

How can I explore and representing the atmosphere of landscape architecture by using 3Ds Max Software

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Representing the Atmosphere in Landscape Architecture by 3Ds Max software

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Dedication

This book is dedicated firstly to my mother who always trust me and love me unconditionally. To my sister who reassures me whenever I have problems. To my father who is beside me and support me with a calm, great love. And a special dedication to my uncle who has been inspiring me by his own life story.

Acknowledgement

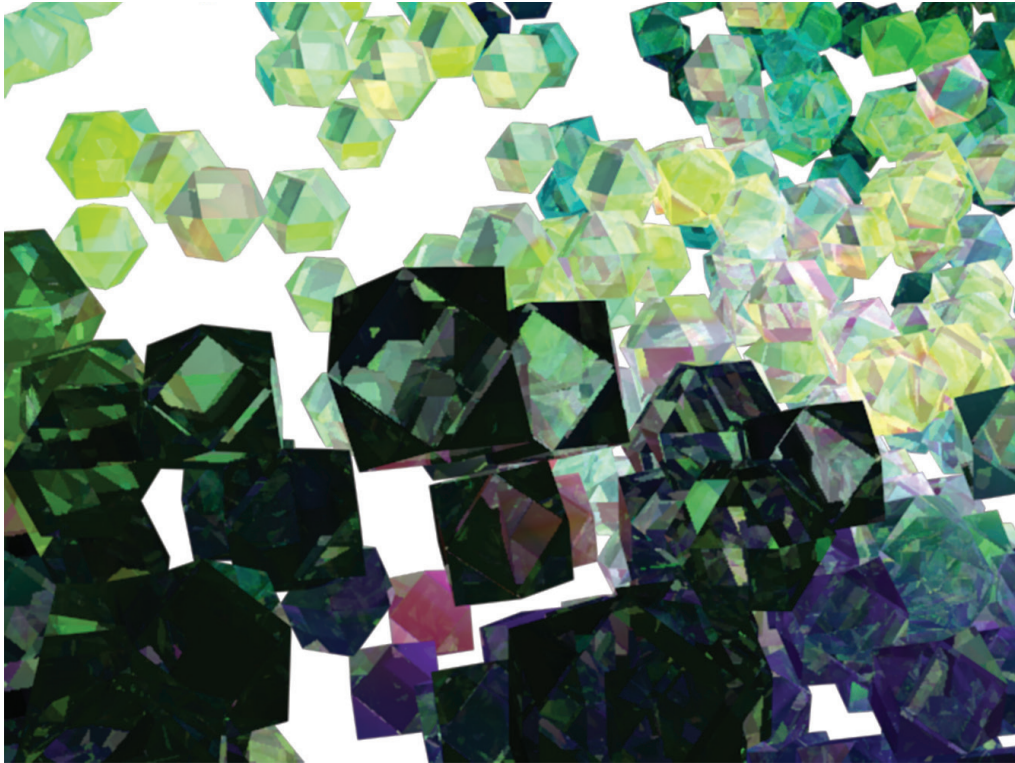
I am very grateful to the entire faculty of Master of Landscape Architecture, Auburn University.

I really appreciate Professor David Hill who is keenly patient to listen, share, teach and support me during this year of thesis. Especially for your essential roles in revivifying my passion of my profession through the journey of exploring atmosphere in landscape architecture.

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Acknowledgement

Abstract

Introduction

Atmosphere

Emotion versus Recognition

Abstract versus photorealistic

The aesthetic of atmosphere in landscape architecture

Atmosphere – the holistic experience of a place

Represent the atmosphere – communicate the experience

The aesthetic of Atmosphere in Art History

The Represent Atmosphere in Modern Technique

Exploration Atmosphere in the lens of landscape architecture

The journey of representing atmosphere in landscape architecture by 3Ds Max

Deviating from tangible object

Modelling in abstract idea – Atmosphere in small scale

Modelling in abstract idea – Atmosphere in medium scale

Intersubjective experience – Photorealistic versus abstract representing

Modelling in abstract idea – Atmosphere in large scale

Modelling in photorealistic idea – Atmosphere in large scale

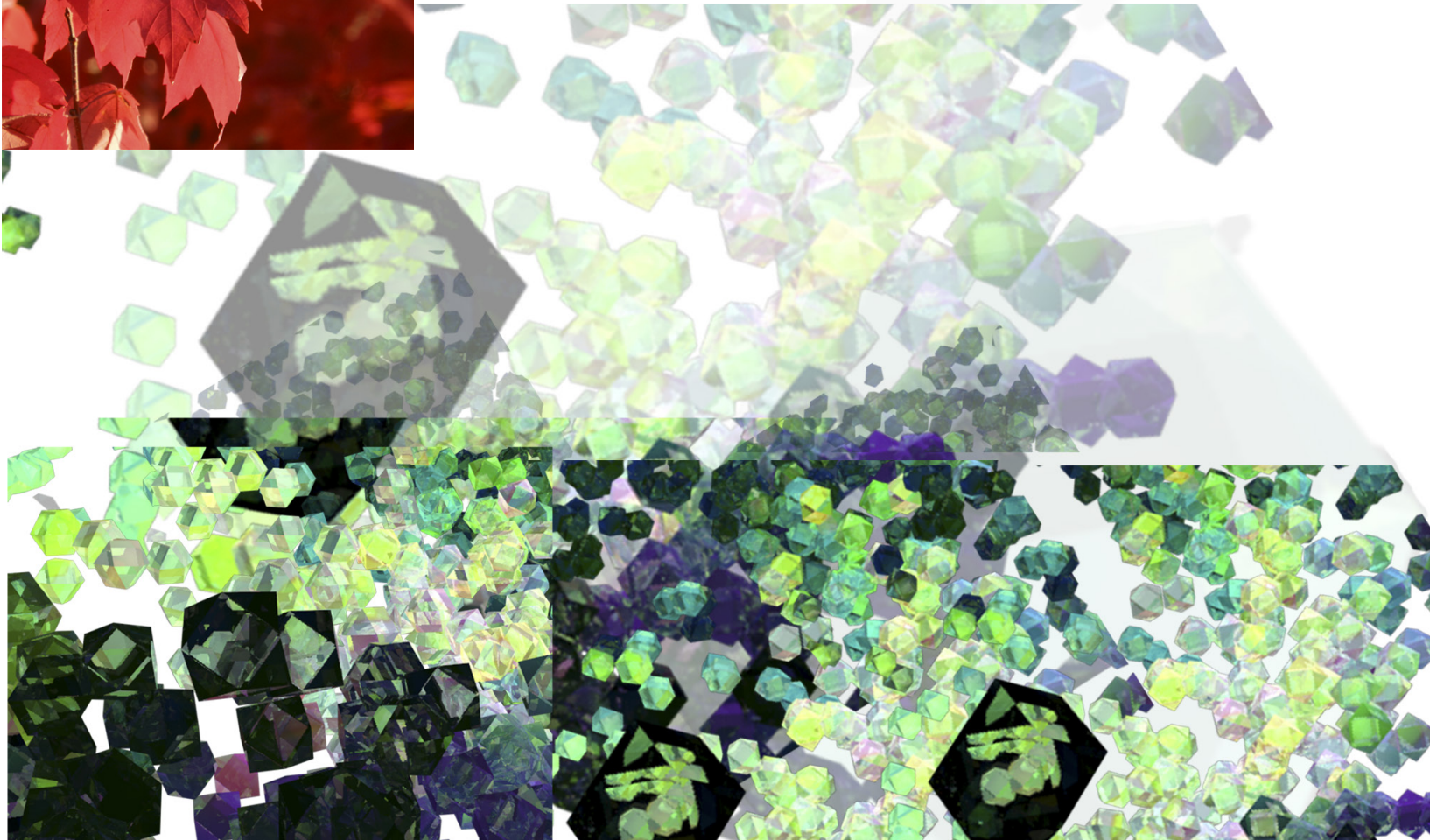
Photorealistic rendering – the great potential of representing atmosphere

Phase 1: Photorealistic modelling

Phase 2: Convey the quality of atmosphere in assistance of camera

Conclusion

Bibliography



Abstract

In landscape architecture, representing in graphic is a way to communicate the vision, the performance of the design. While objects and performance is popular standard to navigate graphic and design, the atmosphere which plays vital roles in creating the aesthetic of a place is not paid attention. While atmosphere, the experience of feeling, depends on subjects' attitude, it is also effected by ambient elements. This thesis, therefore, is the ambition of exploring and representing the atmosphere in order to communicate effectively between landscape architects and clients. This thesis examines how to represent atmosphere experienced based on both personal experience and ambient elements by 3Ds Max software. The priority goal of representing atmosphere by virtual three dimensional model would be stimulating designers to explore, understanding and engaging the atmosphere in spatial quality without physical experience. The secondary purpose is the effort of evoking the experience of atmosphere onlooker. Hence, the strategy of the project includes two main sections: (1) exploring the atmosphere in term of experience and ambience condition, and (2) technique of software. The success of the tests of representing is based on its ability to generate the experience of atmosphere of landscape of a place. Furthermore, it is expected to be useful for landscape architecture to apply their exploration of atmosphere to into design, testing on virtual models and communicating on rendering representation.

Thesis question: **How can I represent the atmosphere of a place by using 3D Studio Max Software?**

The aesthetic of atmosphere in landscape architecture

Definition of Atmosphere

Atmosphere, as its etymology in Greek is the combination of ἀτμός which means 'vapor' and σφαῖρα which means ball, atmosphere is identified basically as "the spheroidal gaseous envelope surrounding any of the heavenly bodies," "the mass of aeriform fluid surrounding the earth or the whole body of terrestrial air"¹. Also, it is defined as the "surrounding mental or moral element, environment"². The metaphorical meaning of atmosphere, therefore, has been understood as the "emotional tinge of a space"³.

Atmosphere – the holistic experience of a place

According to those definition, atmosphere in the thesis, first and foremost, is understood as the mental quality of a place, the experience of mood, or the character of a place. The atmosphere of a place is approached by the way people experience that is perceiving and generating atmosphere.

People experience the atmosphere of a place almost immediately when they enter the place. They hear the sound of wind, see the color of construction, smell the odor of grass, touch the texture of material, and even taste the flavor of wild fruit. All of those creates the feeling of a place. However, the feeling which are more special and noticeable would nominate others resulting in a specific impression of a place. Those are reasons why atmosphere is noticing rather than perceiving⁴ and based on multi-sense experience⁵.

Another character of atmosphere is the distortion which is blending by interaction of elements in the ambiance and the internal feeling of onlookers. That means, people do not experience atmosphere of a place by isolated objects but in the harmony of surrounding environment, even in mono-sense or multi-sense.

Also, in that term of sensational experience, atmosphere is perceived not only grasping elementary sense-data or in coincidence, it is further the meaning of being involved in specific situation, place or space. That includes the both the felt-body experience as well as the feeling of movement. Atmosphere, therefore, relates to phenomenology and moment which are the most interesting characters of landscape architecture. Atmospheric involvement, therefore, is the experience of "holistic and emotional being-in-the world." (Gernot Bohme, 2013)

Colours, for instance, before being perceived as properties of the objects, are perceived in their interaction with the color of the contiguous objects and even with the air interposed between our eye and the perceived, to the point that they 'are no longer condensed into surface colours, but are diffused round about objects and become atmospheric colours': it is 'as if the thing is thrust outside itself' (Merleau-Ponty 2005: 310,372) – and it is not exaggerated to define such ecstasy as coexistence or communion.

Tonino Giffero, Atmosphere: Aesthetic of Emotional place, 2014, p32-33

Regarding to the question of how to stimulate the atmosphere, it relates to the character of atmosphere as the intersubjective experience. That means it is the medium between subjective and objective experience. As subjective experience, atmosphere could be the totally new experience that people haven't had before which results in the fantastic condition to manipulate the mood of people. On the other hand, if people has involved in specific situation that is impressive, emotional, and memorable, the similar conditions might remind them that experience. That is also the kind to evoke the atmosphere through representation which results in the consideration of photorealistic representation later.

¹ Oxford English Dicionary

² Oxford English Dicionary

³ Gernot Bohme, The art of the stage set as a paradigm for an aesthetics of atmospheres, 2013

⁴ Tonino Giffero, Atmosphere: Aesthetic of Emotional Place, p10-15, 2014

⁵ Gernot Bohme, The art of the stage set as a paradigm for an aesthetics of atmospheres, 2013

Represent the atmosphere – Communicate the experience

Why is it important to represent the atmosphere of a place? Why is atmosphere rather than other qualification?

First of all, atmosphere is the qualification of mental, the aesthetic of emotion, it is important to communicate the atmosphere in design. Secondly, atmosphere is important but it is the kind of abstraction, similarly to other abstract ideas and notions such as peace, beauty, heat, which is much more difficult to capture in term of drawing . Also, qualification of atmosphere is based on personal feeling, there is no standard to express, evaluate, communicate how the atmosphere is in drawing⁶ . Hence, it is important to learn how to capture the atmosphere and communicate about that quality of landscape.

Moreover, since capturing atmosphere is first and foremost, relies on the feeling of designer and his own imagination, atmosphere could be the inspiration to designer to explore and understand the place of design. While landscape are everywhere in daily life, people appear to forget the aesthetic of atmosphere in their familiar place because of extreme busy pace of life. Additionally, atmosphere, in term of sensation and impression, the experience of atmosphere could be the most genuine and responsive reaction of human to the place⁶ , so that communicating the atmosphere is able to grasping the totalities as aesthetic values. By exploring and transforming the atmosphere of a place in drawings, landscape architectures could evoke the experience, the feeling of the onlookers about the place. That way, in my opinion, is the communication of the soul, the inspiration and the passion of nature love, from the designers to the clients.

We see colors, hear sounds, smell perfumes, taste the sweet, the sour, the bitter, the salted... but we do not see our own seeing, hear our own hearing, smell our own smelling, taste our own tasting... Finally, we feel sadness, joy, hope, love, expectation, veneration, hatred, and therefore something that moves the soul, but we do not feel our own feeling.

Tonino Giferro, Atmosphere: Aesthetic of Emotional Place, 2014

⁶ JJ de Lucio-Meyer, Visual aesthetics, 1973, p 152-154

⁶ Meyer Schapiro, Impressionism Reflection and Perception, 1997, p44 -45

The aesthetic of atmosphere in Art History

Impressionism is the art movement in nineteenth century that is considered as an revolution in art history that nature was valued as its worthy. Different from the academic drawings that landscape and nature is only dark mass color as the background, nature and landscape in impressionism was drawn by the first impression of the artists. Valuing "impression" as original emotion, impressionist emphasized the sensational experience, especially the experience of seeing which can be seen in their validation, the effects of color and light in drawing⁸ .

