush reacts to the stroke's direction and the pen's pressure and angle.

Two panels are used with the brush tool. The panel above the canvas shows the list of available brushes and their presets. This panel is also used to define the currently selected brush's mode, opacity and flow settings and to enable or disable the airbrush mode. The other panel is the Brush Panel in which the brush is given special attributes and effects.

2.1 The Brush Panel

The brush panel consists of three parts. On the left side are the main menus, to their right are their settings and the bottom area is a window that shows a preview of the brushstroke that gets updated every time the settings are changed. The checkboxes in the main menu indicate which options are used on the current brush. Below the menu, Noise, Wet



Picture 2: Brush Panel. The Brush Tip Shape window.

Edges, Airbrush, Smoothing and Protect Texture are additional settings that can be enabled.¹

Depicted in *Picture 2* is Photoshop's default brush tool in the brush panel which is made with a black dot as its brush tip. This is what the brushstroke looks like with no additional effects enabled. The only thing currently affecting the brush is the spacing percentage. This percentage defines the rate at which the brush tip is applied to the canvas. With spacing set to 1% it will look like a smooth line since the dots are extremely close to each other. The higher the rate, the farther apart the dots will be. At a certain percentage, the dots won't connect anymore and the stroke will look like a dotted line instead.

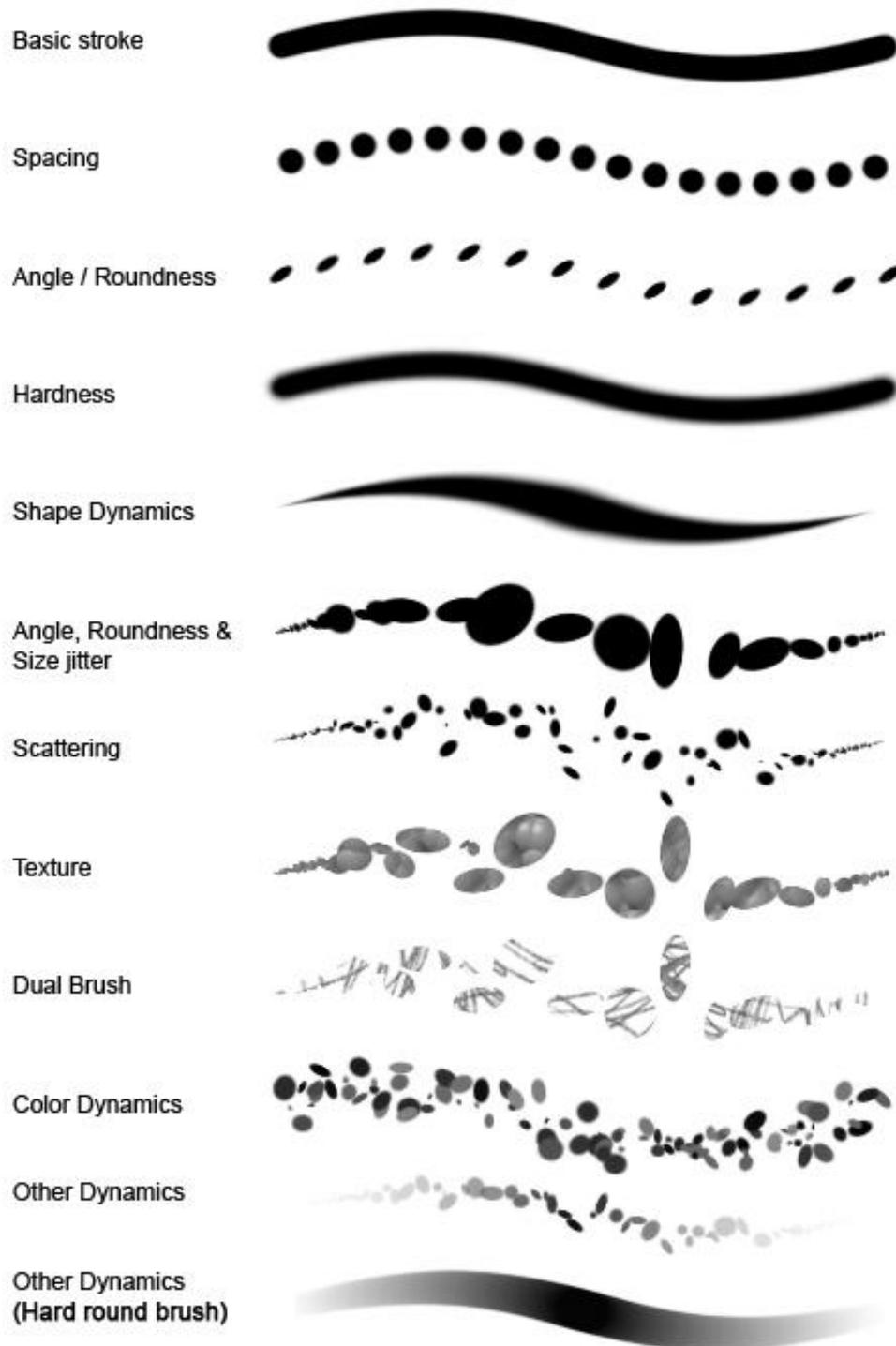
There are many different options like this in the brush panel and combined they give countless possibilities to brush creation. They are fairly simple and easy to understand and use. Any picture or shape can be converted into a brush with just a mouse click (*Edit > Define Brush Preset...*). The new brush shape will then be added to Photoshop's brush list after which any combination of effects can be added to it. *Picture 3* is a chart with the basics of the brush settings available in the brush panel. All these were made with a simple black dot as the base shape of the brush. By adding for example size and roundness jitter and scattering, the brush instantly becomes completely different than what it was in *Picture 2*.

