

THIRD EDITION : The Official Mini Magazine

MARVELOUS DESIGNER

MARCH 2025 #3rd ISSUE

“LOOKING FOR
A VERSATILE,
FAST TOOL,

**MARVELOUS DESIGNER
IS THE ONLY CHOICE.”**

—
Artists'
Interviews

Behind-the-scenes

**INSIGHTFUL
STORIES**

- + INTERVIEW
- + TIPS & TRICKS
- + NEW FEATURES

marvelousdesigner.com

+25

**ARTWORK
SHOWCASE**



**UNLEASH
YOUR
CREATIVITY**

The **INDUSTRY STANDARD**
for 3D Cloth Modelling
and Simulation

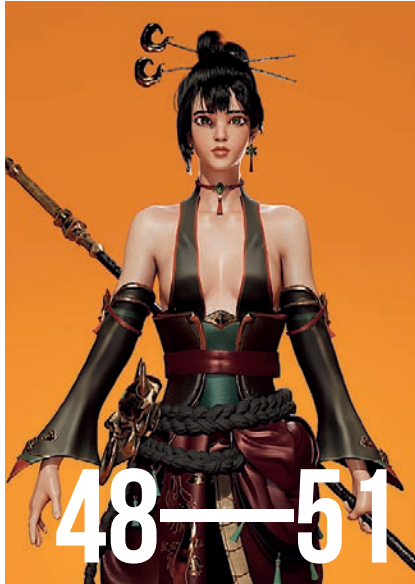
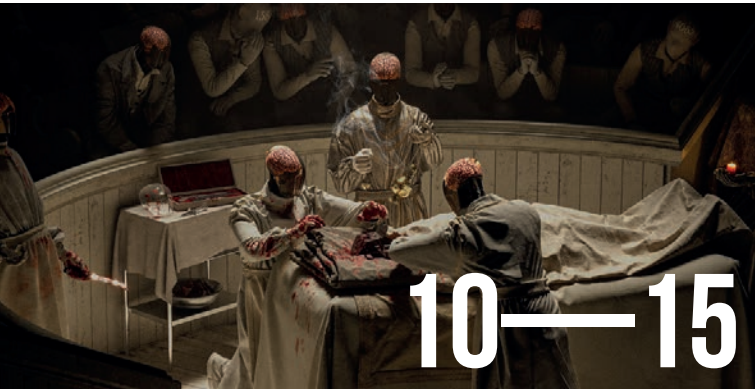


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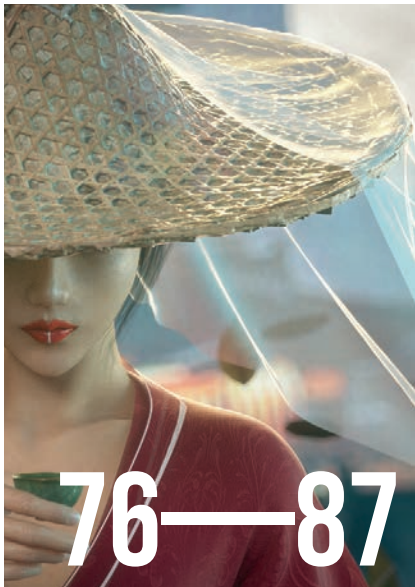
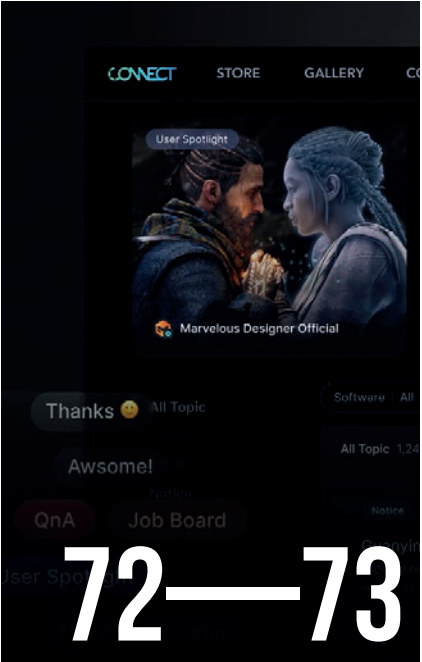
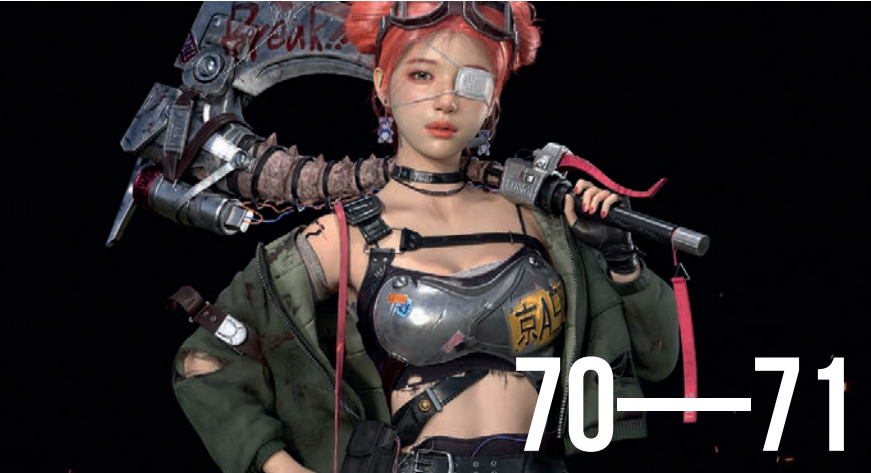
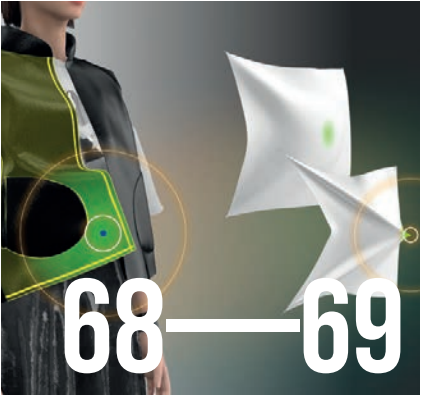
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GALLERY OF FAME

CELEBRATING 2024'S ARTISTIC ACHIEVEMENTS



MARVELOUS DESIGNER
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| SENIOR CHARACTER ARTIST



WWW.ARTSTATION.COM/EMRE

Interview
with
**EMRE
EKMEKCI**

WINGED HUSSAR

I'm Emre Ekmekci, currently working as a Senior Staff Character Artist at Sucker Punch Productions. I've been passionate about creating characters and creatures since I was a kid, drawing and painting whenever I could. My passion only grew after I was introduced to games so I ended up turning it into my profession. The most recent game I shipped is *Ghost of Tsushima*, currently working on *Ghost of Yotei*.

