

Rochester Institute of Technology

RIT Digital Institutional Repository

Theses

5-1-2013

Recreating East Asia creatures that exist in mythology as RPG fantasy characters

Woosang Kim

Follow this and additional works at: <https://repository.rit.edu/theses>

Recommended Citation

Kim, Woosang, "Recreating East Asia creatures that exist in mythology as RPG fantasy characters" (2013). Thesis. Rochester Institute of Technology. Accessed from

This Thesis is brought to you for free and open access by the RIT Libraries. For more information, please contact repository@rit.edu.

Recreating East Asia creatures that exist in mythology as RPG fantasy characters

by
Woosang Kim

Thesis Documentation for the Master of Fine Arts Degree

Rochester Institute of Technology
College of Imaging Art & Science
School of Design
Computer Graphics Design

Approved Date
May 1, 2013

Approvals

Chief Advisor: Marla Schweppe, Professor, Computer Graphics Design

Signature of Chief Advisor _____ Date _____

Associate Advisor: Daniel DeLuna, Associate Professor, Computer Graphics Design

Signature of Associate Advisor _____ Date _____

Associate Advisor: Shaun Foster, Assistant Professor, Computer Graphics Design

Signature of Associate Advisor _____ Date _____

School of Design Chairperson: Peter Byrne, Associate Professor, School of Design

Signature of Administrative chairperson _____ Date _____

Thesis Reproduction Permission

Preproduction Granted:

I, Woosang Kim, hereby grant permission to Rochester Institute of Technology to reproduce my thesis documentation in whole or part. Any reproduction will not be for commercial use or profit.

Signature of Author Date

Inclusion in the RIT Digital Media Library Electronic Thesis and Dissertation (ETD) Archive:

I, Woosang Kim, additionally grant to Rochester Institute of Technology Digital Media Library the non-exclusive license to archive and provide electronic access to my thesis in whole or in part in all forms of media in perpetuity. I understand that my work, in addition to its bibliographic record and abstract, will be available to the worldwide community of scholars and researchers through the RIT DML. I retain all other ownership rights to the copyright of the thesis. I also retain the right to use in future works (such as articles and books) all or part of this thesis. I am aware that Rochester Institute of Technology does not require registration of copyright for ETDs. I hereby certify that, if appropriate, I have obtained and attached written permission statements from owners of each third party copyrighted matter to be included in my thesis. I certify that the version I submit is the same as that approved by my committee

Signature of Author Date

Contents

Abstract	1
1. Introduction	2
1-1: Dokkebie	3
1-2: Haetae	3
2. Design	4
Step 1-1 Low-poly modeling	5
Step 2-1: Design and Modeling: Male Dokkebie	5
Step 2-2: High-poly armor model: Male Dokkebie	6
Step 2-3: Design and Modeling: Female Dokkebie	7
Step 2-4: High-poly model: character`s armors	8
Step 2-5: Design and Modeling: Heatae	9
Step 3: Texturing	10
Step 4: Rigging and Pose	11
Step 5: Rendering	12
3. Technical Process	13
3-1: High poly modeling	14
3-2: Texturing	22
3-3: Rigging	24
3-4: Rendering	24
4. Conclusion	25
5. Bibliography	28
6. Appendix: Proposal	30

Abstract

Today, MMORPG Games (massively multiplayer online role-playing games) are one of the most popular games in the PC online game genre because users can enjoy the game with other players. They can also choose their own characters and control the character's avatar. Wide selection of characters available is one of the most important elements in the game. These characters have to be well-designed to draw the user's attention.

These characters, which appear in fantasy MMORPG (World of War craft), and their special features originate from Western myths and ancient stories. Likewise, East Asian has a long history with many myths and ancient stories. Creatures appear in these stories that have interesting features similar to Western creatures. After realizing the unique and interesting features of the creatures in East Asian myths, led to the idea of creating them as MMORPG characters

For this project, Dokkebie (Pa-in Folk painting Research Institute) and Haetae, which are creatures that appear in Korea myths, were chosen because of their special and interesting elements that can be implemented as MMORPG characters. Dokkebie has a huge body, big canine teeth and a horn on the head in addition to similar features to humans. Haetae has the same form of a lion, skin of a fish, and two horns like a giraffe. In this project, their special features were recreated as important parts of the characters.

The following thesis report is about the technical and artistic process of making these characters. For this project, characters that exist in East Asia myths and tales were created as MMORPG characters.

1. Introduction

Introduction

1-1: Dokkebie

The Dokkebie is a mythical creature that exists in many Korean folktales. Although the Dokkebie bears likeness to human being, it is an imaginary creature. Dokkebie appears in Korean folktales, such as “Nolbu and Hungbu” and “Chuyoungga”. In the stories, the Dokkebie is usually described as a goblin or a monster. According to folktale, they are a giant with a horn on their head, and carry a mallet called the “Dokkebie Bangmangi”. They are generally more active during the night and sometimes come to the village to frighten the people away. These characteristics of the Dokkebie were very interesting, and led to the thought that the creature could be developed into a “MMORPG character”.

1-2: Haetae

In Korean and Chinese mythology, the Haetae is a legendary creature that is similar to a lion and is called the “fire-eating dog”. The creature is believed to be a guardian that protects the people from disaster. It has the form of a lion, skin of a fish, and a horn on the head like a giraffe.

The Haetae is also regarded as a symbol of water and justice. Sculptures of the character were used in Chinese and other Asian countries` architecture. For example, in Korea, the sculpture of Haetae was placed in early the “Josean Dynasty”, as people believed that the Haetae will protect Hanyang, the old Seoul. As mentioned above, the Haetae is a well-known representative legendary creature in East Asia. For this reason, the creature was designed as a fantasy MMORPG character. In addition, the Haetae with such interesting features will attract the game user`s attention.

2. Design

MMORPG Fantasy games that were experienced for the first time were “Diablo 2” and “World of Warcraft” by Blizzard. Both games have a well-packaged story and unique characters that game users can select. This is one of the reasons why interest was brought into the games. Human, monster, elf and animal characters that appear in “World of Warcraft” are key factors for drawing attention. Also orc, dwarf, elf, troll and gnome that appear in the Western folk tale were designed as 3D game characters. Idea of developing creatures of East Asian myths into fantasy characters started the thesis project.

Step 1-1: Low-poly modeling

The “low-poly modeling” is the first step of modeling, in which a shape of character is built. Normal maps that are extracted from “high-poly modeling” were applied to the low-poly object in Auto Desk Maya. In order to make low-poly model look like high-poly model, the normal map that can show the details of high-poly modeling as a texture map is the essential technique. In the games, the low-poly object that has texture maps is used to maintain a low volume of data. Therefore, the characters, “Dokkebie” and “Haetae”, were created in “Auto-Desk Maya” to keep low-poly count.