A brush can have a texture in its base shape, or can have a texture or pattern added to it in the texture menu. This comes in handy when trying to paint realistically or to paint details quickly. Brushes can also be combined with others in the Dual Brush menu. When enabled, the brushstroke will be painted while being masked by another's shape. To understand these and all the other settings, it's best to open Photoshop and to just move around every slider to see how they affect the brushstroke. While the preview window in the brush panel gives a general idea of how the brushstroke will look like, it won't be the exactly same as the actual brushstroke painted onto the canvas. To create a

¹http://help.adobe.com/en_US/photoshop/cs/using/WSfd1234e1c4b69f30ea53e41001031ab64-780aa.html

Adobe.com's help page with more information about brushes and the Brush Panel.

good brush, it has to be tested with the stylus² to see how it reacts to things like pen pressure or direction.



Picture 3: Brush settings. Some of the basic brush settings with preview.

² A stylus is the pen that is used to paint on a graphic tablet connected to a computer. It recognizes the pressure applied and in what angle it is touching the tablet.

2.2 Hard Round Brush

Even though Photoshop offers these creative brush options, the by far most popular brush is a very simple one. Most artists refer to it as the hard round brush, which is the last brush in the brush chart in *Picture 3*. It is made using Photoshop's basic round brush tip. Its settings are usually very low spacing with Size jitter, Opacity jitter and Flow jitter set to Pen pressure. This creates a very smooth and easy to control brushstroke. Lowering the hardness transforms it quickly into an airbrush if needed.



Picture 4: The airbrush. A round brush with hardness set to 0%.

The hard round brush is extremely useful. It's used to block in shapes quickly and to paint details and blend colors and values. By adjusting its angle and roundness, it can be transformed into a flat brush for sharp edges for things like buildings or mountains. Often entire paintings are made by using just this one brush. Whether this is a better way than using different types of brushes to add texture is up to the artist to decide. Looking at the leading concept artists in the entertainment industry, the majority uses a combination of the hard round brush and texture brushes, but there are as many different ways to combine and use them as there are artists.

Photoshop's brush panel hasn't changed much over the years. It stayed as simple as it was and yet gives a wide range of options. Artists find more and more ways of creating new unique brushes and interesting ways to use them. The simplicity of the panel makes it very interesting to watch what artists can create with it.