When did you start using Marvelous Designer and how did that affect your workflow?

I first started dabbling in *Marvelous Designer* (MD) when I was a student back in 2014, working on a personal project. I had seen incredible works done by other artists using MD and I instantly recognized it as a game-changer. Up to that point I had been sculpting all the clothing elements on my characters, which was fun in its own way and definitely educational, however MD allows artists to achieve a level of realism that is arguably unattainable by sculpting. To me it is very obvious when an artist sculpts clothes rather than using MD. That said, I think clothing models highly benefit from some human touch, be it sculpting on top of or other methods, after creating a solid foundation in MD.

Now, MD is an industry standard when creating realistic clothes and many companies use and require it. Thus it's a standard step in my character creation workflow. The way I personally work with MD is first by creating all of the clothing in MD as a base, sometimes all clothing elements in the same scene, interacting with each other, sometimes in separate scenes depending on the character. When I'm happy with what I have in MD, I create a version with clean topology, ready to be sculpted on, as I will go into further detail later, and then switch to ZBrush. I then start sculpting additional tertiary folds, wear/tear and wrinkles, as well as smoothing out some areas and bumping up some of the existing folds coming in from the MD simulation and enhancing the silhouette. My ultimate aim is to create realistic looking clothes that also have an element of human touch and "style" if you will.

Here's an example showing steps of a *MD* study I made back in 2016, as well as the final render in *Maya Arnold*.

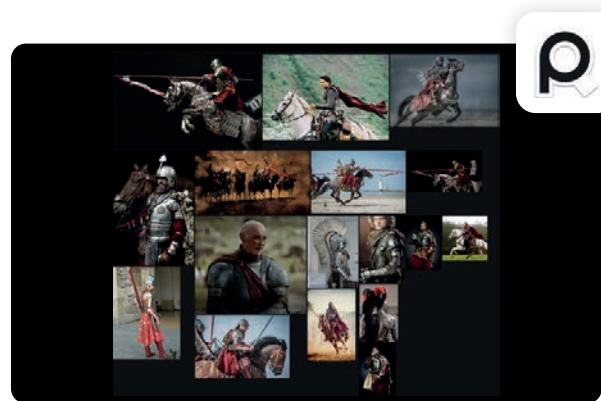


Can you explain the project preparation process – intentions, goals to achieve, the approach to the cloth design, and references?

My goal with this project was to experiment in *Unreal Engine 5*, doing look dev with a variety of materials and lighting scenarios. To that end, I looked for a character that would have a bunch of different materials on it and stumbled upon the *Polish hussars*. They have metal, fabric, leather, feathers, fur, and jewels on them which perfectly fit my goal of experimenting with materials. They also hold a distinct visual aesthetic that looks like a blend of Eastern and Western armor

designs giving them an original and appealing look. What's more, they ride horses which I saw as another opportunity to expand my process and play around with anisotropy in *UE5*, which proved to be a bit tricky at first but was an enriching experience.

Particularly for the cloth elements, I hunted for visual references that looked dynamic and heroic, with cool folds and shapes that show the weight and thickness of each fabric at a glance, and capes flowing in the wind in order to add movement to



the still images of the final renders. **Using fabric elements being affected by motion or wind is one of the most efficient ways to add dynamism to still images. MD was crucial in that regard with its Wind Controller** feature. I used hanging bits of fabric as well as flags and other clothing elements like capes to

achieve that goal. Using different types of fabric elements was also one of my goals in order to have visual variation and show the interactions of different armor elements with different types of fabrics. I was able to achieve the looks I needed in *MD* utilizing various fabric settings and creating custom ones of my own.

Once I decided what kind of character I was going to make, the next step was creating the concepts. For most of my personal projects, I try to create original designs or alter the designs and references I find since I enjoy the creative process it allows me to go through. I didn't want to model a completely historically accurate hussar, but rather fantasy versions

of it with a consistent and unique design twist to make it my own.

I gathered plenty of reference images, and separated them based on their potential use like "armor", "horse", "weapons", "textures and materials", "lighting and rendering", and "pose". The more reference images I looked at, the more my project expanded and took shape in my mind. I decided to make "dye variations" for my hussar as you would have in some games as cosmetic options. For each dye variant, I then designed modular pieces like unique helmets to give each dye variant a sort of theme and make them look distinct without too much extra work.

USING DIFFERENT TYPES OF FABRIC ELEMENTS WAS ALSO ONE OF MY GOALS ORDER TO HAVE VISUAL VARIATION.

When I tackled the concepts, I knew I wanted to create a dark fantasy look, so I tried to keep the colors relatively muted and dark even though there were plenty of colors across the different dye variants.