Step 2-1: Design and high-poly model: Male Dokkebie

Inspired by “Orc” of “World of Warcraft”, Dokkebie character was built. Orc, who originated from “Roman mythology”, is known as a creature that lives in the dark underworld. Orc are found in many movies, games, and even novels. For example, orcs are wicked soldiers in “The Lord of ring” and brave warrior in “World of Warcraft”. However, the Dokkebie, who appears in East Asian myth, is a unique character that has never been found in any MMORPG games.

Before designing the characters, features of Dokkebie were researched through Pa-in Folk painting Research Institute. The website shows the features of Dokkebie including the changes of the features over time. According to this reference, features of Dokkebie were different at time periods and were drawn not only as a wall painting of ancient tomb, but also represented in folk tale.

Designing of high-poly model of the character was done through ZBrush. At this stage “ZBrush Digital Sculpting Human Anatomy” by Scott Spencer helped to understand the complicated human muscles and to improve digital sculpting and technique with ZBrush.

The male Dokkebie was designed to be stronger and bigger than a human body. Therefore, muscles were exaggerated with veins protruding significantly (see fig. 1). In order to portray Dokkebie as an aggressive and a fierce warrior, when designing the character's head, horn was bigger and canine teeth were sharper and longer than how Dokkebie was described in folktales

Designing the characters' body may be similar to the orcs' body because both creatures are monsters that live in the unknown dark underworld. However, there are differences in their faces. To portray oriental characteristics of the Dokkebie, character's face was designed with relatively small narrow eyes and flat nose (see fig. 2).



(Fig. 1. Dokkebie's body)



(Fig. 2. Dokkebie's head)

Step 2-2: High-poly armor model: Male Dokkebie

Armor is one of the important items to show character's personality, environment and heritage. It is also a crucial symbol of the tribe. Therefore, key point in designing the Dokkebie's armor was to show the oriental features and the strong image of Dokkebie. Gyeongju National Museum had exhibit of a roofing tile carved with face of Dokkebie. Design of the shoulder armor of the character was inspired by Korean roofing tile (see fig. 3). The shape of the roofing tile and the carving of Dokkebie's face was adapted to the shoulder armor.

Armor for the abdomen was designed with face of Dokkebie that appears in Korean folktale (see fig. 4). This has a symbolic image rather than a functional purpose. Armor for legs and arms were designed with sharp horns. Role of these armor pieces are not only to protect the body but also to show the cruel and brutal characteristics of Dokkebie.



(Fig. 3. Shoulder armor)



(Fig. 4. Armor on the abdomen)

Step 2-3: Design and Modeling; Female Dokkebie

In the Korean folktale (Pa-in Folktale painting Research Institute), there is no mention of the female Dokkebie. For this reason, a new female character was designed based on the male Dokkebie's features. The female character has horns and four canine teeth like the male character.

The female Dokkebie was designed with contrast to the male Dokkebie in order to emphasize their special characteristics. The female character's head was designed with two small horns, opposed to big one on the male Dokkebie. The female character's body is slimmer than the male Dokkebie's, because the female Dokkebie reflects characteristics of an Asian woman and is also a quick responsive warrior (see fig. 5). The idea of making both female and male characters came from "World of Warcraft". In the "World of Warcraft" there are eleven characters that users can select and each character has a male and female version. This option provides a wide range of choice and attracts the users' interest.



(Fig. 5. Female Dokkebie)

According to the Korean folktale (Pa-in Folk painting Research Institute), Dokkebies live in a cave that is located in a deep forest where humans can't reach. This was reflected when designing the characters' clothes. The clothes and shoes were created to look like leather so that the characters can easily find in the forest (see fig. 6, 7). Also to avoid symmetry and to add complexity of the character, armor for the knees and thighs were designed asymmetrically (see fig. 7). With the same reason, length of the skirt was designed to be asymmetric.



(Fig. 6. The bust)



(Fig. 7. The lower part of the body)

Step 2-4: High-poly model: character's armors

Character's armors were made to be older and crude rather than refined and polished because characters are monsters, that inhabit in the deep forest as mentioned above (see fig 8). Designing partly broken and cracked armors were to show more detailed work. These characteristics of armors were to emphasize the characteristic of Dokkebie who lives in the uncivilized world, and not in modern civilization. Also the details of the broken and cracked armors were to reflect character as a brave warrior who has been engaged in battles for long period of a time.



(Fig. 8. Female's armor for knee)

Step 2-5: Design and High poly modeling; Haetae

According to Korean folktale (Pa-in Folk painting Research Institute), the character has head of a lion, horn of a giraffe, skin of a fish, and the legs of a dragon. When designing the Haetae character, the goal was to transform the characteristics of Haetae into a 3D game character (see fig. 9). Also, additional elements that are not mentioned in the folktale were designed.

Lion's hair was designed to show a strong and charismatic features. Also, the design of Haetae's tail was longer than real lion's tail and a horn at end of the tail to add a unique characteristic to Haetae (see fig. 11). Character's head has basic features of a lion, but to show a more aggressive and fierce characteristic, sharp ears rather than circular ones were designed (see fig. 10).

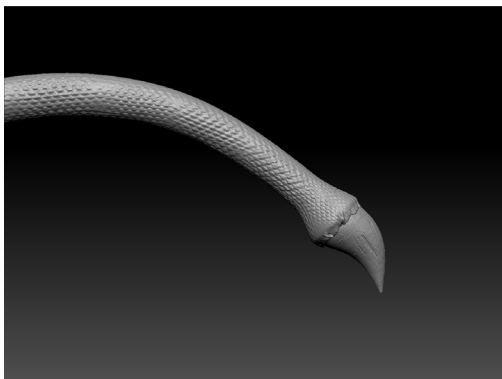
These aggressive and fierce elements were implemented on the Haetae, which were to match with his owner, Dokkebie who has aggressive characteristics as well. In the "World of Warcraft", each character has a pet as their method of transportation. The design of the pet is compatible to the characters. For example, the orcs' pet was built as an aggressive and fierce wolf, while the Dwarf's pet was a small and adorable goat, but strong. Design of Haetae was inspired by this element of the "World of Warcraft".