3 CLOUDS

Clouds are notoriously difficult to paint. They are translucent, which makes their shading complicated. They are usually lit by two light sources, the sun and the sky, but they aren't very reflective. City lights can also illuminate them from below. On top of that they have completely random shapes.

It is fairly easy to paint clouds with traditional media, especially paint. A loaded brush in a skilled hand creates interesting cloud shapes quickly. The mobility of the brush enables a lot of variation by twisting and tilting it or applying different pressures. The paint on the brush behaves differently every time it's applied to the canvas and creates randomly shaped clouds with every stroke. With digital brushes this often isn't as easy since the physical randomness of the paint and brush are missing. This randomness usually has to be painted more manually than with traditional media.

3.1 Soft custom shaped airbrush

I started with the soft clouds in the upper left corner. These clouds are very light, hanging on to the big stormy clouds. They have a soft transition into the blue sky, but are still clearly visible and have a distinct shape. They are lit by yellow peachy sunlight coming from slightly below. On the right side they transit into dark grey storm clouds where not much light passes through.

To paint these clouds, a fairly soft airbrush would work well. Clouds and certain types of fog or smoke are the few exceptions where airbrushes are "accepted". In many painting tutorials and magazine articles about digital painting it's suggested to avoid the airbrush completely if possible because of its super soft edges and zero texture. Using only the airbrush often results in very flat CG looking art. A good example are the first digital paintings and graphics in the 80's and 90's form of painting had just been born.

The airbrush tool actually has an interesting cycle of use; beginners use it a lot since it's easy to blend colors with its soft edges and especially young painters that are still learning about painting in general try to get perfectly smooth

surfaces with zero imperfections (things like skin or cloth). Without any or with only little pressure sensitivity and 100% opacity the airbrush is incredibly hard to use and visually barely useful in any way. A common mistake is blending two very different colors relying only on the airbrush's softness. The brush is so soft that it does blend them perfectly without any seams, but the result looks completely unrealistic.

After this first airbrush phase painters usually start using harder brush types with rougher edges, avoiding the airbrush completely. Even completely smooth surfaces are possible to paint with hard edged brushes but they leave a more interesting texture than soft brushes. Sometimes painters don't even cover their brushstrokes but leave them unblended. This works well when painting with small variations in hue and value and lower opacity so the brushstrokes don't cause a disturbing contrast.

Professional digital painters often use the airbrush again, but very subtly to avoid large areas of textureless blobs of color. With very low opacity the airbrush can be used carefully to blend and paint over smooth surfaces without completely hiding the texture underneath. It can also be used for glows, bloom effects and other lights. The most important thing to remember is that in most cases, when painting environmental concept art, the airbrush should always be used to paint over something that is first painted with a rougher brush so that its shape is visible through the softness of the airbrush. Some artist like using the airbrush to create extremely smooth surfaces. The lack of detail can then be countered by using things like linearts or crisp shapes and patterns.

To block in the basic shape of the clouds onto the blue background a medium sized basic airbrush should work well, but to define the shape of the cloud faster and more accurately a custom cloud brush with very soft edges would be better.



Picture 5: Cloud test brush no 1.

I quickly sketched a blob of uneven airbrush shapes and turned it into a brush with opacity and flow set to pen pressure. It turned out that this brush was more like a series of stamps with little variation in opacity and size which didn't work at all with something as random as clouds. I also noticed that the base shape's form was too detailed and that a more simple brush would work better. The brush would have to offer big variations in opacity and size in just one brush stroke to avoid the stamping effect.



Picture 6: Cloud test brush no 3.

I made a new brush that looked almost like a normal airbrush with just a slightly more random shape. The brush settings were a little different than in the first test with the brush's Minimum Diameter set to 5% and a little more randomness in size and opacity. This brush worked a lot better and in the three minutes of testing the clouds took shape faster and I was able to paint a lot more details in the same amount of time than in the first test. With some small spacing and scatter adjustments and an additional 3 minutes of sketching I had created a useful brush and a base sketch of the clouds in the painting. With these settings this brush will only work with a very big diameter. When too small, it will look like

a blotchy line of spaced circles. Other uses for this brush can be fog and light smoke.