On the way to step back and figure out how to represent the atmosphere, impressionism paintings are great precedents for what I am looking. Although impressionist captured the scenes around our daily life, they are successful to arouse our emotion. In other words, they are successful to communicate the atmosphere of a place through their personal feeling, true experience. Impressionism focus on both spectator and spectacle, the painting can capture the real scene as well as express the artists' feeling. In order to value impression, the kind of original, genuine and responsive experience, impressionist focused on the sensational experience, especially on the vision involvement which can be seen in their aesthetic validity – color and light. Sensation, moment, phenomenology, all of those reflected in impressionism painting are the qualification of atmosphere I am inspired to explore the atmosphere of landscape architecture.

Through the research of impressionism, I, in the lens of landscape architecture, have learned how the artists inspired by nature. They explore nature and see an object in the interaction with surrounding environment. This is reflected the method of drawing, that each color is the harmony of object color and neighboring color; the surprising color is not captured as isolated great and shocking impacts but in association with the rest of canvas, the entire family (Meyer Schapiro, p23-30, 1997). That principle of neighboring color and entire harmonious environment has trigged me the thought of network in landscape element in which each component has close relationship with surrounding environment. That interaction, in my opinion, is the limitation of contemporary of landscape representation, especially by collaging in Photoshop which is only the combination of many example of elements to illustrate how the design look like rather than how they interact each other and survive together. Even it can show that relationship by a lot of 'lines and narrows', it is not as interesting and attractive as the landscape in impressionism painting could be.



Figure: Claude Monet, *Boating on the River Epte, Blanche and Marthe Hoschede*
Meyer Schapiro, *Impressionism Reflection and Perception*, 1997, p54



Figure: Claude Monet, *La Grenouilliere*
Meyer Schapiro, *Impressionism Reflection and Perception*, 1997, p56

⁸ Meyer Schapiro, *Impressionism Reflection and Perception*, p15-17, 19, 23, 28-30, 1997

Valuing the detail color in relationship with neighboring and accidental color, each brushstroke in impressionism painting is considered as as the pigment of emotion in the web of experience. Impressionist draw their picture in quick and spontaneous brushstroke which is successful in depicting the fleeting moment as well as the vivid color of surprising object in the harmony hue with the entire background. Each brushstroke was considered as the pigment of emotion in the web of experience. This character, in other name as pointillism, has been a successful way to evoke the experience of the depth of space or the motion of invisible elements reflected on visible elements.

What I can learn from impressionism is the way they perceive the landscape and represent it. According to Monet, his painting, the 'Sunrise, impression,' communicate himself experience to the audience because it captured the true experience, himself engagement under the effect of the scene⁹. Eugene Delacroix, on the other hand, emphasized the process of transmitting impression by nature to the artist, and encouraged the drawing from imagination and memory in order to free the personal impression from the limitation of their own model¹⁰.

While those procession has been familiar in art, it trigs my imagination about landscape architecture. In my design, there is separation between design and experience. The way an impressionist explore the landscape of a place, stimulating their imagination, drawing that experience to communicate the atmosphere is what I want to explore and transform.

⁹ Meyer Schapiro, Impressionism Reflection and Perception, p42, 1997

¹⁰ Meyer Schapiro, Impressionism Reflection and Perception, p22, 1997



Figure: The Starry Night – Vincent Van Gogh (1889)
<http://www.vangoghgallery.com/painting/starry-night.html>

In starry night, the lesson is the balanced color in association with thousand tiny brush to capture sparkle star. Beyond on that, the tiny brush is successful to illustrate the moment of the air as well as the peaceful atmosphere.



Figure: Femmes au puits, Paul Signac
<http://www.nha-journal.org/articles/2012/galleries-2012/images-neo-impressionism/signac-femmes-au-puits/view>

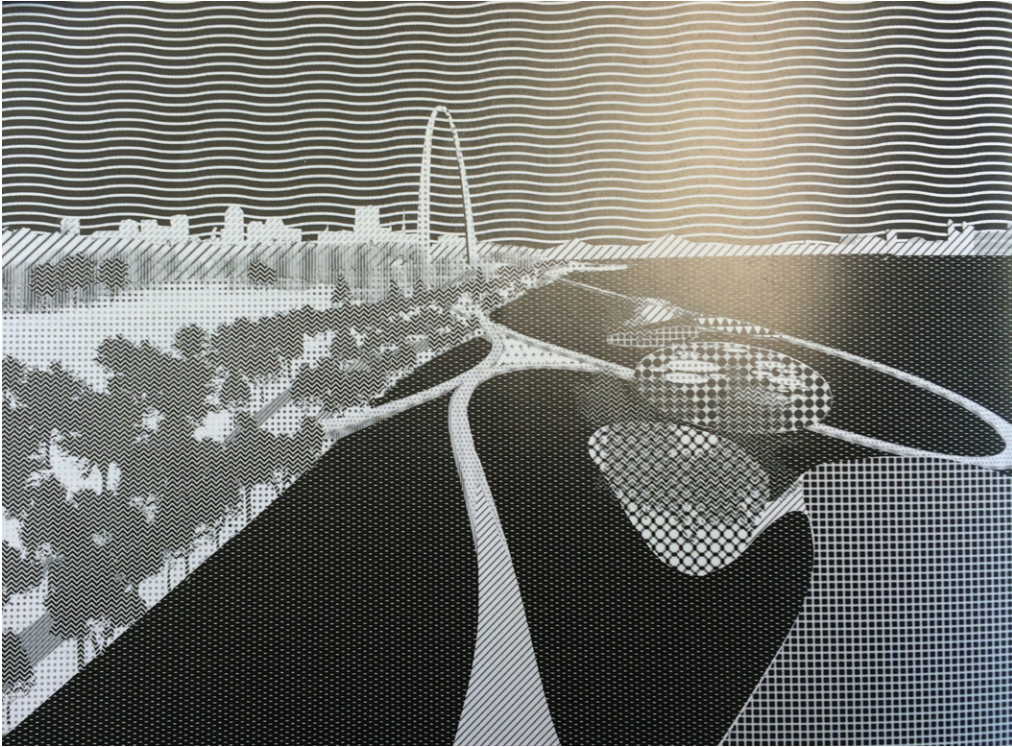


Figure: Sunday Paul Signac
http://en.wikipedia.org/wiki/Paul_Signac#/media/File:Paul_Signac_Dimanche.jpg

Pointillism

Pointillism is the technique of drawing elaborated from Impressionism. In this techniques, artists paint their drawings by tiny dots of color. The tiny dots can be in original color and mixed together to create the secondary color or it is in pure color in later. The aesthetic of pointillism is not the color of separate dot; it is the surface created by the harmonious hue and shade. Also, the pointillism paintings are those of considered example of painting objects in the sophisticated level of object color, neighboring color to create the space as well as remind the experience of the atmosphere.

Paul Signac is one of the famous artists in school of Pointillism. Abandoned the short brushstrokes of Impressionism, he experiment the juxtaposed small dots of original color. In his idea, the blend and mixture of those original color is not only for subject on canvas but in the viewer's eyes.



Above
 Balmori Associates, St Louis waterfront, St ois, Missouri, USA, 2008., Digital Rendering
 Diana Balmori, Drawing and Reinventing Landscape, 2014, p026



(Right) Balmori Associates, Botanical Research Institute of Texas, Fort Worth USA, 2008.,
 Color studies, a series
 Diana Balmori, Drawing and Reinventing Landscape, 2014, p124

Pointillism has been applied in contemporary of landscape drawing. These are some of example by Diana Balmori. Concerning how to capture the qualification by moving back and forth between abstraction and realism in representation, Balmori applied style of Pointillism which could contribute to the most difficult part of representation, color an dinterface. Intensive color through dots is not only communicate effective the sensation of changing light but also the states of mind which is dramatic, surprising as well as emanating other invisible factors such as wind, temperature and so on. These examples are interesting examples of flexible application of pointillism rather than strictly following the tiny dots because the most inmortant is evoking sensational experience of onlookers.





Hyperrealistic painting by Gregory Thielker
<http://viola.bz/gregory-thielker-artist-painting-rain/>

The Aesthetic of Atmosphere in modern technique

Hyperrealism

Hyperrealism is a type of art that resemble a high-resolution photograph. Developed from the aesthetic principles of Photorealism in which artist create the drawings as identical as possible in comparison with photos, hyperrealism focus to describe the special character through the lens of overemphasize that character, for example using light effects, water effects to capture human emotion or detailed items. Although the items is much more than realism that human eye can see, hyperrealism is successful to eliminate the emotion of people based on the hyper-realistic images. Through the examples of hyperrealism, it is supposed that light and water could be used as an effective distorted lens to represent the atmosphere in landscape architecture.



Hyperrealistic by Roberto Bernadi
<http://twistedstifer.com/2013/02/hyperrealistic-still-life-paintings-by-roberto-bernadi/>



Alyssa Monks – Steamed (2009) <http://452424108911856005.weebly.com/>



Hyperrealistic by Roberto Bernadi
<http://twistedstifer.com/2013/02/hyperrealistic-still-life-paintings-by-roberto-bernadi/>

Photography technique

The development of camera along with photography has been the credible advantage in visual art. In photography, there is some techniques that can exploit the motion and the phenomenology of landscape architecture as well as those of atmosphere.

In Photography, the atmosphere is captured through the lens of camera which could be effective tool to capture the scene as real as what human can see. The height and direction of camera such as high-angle view, low-angle views results in the photos which are almost identical to the real scene of that position. Even better, the input of camera lens which plays important role in filter of color, light and movement is also the advantage to emphasize the specific character of the scene which has been drawn successfully in art history. There are some input to achieve the light effect in photography is the shutter speed, focus of depth, white balance and ISO. Additionally, since the 3Ds Max software has toolset for camera set up, there is some input that designers can change to modify the effect of atmosphere in order to improve the quality of image; for example ozone intensity, sky light, motion blur, bokeh and so on.

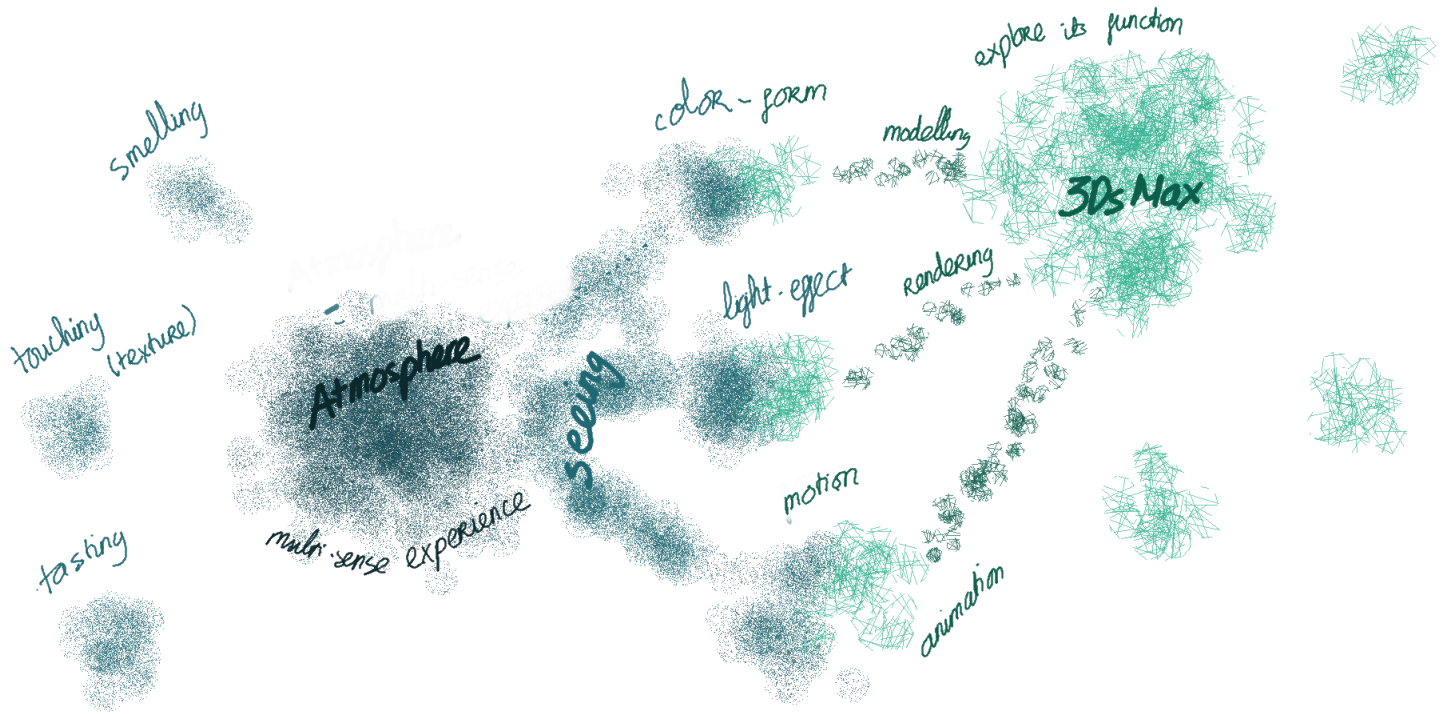
As can be seen in these photographs, by changing the focus point and the DOF, the results were differnt which reflect the purpose of exploration. The left image were my goal to capture the transparent of grass under the sunlight while the belows express the depth of space as well as spatial texture via clear versus blurred light and leaves.

Camera technique is also the advantage of 3Ds Software which 2D software cannot achieve. Based on the change of camera focus, viewpoint, camera is a great tool to capture the atmosphere in term of motion in association with various qualification of atmosphere from different view in the same virtual model.