(Fig. 9. Heatae)



(Fig. 10. Heatae's head)



(Fig. 11. Heatae's tail)

Step 3: Texturing

First of all, the three characters, male and female Dokkebie and Haetae, were painted in a same tone of color to give them uniformity appearance. Dark green color was applied to the male and female Dokkebies to reflect a pale skin which emphasized gruesome characteristics (see fig. 12). In addition, more narrow and red blood vessels were added to the skin layer to give gloomy and cold appearance.

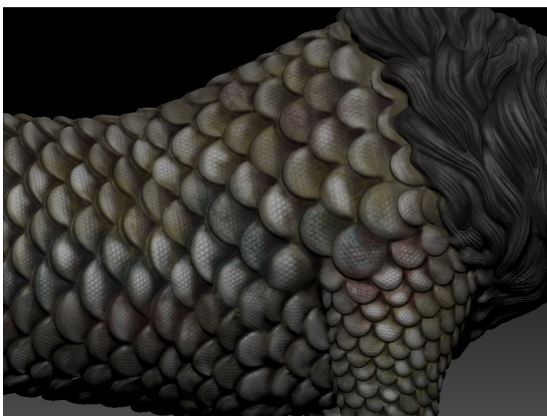
To emphasize the old and damaged conditions of armors and helmets, there were areas where paint was worn off (see fig. 13). The same technique was used for the character's clothes, belts, and shoes. Red, blue, and yellow colors were painted on Haetae's body to represent the shining fish skin (see fig14). Red that was applied partly on the canine teeth and its mouth is blood which is to emphasize aggressive and brutal character (see fig. 15). Grey and black colors were used on Haetae's hair to match with hues of his body.



(Fig. 12. male Dokkebie's head)



(Fig. 13. female Dokkebie's arm)



(Fig. 14. Haetae's body)



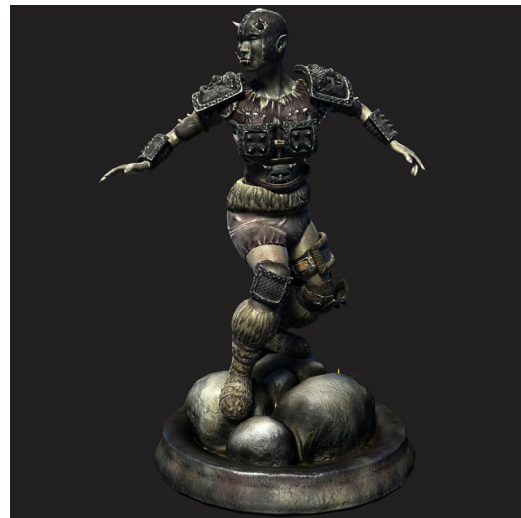
(Fig. 15. Haetae's head)

Step 4: Rigging and Pose

Gestures of the characters were created so that they were suitable to character's personality through the rigging process (Athias). Limited motions rather than big ones were designed for the male Dokkebie because he has a massive body (see fig. 16). On the other hand, the female Dokkebie has a slim body therefore; quick and active movements were designed (see fig. 17). Haetae's unique features, such as his long tail, sharp fingers, and strong sharp canine teeth, were emphasized when making poses. The movements of the Haetae's forefeet were designed to similar movement to human hands (see fig. 18).



(Fig. 16. Male Dokkebie's gesture)



(Fig. 17. Female Dokkebie's gesture)



(Fig. 18. Haetae's gesture)

Step 5: Rendering

Using the “physical sun and sky environment” of Autodesk Maya, three characters were rendered (Birn). The render setting creates more realistic and high quality images. In real MMORPG, the high quality rendering cannot be applied, so the goal of this project is to show new characters with high quality rendering as a display to the users. To accomplish this, the high quality rendering that can show detailed features was selected in “Mental Ray”. In the high-poly model stage, not only the textures of skin, small wrinkles, and wounds were created, but also armors were designed to have realistic appearance. To show these features effectively, “Physical Sun and Sky” of mental Ray was applied to the characters (see fig. 16.17.18).

3. Technical Process

3-1: High-poly modeling

High-poly modeling in ZBrush; process of designing character`s muscles

First of all, the “Pixologic ZBrush” was used to build high-poly objects. In this process, “Wacom” table was utilized instead of the mouse. When the “Tablet pressure tool” in “ZBrush” was activated, strength of brush was controlled by pressing the pen. Using the “Move Brush”, basic shape of the characters was created. The “Move brush” was useful making the form of the muscle and enlarging it. In the lower subdivision resolution, moving one vertex with the “Move brush” tool, wider area was affected. Afterwards, the “Subdivision level” was raised. The “Smooth brush” was used to polish the surface of the character.

After the basic stage, the “Standard Brush” and “Clay Brush” were used. The “Clay brush” was used to design a powerful, muscular body. The “Clay Brush” has the capability to add more depth to surface. The “Mask” tool was helpful to create a segment within the muscles. For example, the thigh can be divided into large three muscles; vastus intermedius, vastus lateralis and vastus medialis (see fig. 19). In the first step, selected a segment of the three muscles was masked and reserved (now unselected segments of the muscles are masked), which allowed the masked area to not be affected by any brush or tool. Then, details of the muscle in the non-masked area were designed and the “Clay brush” was used to give more volume. The other segments were built with same technique. Through the masking technique, muscles were designed in segments which naturally divided them into three large muscles. When non-masked segment was moved to masked area, it created clear border between the muscles. This technique made the muscles to have stronger and more prominent appearance.



(Fig. 19. Male Dokkebies` body)

The “Lazy Mouse” is a very useful tool because it allows for very precise control of the brush point. It was used to create veins that have uniform thickness and shape (see fig. 20). Furthermore, this tool was used to make screws of the armors and the helmets. The screws were created in uniform shape and distance by modulating the “Lazy step” (see fig. 21). When the veins were drawn on the surface, the starting and ending points of the veins had to be thin and ambiguous. To create the effect as the pen reached at the starting and ending points of the veins, less pressure was put on the tablet. Also, the “Smooth brush” was used to make the starting and ending points of a vein indefinite.



(Fig. 20. Male Dokkebies` veins)



(Fig. 21. bolts of armor)

High-poly modeling: process of designing character`s skin surface

Next, texture of the surface of skin was created. During this process, the “Surface noise” tool was used to apply noise to all the surfaces of the character. As the noise created small pores on all surfaces of the character, it gave more real human skin-like appearance (see fig. 22).



(Fig. 22. Female Dokkebie`s arm)

The “Drag rectangle” tool with an alpha image was used to create detailed wrinkles on the character’s body and face. In the first step, thick and deep wrinkles were created on surface of face and body. Then wrinkle alpha image was adapted into the “Drag rectangle”, which was used to create fine line wrinkles around the thick, deep wrinkles (see fig. 23).



