Characters Through 3D Models

Christopher Hildreth

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Pacific Northwest College of Art, Willamette University

For my thesis project I propose the creation of three 3D models based on my own designed characters exploring the depth of character creation in 3D software. I will use multiple digital programs including Clip Studio Paint, Blender, and Photoshop. My inspiration for this concept originated last summer when I fell in love with digital 3D modeling. I've been interested in it for the past year but after diving into it I realized that this is the field I want to be working in. These are characters that I've been cooking for a while, and I want to use this chance to show their personality off while creating a solid portfolio piece. For this I will need to push my knowledge in 3D character building and rigging even further.

Most of my research has been acquired from social interaction, taken directly from those in my circles more knowledgeable than me, as well as online artists. I am inspired by the work of the internet personality Jocat on youtube, and bluesky, for the way he plays with female and masculine clothing on his cis male online persona. Putting them in completely feminine attire, completely unabashedly, without sacrificing the gender identity of said character inspires my thesis work the absolute most. One of the specific characters that influence my project is Lio Fortia from 2019's Promare, directed by Hiroyuki Imaishi. He is a mix of elegance and ruthlessness stuffed into a small and slim body. The result is a male character who maintains a solid gender identity while embracing feminine qualities without any questions asked. I've been looking over a lot of art books for inspiration such as "Gurren Lagann Archives," "Spider-Man into the Spider-Verse: The Art of the Movie" and "Hiroyuki Imaishi Anime Artworks," for how to properly approach my design work. Choosing shapes, picking colors and many such things.

On the modeling side of inspiration most of it comes from niche friends I know online such as Birb, a person I know from VRChat. The models they make are simple and make use of techniques that make them extremely resource efficient to use. These make them run really well when ported into things like video games. This is a style of creation I want to hold close to me as I enter the industry so I'm not making horribly optimized garbage for employers.

To start on this work I will be using art programs such as Clip Studio Paint, and Photoshop to design character model sheets that I can then port into Blender, and build around. I will work on this the most efficiently at home with my desktop setup, but will bring the files to school to work on when forced, or needed. I've chosen these programs as I am most comfortable in them and plan to bring them into my professional practice after I graduate. I intend to get feedback from various sources of friends and acquaintances online, and by my mentor on how to improve what I'm working on. By the end I should have three fully modeled, textured, and rigged, 3D models ready for animation. Optimally I will make small idle animations with a camera turn around to show off their personality, and how well the model moves.

I have already developed the three character model sheets for this and will start modeling soon. By the time winter break is here I want to have the rough silhouette of each shaped out, and I'll work to detail them further over it. In my rough estimation it will take around 300 hours in total to complete this project if things go smoothly. Expecting 100 hours each character. Luckily I don't need to spend any more money on this project due to the cheap digital demands of it.

In summary I am proposing to create three 3D models, fully textured and rigged for animation in the program. I hope it will engage its viewers by subtly challenging their understanding of gender expression without calling attention to it.

Bibliography

GAINAX. 2023. Gurren Lagann Archives. Udon Entertainment.

Ramin Zahed. 2018. Spider-Man into the Spider-Verse : The Art of the Movie.

Imaishi, Hiroyuki . 2020. Hiroyuki Imaishi Anime Artworks.今石洋之アニメ画集. Tōkyō, 東京: Sutairu, スタイル, 2020.

Uematsu, Junichi, ed. 2019. PromareAnimation. Directed by Hiroyuki Imaishi. Yūrakuchō, Chiyoda, Tokyo, Japan: Toho Co., Ltd.

“JoCat.” 2016. JoCat. 2016. https://www.jocat.net/.

Bìrb. 2024. Lowpoly Avatars. 3D model. https://vrchat.com/home/world/wrld_2243f873-c175-4d1f-a5f2-f27e5952cd12

BUDGET

IN KIND PURCHASE/COMPENSATE

Materials

$0

Equipment

$0

Space

$0

Collaborators

$0

TIMELINE and WORK PLAN

Fall

October

Working on base models

November

Base model Nidhogg done

December

Base model Graffiti Fox done

Spring

January

UV texture unwrapping

February

Skeleton and weight painting.

March

Drivers and shape keys

April

Animation

Artist Statement

This thesis is a collection of three 3D models built, textured and rigged from the ground up for the purposes of 3D animation in blender. They are aesthetically based off of old PlayStation 1 games with low resolution textures and a somewhat low polygon build. When picking out the characters I focused on how they presented their chosen genders, but those themes take a back seat to my main purpose of learning to make models that look good, and animate well.

Thesis Abstract

Characters through 3D Models is a thesis designed for my portfolio work before anything else. The three models I will be showing off will have been built textured, rigged, and animated from absolute scratch to showcase how far I've come in the year I've been working in Blender. My final goal for these is to have models I can give to an animator and not get any complaints from.

I first made the character designs with an eye for unique gender expression the character's outfits and body build, but other than the animation of them, I didn't have much reason to focus more attention on those themes.