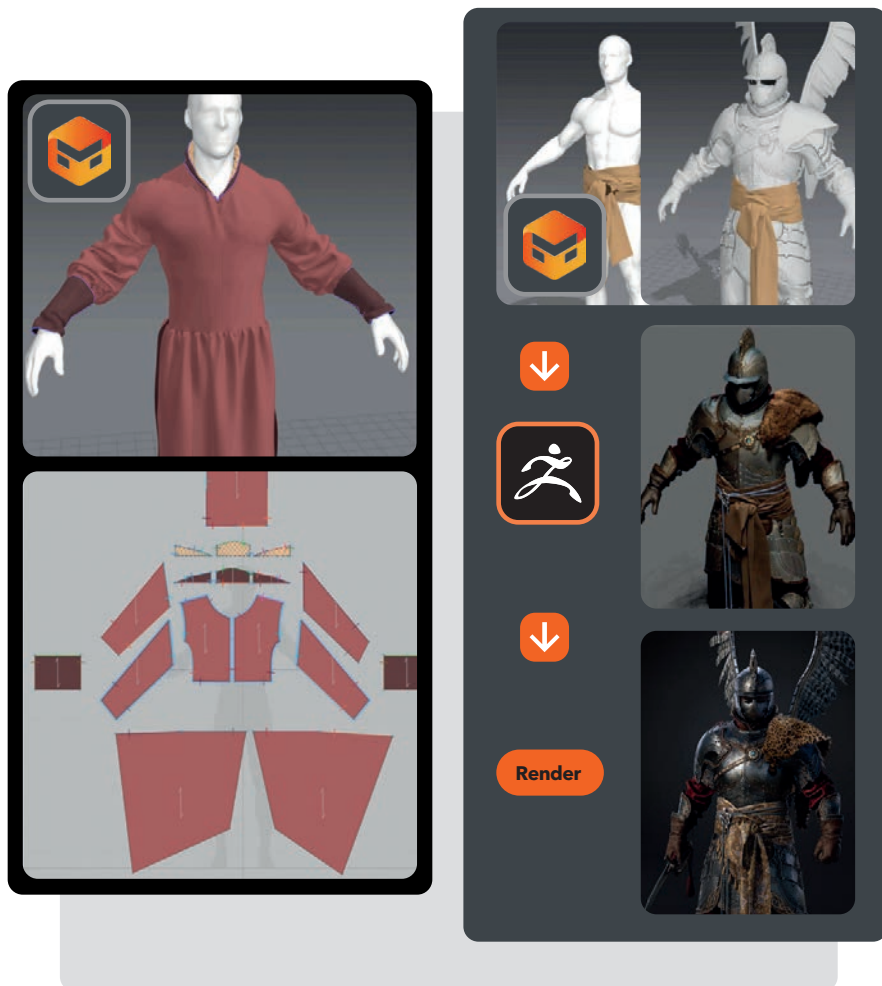
PROJECT BREAKDOWN STEPS

1 I usually start with a very rough blockout of simple shapes to be able to establish the overall silhouette, weight distribution, and shape hierarchy. This is where I tend to modify the concept for the first time if necessary, given that the proportions of the base model I use may not always match the proportions of the 2D concept which was the case for this one since I intentionally made the concepts a bit more stylized compared to the models.

Once I established the overall proportions and silhouette, I jumped into *Marvelous Designer* to create the clothing elements. For this project, I opted to create the clothing pieces in separate *MD* scenes since they didn't really interact with each other and it would be easier to adjust each element later if I needed to. I first made the tunic on the base body without including the armor or other elements in the scene initially. The tunic was supposed to sit on the body, under the armor anyway. For the sash, however, I first made an initial sash garment in *MD* on the base body since it was easier to get a first pass on without the armor interactions. I then took it to *ZBrush*, modified it to sit on the armor and curated the shape and folds a bit more before going

back to *MD* where I imported the armor as my base avatar and refitted the sash garment in *MD* on top of it to achieve the most realistic interaction between the two elements while using the **Strengthen** feature to keep some of the cool folds I had in the base version. I did import the armor and the horse when I created other garments like the capes. I paid close attention to the parts of the clothes that I knew that would be visible from the gaps in the armor, like the sleeves and collar of the tunic, or the large sash they wear on top of the armor. That allowed

me to focus my attention to those specific areas while making the parts that I know would be hidden under the armor (like the chest area of the tunic) tight and minimal to allow the armor to work as intended. **Ensuring I have interesting folds and garment shapes in Marvelous Designer is key since it sets the visual foundation on which I build up all my sculpted cloth details and allows me to achieve realistic looking garments that would be almost unattainable otherwise.**



2 For the fabric piece that's wrapped around the helmet of the *Gold Hussar*, I created a long strip of rectangular garment in *MD*, then pinning one side of it in place, I twisted the garment until I got a nice tight twisting look. I then duplicated the twisted garment and did the same twisting action using the two identical garments until finally wrapping it around the helmet.

3 I used a similar approach to create the posed cape resting on the horse. Once I got a pose of the *White Hussar* that I was happy with, I took the posed model into *MD* and modified the cape garment I used for the base pose without the horse, this time having the cape interact with the horse as well as the armor.

4 The **Wind Controller** feature of *MD* has been a crucial aspect of this project since I used it extensively when creating the garment elements like the cape and the flag blowing in the wind or with motion to make the final presentation more dynamic looking.

I was able to obtain several different versions of the flowing cape using the **Wind Controller** as well as manually pulling and pushing some parts of the garment during the wind simulation.



Workflow in-out Marvelous Designer to other software. **How do you prepare your project to continue working on other software?**

5 Once I have a solid looking garment in *MD* with interesting folds and proper and realistic secondary and tertiary shapes, my next step is creating a version of the garment with even quads and proper edge flow to allow sculpting on it in *ZBrush*.

To achieve this, I utilize the **Transfer Attributes** function in *Maya*. I first export my garment in its current 3D state with as much detail on it as possible (using particle distance of 5 or less), naming it “**garment_tris**”. I then flatten out the garment to its 2D pattern view using the **Reset 2D Arrangement** button and export that as “**garment_tris_flat**”. Both of these meshes should be unwelded and thin when exported.

6 Next, I import **garment_tris_flat** into *ZBrush* and create a version of it with uniformly distributed quads using *ZRemesh*. This step can also be done by retopologizing the flat mesh manually in software like *Maya*. I export the new mesh as “**garment_quads_flat**”.

7 Then I open up *Maya* and import all 3 meshes (**garment_tris**, **garment_tris_flat** and **garment_quads_flat**). I make sure the UVs of the garment_tris and garment_tris_flat meshes don't have overlapping islands, otherwise the resulting mesh would be problematic.

8 I then use the **Transfer Attributes** function in *Maya* to transfer the UVs of garment_tris_flat onto garment_quads_flat, which results in the quaded flat mesh to have matching UVs to the original 3D garment with tris (garment_tris). I then use **Transfer Attributes** again to transfer the vertex position of garment_tris to garment_quads_flat. This gives me the quaded version in 3D, matching the shape of my original garment in *MD* which I export as “**garment_quads**”.

9 My next step is importing **garment_tris** and **garment_quads** into *Zbrush*. I then use the Panel Loops function under the **EdgeLoop** sub palette to add thickness to the quaded garment. This gives me a proper thickness on the garment with clean polygroups separating the outer surface, inner surface and the thickness sides of the mesh.

10 I then gradually project the details of **garment_tris** onto **garment_quads** using the Project function, subdividing the quaded mesh and masking out the inner faces on each iteration. This allows me to create a version of the garment with subdivision levels and clean polygroups while still maintaining the details from *MD*.

Another way I prepare my garments in *MD* to work in other software is using the **Remesh** function. **Remesh** in *MD* has been such a gamechanger that I use it increasingly on every project I make. It is especially useful for less complicated garments like the cape I made for the hussars, but can definitely be used for more complex garments too. The only reason I still prefer the **Transfer Attributes** method over **Remesh** in *MD* doesn't always have the topology following the flow of the garment which is not ideal for sculpting. Still it's a great tool to use and a very fast way of preparing some garments for use in different software.



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| 3D ARTIST



ARTSTATION.COM/NAT_BISHOP

Interview
with
**NAT
BISHOP**

THE NEW CLINIC

MARVELOUS DESIGNER TRUSTED BY INDUSTRY LEADERS

My name is *Nat Bishop*. I grew up in England and I'm currently a student at *Gnomon School of Visual Effects* in Los Angeles. Before attending *Gnomon*, I completed a Computer Science degree and worked as a Software Engineer in the Robotics field.

When did you start using Marvelous Designer and how did that affect your workflow?