(Fig. 23. Male Dokkebie’s head)

A functional tool, the “Layers” of ZBrush was used to create character’s skin surface in layers. It has similar functions to layers of Adobe Photoshop. To make changes after creating several layers, a specific layer can be removed without affecting other layers. Also a new layer can be created without changing existing layers. The “layer intensity” was a helpful tool to control the depth of the wrinkles and the magnitude of the textures.

High-poly process; character’s wounds

The “Slash1 brush” and the “Blob brush” were used to create a deep laceration from a fine sword. The “Slash1 brush” can create sharp cut on the surface of the character and the “Blob brush” is a useful tool for creating details like fungal infection or irregular texture effect (see fig. 24. 25).



(Fig. 24. Male Dokkebie’s foot)



(Fig. 25. Female Dokkebie’s head)

First, the skin of the character was cut using the “Slash1 brush”. Then, the cut was softened by the “Smooth brush”. Lastly, details of fungal infection around the wound were created using the “Blob brush”. Also, the tool was used to create the appearance of infected skin in areas that are in contact with arm and leg armors (see fig. 24). The scar on the face of the “Haetae” needed to be created. Therefore, the wound were created after the texture of the skin was made. The “Standard brush” was used to widen the wound and then the “Smooth brush” was used to soften the surface of wound to create scar-like appearance (see fig. 26).



(Fig. 26. The Haetae’s head)

High-poly modeling; process of designing the armor(hard surface)

The “Inflate” tool of the “Deformation” which is similar to the “Extrude tool” in “Autodesk Maya” was used to make hard objects like the armors. This technique was helpful to produce the protruding section of the armor and create a hard surface. For example, from front to rear the middle of female Dokkebie’s helmet is protruded (see fig. 27. 28). To make the protruding section, the “Mask” tool was very useful.



(Fig. 27. Female Dokkebie’s helmet)



(Fig. 28. Female Dokkebie’s helmet)

First, the area of helmet that needed to be protruded was masked by using the “Drag rectangle”, and then, reversed the masked area. Positive value was added in the “inflate” tool, which protruded the non-masked area. The protruded area had uneven edge because the “Mask” was drawn on object with quad poly. To solve this problem, “polish” tool found in “Deformation” was used. The “polish” tool is similar to the “smooth brush”, but the “polish” tool can quickly smooth an edge of an object because the effect can be produced by entering negative value into the setting instead of using the brush.

High-poly modeling: process of designing hard object`s surface

The “noise surface” tool was utilized to create a rough surfaces of the armor and the helmet. The broken armors and helmet were designed using the “Drag rectangle” with alpha image. Several alpha images that can produce effect of damaged iron plate were collected, and then, each one was applied on the object. The alpha image with the best appearance of damaged iron plate was selected (see fig. 29). Damaged iron plate effect needed to be around the bolts of the armor, but not on the bolts themselves. To solve this issue, the “Mask” tool was used; the bolts were masked using the “Free hand stroke”. Then, the “Drag rectangle” was applied to the bolts (see fig. 30).



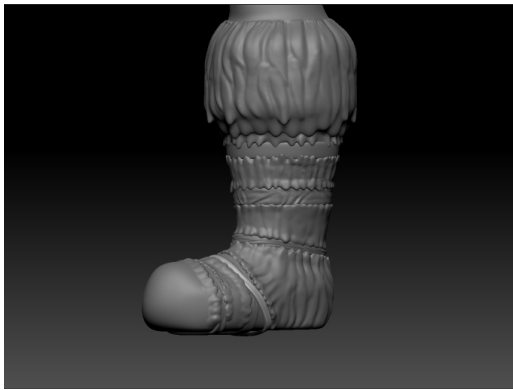
(Fig. 29. Male Dokkebie`s arm)



(Fig. 30. Female Dokkebie`s armor)

High-poly modeling: process of designing Haetae`s hair

The “Rake Brush” that draws thin, fine lines was used to create fur of the shoes, the skirt and the Haetae`s hair. Hundreds of strokes were drawn on objects to express the fur. First, the most basic form of the fur was created using the “Clay brush”, while the detailed lines were not added (see fig 31). Then, the “Slash 3 brush” was used which is able to draw a single thin, fine line on the surface of the object. The “Slash 3 brush” was used to transform basic form of fur into detailed and realistic appearance. When this process was repeated numerously, the basic form was split into a hundred of pieces. In this stage, more realistic form of fur was created. In the final step, to create more detailed appearance, the “Rake Brush”, which can draw multiple thin, fine lines on the surface of the object was used (see fig. 32).



(Fig. 31. Shoes)



(Fig. 32. Shoes)

High-poly modeling: process of designing character`s clothes

The “Standard brush” and the “Lazy mouse” were utilized to create wrinkles on the cloth. The “Standard brush” is the basic default sculpturing brush; a circular line can be drawn on the surface. The “Standard brush” was mainly used to create wrinkles on the clothes, while the “positive value” and “negative value” were applied alternatively. Before creating wrinkles on the clothes, ripped effect and nails were designed on the clothes. In the first step, the “Slash 2 brush” that was used to make deep wounds of character was very useful tool to produce the effect of the ragged clothing. The effect which was used to create laceration with a fine knife was implemented. Then, a metal-ring, which was created separately in ZBrush, was placed on the ripped area of the clothes. The metal-ring was duplicated to place three more metal-rings evenly on the cloth. Metal-rings were placed to hold up the ripped areas together. After rings were placed, folds were created around the rings to produce more detailed effect.

Secondly, nails, which were modeled in ZBrush, were placed into the character's clothes. Also, the folds were created around nails that were stuck on the clothes (see fig. 33).



(Fig. 33. Male Dokkebie's cloth)

To create the detailed and long wrinkles on the skirts of the male and female Dokkebies (see fig. 34. 35), the "Lazy mouse" was activated, and then used the "Lazy Radius", to convert mouse point to segment of a line. The line segment allowed the drawing of the long curves. And this technique was used to make patterns on the shoulder armor and also on the abdomen armor (see fig. 3.4). But the lines for the armor had to be created uniformly unlike the wrinkle effect on the skirts. To accomplish this, shorter segment of line was made to keep the short curves and the rounded lines on the surface of the armor.