The three characters that will be showcased will be Nid, the dragon girl, Amari, the fox boy, and Imu, the cat boy. They are from an urban fantasy universe I've been making for more than half a decade now. Each one has their own backstory and personality and I wish to bring alive in this animated showcase. In how they move, hold themselves, and perform. I am an animator at heart, and if nothing else, I hope my skills are enough to make you see a glimpse of who they are.

I hope you enjoy.

Thesis Speech

Greetings, and welcome. I thank you all for coming at this early in the morning to see what I've been up to.

As you may have been told, I'm Christopher.

My background is in 2D animation. I have a love for character design, robots, and video games. A thing i've found out about myself is that I like to do a lot of different things. This past year I've fallen in love with the digital 3D field. pushed by my mounting interest, I've learned quite a bit.

I say we cut to the chase, and see the showcase, yeah?

[VIDEO SHOWCASE]

This all started the summer of last year. My initial thesis plan was a short 2D animated film by the name of-

- ***Last Train***. I had it already storyboarded out. At the time, my layout skills were subpar, so over the summer I took an independent study, and decided to learn blender to make the backgrounds for it. The way I decided to get my foothold was by making a 3D model.

By the end of that **summer** I had a fully textured character, rigged with a skeleton built for unity. This is Imu.

He just started as my MMO character in **Final Fantasy XIV,** but over time kind of turned into my online persona after enough people started associating him with me.

I made him with the intent of porting into a social VR game as a player avatar..

With how much fun I had learning and making him however, I knew I wanted to make this my thesis. And so I got to work. At first I was going to make 3 whole new

characters but I listened to the advice I received, and I culled one of them. Instead focusing that effort on the model I had already created, here.
The characters I would focus on were,

Nid, the back scaled dragon girl. And **Amari**, the mint haired fox boy

The REAL reason I chose them was for opposing reasons honestly.

Nid has been one of my longest standing original characters, you'll find her face all around my sketchbooks, and digital files.

She originated from a **small sketch** I made back in highschool where I tried to make a human form for the Elder dragon Alatreon from Monster Hunter TRI. I ended up loving her design so much I made changes and turned her into my own character.

Amari on the other hand is one of my newest characters. Crafted on a whim, and returned to enough times to earn a spot here.

I made him because I hadn't made a truly feminine male character in the past, and I really wanted one under my list.

I didn't have anything in mind when originally making him, But I realized later just how much characters like-

- **Lio Fortia** from promare, and Astolfo from type/moon's fate series impacted his design.

These two characters of mine both live in a universe I've been crafting since high-school. A universe of urban fantasy, filled with fantastical people walking around, and coping with life the same as all of us.

That's to say, barely.

Now though, we're are onto,,, **The process**

I spent pretty much the whole first semester of my thesis slightly **redesigning** these characters, setting up Nids rough model, and fending off thesis prep classes. I formally got started on the models however at the beginning if this year.

I started with extremely simple **shapes** and poly modeled them into what i was happy with. Cutting, and moving vertices until the silhouette of each part was -

- **pleasing** to me. I reused some of the more annoying parts such as hands, face and torso, but molded each to fit the character a bit better.

Modeling took a while but learning even more about proper topology made it pretty engaging throughout.

In time I had built the base models for these two.

What did NOT bring me joy however was **UV mapping**. To anyone who doesn't know, this is the process of telling the program how the model's skin will be sown onto them from a flat texture file. It was notably easier than the first one I did, but I'm still not a fan of it.

I at least got some help from my partner on organizing Amari's UV which saved a ton of my sanity.

Using the final UV outline I got to work **texturing**. For some reason, this was my least favorite part. I probably just wasnt in the 2D mindset those 2 weeks, but regardless I streamlined my work flow from the first time I did it.

I ran all the complex texturing in Clip Studio Paint, then did touch ups, and fine tuning in blender's texture paint mode.

I think my new style of work contributed to them looking **much** better.

properly folding symmetrical parts onto each other, and stacking similar parts into a single section optimized the texture files considerably.

Here's a **comparison** to the first texture file I made. You may notice that the one on the left is more than DOUBLE the texture size of the one on the right. And Amari is the most asymmetrical one out of all three, meaning theoretically he should take up the most space.

While I'm on the topic of textures I should mention that the aesthetics of these models are highly inspired by early **3d games** from the ps1 and ps2.

I fell In love with this style while playing a vr chat actually. I have a servicably good computer, but watching my game performance tank by half as some dingus enters the room using a model with 2 million polygons, and 83 meshes, kind of ticked me off. So I dedicated myself to optimizing the things I make to run extremely well.

Low poly, small textures, one mesh, one material.

I took a lot of inspiration from low res textures with baked on lighting such from Spyro, Silent Hill, and Spiral Knights, but ultimately I designed mine to make use of scene lighting, cuz light is cool, yo.

After texturing, I make **base skeletons** for all 3 and weight painted them. Basically assigning what parts of the body moved with each bone. This time around I'm using a slightly different base skeleton than the first one I made, so pink boy over there had to be remade, and reweighted entirely.

Something that my partner also helped me out with.

On a side note, Being my first model. That thing is a demon that needs to exorcized. He has too many quirks I was too dumb to fix while making him. I'm going to really enjoy leaving him in the dust after this.