I first used *Marvelous Designer* during my second term at *Gnomon*, just three months into my transition from computer science to pursuing art. My instructor, *Tran Ma*—co-creator of *M.T Studios* with *Miguel Ortega*—

introduced me to the software and suggested it for my project. *Tran's* extensive use of *Marvelous Designer* in projects like *Voice in the Hollow* and *The Threadlings* inspired me to try it myself.

With just ten weeks to complete the project while balancing five other classes, *Marvelous Designer* became essential. It allowed me to quickly make a variety of characters for my project. Once I had designed a few different outfits, I used morph targets to simulate the outfits into different poses, while maintaining consistent UV's.

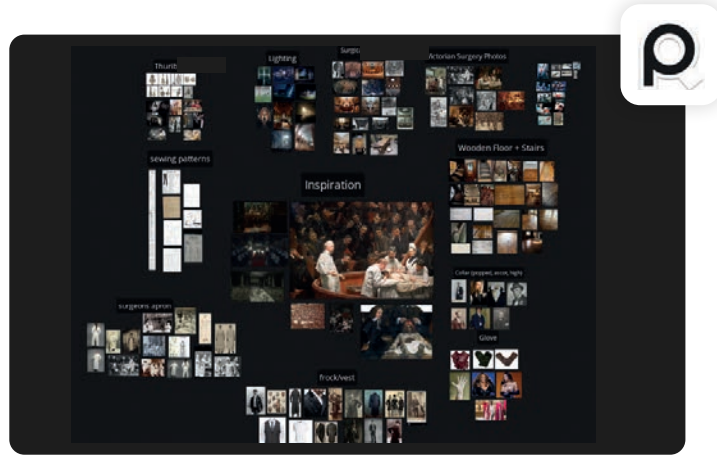
ONCE I HAD DESIGNED A FEW DIFFERENT OUTFITS, I USED MORPH TARGETS TO SIMULATE THE OUTFITS INTO DIFFERENT POSES, WHILE MAINTAINING CONSISTENT UV'S.

Interview with Nat Bishop

3D ARTIST

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Explain the project preparation process - Intentions, goals to achieve, the approach to the cloth design, and references.



Transitioning from a career in computer science to the art world put the blending of technology and art at the forefront of my mind. My project *The New Clinic* explores this intersection, highlighting both the benefits and risks of technological advancement. The piece is inspired by the 1889 painting of a Victorian surgery, *The Agnew Clinic* by Thomas Eakins, which I reinterpreted to convey a more futuristic narrative.

The scene is set in a Victorian operating theater where a patient undergoes surgery to replace his brain with robotic components, suggesting that humanity has become outdated in this new reality. Some of the surgeons and audience members have already undergone the transformation, while others, who have not, are masked and numbered in shame.

I started by collecting references of Victorian clothing, noticing that they have a different cut to modern clothing which makes them seem distinctly 'Victorian'. You can see in my reference file that I have a large variety of references for Victorian clothing, operating theaters and surgical tools. I decided to design three main outfits: the surgeons, the audience and the widow, who is the wife of the patient undergoing the surgery.

PROJECT BREAKDOWN

Before I started in *Marvelous Designer*, I did a blockout of the scene by posing a simple human mesh to get an idea of how the different characters would be framed. These meshes weren't included in the final render but served as morph targets to simulate the clothing.

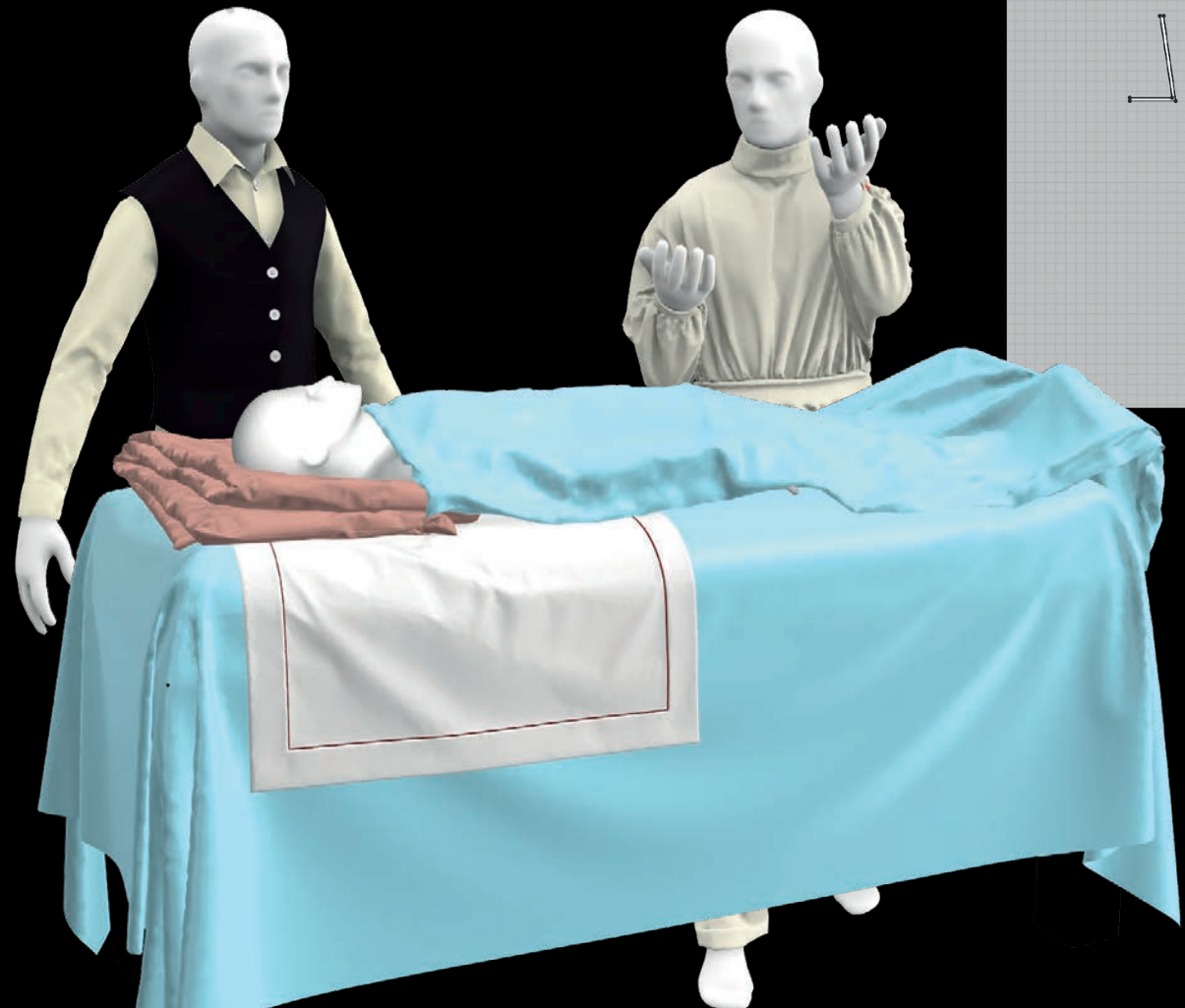
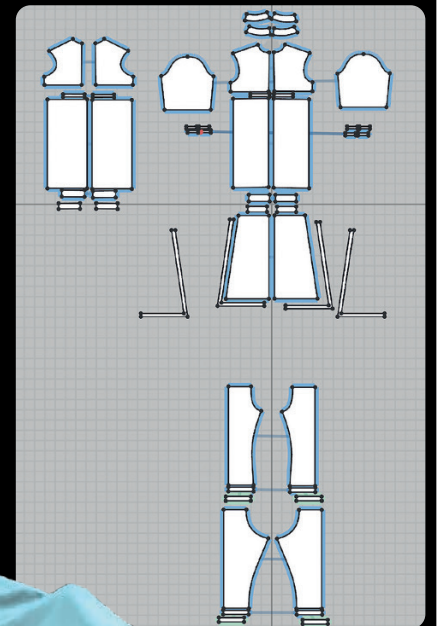
I wanted the audience to feel voyeuristic, and the surgery to have a ceremonial element to enhance the unsettling vibe. I quickly realized I would need to handle a variety of fabrics in the scene, from different outfits to the patient's bed, pillow,