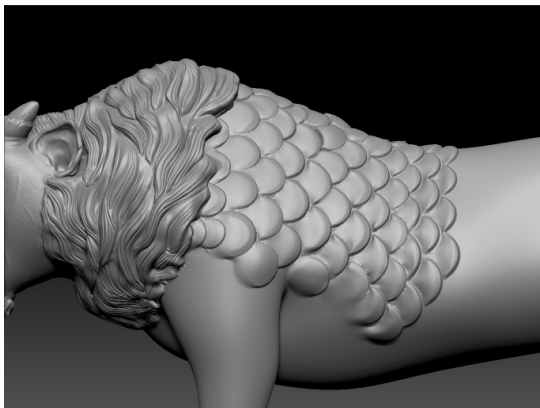
(Fig. 34. Female Dokkebie's skirt)



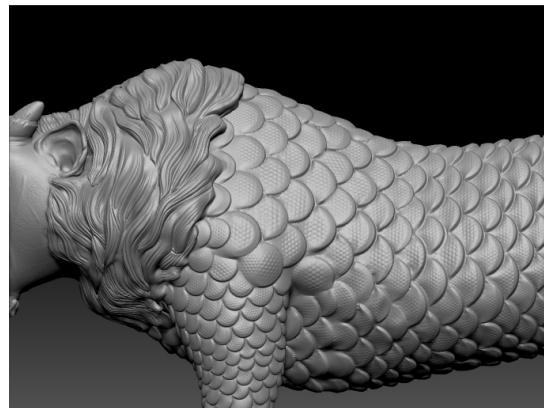
(Fig. 35. Male Dokkebie's skirt and abdomen armor)

High-poly modeling; Haetae's scale

To make a clear shape of the scale like fish skin, the “Inflate” and “Mask” tools were used rather than the “Drag rectangle” tool. Each scale was made using the tools and hundreds of scales were made to cover the Haetae's body. First of all, to make a piece of a scale, half-moon shaped scales on the Haetae's body was masked, and then the mask was reversed. Secondly, a positive value was set in the “Inflate” tool, and then the half-moon shaped scale protruded from the body. Also, to make a piece of scale clearer, the surface of the scale was polished using the “Smooth brush”. Then, another piece of scale was created adjacent to the first scale. In this way, the scales were placed in a rows, and they created the fish skin like appearance on the Haetae's body (see fig. 36). Lastly, an alpha image with fish skin texture was implemented on each scale by using the “Drag rectangle” stroke (see fig. 37).



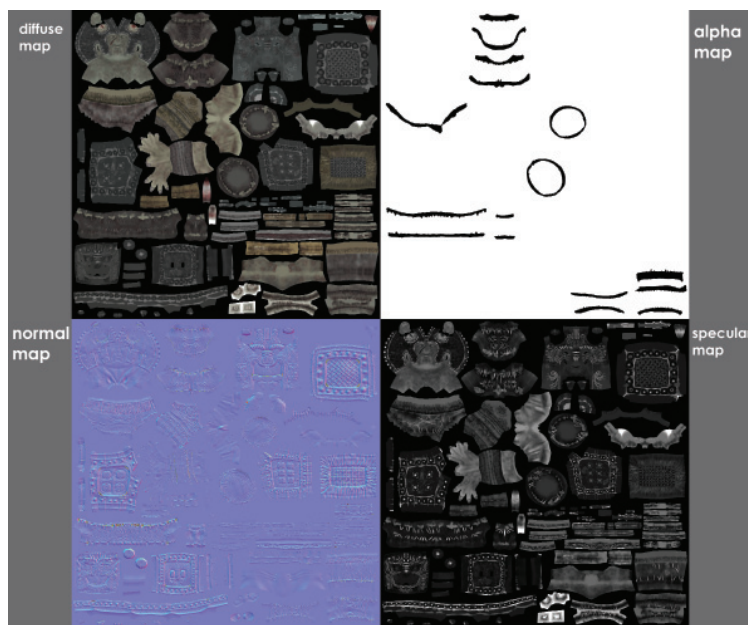
(Fig. 36. Haetae's body)



(Fig. 37. Haetae's body)

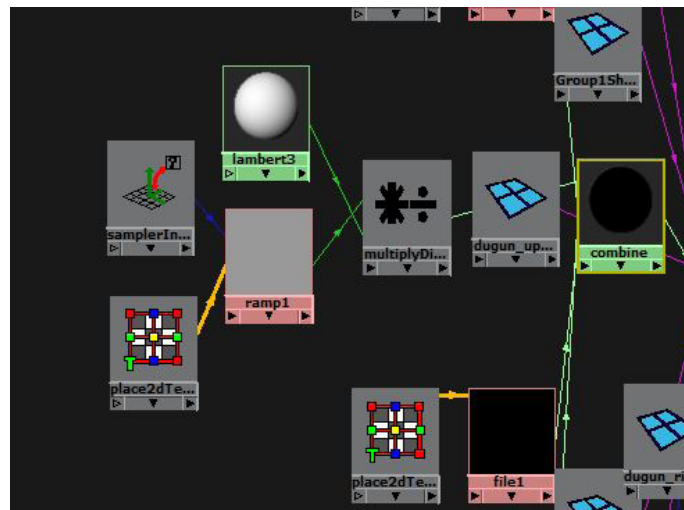
3-2: Texturing

In this stage, four texture maps: diffuse, alpha, normal, and specular maps were created (see fig. 38). To paint the characters and their features, the “Poly paint” tool in ZBrush and Adobe Photoshop were used. A normal map was extracted from the ZBrush and it was created with 2048 pixels to have a higher quality result in Autodesk Maya. A specular map was used to create reflective appearance. In order to create the specular map, the diffuse map was transferred to the black and white image in Adobe photoshop and reflective surface was painted in white.



(Fig. 38. Texture maps)

To create a rim light effect, shading network was set up in Maya's Hyper shade. This brought out the silhouette of the characters and highlighted the areas obscured by the shadow (see fig. 39). To make the "Rim light shader", the "Ramp node" and the "Sampler Info node" were created. The "Sampler Info node" has several options and the "Face ratio" was selected to make the "Rim light shader". Then, the default color was changed to black and white in the "Ramp node". The outside of the object became white which produced the effect of "Rim light". When the object was rendered, all the edges of the object became white. However, the bottom of the object had to be dark compared to the top because the light was installed at the top. To solve this problem, the "Multi divide node" and the "Lambert shader" were created in the Maya's Hyper shade. Then, the default color was changed to white and the value of diffuse was set to one. The "Lambert shader" was linked with "input 2" of the "Multi divide", and the "Ramp node" was connected with "input 1" of the "Multi divide". Therefore, the bright area and the dark area of the "Lambert shader" affected the two areas of the "Ramp shade". Lastly, the "Multi divide node" was linked with the "Incandescence" of the object, and the "Rim light shader" was completed.