Memorial Garden, Auburn University, Spring 2015





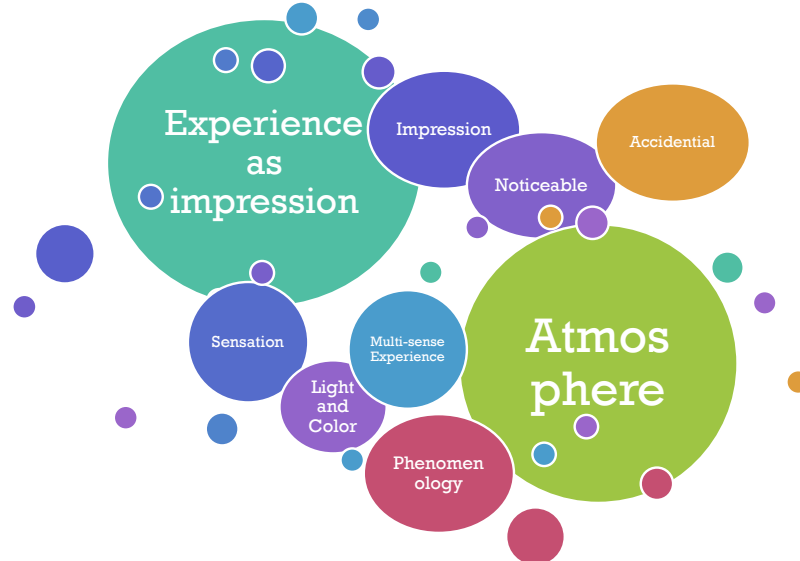
Exploration Atmosphere in the lens of landscape architecture

Understanding the role of atmosphere in landscape architecture representing, the hard question is what qualification of atmosphere can be represented.

Since atmosphere is multi-sense experience, it could be generated by natural conditions which effect on human sense. It is important to identify the relationship among natural conditions, atmospheric experience and 3Ds Max function. Among five type of human-sensation, visual experience is the one which can be captured as much as the real experience. For those character which has tangible form, color in space, it is not hard to capture it through models. However, for those which are invisible but people still can feel about that such as touching (wind, moisture, temperature, and texture) those character could be relate and capture through its effect of light and color on the visible objects. This is what I supposed as secondary visual experience. For example, the wind can be seen through the movement of the grass, the high humid and wet of weather after rain can be experience through the grey sky, sleeky texture of road surface.

Similarly to impressionism and hyperrealism, light and color is chosen as the elements to approach the atmosphere in landscape architecture which is the light effect through the canopy. From the very small and specific scale of plants as leaves to the larger scale of canopy, a tree, a group of tree, the various thickness, color, shape of leaves resulting in different light effect when the sunlight goes through the canopy. That characters, in spatial quality, create the experience of dark as humid and light as hot, dry; shade and shadow in association with texture and performance of canopy, eliminate the experience of density.

Another issue is the shape and form of landscape elements. Aspired by atmosphere in art, I want to convey the atmosphere in two type of model, the model of abstract idea or abstract model, which reflects my imagination, my memory of the scenes; and the model replicate the realistic image or photorealistic model, which emphasize the specific character of atmosphere such as density, transparent canopy or light effect and water.



The journey of representing atmosphere in landscape architecture by 3Ds Max

Methodology and Strategy

The journey of representing atmosphere is approach from atmospheric experience and representing requirement to figure out the common character in order to exploit the technique for the best results.

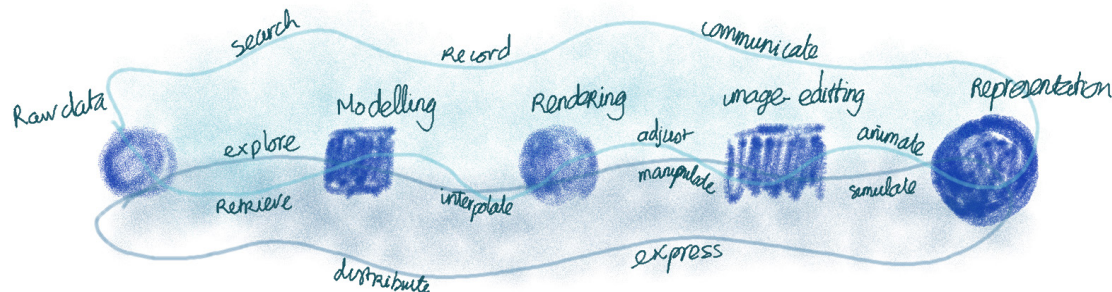
The process of representing atmosphere is inspired from impressionism which include observation, memory and distinguish the impression of the place, transforming it to drawing and then to virtual modelling.

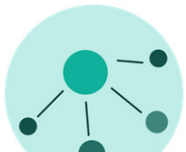
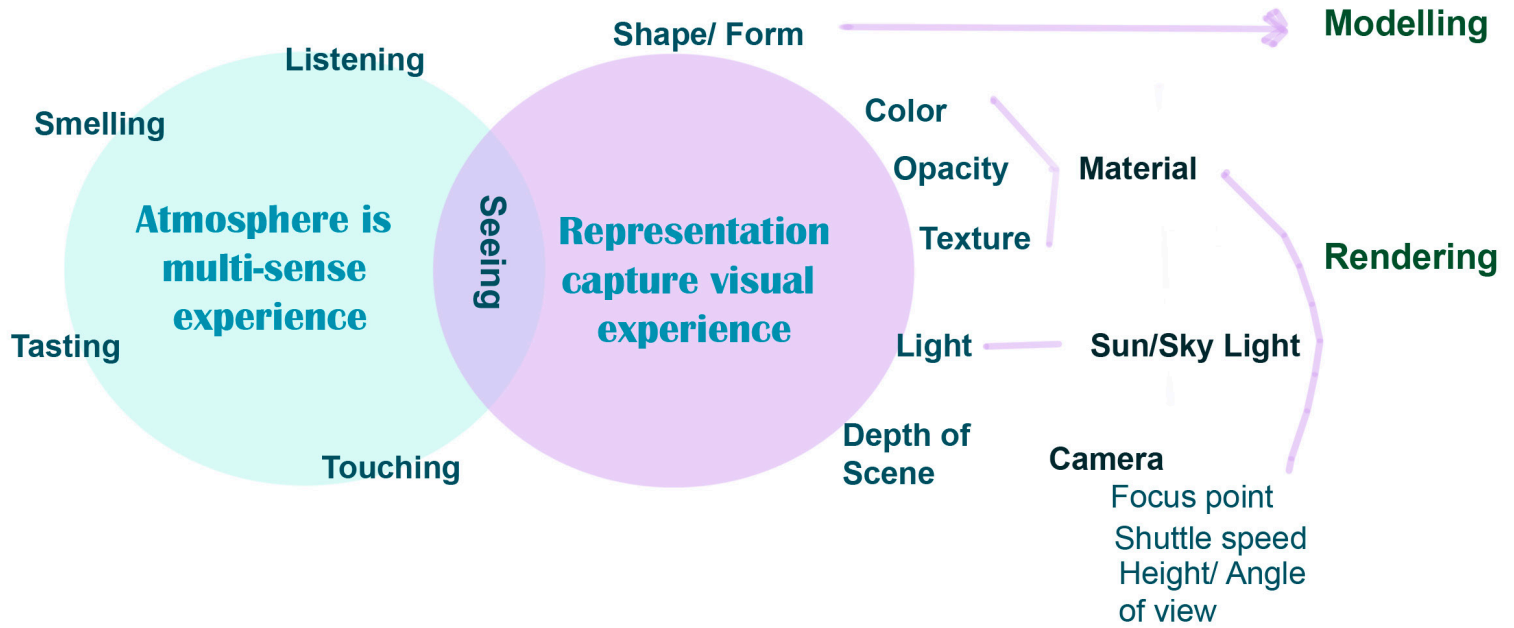
The strategy which is motivated by the side of perceiving atmosphere and the side of manipulate atmosphere, is following:

Domination elements: since our brain recognize some most noticeable, dominated effects among many elements of atmosphere, my strategy is choosing one to two specific characteristic to represent. This does not make the representation of atmosphere weakened but could create impression about a place. On the other hand, because of the close relationship among environment elements, other qualification which is not emphasized could be considered relating to the special qualification. To be more specific, shape and form, color and light would be the main elements in modelling the scene.

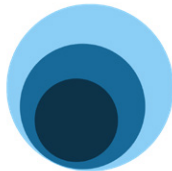
Scale: The atmosphere when people focus on a vivid flowering garden is totally different from the atmosphere perceived in front of a vast valley. Also, the representation of a specific windows which is very detailed in sunlight through window glass, the smooth, reflective surface of flower vase versus the rough texture of tablecloths and wood, while the representation of the majestic fall mountains should be the mass color of canopy, the light effect through canopies to capture the depth of space. In other words, both atmosphere and representation are different in elements, quality, and effects in different scales. Hence, the scale of a place and objects for representing the atmosphere is considered as one of strategy.

3Ds Max technique: Based on the common point between 3Ds Max and atmosphere character, there is two main steps including modelling and rendering. In the modelling, planning, twisting, distorting, waving are the main skills to create the model. In rendering, the most important technique is photography which plays important role to render the light effects, depth of space, as well as the space quality based on motion. Other techniques is mapping materials and environments effect such as fog, light, and fire.





The first strategy is choosing one to two features to explore and represent



The second strategy is the focus on the scale of a place, changing from small to medium, and larger.



The final strategy is exploiting the tool kit of camera in 3Ds Max software to capture and the expected qualification/

"I consider the impression transmitted by nature to the artist the most important thing to be translated." ... recommended drawing from imagination and memory as a means of freeing oneself from the imperfection of the individual model. (Eugene Delacroix)
Meyer Schapiro, *Impressionism Reflection and Perception*, 1997, p42



Deviating from tangible object

Modelling in abstract idea – Atmosphere in small scale

The first test of convey atmosphere which is conducted in the specific scale of trees since those models of plant could contribute to the model of a scene in a larger scale. The imaginable models were proceeded through observation, hand sketch and modelling. The modelling is the combination of different tool to express the distort image of tree model under my lens of imagine. The first phase of tree modelling is the one I was very excited with modelling abstract models.

Shade tree with plane and water color

In the process of creating the models of tree which is different from traditional models in 3Ds Max, distorted basic shape is the one that I supposed the most effective to express the concept about the shape of the canopy. Also, this tool of transform the plane is the one that I used it much later to create terrain, shape of forest canopy.

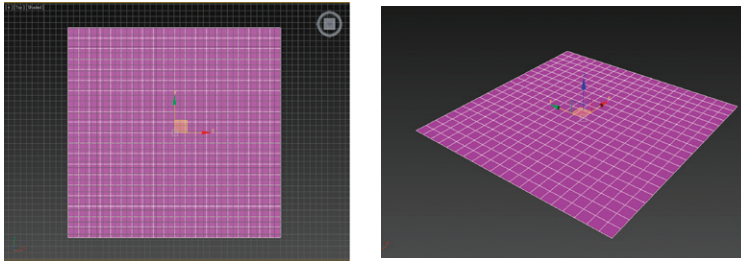


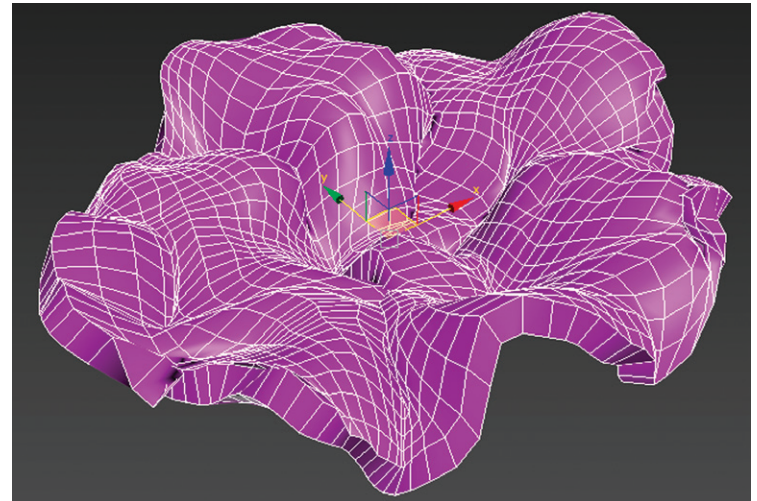
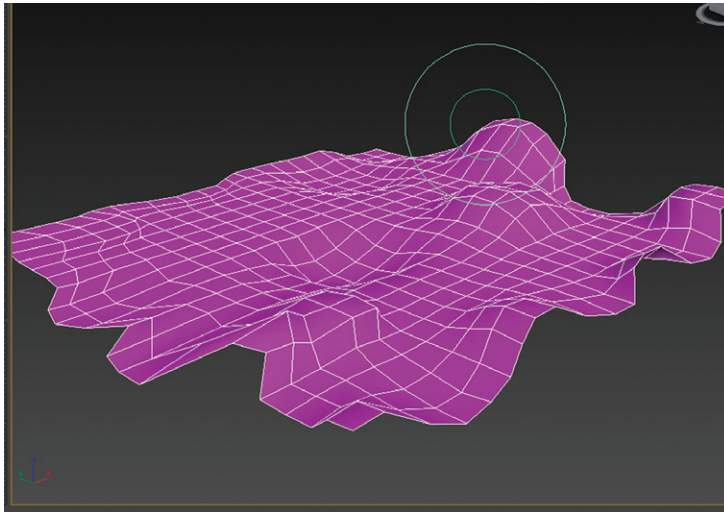
Figure 1-2: Basic shape in 3Ds Max such as plane is a good start

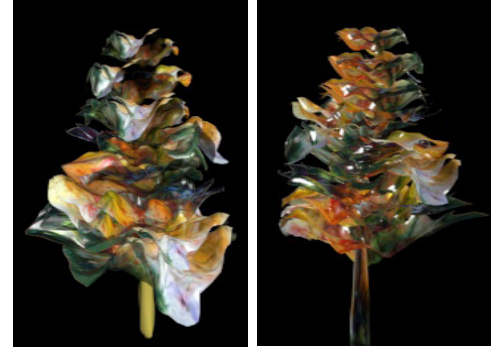
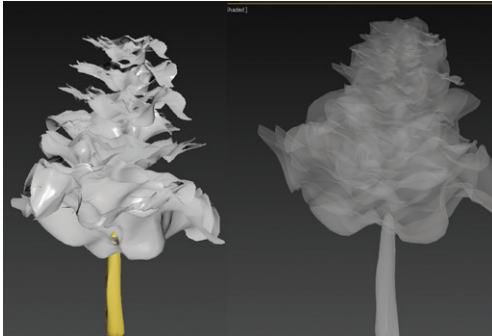
Figure 3-4: is the result of the plane after edited by terrain tool kit and added thickness to create one layer of canopy.

After creating one canopy, I multiplied it and combined together to create the trees. In order to prevent boring repeat of canopy, I did change and edit each canopy a little so that the model was more interesting and various in the shape.