velvet in the toolbox, and bloody rags. This meant I had to make each fabric type visually distinct, which was challenging given the desaturated palette.

Since this was the largest project I had tackled so far, there was a moment when I had posed and clothed all the characters, and I just wanted to show off all my hard work. I ended up overlighting the scene because the thought of letting everything I'd created slip into the shadows felt impossible. When I spoke with my instructor, she shared a lesson from her short film *The Ningyo*. She had built

this incredibly complex model that must have taken ages, only for it to be barely visible in the final film. The point she made stuck with me: building something to a high standard, even if it's hidden in darkness, is never a waste of time. If it's done poorly, it will show, no matter how hidden. So, I dialed down the light and ramped up the fog, even though it meant many of the peripheral characters faded into the background. In the end, the scene became much more cinematic, even though all the crumpled coats I had painstakingly placed on the benches were no longer visible.

BUILDING SOMETHING TO A HIGH STANDARD, EVEN IF IT'S HIDDEN IN DARKNESS, IS NEVER A WASTE OF TIME.



TIPS

CRUMPLED PAPER NORMAL MAP

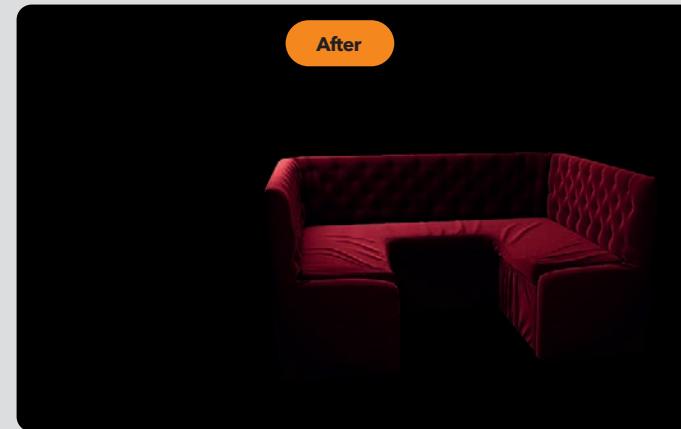
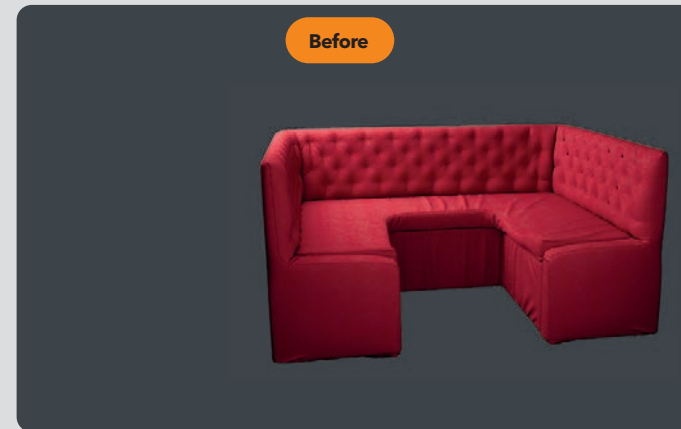
Texturing is as important as the mesh itself when creating realistic fabric. One trick for adding wrinkles to fabric is using the normal map from a crumpled paper texture. When you blur the normal map the wrinkles turn into subtle creases, enhancing the impression of natural folds. You don't want to use this for large folds as they should be done with the mesh, but it is helpful for adding smaller details.

I also experimented with creative textures, like using Art Deco wallpaper as a base for the religious figure's robe, which helped set him apart from the other characters while adding a symbolic touch.

FRESNEL FOR REALISTIC FABRIC

One trick which was helpful with enhancing the realism of cloth was using **VrayFalloff** (or any Fresnel shader). I add a Fresnel shader to all my fabrics as it can emulate how different fabrics react to light. I've shown a comparison of a velvet sofa I created in *Marvelous Designer*, both with and without the **VrayFalloff** applied using the same lighting. The version with the falloff more closely mimics how velvet shifts its appearance based on viewing angle.

Each fabric reacts differently to light, and so will need a different graph on the Fresnel shader, which you can tell by inspecting the reference.



CREATING GLOVES IN MARVELOUS



Simulating gloves in *Marvelous* can be tricky because hands are both small and intricate. It is one of the rare cases where you don't want to work at a real world scale. I simulated all my gloves at 5x real world scale to give myself more resolution and stop the clothes from self intersecting as much. I used a base hand mesh and each glove was created using morph targets, just like the full human poses. It would be impossible for me to create realistic folds without *Marvelous Designer*.

How was your experience using Marvelous Designer?

Almost every aspect of my project involved *Marvelous Designer*, and I'm glad it did. Having realistic looking clothes allowed me to create an ambitious project only 3 months into my school program. Using *Marvelous Designer* meant I could spend less time worrying about the technical implementation and more time focusing on the story I wanted to tell.