(Fig. 39. Hypershade network)

3-3: Rigging

The rigging process was done to make the character's gesture. Two joints were made for each of the character's elbow and knee (Athias). This technique helped to maintain the shape and form of the object when bent. The joints were not only between the wrist and elbow but also between the elbow and shoulder. The twist controls were made on the joints. This technique allowed the twisting of the arms while moving. When making gestures, the distorted objects were fixed by using the twist control.

3-4: Rendering

The scene was rendered with the "Physical Sun and Sky" in the "Mental Ray". This is a very effective way to output a professional looking render. The "Final Gather Indirect Illumination" was used rather than the "Maya lights". The key light and the fill light were set using the "Surface Shader". With the setting, the "Physical Sun and Sky" is able to implement realistic day light in 3D environment.

The "Physical Sun and Sky" was created in Mental ray's indirect lighting. Then, the Maya automatically produced several required nodes; mia_exposure_simple1, mia_physicalsky1 and mia_physicalsun1. As the setting was regulated, the scene of choice was rendered. First, the "Gamma" in the "mia_exposure_simple1" was regulated, and then the scene was rendered. The value of "Gamma" determines the brightness of the object. In order to make a soft shadow rather than sharp, value was placed in the "Shadow softness" setting of the "mia_physicalsun". Then, the direction of light was controlled, when the rotation setting of "Sun direction" was changed.

Two lights were created for the characters; the "Fill light" and the "Key light". Two planes were created, and then the "Surface shade" and the "mia_cie_d" were created to them. Then, the "key light" was placed on the left side of the character and the "fill light" on the right side of the character. The "Temperature" setting of the "mia_cie_d" was set to 4500 which produce orange rays. The "Fill light" produced blue rays, as the "Temperature" was set to 7500. The strength of the rays was controlled by regulating size of the plane. Finally, adding values in the "Accuracy" setting allowed for higher quality rendering images.

4. Conclusion

This thesis project proposed opportunities to create fantasy MMORPG characters that appear in East Asian myths. This project was helpful to learn the skills necessary to be a high-poly modeler, and to build objects in ZBrush. The ZBrush was very useful in creating the anatomical structures; however it was slightly difficult to sculpture hard objects. To design the hard objects like armors and helmets, more time was spent to figure out how to create hard objects using the “brushes” and other tools in ZBrush.

Each steps of the design process; low- and high-poly models, texturing, rigging and rendering, had to be well planned to have successful outcome. If there is an error in one of the steps, it may lead to wrong or not intended final product. For each step of the design process, there were goals to create the character. First, the “Low-poly models” was built for the purpose of making game characters with low value of data and to create basic frame of the characters that were proposed.

Then, the “low-poly model” became the basic framework for making high-poly character in “ZBrush”. The purpose of the high-poly modeling process was to create realistic visualization of characters that portrayed characters` personalities. Advancement of the “low-poly model” to the “high-poly models” allowed for detailed components.

The high-poly modeling stage played an important role in next step, because the normal map was extracted from high-poly modeling in ZBrush. Overall, texturing process has an important role like high-poly modeling process. It is because the normal, specular, and diffuse maps can maximize the realistic details of the character that has low-poly counts. In the diffuse map (Color map) process, gloomy and cold characteristics of the character were expressed. Also, the specular map that presents reflection of the light on the object was very important process for creating realistic appearance of the characters. In the final process, these maps were applied to low-poly object in Maya. Then, the characters were moved on to the displaying process.

In the rigging and the rendering process, technical aspect had to be considered rather than artistic. Especially, in the rigging process, the focus was on the controlling of the distorted objects when they are in motion. Therefore, the result of the rendering process finally showed the final realistic game characters in 3D setting.

In the process of producing game characters, high- and low-poly modeling, texturing, rigging and rendering were experienced. It was fascinating to develop the creatures found in East Asian myths in a 3D environment. This project encourages the potential of creating more characters that exist in Asian folktales into the field of MMORPG.

5. Bibliography

Athias, Delano. *Introduction to Rigging in Maya*. Digital-Tutors, 2008. Web.

Birn, Jeremy. *Lighting & Rendering: Second Edition*. New Riders, 2006. Print.

Cabrera, Cheryl. *An Essential Introduction to Maya Character Rigging*. Elsevier Ltf, 2008. Print.

Diablo2. Prod. Bill Roper. Blizzard Entertainment, 1996. MMORPG GAME.

Gyeongju.museum. Gyeongju National Museum, Web. Mar 2010.
<http://gyeongju.museum.go.kr/html/kr/data/data_040102_view>

Lanier, Lee. *Advanced Maya Texturing and Lighting: Second edition*. Indianapolis: Wiley, 2008. Print.

Maraffi, Chris. *Maya Character creation*. New Riders, 2004. Print.

Pa-in Folkpainting Research Institute. “*about Dokkebie*”, 2006. Web. Mar 2010.
<<http://www.minwha.co.kr/menu/dokkebi/main.php>>

Sheppard, Joseph. *Anatomy: A Complete Guide for Artist*. Watson-Guptill Publications, 1992. Print.

Simblet, Sarah. *Anatomy for the Artist*. Black Dog and Leventhal, 1996. Print.

Spencer, Scott. *ZBrush Digital Sculpting Human Anatomy*. Sybex, 2010. Print.

Spencer, Scoot. *ZBrush Character Creation: Advanced Digital sculpting*. Wiley Technology, 2008. Print.

Ward, Antony. *Game character development*. Course Technology, 2008. Ebrary Electronic Books.

World of Warcraft. Prod. J. Allen Brack. Blizzard Entertainment, 2004. MMORPG Game.

6. Appendix: Proposal

Title: Recreating East Asia Creatures that exist in mythology as RPG fantasy characters.

Abstract

Today, one of the most popular game genres is obviously MMORPG, massively multiplayer online role-playing game. One of the reasons is that game users can create their own character in a virtual world and control those characters to grow within that world. These characters seen in the games are mostly drawn from the folklore and romance of medieval Europe. Races such as elves and dwarves are one of the good examples. And even games produced by East Asia reflect those characters. “Aion and Lineage” made by South Korea is one of the good examples. Accordingly, I thought that creatures that exist in East Asia fantasy and folklore can be reflected in the virtual games.

And I found several creatures in Asia folklore: the “Dokkebi” of Korea, the “Naga” of India, and the “Sonokong” of China. I will select one of these characters and create two characters. One will be a male and the other female. Both will have the characteristics of the Asian creatures and will own their own pet. Altogether, there will be four characters.