The raw model is not interesting with grey color. Hence, an important step is add material and rendering. Instead of using the original color or the real image of leaves, I used patterns of water color to illustrate the brilliant beauty of tree in fall season.

Additionally, the changing of input data for reflection, refraction and transparent resulted in amazing tree which were much more interesting and attractive than the traditional model in 3Ds Max.





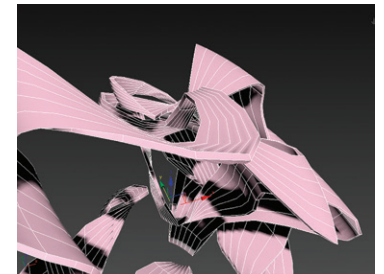
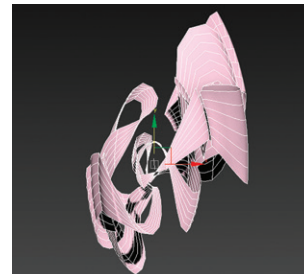
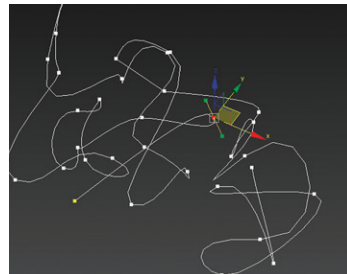
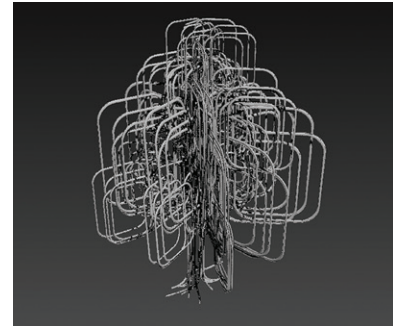
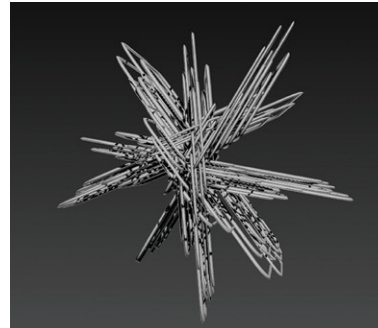
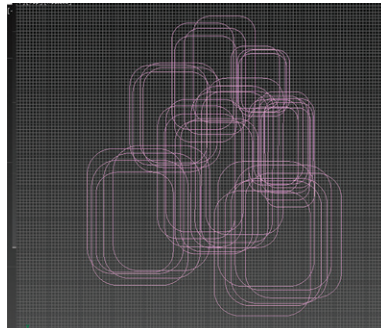
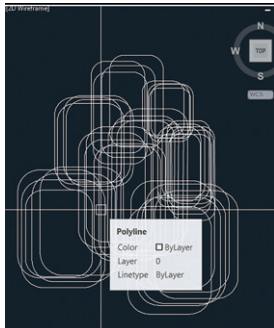
Drawing is the first step in any process of modelling abstract concept

Drawing is the way I express the characteristic of the tree. Observing, drawing and then, replicating those drawing in 3Ds Max. The first step of modelling were create line in a surface to mimic the hand sketch drawing.

After that, I created the basic shape or form in 3Ds Max such as box, plan, torus, and applied tool kits such as distort, wave, bend, twist to create the form I want.

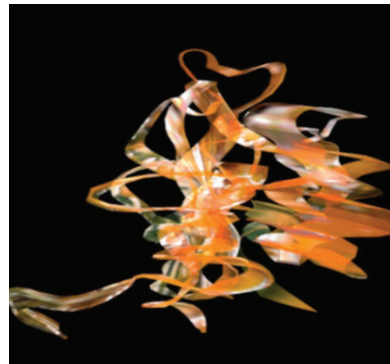
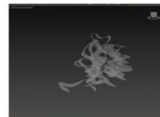
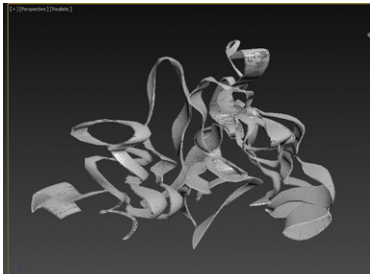
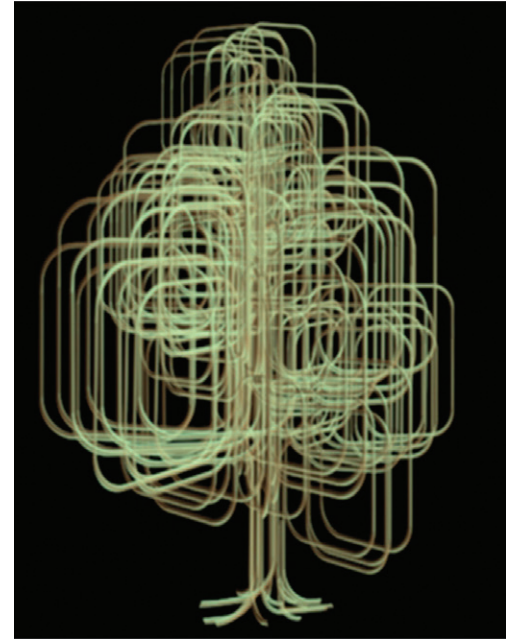
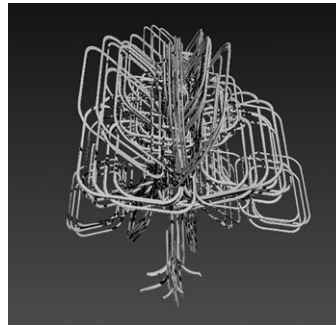
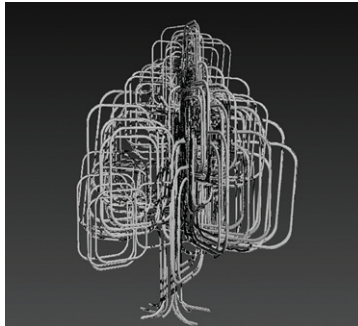
Then, combine those form following the line of drawing to have the basic image of the tree. The most difficult step was rotating those separate element in virtual space in order to create the 3D model. Sometimes, the tree looked good from the left view yet it was totally imbalance and separated from the front view. Editing and connect all of those pieces together gave me the opportunities to understand more about he complicated construction of canopy which I had not paid attention before.

Belows are the printscreen of the process of modelling started with 2D drawings.

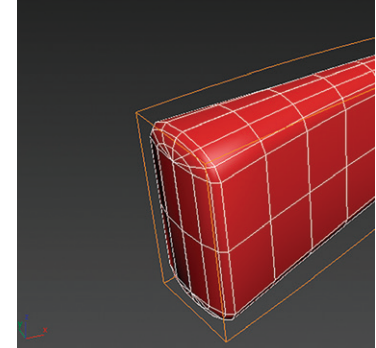
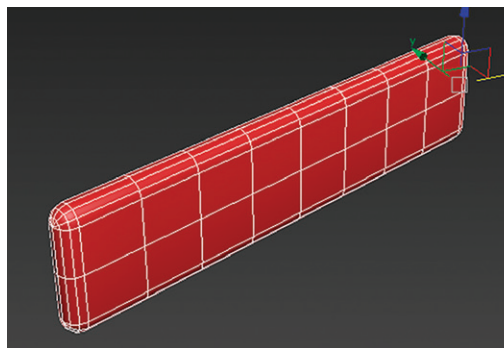
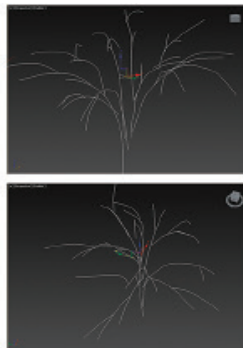
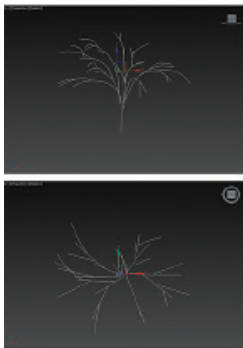
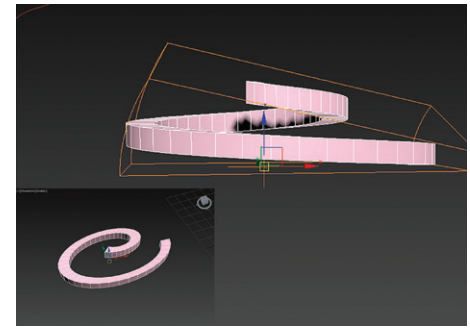
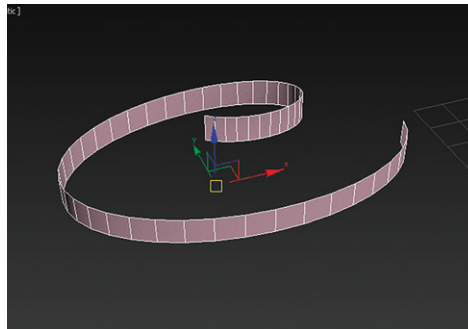
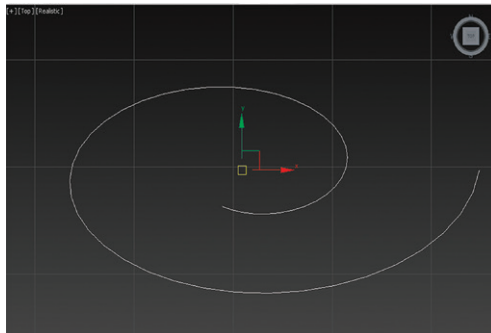
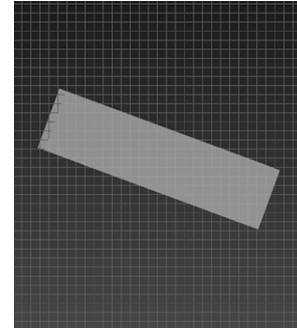
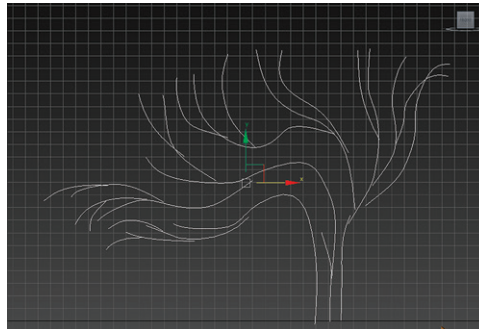


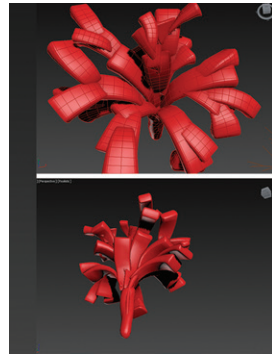
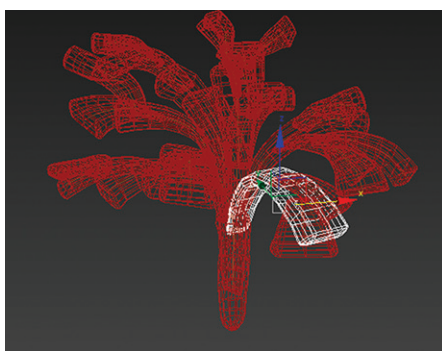
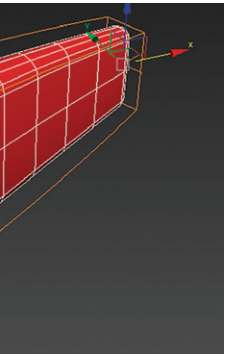
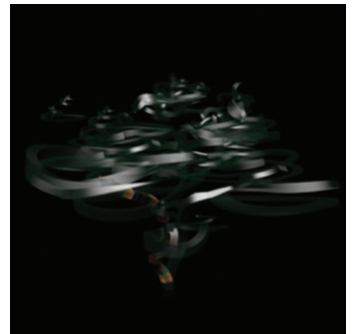
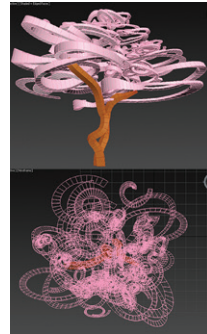
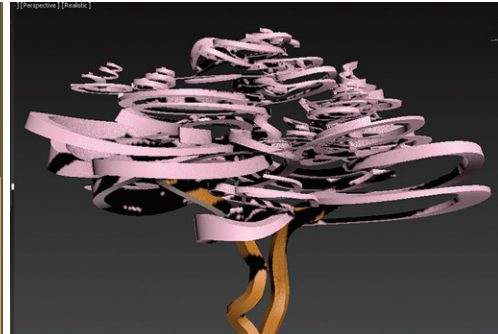
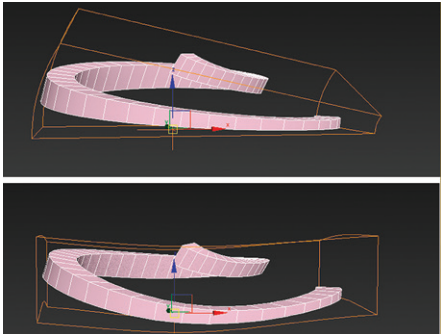
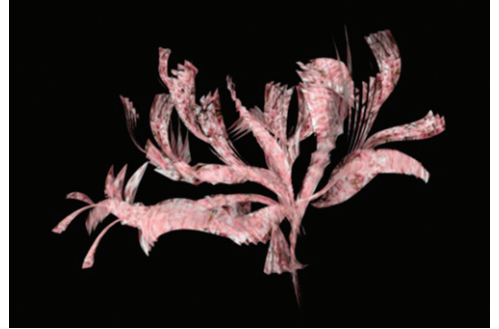
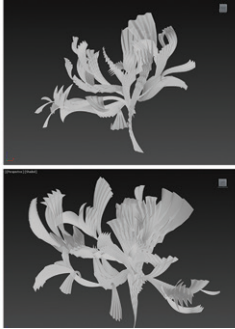
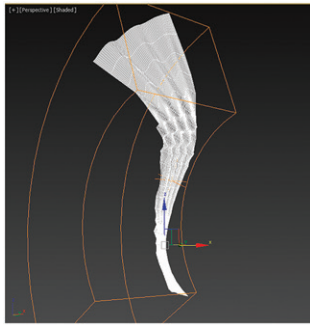
Similarly to the modelling of tree from terrain, without mapping material, the trees looked boring and ugly.

By adding material, the models were not only beautiful, but also can express the character of the tree that I want to. Belows are the images of the model from different perspective, as well as the results of rendering with materia.