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| 3D CHARACTER ARTIST



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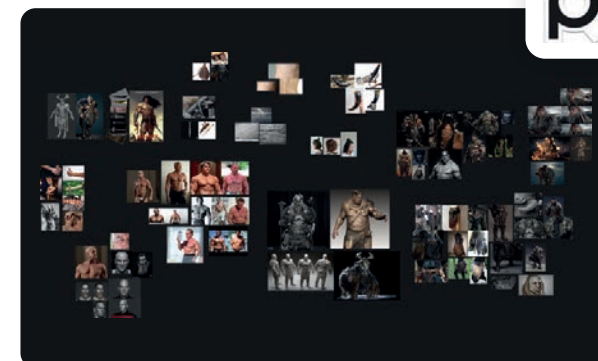
My name is *Joanna Bendaoud* and I'm a junior 3D Character Artist based in Montreal with two years of experience in the Game and Film industry. I focus on creating detailed characters that tell a story through design, blending anatomy, textures, and materials in unique ways. I'm always refining my skills and exploring new techniques to push my work further.

Using Marvelous Designer

I started using *Marvelous Designer* about a year ago, drawn by the impressive results I had seen from other artists. From the moment I began experimenting with it, *MD* opened up new possibilities in my work. It provided a much-needed change from my traditional sculpting process in *ZBrush*, offering a more intuitive way to create realistic fabric simulations. The software has brought both efficiency and quality to my designs, making it a staple in my workflow.

Project Goals and Intentions

For this project, I aimed to create a character that could be at the center of my portfolio. My goal was to demonstrate a wide range of skills, including fur, hair, anatomy, armor, texturing and, of course, cloth simulation. I spent considerable time gathering references, organizing them in *PureRef*, and ensuring that all design elements—from armor to fabrics—worked cohesively. This allowed me to push the realism and detail of my character, while keeping the overall design grounded.



Interview
with
**JOANNA
BENDAUD**

VYKE - WORLD OF
WARCRAFT FAN ART

**FROM THE
MOMENT I BEGAN
EXPERIMENTING
WITH IT, MD
OPENED UP NEW
POSSIBILITIES
IN MY WORK.**

PROJECT BREAKDOWN



1 Concept: I began with a rough concept phase, working in either 2D or 3D to shape the character's silhouette and define its "mood" through colors, poses, and subtle facial expressions. This helped me establish the story and personality behind the character.

2 Blocking and Sculpting: Once I was satisfied with the initial design, I moved on to blocking the anatomy and key elements. This phase involved testing out different color schemes and refining the character's mood. Afterward, I began adding more sculpted details to the model. I conduct research and draw inspiration from existing designs to enhance the

authenticity of my garment's construction. Emulating natural folds and drapes often yields more realistic results compared to attempting to replicate them from your head.

Additionally, I occasionally leverage frozen parts of the mesh to manipulate and achieve unique shapes.

3 Cloth Simulation in Marvelous Designer: This is where *Marvelous Designer* came into play. I created the fabric elements and simulated them, ensuring that the folds and material behavior were accurate to what I wanted. *MD* allowed me to explore more dynamic movements and fine-tune the cloth's interaction with other elements like armor and props.

4 Finalizing in ZBrush and Other Software: After the cloth was simulated, I imported it back into *ZBrush* to add additional details. I also refined the armor and anatomy at this stage.



Once the sculpt was finalized, I proceeded with retopology and UVs, followed by a texturing pass in *Substance Painter*. The project was polished with back-and-forth tweaks between *UE5*, *Substance Painter*, and *ZBrush* to ensure the best possible renders.



Tips and Workflow in MD

To streamline my process, I often work with different cloth pieces in separate scenes—for example, handling pants and boots apart from the other cloth elements.

This makes it easier to manage each element's complexity. For smaller components like leather straps or weapon sheaths, I prefer *ZBrush*, as it's quicker for these details. When working with armor over cloth, I simulate the fabric first, then morph the armor into position, allowing it to shape the cloth naturally during the simulation.

Marvelous Designer: My Experience

As someone still early in my career, *Marvelous Designer* has had a significant impact on my workflow. It's more than just a tool for fabric! It's a way to visualize and execute complex ideas quickly. While I'm still learning, I've already seen how *MD* can elevate the realism and depth of my characters, and I'm excited to continue exploring its full potential.



MARVELOUS DESIGNER
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INDUSTRY LEADERS

| 3D GENERALIST



ARTSTATION.COM/MANUEL-PETER

Interview
with
**MANUEL
PETER**

JAPANESE BATTLEFIELD

THE WINNER OF THE "MARVELOUS" AWARD FROM THE KINETIC RUSH 3D COMMUNITY CHALLENGE.

Can you start by
introducing yourself
and sharing a bit about
your background?

My name is Manuel Peter and I am a 3D Generalist from Germany. I have around 14 years of experience in 3D, and have worked with a lot of different 3D Software (including C4D, Max, and others), but my main tool is blender. I work part time in a publicity agency doing 3D animations and product

visualizations for industry companies. I am also freelancing and doing private 3D projects, for example the *PWNISHER* challenges. I was among the top 5 in the *BOSSFIGHT* challenge, as well as in the *ETERNAL ASCENT* challenge. In the most recent *KINETIC RUSH* challenge I got into the top 100.

We'd love to hear more
about your winning piece.
What was the story or
concept behind your
artwork for the Kinetic
Rush challenge? How did
the idea come to life?

When a challenge starts and the topic is released I usually give myself a day or two to think about possible ideas that would work within the template file. After that I start collecting references and gather them inside of *pureref*.