3.2 Rough cloud brush

Clouds are made of countless little particles. So while they look soft from far away, they aren't completely fluffy smooth. This is where the airbrush's bad points are visible. They might be perfect for shaping in clouds, but usually aren't enough to make a cloud look realistic.

To finish off these clouds I created a new brush. Its shape was one I originally tried to avoid but I realized after some testing that I just wasn't getting the texture I wanted with the earlier brushes I created. Browsing through some brushes made by other artists I found a few that might work better to do the final stormy clouds.



Picture 7: Cloud test brush no 7.

A more dramatic shape gives the clouds a nice texture. The brush also has its own texture which was added with the noise filter. Another way of adding texture to a brush is using the Texture or Dual Brush panels. With these options you can add a texture on top of the brush shape or combine two brushes. Often a simply shaped brush gets paired up with a brush that has heavy texturing to create dirt and noise effects.

Since the stormy clouds have a high contrast and very dark areas, brushstrokes can be very visible in those parts. This is one of the reasons why clouds are so difficult to paint. You have to paint both high contrasts and soft shapes while giving it a light but also textured look.

Some online research³ showed that there are very different ways to make cloud brushes. Some use a similar airbrush type tool, others create brushes with lots of scattering that almost creates computer generated cloud shapes. One very quick and easy possibility is a textured brush that uses a photograph of a cloud as a base. With some scattering added to it the brush will paint realistic clouds based on that photograph. Just like in the photograph the clouds will be already lit and shaded with just one brushstroke. This might work for one or two paintings, but when you have to create many concept pictures it's not very creative to use the same cloud over and over again. This brush also offers very little variation and can't be altered when for example other types of clouds are needed. This is why I prefer the airbrush tool in this case. It depends on the actual brushstrokes and painting skills and you have complete control over the shapes you paint.

³ <http://abduzeedo.com/beautiful-fluffy-clouds-photoshop-christmas-tutorial> (Cloud brush tutorial).
<http://aquasixio.deviantart.com/gallery/8808807#/dlqjs4> (AquaSixio's brush tutorial)

4 LEAVES

The bushes and trees aren't in the foreground in this painting and there aren't any close ups of them, so some general leaf brushes are enough to indicate leaves. Leaf brushes are usually just a bunch of shapeless blobs with heavy scattering and jitter settings. Some painters prefer them to be blurry to give the image a sense of depth and not draw attention to the duplicated leaf shapes. Others use actual sharp leaf shaped brushes which are especially useful in the focus area of the image.



Picture 8: Close up of Andree Wallin's Speedpaint Duo no 2.

Like with other texture brushes you have to be careful not to use leaf brushes too much. These brushes aren't meant to be used as fluid brush strokes, but more like stamps, twisting and rotating to give variation in shape and size. Their purpose is to create shapes and the more you use them, the less visible the shapes will be when they overlap and merge into each other. This can be avoided by blocking in the general shape of the tree or bush with a basic brush and then carefully adding leaves around the edges with just a few strokes of the leaf brush. Another way to make individual leaves stand out is to work with values. Working your way up from dark to light values you can create details with just some tiny strokes of very light leaves on top of the dark base. Leaves deeper inside the tree or bush get a darker and cooler bluish hue than leaves around the edges. If the main light source is sunlight, they look warmer with a light green color, closer to yellow than blue. If the light source is something else, the color will be different too. Good examples are the light blue highlights in moonlight or warm orange ones from streetlamps at night.

4.1 Leaf brush tests

In the original painting by Cole it's hard to tell what kind of leaves the trees should have. For the sake of this practice I'll give the tree on the right side of the image small green leaves and the tree in the center will be a pine tree.

For the tree on the right side a normal leaf brush with oval shaped dots gives a general idea of type of leaves it has. To combine this tree and other parts of the image that can be painted with the same brush I made a brush that can be used to block in the leaf shapes in the foreground as well as the vegetation on the far side of the water.