The design element will be character modeling using zbrush and maya, along with shading and rendering. In the modeling phase, the character model will be created with a low poly, and the count will be below 9000 tris. In the work of zbrush, I will focus a bit more on the details of the muscles and wrinkles in the clothes. After this, the result will be exported as a normal map. Also, for this project, the characters will be put on poster, each expressing different poses of themselves.

Problem Statement

Many game users like playing MMORPG (massively multiplayer online role-playing game) around the globe. In a report, worldwide revenues for MMORPG exceeded half a billion dollars in 2005, and Western revenues exceeded \$1 billion in 2006. In 2008, Western consumer spending on subscription MMOGs grew to \$1.4 billion. As a popular MMORPG, World of Warcraft had over 11.5 million subscribers as of December 2008. Another reason why MMORPG games are very popular is because game users can choose races and status. Once created, the user can let the character grow as it lives on in the game. This kind of game can usually be distinguished between a western RPG and an East Asian RPG. However, nowadays, these differences are ambiguous. In another way, MMORPG can be separated into two classes: fantasy RPG and oriental chivalry RPG. My project will focus on the former.

The characters portrayed in the fantasy RPG games are based on folklore and romance in medieval Europe. Creatures such as elves, dwarves, orcs and trolls are good examples for the characters. In popular MMORPG games like EverQuest II, Vanguard: Saga of Heroes, Guild Wars, Dark Age of Camelot, and War of Warcraft, the race of the characters are created very similarly to that of the elves, druids, trolls, orcs, and so forth.

In regards to this, I thought that creatures that exist in East Asian folklore would be likely to be recreated as characters in fantasy games. A number of creatures in the East Asian folklore are similar to that of the medieval Europe folklore. However, those creatures are seldom reproduced in a fantasy game. Many games made in East Asia actually prefer to use the creatures of western folklore. Because of this, I feel like I must create an East Asian fantasy creature as an RPG character. RPG games are quite popular, especially in South Korea and China, which the genre of this kind of game is developing at. That's why so many game entertainment companies all over the world come to Korea and China. For this reason, I thought that it is necessary to create a character with the special features and culture of East Asia.

Approach / Project Description

In this project, I will create four characters and one environment where the character live in. The main characters will consist of one male and one female character. The other two characters will be pets that belong to each of the main characters. the outcomes will be shown through three turn tables and posters

Description of Dokkebie

Dokkebi is a common word used in Korean folklore and fairy tales to call a type of spirit. The Dokkebi is a mythical being that appears in many old Korean folktales. Although its appearance is usually frightening, it can also be seen as a humorous, grotesque-looking sprite or goblin. These creatures love mischief and like to play mean tricks on bad people while rewarding wealth and blessings to the good. The Dokkebi is described as the transformed spirits of inanimate objects. The most common objects said to become a Dokkebi are usually useful, everyday implements that have been abandoned by their owners or left in perpetual disuse, including a wide-range of objects such as brooms, fireplace pokers, pestles, flails, and sometimes even a tree smeared with maiden's blood. They are different from ghosts because they are not formed by the death of a human being, but by the transformation of an inanimate object (Wikipedia).

Character Design Description

Description: They primarily live in a big cave deep within the forest.

They mainly move deep in the night.

They are symbolized by the fire.

They like music and parties.

They use a big bat with spikes to fight enemies.

Behavior: They can handle fire and magic well. Sometimes, they use it as a weapon.

They like to sleep and usually are lazybones.

Although they don't hurt humans, they enjoy scaring and ridiculing them.

Description of Building the Character

Basic shape: Although they are demons (or monsters), they have a similar shape to that of a human.

Face modeling: While it takes a human's body, its face is bizarre.

The shape of the face will be triangular with drooping eyes and sharp teeth that will be exposed.

main color: Vibrant colors will be used in his textures to help accentuate his boisterous personality.

Colors used will be red, purple and black.

Description of Haetae

In Chinese and Korean Mythology, the haetae is a legendary creature which resembles a lion but is, in fact, a fire-eating dog. It is believed as a guardian against disaster and prejudice. Furthermore, they are said to guard against all forms of disruptive or violent change. It has the body of a lion, and occasionally is depicted with a unicorn-like horn. The haetae is also thought to be a symbol of water, due to their fire-eating qualities, and a symbol of justice (Wikipedia).

Character Design Description

Description: While their heads are a similar shape to that of a lion, they have a horn on their foreheads.

Their body is covered with scales.

Behavior: They are very ferocious and wild.

They are also very daring.

Character Metaphor

	Character_1	Character_2	Character_3
Age	40	35	
Location	East Asia.	East Asia	East Asia
Sex	Man	Woman	Male
Personlity	Boisterous	Activiity	Ferocious
Race	Monster	Monster	
Habitat			Deep Forest
Class			Feline

Procedure

1. Researching characteristic of *Dokkebi*
2. Character modeling in maya
 - (1) high poly modeling
 - (2) Low poly modeling
 - (3) Detailed modeling for low poly and export in normal map
3. shading and texturing in Adobe photoshop
 - Making Diffuse, specular, Normal, and glow map.
4. Character Rigging and make pose.
5. Character Rendering: Final gather and Ambient occlusion Rendering
6. Making a turn table and poster.

Implication of the research

In my project, I will focus on recreating the creatures that exist in Korea's mythological stories. This character inspired by Asian myth will give users a new character style. MMORPG is getting popularity all over the world. Especially, it is very popular in South Korea and China. The new character created by Asian myths will be extremely interesting for users who are familiar with the western character style.

However, this project may have a limitation. If the Asian style of the character is overly emphasized, the character will not be able to match up to the other characters in a fantasy game. Also, in order to attract many gamers who love to play beautiful characters like the elves, this character must have to have special elements. Finally, the character that I will build is a type of monster, and this kind of character already exists in many games, like the ores and trolls. So the character that I will build should have special characteristics to distinguish itself from the existing characters.

Budget:

Hardware: graphic card upgrade. \$260

Software_zbrush; \$520

Marketing Plan:

This character is for an online game. After this project, I will try to apply the character to a game company.

Survey of Literature

A study on the User Interest of Basic Emotional Images in Character Design-Focused on the Character Design of MMOROG Games.