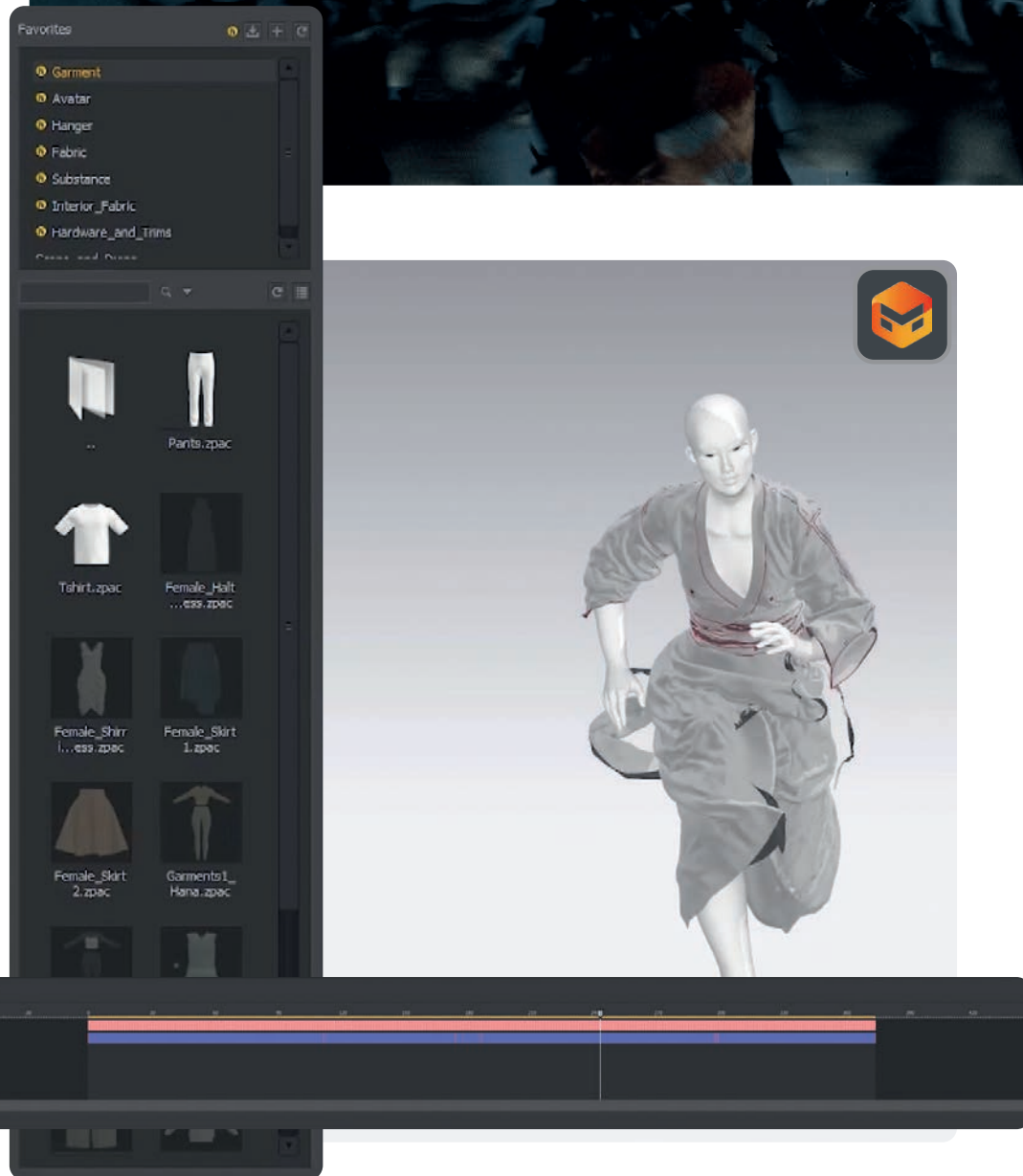
The idea that seemed the most promising to me, was a clash of two armies, heavily inspired by the ride of the *Rohirrim* in *Lord of the Rings*, as well as the battle of bastards in *Game of Thrones*. My main website for references is *Pinterest* and somehow I also ended up with a lot of images of Japanese clothing and Japanese landscapes, which was at first a separate idea for an animation.

Pondering which of my two ideas to pick, I finally came up with the idea of mixing both. Taking the general battle setup from the first idea, mixing it with the aesthetics and setting of the second idea. Knowing that this would be a massive amount of work, not knowing if the outcome would be cinematic as I imagined it in my head, I was a little bit hesitant if I could realize a project that big in that short time period. Gathering a lot of kimono style references I was sure that I wanted a female main character, separating her from the rest of the people involved in the battle.



What inspired you to use Marvelous Designer for this project, and how did it help you achieve your artistic vision?

I worked with *Marvelous Designer* some years ago and I was thrilled when I heard the *MD* is joining the Challenge with a free month. So I immediately downloaded it, as I was sure to use it for the cloth simulation. As the motion within the template file was really fast, I knew that it would be challenging to get a consistent and realistic cloth movement, without crashing the simulation. As *MD* has more advanced settings and tools than blender's internal cloth simulation, I was sure that *MD* was my only choice to get what I had visualized.



Could you walk us through the tools you used in your workflow? How did Marvelous Designer fit into your pipeline?

As the idea was clear I immediately started blocking out a basic 3D scene with the template file. I kitbashed some models in there and also did a quick lighting setup.

I usually do this step in my projects, to see if I can get an aesthetic looking image, mainly focusing on the general scene setup and the lighting. If the result is somewhat pleasing I continue my work (motivated by the first test renders). If I don't come to a satisfying result I would stop working on that idea.

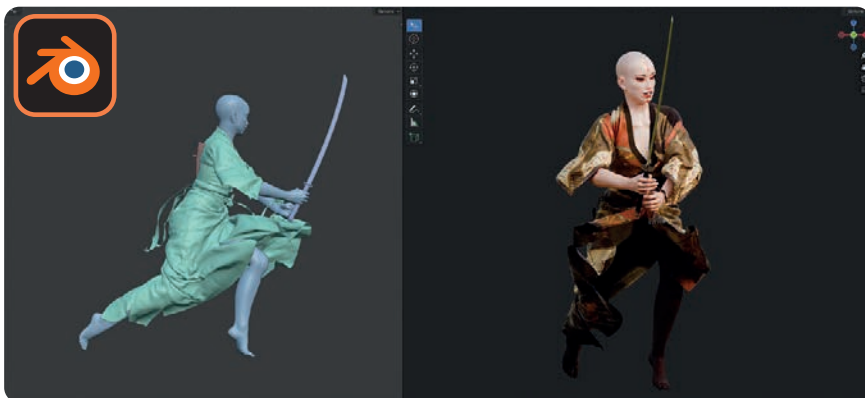
Seeing my first test I was a little bit more secure I could end up with a nice animation. So at this point I started my work on the female main character. I started with a female base mesh from *Blender Market*. I edited the mesh to get a more Asian looking character (sculpting in a blender), worked on the hair and the textures.

Retargeting the animation data from the template and adapting the rig for animation were the next steps. After that I didn't lose any time and got straight into the animation of the character. The sword strike and the jump were custom animations, partly with motion capture data from mixamo and partly hand animated.

In *Marvelous Designer*, I imported a clean A pose of the female. I searched the store for a basic kimono and downloaded it. I changed all the patterns and the sewing, adapting it to my character, added more cloth parts like belts and other cloth parts. This got me quite close to my reference images. After I was satisfied with the cloth (there was quite some back and forth there) I started with the simulation.

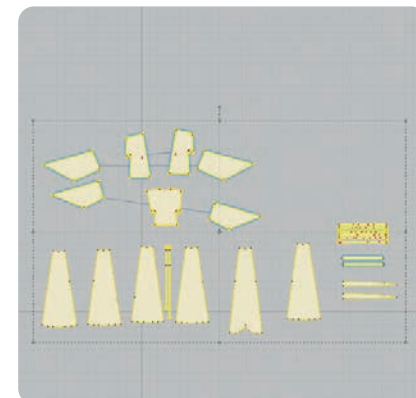
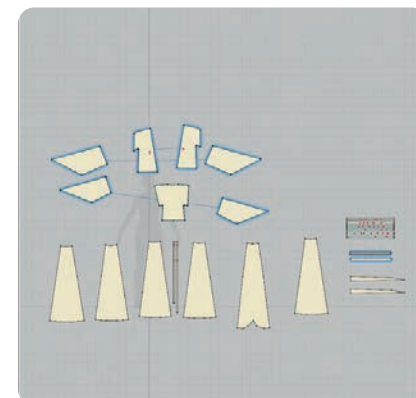
Are there any standout moments, scenes, or characters in your project that Marvelous Designer was especially useful for?