This brush has a major difference compared to the earlier cloud brushes I made. This brush won't be used to "paint" with a brushstroke that blends nicely with its surroundings and has no recognizable unique shapes in it. Its purpose is to be used very little and still block in large areas of color. This means that several tries may be needed to get the brushstroke you need, because its scattering and other random settings don't give you full control of the outcome. Painting over a bad brushstroke will only result in a mess of blobs and cover the background too much. Before trying again the bad brushstrokes should be undone to get a clear base for new leaves.



Picture 9: Leaf brush test no 1.

This brush turned out to be surprisingly difficult to make. The leaves had to be fairly blurry but still have a shape. Leaves that aren't very close to the viewer get hit by light from many angles. Something as fine and thin as leaves get blurred by that light and the rim of the shape has a slight halo effect which distorts the shape. A good example of this, even though the effect is a lot

stronger here, are shadows of leaves. When hit by direct sunlight, leaves cast a shadow that looks like blotchy shapes on the ground. A tree in the distance gets the same effect around its edges, but it's very subtle. It took several tries to get the right amount of blurriness in the brush, not have any too obviously duplicated shapes and still have a few single leaves standing out to create a more interesting and random silhouette. The brush settings give the brush some randomness in size and rotation, but angle options shouldn't be too extreme. If the leaf brush gets twisted too much in the direction of the viewer it makes the brush shape stand out too much and it looks more like a disk than individual leaves. This option should be used only if the brush's base image is a single leaf.

4.2 About leaf brushes

A general mistake people make is painting the leaves too small. This is often caused by the base shape of the brush having too many leaves and being too evenly filled with them. When a brush like this gets set to scattering, like leaf brushes usually do, the brush will start to spread out uncontrollably. As a result the bush or tree will get too big. The natural reaction is to scale the brush down to a smaller size. This causes the leaves to be too small and appear more like dots. To avoid this, the leaf brush should be tested a lot before it gets used in a painting. Limiting down the leaves in the base shape of the brush and separating them farther apart from each other are good options.

If there were leaves in the immediate foreground, I wouldn't suggest painting them with just a custom brush. Close ups need details and leaves can't look like clones. In nature not one leaf looks like the other. They can be old, young, in different angles or even missing a piece. The most efficient way to paint them would be blocking them in carefully with a leaf shaped brush with scatter and angle settings. If this brush gets used too much and there are too many leaves, they will lose their individuality. Only a few detailed leaves should be close to the viewer, and the duplicated shapes of the brush should each be quickly

overpainted to make them look different from each other. The bigger and closer the leaf, the more detailed it should be.

The opposite of this example is using depth of field in the foreground. Either to speed up the painting process or to give the image depth, a blurry dark mass in the foreground is enough to indicate leaves. In this case details aren't needed and the silhouette is more important than what's inside the shapes.

To give paintings more variations, every artist should have different sets of brushes they use, just like there are different species of trees and plants. Painting a forest scene with every tree looking exactly the same is very boring. The fun part about being in the entertainment industry is that environments don't always have to be completely realistic. Mixing up different sets of trees and plants in one scene no problem there.

A brush doesn't have to be just leaves, but can be an entire plant that can be stamped onto the canvas. While this doesn't always work with trees, unless they are far away or are just silhouettes, brushes of small plants are an easy and fast way to give a scene more detail. Of course, if the brush is whole plant it shouldn't be duplicated in the same image. If it the same plant does get used too much, some of them can be scaled, flipped or warped so that they don't look like clones.

5 MOUNTAINS AND ROCKS

Mountains and rocks are often painted with textured brushes after being blocked in with a very sharp edged brush to define the shape first. Especially young mountains with rough edges have textures with contrast. A simple way to see this is looking at snowy mountains. The high contrast between the white snow and dark rocks and cliffs peeking through it makes their texture very visible. Like explained before, to achieve this type of high contrast with a texture brush the brushstroke can only be done once to not cover the base color of the mountain. The brush also needs to have completely white and black areas in its texture to get the maximum contrast. Adjusting the pen pressure setting in the Flow and Opacity menu also helps creating a crisp brushstroke.