There are the images illustrate how the abstract tree models were created following the previous mentioned workflow. From the top to bottom, the different is the basic shape, to be more specific, the first series were created based on the plane distorted by bending and waving; The second series illustrates the process started with lines, extruding, bending (bending at least two times), finally attached together to create the canopy of tree. The third series is about the process with boxes.







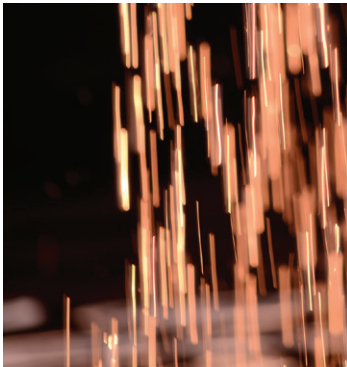
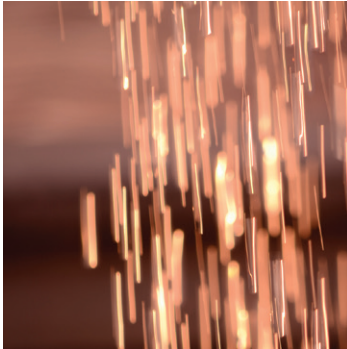
Deviating from tangible object

Modelling in abstract idea - Atmosphere in medium scale

The model of water fountain

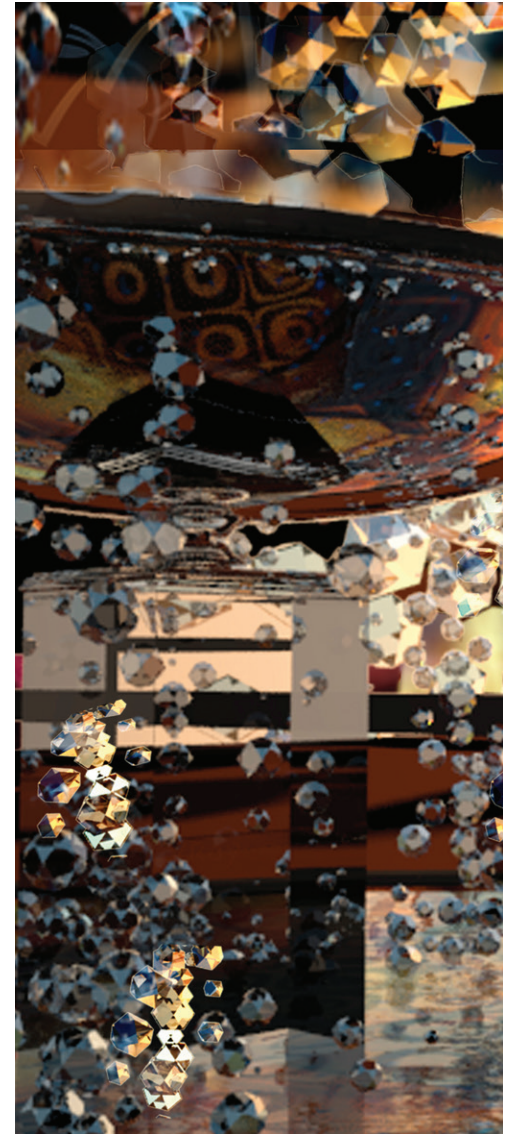
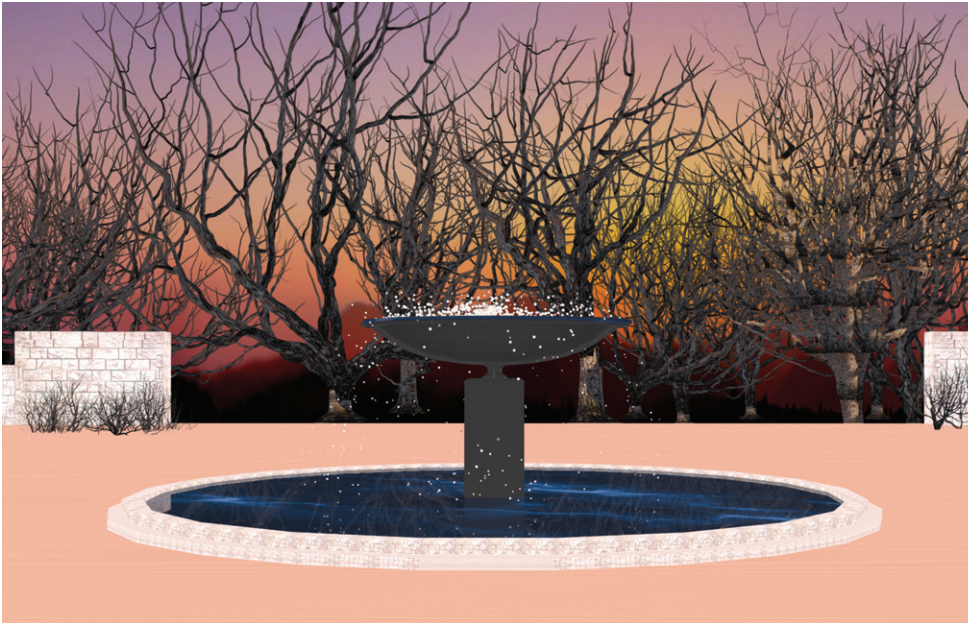
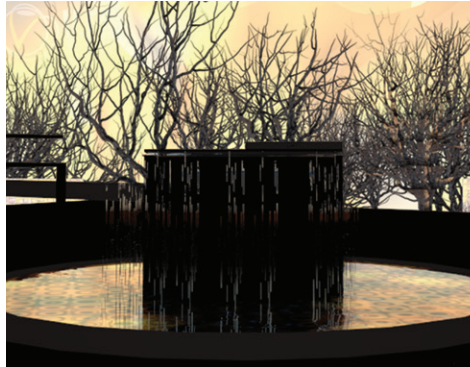
Moving to medium scale, I tested abstract model with the water fountain which focused on the light effect through the falling water. Exploiting the reflection and refraction character material in 3Ds Max, the water fountain was the test of both photorealistic and imagined models.

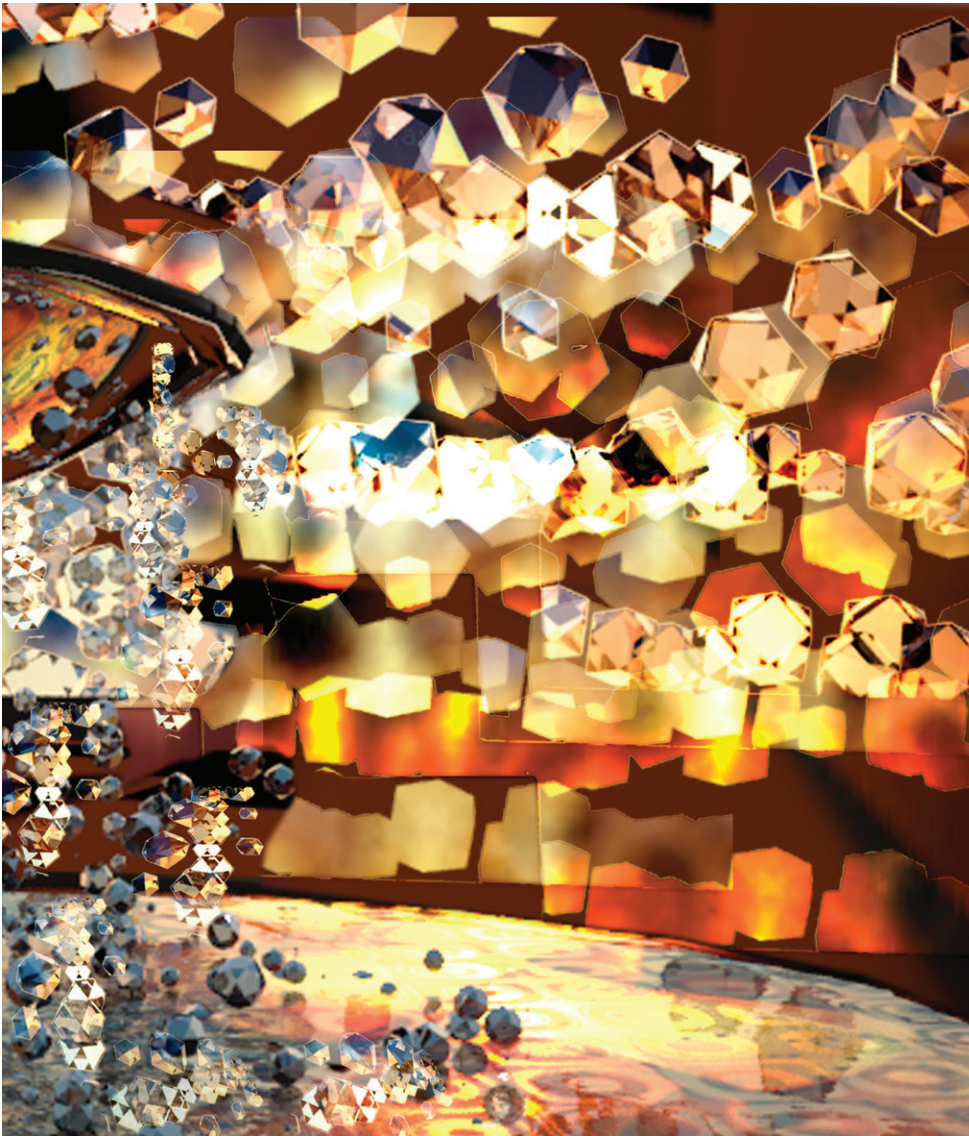
Inspired with the attraction of cube in modelling the trees, I continued to use cube as elements to create the model of water fountain. Because of the special character of cube, with or without material, in reflecting and refracting light and color of surrounding environment, cubes appeared the best choice to capture the atmosphere with special light effect.



The model navigated by idea of photorealistic model

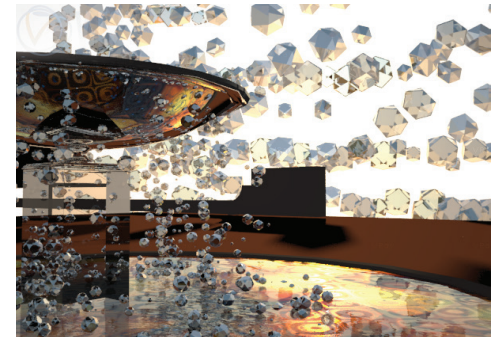
In this test, the photorealistic model was not successful to capture the sparkle light of falling water because the scale of model was not suitable to capture the reflection of falling water.



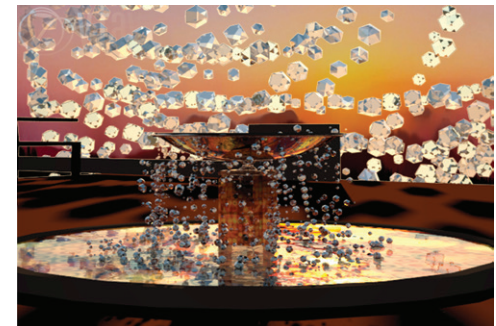


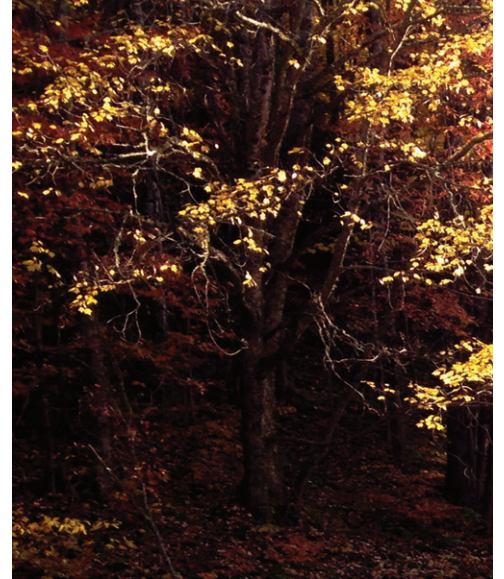
The model navigated by abstract idea

The abstract model, on the other hand, under the effect of light and exaggerated transparent along with refraction and reflection, was extremely effective to capture the brilliant color of falling water in sunset. The limitation is that, it was over-abstract which deviates far from the real scene. Hence, it could not contribute to communicate how the design looked like in the reality. As a result, it could convince the expected qualification of the design as well as the atmosphere.



Above is the test without effect of sky light and below is the test with skylight effect which is better in capturing the light effect as the specific atmosphere in this situation.





Intersubjective experience - Photorealistic versus abstract representing

Moving to the larger scale, I chose the fall forest on Great Smokey Mountain where I fell in love with the romantic, magnificent performance of great nature. The fall forest was the one which satisfied the experience of atmosphere as density, transparent canopy in association with the experience of magical fall through the vivid color of autumn canopies and brilliant sky. This scene was tested with both abstract and photorealistic models



Light

Color

Shape/ Form

Texture

Humidity/ Moisture

Temperature

Fauna/ Flora



Feeling of density

Feeling of balance

Feeling of motion

Feeling of wet/dry

Intersubjective experience - Photorealistic versus abstract representing

Modelling in abstract idea - Atmosphere in large scale

The two first abstract models which were created with the concept of conversed light effect were not really successful to convey the atmosphere of the fall forest. Based on the distortion of plan in tree model, I created and transformed the mass canopy of fall forest in the many large planes. Concerned with the experience by the plain space versus the thickness of canopies, I created the model with the tessellation as the concept of negative effect in drawings. Although abstract layers and abstract canopy aimed to emphasizing the experience of shade and shadow in different time in a day, it were able to show the difference of shade effect yet it could not express the experience of transparent canopy as well as the spatial quality of density.

The third imagined model were the enhancement of cube model of tree. In order to express the density of mass canopy as well as the reflection of them in space, I edit the cube from tetra to octa-surface. Those cubes were mapped in three kind of material which were different color of Reflection, Refraction along with different Refraction including gloss intensity, fresnel and IOR. The cubes with dull material (low reflection, low refraction) were painted in the middle of the mass canopies to create the density and the darkness of space. The sparkle cubes which were medium in reflection and refraction were painted in the top which could reflect the light to the dull cubes as well as reflect the light of sky in rendering as the concept of object and neighboring color. Those cubes in high reflection and refraction were painted in the bottom for the canopy of shrub so that it can reflect the light better and create the foreground objects.