By Tang Jun, Cho Kwang-soo, Chung Sung-whan, Jang Young-Soo / 2009. 11

content

This study has employed a survey as a means of analyzing the characters in games that hold the outstanding position amongst the most popular games in the contemporary game industry. It has abstracted the aesthetically affective factors by collecting measurements of the aesthetic image which can be applied to the character design, and analyzed the relationship between the preferences of users and aesthetically affective factors. This study has attempted to present the basic preferences of users, along with the relationship between those preferences and the aesthetically affective factors, and to comprehend how the preferred aesthetically affective factors and the aesthetic feature of the character might come into being

Formal Preference of Game Character Design based on Game User Classification

By Noh kung-hee, Lee tae-il / 2008.5

content

The study is to explore the ways to design game characters according to the tendency of game users by classifying game users and analyzing the relation between user classes and their preferences towards game characters. The study examines various user classifications based on users' engagement levels, and designs a user questionnaire from them. Based on the result of questionnaire analysis, the study redefines user classes and applies the formal elements of character design to draw on the relationships between user classes and their preferences. The study carries out a case study to develop game characters based on the previous results to see how to differentiate the characters in terms of formal appearances and designs according to target users.

Case Study of Digital Restoration of Korean Traditional Monsters

By Kwang-Kilk Han / 2004.12

Content

This study is aimed that reappearance and restoration of Korean tradition monster's original shape be able to contribute in scenario material development which is filled with history, culture and long imagination of our country. As for method of this study, it is on the basis of literature investigation in history, tale, folk-tale etc. and expert's research, and also restored 50 items of Korean tradition monster in digital way. Study finding is as following. First, prescribed scope of Korean tradition monster including god, ghost, bogy and animal. Second, Korean tradition monster's pattern is classified with 5 degrees and 4 classes to according to grade of rank and appearance place. Third, each of 50 traditional monsters which are usable to scenario substance development was produced with graphic image and flash animation. Fourth, suggested idea for material development of cultural contents industry as like game and character based on each monster's story. Expect the developed result production from this study to be used as a resource of elevating in comprehension forward to our cultural tradition, to be used as a unique material in field of culture contents industry of game, character, cartoon and movie etc.

The World View of the Middle Ages Fantasy Game

By Seong-Eun Seo / 2009.9

content

73 percent of online games in Korea hold perspectives of medieval times in them. So far in history, about a millennium in medieval times is said to be a period of darkness and savagery, but it is newly revived in the digital virtual world. Such phenomenon is paradoxical and meaningful to often bring out 'medieval times' as a theme for online games, which are revealed by up-to-date technologies in present days. This research examines the background of views of medieval times appeared in online games and how they are realized. Medieval fantasy games have appeared because people dream about escaping from pre-modern times and have fantasy about medieval times. Moreover, perspectives of medieval times have enormously influenced background epics, quest stories, creation of characters in a game scenario.

A Study on the Character Creation of Traditional Incantatory Pattern for Individual Character Industry

By Shin Seung-taeg / 2003.2

content

For this, this study named it “Individual Character”, analyzes the Korean traditional incantatory patterns and develops three patterns such as line art character, five-color 2D character and letter & picture 3D character as a form having individual character with the twelve gods of the earth through examination of materials of traditional patterns home and abroad. These three-typed characters seek strategies by types and are applied to calendar, ceramic, metal, animation source, living goods and accessories.

Character development of Korean historical person

By Cha In-Tae, Kim soo-jeoung, Cho Tack-Yeon, Lee Jae-Beom / 2002. 12

content

Character industry in Korea has a history of less than 20 years by now, as it began in earnest at the end of the 1980s. Domestic character market is estimated to be around 1.2 trillion won occupying mere 0.01% of the world character market of 1,200 trillion won and less than 4% of the Japanese market, according to the calculation made by Korea Animation Producers Association. Local character takes up only 5% of the domestic character market, necessitating the development of the local character and an increase in market share.

The study on the character design development with cultural and symbolic image

By Kim_young sik, Hong san Kim / 2008.2

These days, culture becomes a country's industry as powerful as cultural competitiveness is called national one. The character industry which represents cultural power naturally conveys the culture and thought of its own country to the culture, philosophy, and thought of other countries and plays an important role in culture identity. By means of the character industry, we can recognize the value and identity of our culture and don't have to limit the excellency and potential capacities of our culture within the regional value. And moreover, on the base of global vision, character motif and contents development as Korean, cultural, symbolic image have a good influence on potentialities of culture character and cultural effects.

A study on the visual expression of Korean style character design through the visual analysis on traditional magic pattern

By Seung-taek Shin, Hyun-joo Lee, 2001.8

What find the motive of new design from Korean traditional cultural inheritance and symbolize it visually is to create a new design of Korean style into the harmony of shape and aesthetics by harmonizing past design and modern one, to discover the value of the future, and to make a new traditional culture.

This study is to find the motive of design from Korean traditional pattern and character of the twelve horary signs, to develop unique Korean style character by studying character to cause novel and refined sense and interest through the mix of traditional image and modern one, and to propose a plan to apply in various and practice the Korean style character to modern design. In addition, the purpose of this study is to discover the identity of Korean style from foreign culture by presenting identity and originality with our peculiar cultural elements as well as to develop the visual effect and character of traditional pattern, and to have national competitiveness with Korean style design from the world market of the future.

A Study for Media Character with Digital Animation Forms of Expression -Focused Analysis of Online MMORPG and Mobile RPG Game Character

By Sung-young Kim

Evolutionary Design of Game Character

By Kim Mi-Suk, Kang tae-won / 2003.4

In the computer game industry developing, players can play character in the virtual world.

This study show that character design should be diversity. Playing character with diversity will increase interest about game.

The study of people character design shown in domestic online game

By Kim Mi-youn / 2006.12

In the online game, the character is not the simple expression but the visual communication to expand the system of meaning from the connecting the game players . main character speaks the atmosphere of the game and define the peculiarity of it. When designing the game character because like that, very the set which is prudent is demanded. The dissertation which it sees hereupon observe generally the game character and it also explain widely the analyzation in the modeling and the aspect to design the people character in the online games of Korea.

Web Resources

http://ucsdgames.pabit.org/origin_blizzard/references.shtml

Content

This website shows what the origin of each character is and how they were brought about from the fantasy novel of the medieval era. Also, it provides references of characters such as elves, druids, orcs, and trolls.

<http://www.listology.com/list/mmorpg-races-long-list-part-1>

<http://www.listology.com/list/mmorpg-races-long-list-part-2>

Content

This web resource provides lists of characters that exist in an RPG fantasy game. When you see the list, it is only limited to creatures from the fantasy of the medieval era.

<http://myth.culturecontent.com/cha/0204a.asp?mCur=2>

content

This website shows examples of 3D characters that are from the Korean myths existing many years ago. This shows the new possibility to remake these creatures as a game character.