Traditional oil painters use a technique similar to these contrast brushstrokes. After blocking in the mountain's silhouette, they use very thick and very dry paint and apply it very carefully, with almost no pressure, in one stroke. This way bits of paint stick to the canvas creating the illusion of detailed rocks or snow while still showing the color of the mountain underneath. Like with the textured brush in Photoshop, this brushstroke shouldn't be done twice on the same area. It mixes the paint already applied with the background color and smudges out the contrast.

It's also possible to paint mountains with a hard round brush or a flat sharp edged brush. With these brushes every cliff and rock has to be painted individually and the contrast isn't as high as with the texture brush since it would draw too much attention to the flat brushstrokes. This technique is often used in very fast concept designs when detail isn't important. It's also useful when the mountains are so far away that their detail would barely be visible, especially when they aren't covered in snow. Here it's enough to just block in the general shape of the distant mountain, so that it blends into the sky.

Another way to paint mountains is selecting a mountain shape with the lasso tool and then filling it with color and airbrush strokes for simple lighting. This is a very fast and easy way to paint mountains in the far distance. It's also used to

paint sharp cliffs close to the viewer to create a higher contrast between the mountain and its background sky.

5.1 Mountains

The mountain in the center of the image looks more like sandstone than hard and dark rocky mountains with sharp cliffs. It doesn't have a lot of contrast, but there are some visible textures on it. Since it's so far away it's partially covered by fog and clouds that hide its details. The mountains in the background start to really fade into the sky and barely have any details other than their silhouette.

In this case I thought a modified hard round brush would do the trick. The main mountain is leaning left and upwards and therefore its cliffs lines move in the same direction. I set the brush's roundness to 25%, flattening it, and its angle to 125°. With this brush I can block in the mountain's shape by drawing horizontal strokes, which is the brush's flat side, causing the stroke to be wide enough to cover large areas with color. Thanks to the custom angle, the strokes drawn in the direction the mountain is pointing at are very thin. It creates straight lines that look like detailed cliffs with just a few strokes.



Picture 10: Mountain angled brush. Roundness 25%, angle 125°.

5.2 Rocks

I will use the same brush for the big rocks in the foreground. These have some more variation in direction and shape than the mountains did. The same flat brush can be used here but with some modifications. The cracks and highlights on these rocks move in every direction. To use the flattened round brush

efficiently here, the easiest way would be to pull out the brush panel's Brush Tip Shape menu right next to the rocks. There, it's easy to quickly change the brush tip's direction to match whatever part is being painted.

At this stage the rocks are a little too smooth. This technique worked well with the mountains in the background as their texture wasn't visible that far away. The rocks however are so close that they need more than just blocked in shapes and details. To make sure the rocks and other detail in the foreground match, I will use the same texture brushes on them to create a believable transition between them later when the rest gets painted.

6 DETAIL

There are several more small parts in the image that haven't been covered yet. Most of them can be painted by changing the already created brushes. For some parts, like the dirt around the rocks, I will test some downloaded brushes that I have collected over the years. This is a nice chance to study them closely to learn how other artists do their brush settings.

6.1 Water

In Cole's painting the ocean's surface is too far away and calm for there to be any visible waves or ripples that would need a special brush. It's a smooth and reflective surface that can be done with just a simple hard round brush with varying opacity to get the glazing, blending effect. The small ripples along the coastline are barely visible and can be done with the cloud brushes or simply a basic round brush.

The sprays of water below the waterfall are also similar to the clouds, but since they are closer to the viewer they have more detail and are rougher than the far away clouds. The cloud brushes can be used here but with lower opacity for the sprays and fog spreading out around the area. With the brush set to very low opacity I have to be careful not to cover too much of the cliffs around the waterfall with the fog. Only a few careful brushstrokes should be used here.

Painting water can't be generalized into one topic since it comes in so many different shapes and forms. In most tutorials that I've seen, it's painted with a simple hard brush. Water doesn't have a rough texture like rocks or trees. The most challenging thing about it is its depth and highly reflective surface and neither needs a special texture.

6.2 Other details

The rest of the image consists of tree trunks, roots, small rocks, dirt and some plants in the foreground. These were all already blocked in roughly at some

point of the painting process to get a general idea of proportions and color, but still need to be refined a little. For this, I use downloaded brushes.