The test of representing the atmosphere created by light and shadow

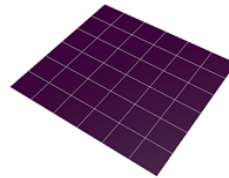
The research investigate the light effect that contribute to the atmosphere of fall forest. Light goes through many layers of canopy in forest which is different from each other because of the transparent of leaves and the thickness of canopy. Hence, The idea of this design is create the fall forest based on the abstract layer of canopy. Furthermore, instead of create objects for rendering the light through it and the shadow of objects, the test converse to emphasize the density among leaves and create gaps for concept of light.

Tests with Plans to create canopy by layers

Test 1

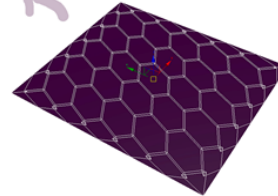
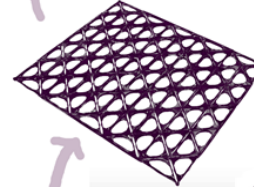
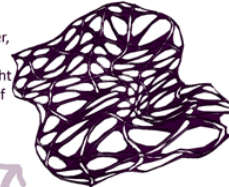


Edge is thick to create more shade



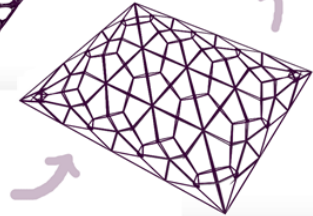
Test 2

Edge is thinner, more void to have more light - for texture of small leaves



Test 3

Edge is thinnest, a lot of light through this canopy - for canopy in winter



Concept of creating model in invert way

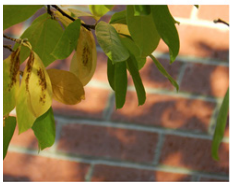


Image of leaves and shade

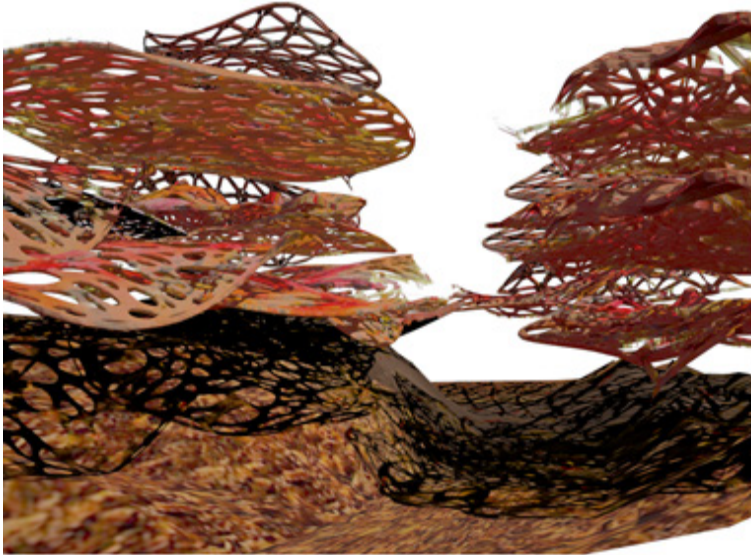
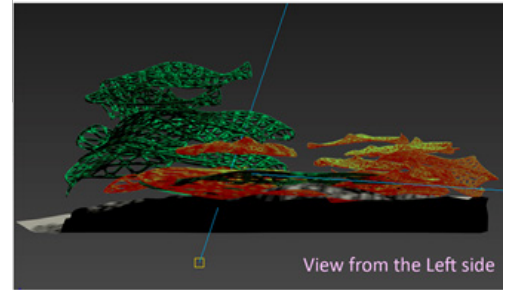
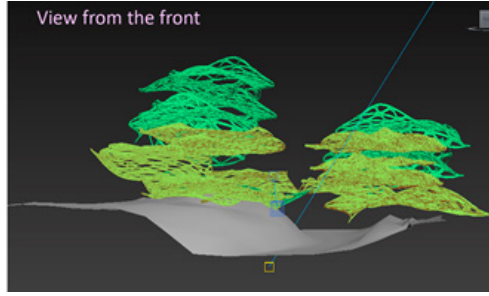
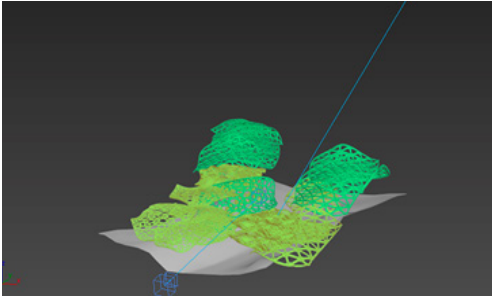


Normally, the leaves is draw, and space is void

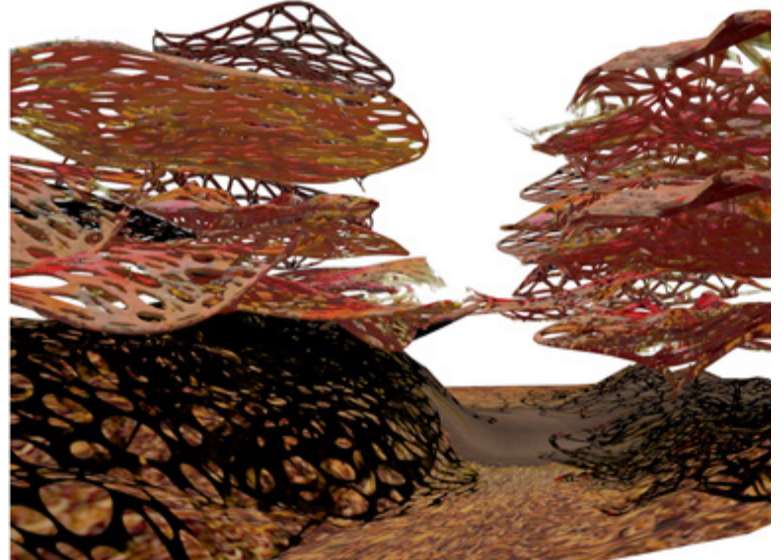


What does it look like if in the new test, the void is solid object and the leaves is empty so that sunlight can go through easier.

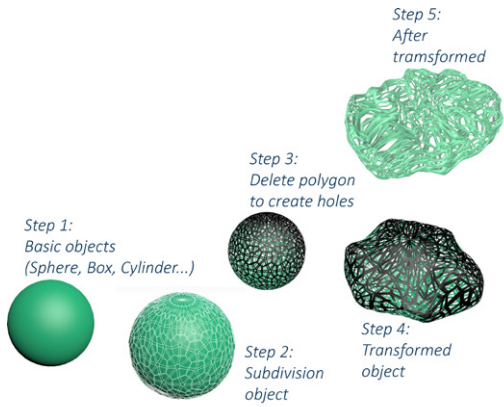




Render at 9am



Render at 1pm

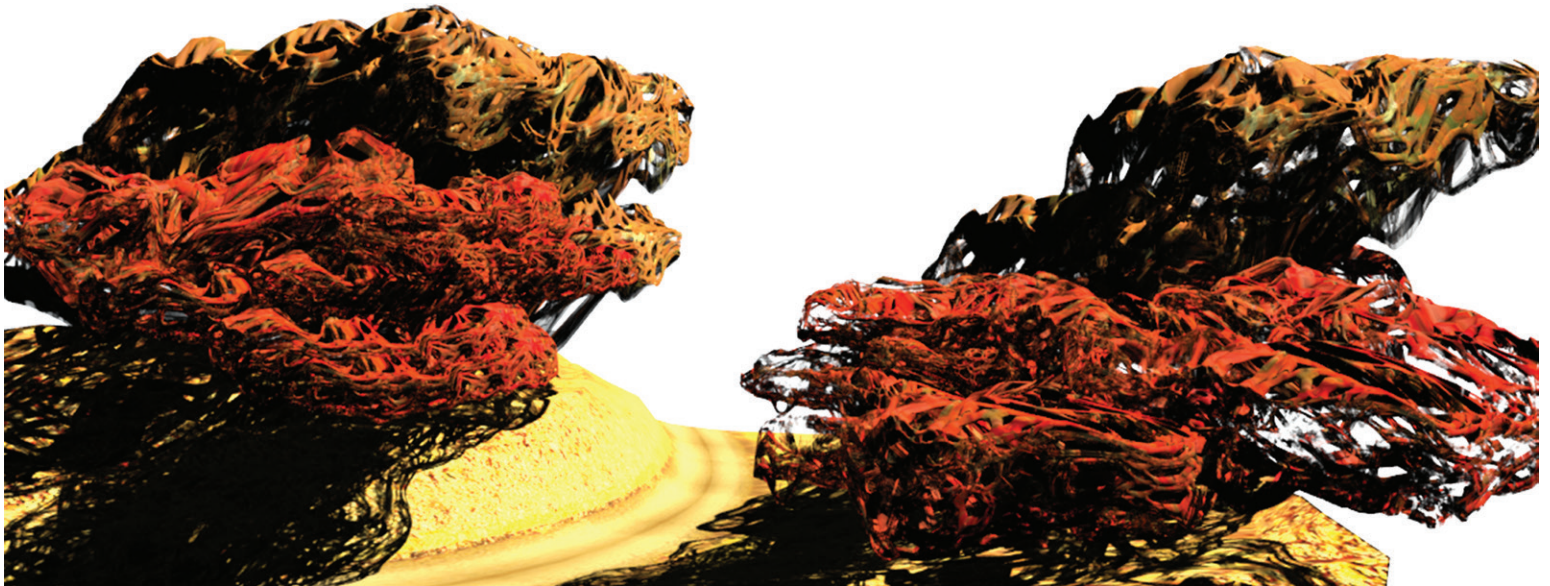


Process of creating model

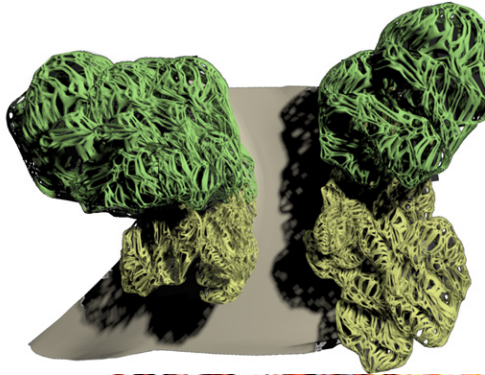


Raw model - View from left side

Below - The rendering of model with low density of turbidity which results in darker color

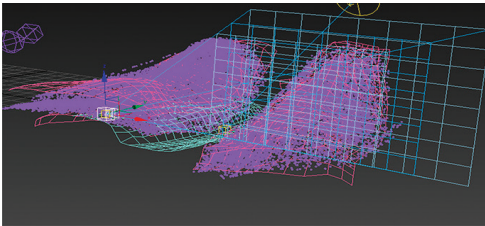


Abstract model - the test of Density, Light effect and color

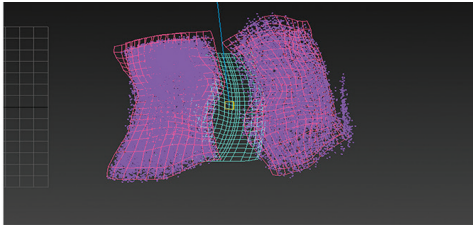


The two first abstract models which were created with the concept of conversed light effect were not really successful to convey the atmosphere of the fall forest. Based on the distortion of plan in tree model, I created and transformed the mass canopy of fall forest in the many large planes. Concerned with the experience by the plain space versus the thickness of canopies, I created the model with the tessellation as the concept of negative effect in drawings. Although abstract layers and abstract canopy aimed to emphasizing the experience of shade and shadow in different time in a day, it were able to show the difference of shade effect yet it could not express the experience of transparent canopy as well as the spatial quality of density.

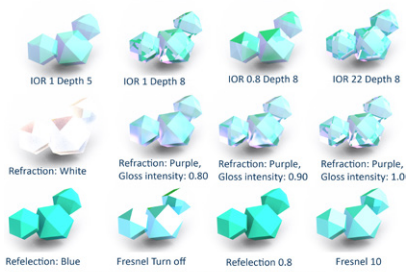




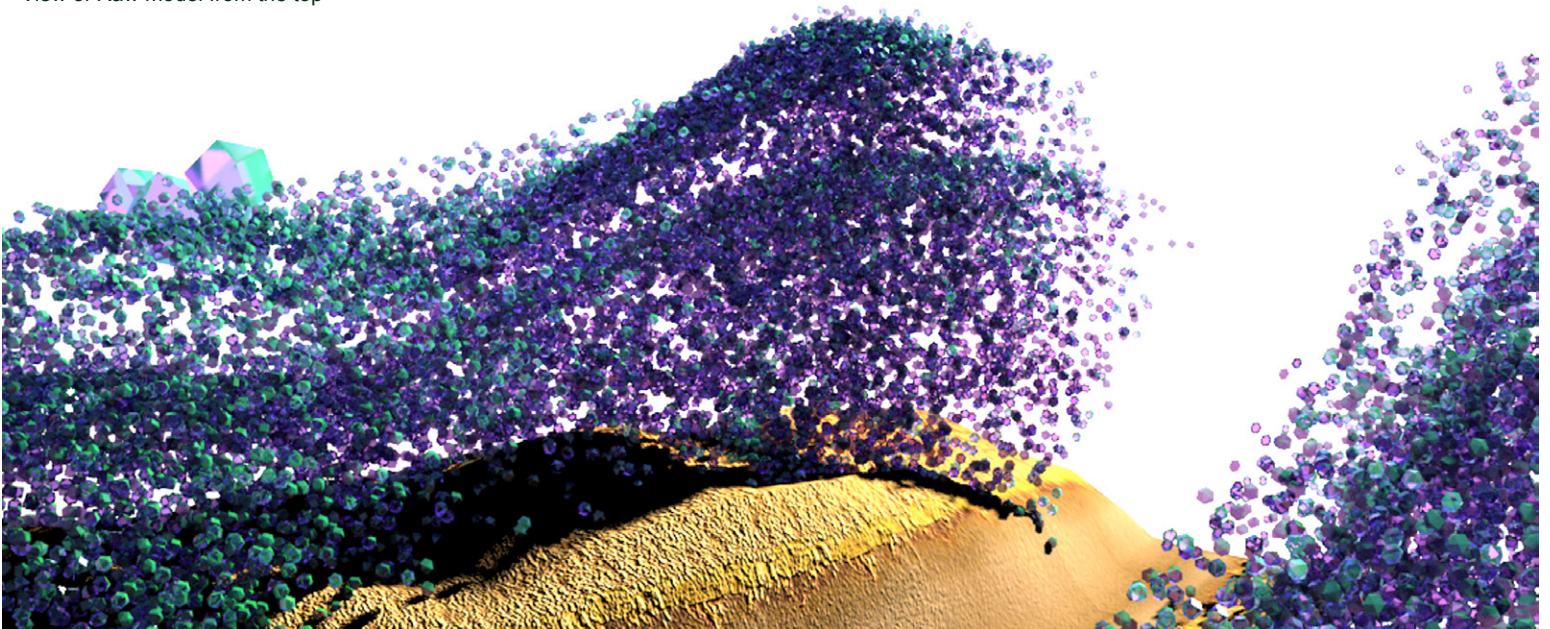
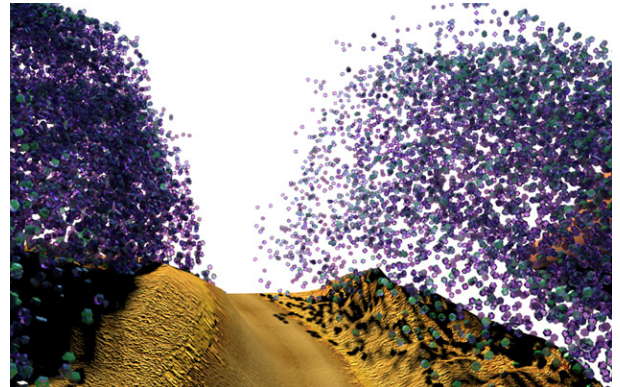
Perspective of Raw model



View of Raw model from the top



Since the advantage of 3Ds Max is material, I tested raw material with varieties in reflection and fresnel, refraction and glass intensity, and IOR (Interior of Refraction) for the character of transparent of leaves.