His original skeleton was made to the specifications of the specific unity game I was importing him into, but these new rigs are designed for animation in Blender.

They’re using quite a few more bones this time around because im not optimizing this for A game engine. Im optimizing it to look good as an animation rig. Notably so on each limb section that has twice the bones so that they look better when twisted.

I used more than double what I’d normally use for the long bone chains like tails, and hair, and my personal hated favorite, the knee bone to smooth leg bends out.

That addition made their legs work a lot better, but also made learning this next section a lot harder on me than it probably should have.

With all of the deformation bones set up came the hardest part of all of this.

You see I could have just weighted to a premade Rigify skeleton. I could have just clicked a button and have a fancy animation ready control rig, but NOOOoooOO, I decided to learn and build a full animation rig for ALL of them from SCRATCH.

I have grown to LOVE and hate the complexity of **bone constraints** as a tool. These little modifiers you apply to a bone to make it interact with others. By itself simple, but when combined with

more

and more stacking bones, parent chains, and constraints turns it into a complex web of actions, and reactions.

I got **deformation bones**, Inverse kinematic bones, mechanic bones to make the IK function, forward kinematic bones that i can swap to by using a number on ANOTHER separate bone, I got bones that tweak small parts of other bones, and controller handle bones to make ALL of this actually USABLE.

And the best part, despite everything I learned, and fit into these rigs, I'm only scratching the surface of what's possible with all of this.
There's so much to learn and improve on after this.
Something that only got more apparent when I started

stage 6:

Animation. Throughout this past semester I've been learning computer animation through small blender tests, and my Animation for games class.

Graph editors took me a bit at first, and I'm a far ways away from what I want to be able to do with it, but my 2D animation background let me carry over some of my understanding of the animation principles.

I ran a few **tests** before I started animating but those were all on perfectly functioning models. Most notable of them being crashsune's low poly Astolfo.

That rig is nuts good

Let me tell you, nothing will point out the flaws of your rig harder than trying to **animate it**. I feel like I spent half my time animating and half fixing up random small quirks that made something bend weirdly, or deform in a stupid way.

But so the learning process goes, I guess.

SO, **Where to** from here?

First off, there's still some small clean up I want to make, but these are pieces I'll be using to TRY, and find jobs in the 3d field. I'm aiming to be a 3D generalist with a focus on character building, rigging, and animation.

To further this goal I'm planning 2 more rigs to make on my own time for my portfolio. First off is some sort of **animal** to practice quadruped rigging. It'll most likely be a pine marten, or stoat of some kind.

And Secondly a BIG mech, to practice mechanical rigging, (and because I think mechs are sick as hell.)

These rigs will be made in a much higher poly style to showcase artistic range in my portfolio, and to practice with more areas of 3d such as sculpting, retopology, and

normall mappsss.

But, This is the end of this wild ride. I'd like to **thank everyone** again for coming this disgustingly early in the morning.

I'd like to thank my family for always being there for me.

My partner, Drischa for inspireing me to keep creating. I wouldn't have even touched blender without them.

My online friends, for helping to unwind during rough semesters, and being awesome to hang out with.

And my friends, and peers here at this school. I love all of your work and am proud as hell to be graduating with a lot of you this coming month

But with all of that said, would you guys like to see it again before I open up to questions?

Annotated Bibliography

GAINAX Studio. Gurren Lagann Archives. Place: Udon Entertainment, 2023.

Inspiration on colors, and shape language.

Zahed, Ramin. Spider-Man into the Spider-Verse : The Art of the Movie.Titan Books: London, 2018.

Looking into how they took 2d designs and ported them into the 3D space

Imaishi, Hiroyuki. Hiroyuki Imaishi Anime Artworks. Tōkyō: Sutairu, 2020.

Studying the amazing character designs. Specifically of Lio Fortia for his masculine elegance that gives him a touch of femininity. A good inspiration for Amari, my fox boy.

Imaishi, Hiroyuki. Promare. Tokyo: Studio Trigger, 2019. Animated Film.

Again, Lio Fortia. Good design. The bright amazing colors are jaw dropping and the mix of 3d into 2d is something I may want to look into some day. Mix the best of both my loves.

Capcom. Monster Hunter: World. PC. Xbox One. PlayStation 4. 2018

Alatreon played a huge roll in Nid's design. The blackened reverse scales, the spikes. That monster is beautiful. I love it. Loved it so much I made a humanish dragon girl that looks like it.

Bìrb. "Lowpoly Avatars." 3D model. DATE ACCESSED 2024. https://vrchat.com/home/world/wrld_2243f873-c175-4d1f-a5f2-f27e5952cd12

Main inspiration for the visual style im going for. This guy makes amazing low poly works with low res textures. Ill be going higher poly than this, but I still

think its really cool.

“JoCat.” 2016. JoCat. 2016. https://www.jocat.net/.

The way this man will show up in female cloths and still read as a straight man is amazing. I suspect his confidence in doing so is what makes it happen. Something that i need to note down when animating Amari.