Grain and dirt brushes are usually made from photographs. The photograph gets modified until its texture is clearly visible. This either gets turned into a large texture stamp brush, which pastes the texture once onto the image, or a texture brush, that paints the texture with the brushstrokes. Big texture stamps are quick but usually need to be erased in some areas or edited otherwise to fit the image's contents. Texture brushes that paint a texture take longer to make, but these give the painter a better control over the texture. In this case, the texture can be painted exactly where the artist wants it to be. With settings like shape dynamics or opacity jitter with pen pressure, the texture will be light and not too obvious.

For the rocks in the foreground, I first used a large texture stamp brush that covered the whole lower area of the image. I erased that texture until it was only barely visible in some dark areas. Then I tested several texture brushes I'd loaded into the brush panel from old downloaded files. The texture needed to have the right kind of rocks in it. One texture, for example, was made from a photograph of something that looked like the moon's surface. That obviously didn't fit the type of rock painted in Cole's painting. Once I found a good texture, I painted some of it lightly on the rocks and with higher opacity on the ground around them.

This same technique was used to paint the tree trunks and roots. Blocking them in with a flattened vertical brush first gives a better control over value and silhouette. Most texture brushes aren't sharp enough to paint detailed shapes, especially if they have scattering or jitter enabled.

7 CONCEPT ARTISTS

To quickly explain and study the techniques of two different concept artists I watched painting videos made by them. Watching video captures is much more instructive than just seeing the finished painting. Here you actually see the brush strokes in action and what kind of mistakes and changes the painter made during in process. Often you are so fixated on your own way of painting that some decisions and steps made by others come as a surprise, something you yourself wouldn't even have thought of. And sometimes people come up with new ways of using a program's tools that the developers didn't have in mind at all when creating it.

I chose two fairly different types of painting styles. Scot Drake does visualizations and concepts for Disney theme parks and events with a "traditional" style of concept painting. Alex Ruiz paints abstract and futuristic sci-fi images with a very unique style thanks to his use of custom brushes. Their techniques are complete opposites in many ways. Drake's images are clean and crisp with little detail compared to Ruiz's, yet they convey enough to the viewer to get a good idea of the concept. He relies heavily on architecture, environments and detail created with lighting. In Ruiz's images his abstract shapes play the main role and they merely suggest objects and environments, leaving it to the viewer's imagination to figure out what's happening in the scene.

Even though their styles are different, they use the same basic techniques of environmental concept design. No matter what kinds of brushes are used, the same rules of space, depth, perspective and focal points apply to every technique.

7.1 Scot Drake

Scot Drake's painting technique is the simple traditional way of concept painting. He has very simple shaped brushes and doesn't use a lot of extreme textures. Most of his painting process consists of blocking in big dominant

shapes with either the hard round brush or a wide flat brush. This is a very common way of painting where the artist focuses more on the light and composition of the image than details.

In his video *Futuristic Concept Painting by Scot Drake*⁴ he shows his painting process of *Future Resort*⁵. It starts with him trying out different concepts which he all blocks in with hard brushes to define their shape and lighting. Occasionally he uses simple effect brushes or airbrushes. In this first stage of visualization and creating a concept everything is rough and no time is wasted on unnecessary details. This video shows how useful the simple hard round brushes are in the early concepting stage. Drake blocks in several different versions very quickly and until he finds a concept he likes he doesn't hesitate painting over the underlying image in bold strokes.



Picture 11: Future Resort by Scot Drake.

Once he likes the concept, he blocks in smaller shapes. Still, he doesn't spend much time on anything. The overall look and atmosphere of the image are still more important than drawing leaves or water drops.

⁴ <http://www.youtube.com/watch?v=cgKdBptYbVM>

⁵ http://web.me.com/drake19/Scot_Drake/process/Entries/2008/12/3_Resort_Future.html

Drake paints these types of event and park themes a lot. He knows easy ways to give a scene a sense of life and a happy feeling. At one point, near the end of the video, he fills the scene with people. People that are enjoying their holiday in this sci-fi park. The people are blocked in with a previously made human shaped brush, a very handy tool. The setting sun gives the picture a warm inviting glow. More details aren't needed as long as the image conveys the feeling of an inviting resort. It's a successful concept if the viewer feels like going to the resort after seeing it.