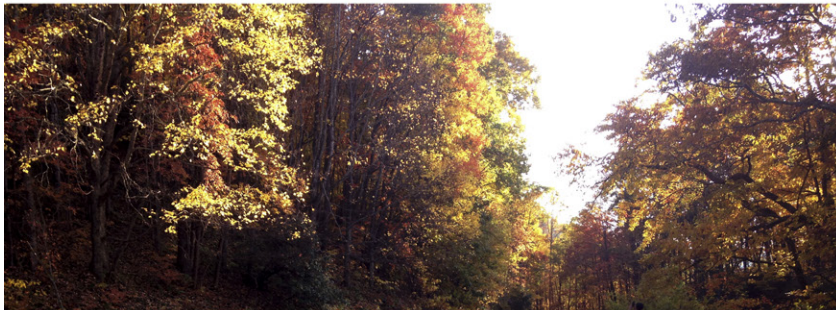
The power of photorealistic representing versus abstract idea

Continuing with the concept of density, the photorealistic model was created with the model of trees with trunks, leaves and mapping material of true color of fall leaves. While it was not as realistic as photograph, this kind of model was successful to capture the density of space as well as the experience of shade and shadow, dark and light of the fall forest.

In the models of fall forest, the abstract one composed of cubes appeared more effective to capture the density of space, the transparent of canopy as well as the effect of wind reflected in the form of the whole model. The model of photorealistic idea was not comparable in the idea of wind reflection but it was successful to capture the dense, dark and light space.

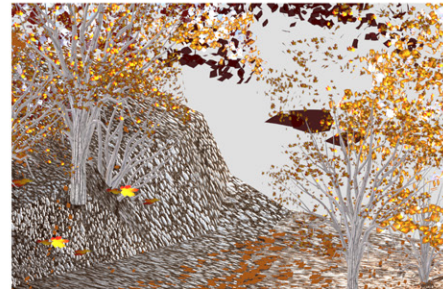


Perspectie or the fall forest, render with sunlight and camera

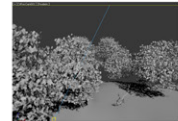
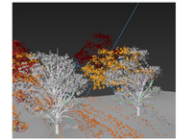


Great Smoky Mountain, Oct 2014

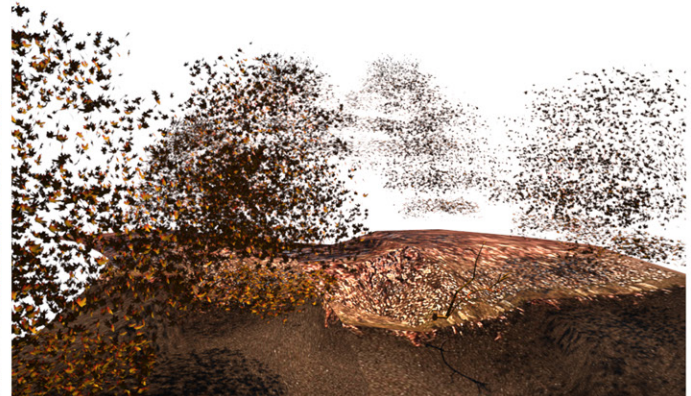
Perspectie or the fall forest,
render without camera



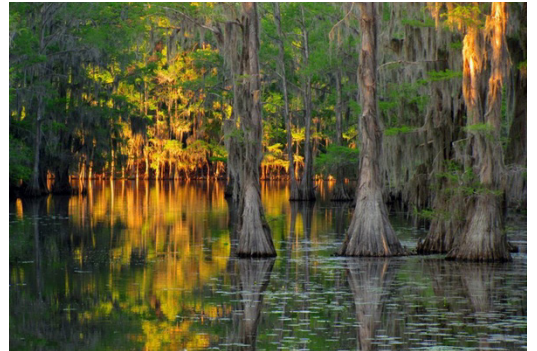
Raw model
with trunks



Model of leaves
without trunks



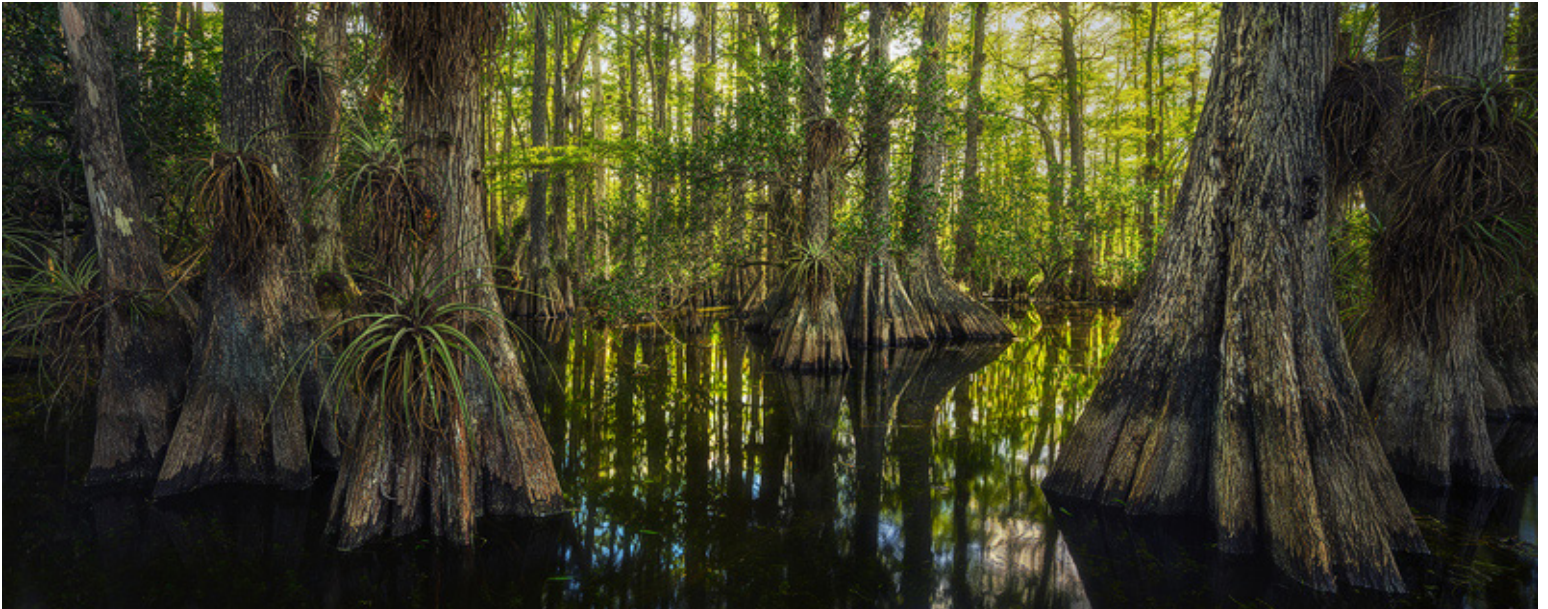
Another version without trunks

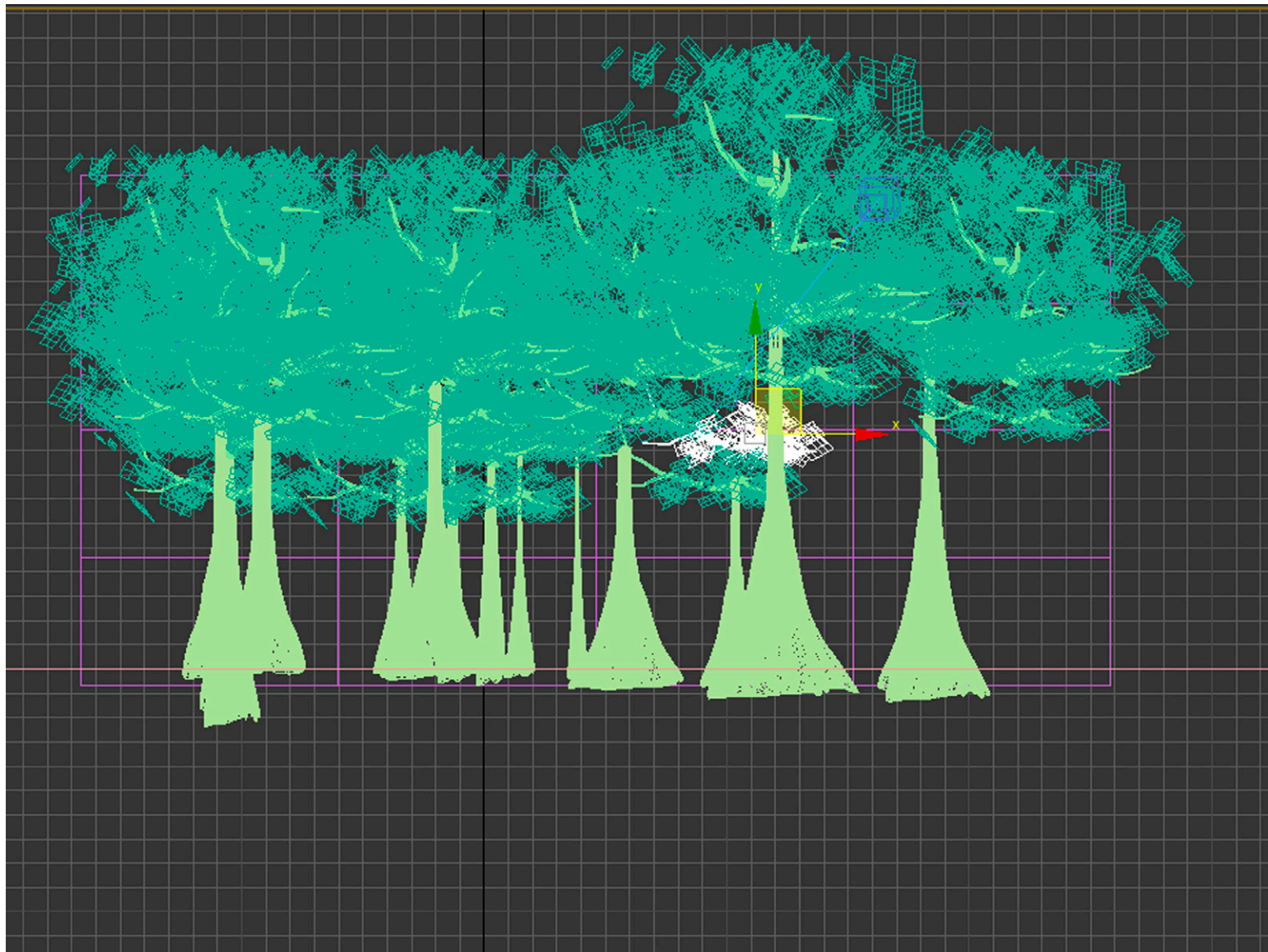


Photorealistic idea in bald cypress swamp - The great potential of representing atmosphere

Inspired by hyperrealism art, I focused on the combination of light and water effect to capture the special quality of atmosphere which is much more natural, attractive and phenomenological. Through virtual travel to the waterfall on the mountain, hospitality resort along the beach, to the west coast with curvy rocky road, or to the great lake in the Midwest, I found the cypress swamp in Florida which was the delightful place with the wild landscape, water and light. The density of cypress canopy is moderate enough to reflect the vivid sunlight in summer and the grey sky in winter. The water surface is the magical hand of nature to create the splendid light on cypress swamp on sunny day and the blurry fog layer on grey day. Those characters are not only for visual experience, but also could informed other sensational experience such as touching (cold, warm, wet, humid) or other feeling experience such as peaceful, curious, frightened and so on.

In order to capture those characters of experience and atmosphere, the test was created following photorealistic navigation model and focused more on the photograph technique to capture the motion and phenomenology atmosphere.





Phase 1 - Modelling

There is the combination of two strategy in modelling: the primitive modelling and the billboard modelling strategy.