Though Drake does use texture brushes, he obviously proves that a simple hard brush alone is a great tool. It simply requires better knowledge of shapes, light and textures to be able to paint them manually.

7.2 Alex Ruiz

Alex Ruiz is known for his unique abstract style and creative use of brushes. "A lot of my brushes are like mini art pieces of mine..." he says in his *Brush Creation 101* video⁶. In this video he demonstrates how he creates an abstract and detailed brush and how it can be used in several different ways by simply changing the brush settings. These brushes are the base of his unique and personal style he is known for.

This workflow can be seen in the process video of his painting *Convergence*⁷. To block in random shapes and get a base to paint on he uses his abstract brushes with scattering and size jitter settings. This helps build a base to paint on and also gets rid of the blank canvas. The detailed brushes can be either used sparingly to indicate things like buildings or other objects, or as a texture brush. No matter how detailed a brush is, if it gets used too much in a painting it loses its individuality and looks more like a flat texture.

To avoid this, unless it's actually wanted as a texture, Ruiz combines his extreme custom brushes with basic brushes like the airbrush. The soft airbrush creates a contrast in the image that brings out the rough and abstract brushes'

⁶ <http://vimeo.com/6321723>

⁷ http://www.youtube.com/watch?v=IN_oAOMBNN0



Picture 12: Convergence by Alex Ruiz. A sci-fi environment.

silhouettes. In his digital painting *Convergence*, the use of the airbrush lightens up the image and gives its environment space and depth and emphasizes the shapes of the dark structures. The important part is to find a working balance between the hard detailed shapes and the soft space, but that is a matter of composition, not brushes.

One of his trademark brushstrokes, which many artists use, are the spine like brushes. When a brush, especially one with a complicated shape like Ruiz' brushes, has a fairly high spacing percentage and the Angle Jitter is set to Direction, it will look like a twisting spine following the brushes direction. Usually this type of brush is used for alien like tentacles or chains.

The interesting thing is, he doesn't only use his brushes to paint, but also as shapes that he can scale and warp with transformation tools, further customizing his own original brushes. This requires big high resolution brushes that can be scaled and reshaped without losing too much detail or quality. Since his technique is in some cases so different from what we call painting it seems more like a form of shape and image manipulation. However, no matter how interesting and functional his own brushes are, he still uses the most basic brushes of all, the hard round brush and airbrush, to occasionally block in big shapes and to correct and edit his custom shapes. Even the best or most complicated brushes won't replace the basic knowledge of theory and painting needed when creating an image.

8 CONCLUSION

To actually use and test the brushes I created I painted the whole painting in Photoshop with my new tools. The idea of this isn't repainting an exact replica of the image, but to paint it the way I would if it was a real concept design of an imaginary environment. This means it isn't as realistic as the oil painting and doesn't have as much detail. It's more important to give the image the right mood and only vaguely suggest what the environment looks like. Details aren't necessary and only waste precious time in the concept part of a production. These types of environmental images are usually made to show people what the general mood in the scene will be and to inspire the production team.



Picture 13: A Wild Scene – digital. Repainted in Photoshop with the new brushes.

Looking back at the whole process there are a few things I would do differently if I did this a second time. One mistake was focusing too much on creating realism. Sometimes bold, creative brushes create a more interesting effect. As mentioned before, Alex Ruiz is the perfect example for this. From now on I will try to rely more on painting skills than brush effects. Creating realism with a

brush might be easy, but I still prefer a painted looking image to one that looks like it's a collage of semi realistic textures. If I had to make a choice between realistic and artistic skill, I would definitely pick artistic.

I want to point out, that there is no right or wrong way to use Photoshop's brushes. There might be different views and opinions, but there are always artists that do it the "wrong" way and still create amazing art. That is the amazing thing about this tool. In the right hands with a little inspiration it turns into a goldmine if unique creations.

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