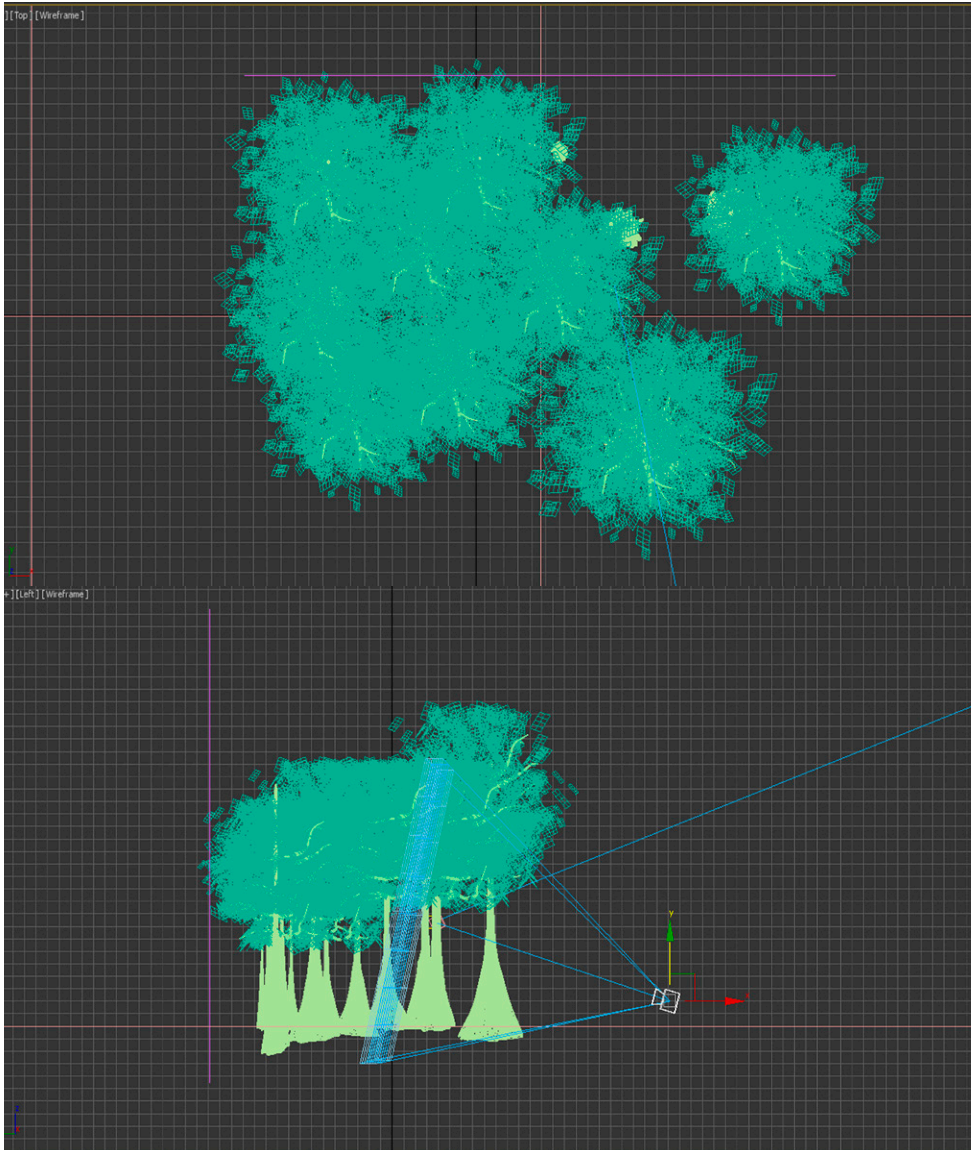
The primitive modelling were applied to create bald cypresses for two purpose: the space of forest which is necessary to render atmosphere following motion experience with camera; and the effect of texture mapped on trunks to be emphasized following depth of space, focus point and other technique of camera.

The billboard strategy were applied in model of the background of cypress swamp. This strategy was effective to simplifying the process of modelling, mapping material as well as reducing the amount of work in rendering process

Learning from the process of creating model previously, bald cypress swamp were the combination of both photorealistic and abstract navigation.

The trunk is modelled by tool set to create the shape which is similar as much as possible.

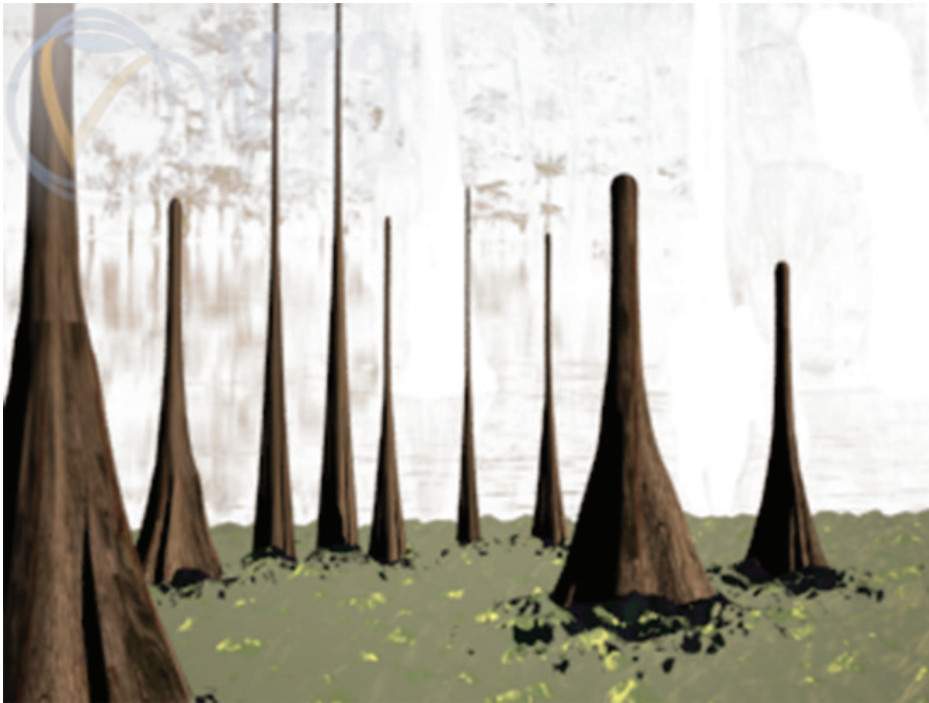
The canopy is modelled through the idea of abstract to create a particle system of plane to transform the density of canopy.

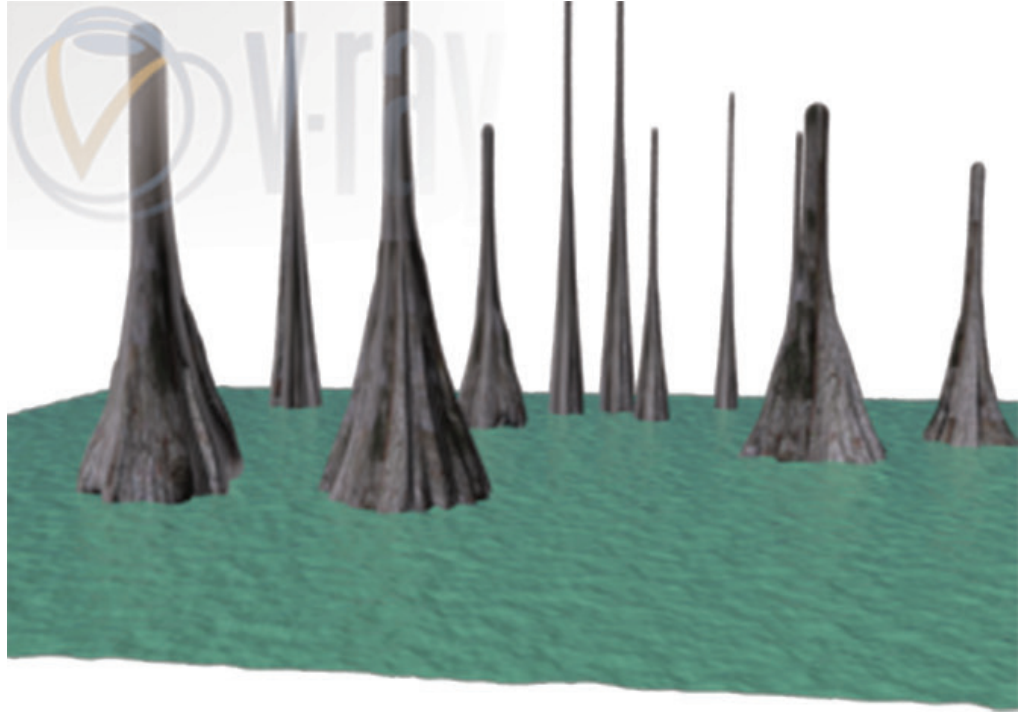
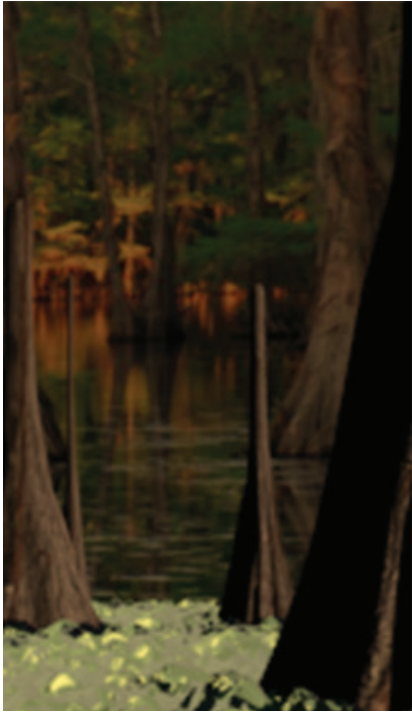


Phase 2 - Rendering

Convey the atmosphere in term of motion

The advantage of virtual three dimensional model is the ability to explore the spatial quality without physical experience. This ability is conducted by changing the Orbit tool of View in model space or by Walkthrough Assistant, then, it can be recorded by camera. The motion is the board story of various rendering images recorded by camera in different views depending on angle and height of camera.



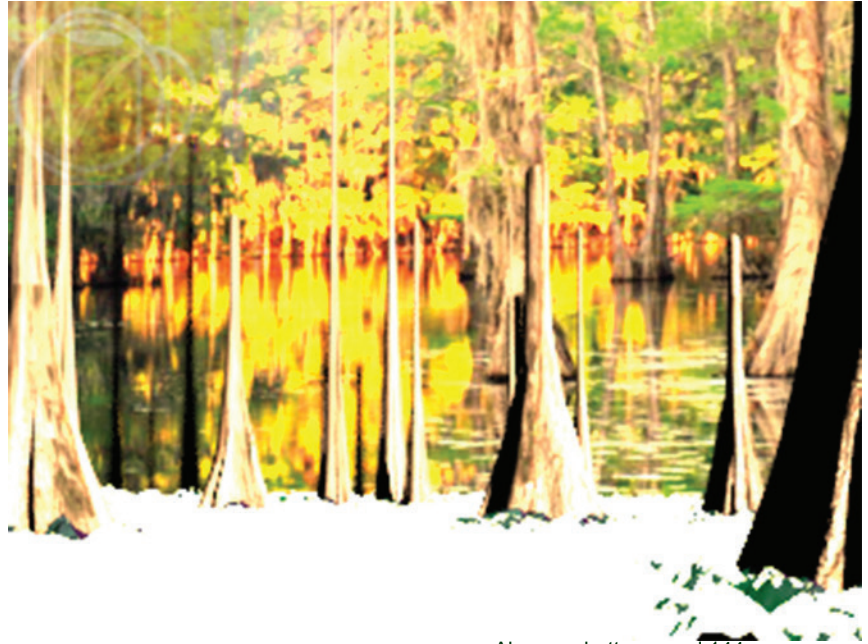


Phase 2 - Rendering

Convey the atmosphere in term of photography technique

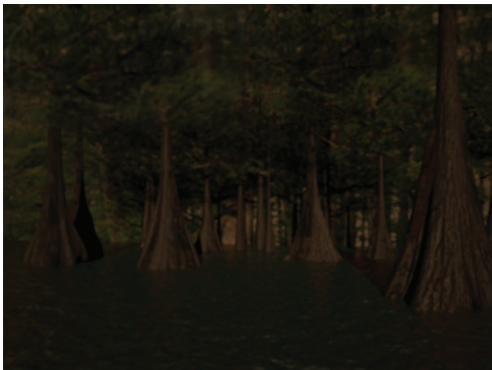
Another advantage of 3Ds Max software is camera tool which allows designers edit input to have the result as realistic as photography. Those input can be divided in some category such as distance (zoom factor, f-number, focus distance), color (ISO, white balance, exposure), Bokeh effects (blades, rotation, center bias, anisotropy, optical vignetting, bitmap resolution), and others (depth of field, motion blur, distortion).

For example, belows are the rendering with different shutter speed input. The smaller input is, the more light the camera receive, and the lighter images is. With a suitable shutter speed, the rendered image will have balance of light, which is not too light like the onwe with 144 or too dark like the one at 48000.



Above - shutter speed 144

4800



2500



3200





Phase 2 - Rendering

Convey the atmosphere in term of photography technique - the depth of scene, blurring and light

By changing the input of focus point, distance of focus, zoom level, the virtual camera could produce the effect as similar as those a real camear could do.



Convey the atmosphere in term of phenomenology

Final test is the edit of input data such as environment effects with ozone intensity, fog, sunlight to emphasize the changing environment resulting in experience of phenomena of that place.



Conclusion

The journey of exploring and representing the atmosphere is the journey to explore and strengthen my passion of landscape architecture professional. Working in different projects with different clients, landscape architecture, in my mind, in some aspects is not attractive as it should be. The landscape in ideogram which illustrates the expected design, in some case, is a lie because it is much more beautiful than it would be in practice. Otherwise, the representation is only capture the soulless beauty of arrangement rather than communicate the mental quality of that design, which is worthy to pay attention.

Through my thesis, I understood the role of light and water in landscape architecture, not only because of their significant role in ecological meaning, but also the power tool to enhance the atmosphere of a place. Light and water could affect significantly on multi-sensational experience. They contribute to visual quality with shade and shadow, with sparkle reflection as well as other sense of touching, smelling, listening. All of those could be great factor to create the specific atmosphere of a place resulting in memorable experience.

Furthermore, working on atmosphere in term of impression and experience, I am stimulated to approach landscape architecture design in a new way that I have not tried before, approaching from the side of mood and experience. This way urges me to explore the place, understand the spatial quality so that the design, first and foremost, for the sake of holistic experience and emotional being-in-the-world. Also, the representing based on understand of atmosphere could be more effective to communicate the mental qualification, the aesthetic of emotion space.

The most important thing that I learned from my thesis is awakening my passion of design. Through my thesis, I spent time to explore what is the real factors generate the atmosphere, the mental qualification of a place which gave me the chance to step back to explore the atmosphere, to understand myself feeling, to listen to my hidden voice, and more important, to inspire myself passion. Conducting research of representation in contemporary landscape architecture was the way I could really involve and tested my ability in graphic design, to understand the great potential of graphic communication in landscape architecture which I used to ignore previously.

All in all, while there was many things I wanted to do for thesis yet it could not finish, I found the answer for my professional concern and activated the new motivation to pursue my career.

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