Realistically speaking, the project, and especially the main character, would not be feasible without *Marvelous Designer*. The fast and harsh movements, paired with my wish for a super realistic cloth simulation, made it clear that my only chance would be *Marvelous Designer*, as you can iterate quickly at a high speed. Not having to wait minutes or hours for the baking of the simulation, was a lifesaver. With my GTX4090 the performance in *MD* was awesome.



What were some of the challenges you faced during the project, and how did you overcome them?

As the movement was very fast and there were a lot of abrupt changes in direction it was pretty hard to get a pleasing result. Oftentimes the character lost the cloth while simulating due to the fast movements of the character. Other times the arm animation pushed away the lower parts of the kimono. So there was a lot of testing of different cloth types and physics settings. With the help of pinning groups I overcame these issues and finally got a usable, realistic cloth simulation. Because I reworked the animation in blender about 10 times, I also had to re simulate it every time in *Marvelous Designer*, which was quite time consuming. But thanks to the fast simulation in *Marvelous Designer* it was doable.



**IF YOU ARE
LOOKING FOR
A VERSATILE,
FAST TOOL
THAT DELIVERS
REALISTIC CLOTH
SIMULATIONS,
MARVELOUS
DESIGNER IS THE
ONLY CHOICE.**

Do you have any tips or advice for other 3D generalists looking to incorporate Marvelous Designer into their workflow?

Just try it out. If you are looking for a versatile, fast tool that delivers realistic cloth simulations, *Marvelous Designer* is the only choice in my opinion. I worked quite a lot with *Blender's* cloth simulation system in the past, and I also did some smaller simulation in this project like flags etc. with *Blender*, which worked fine. But if it comes to high poly simulation on complex animations, blender surely comes to a limit. In these situations *Marvelous Designer* shines. Also the switch between *blender* and *Marvelous Designer* with alembic files was no problem at all and worked fast and without any errors.

MARVELOUS DESIGNER TRUSTED BY INDUSTRY LEADERS



Andrew Loktionov 3dpictor@gmail.com



| 3D CHARACTER/ CREATURE ARTIST



ARTSTATION.COM/LOKTIONOV

My name is *Andrey Loktionov* and I'm from Ukraine. My main specialization is a 3D characters and creatures artist for video games and a sculptor for 3D printing. My experience in the CG is about 14 years. I work in different styles, but my favorite style is dark fantasy and realism.

Let's talk about your recent project, "POE2 (Path of Exile 2)". Can you tell us where you got the inspiration for the concept or what was the visual style you were aiming for?

Well, it's a great project – an action/RPG game from *Grinding Gear Games* and I was lucky enough to take part in it a little. My task was to make some statues for the main game menu. This is exactly the dark fantasy style. It's hard to single out something for inspiration now because there are so many reasons for this.

Interview
with
**ANDREY
LOKTIONOV**

PATH OF EXILE 2 -
SCULPTURES

**TO GET THE
DYNAMICS,
SHAPE, AND OF
COURSE THE
BASE OF THE
FOLDS THROUGH
SIMULATION.**

But if we talk about creating clothes, then *Leonardo da Vinci's Drapery Sketches* always comes to mind, where he singles it out in a separate direction, like the anatomy of folds.



How did you use Marvelous Designer in the artwork?

In this particular project, my main goal was to get a base for the draping of the clothes with further detailing and refinements in *ZBrush*. To get the dynamics, shape, and of course the base of the folds through simulation.

Why did you decide to use Marvelous Designer? How did it help you serve art direction?

I have been using *Marvelous Designer* for many years for different projects. In the CG industry, it has long become the main tool and standard for creating clothes of any complexity. Therefore, I can only wish the team to continue to be a leader and be true to their ideas.



Can you give us a quick overview of the different tools used in your pipeline?

Marvelous Designer has a lot of useful tools for creating a cut and setting up fabric simulation. Each artist can create their own unique pipeline based on the available tools. Very often I use the morphing method after the basic sewing of clothes in a t-pose is done. This is very useful where the character's pose is used in dynamics, for example for 3D printing.

To convey dynamics, the also comes to the **Wind Controller**. Recently, I have also been using the creation of a cut directly from the avatar through the spline line tool, which speeds up the process.

One way or another, I am constantly finding something new for myself)



Andrew Loktionov 3dpictor@gmail.com

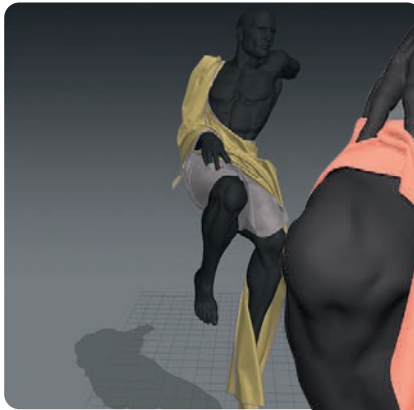
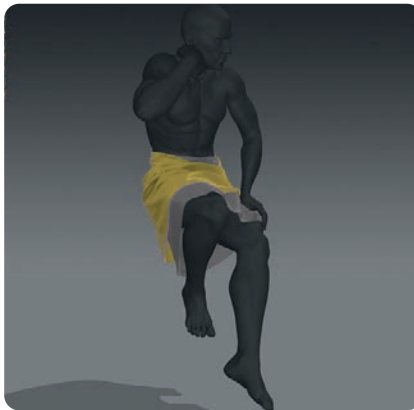


Do you have any other projects that you have worked on using Marvelous Designer that you can share with us?

I'm currently using *Marvelous Designer* to create more advanced cloth outfits for projects that have not yet been announced. I think they will be featured in my portfolio in the near future.

How can you describe your overall experience of the use of the Marvelous Designer?

When creating clothes, it is very important to always remember to use the correct cut and patterns according to the templates, this is the basis for correct further modeling. After all, all processes are as close to real life as possible, and in reality, without this, the suit will not fit well and correctly. In the process of work, do not forget to use as many references as possible and just what is at hand. This will help to give a clearer idea of the types of fabric and their properties. The rest is a matter of practice.



Andrew Loktionov 3dpictor@gmail.com



MARVELOUS DESIGNER SPOTLIGHT ON STUDENT CREATIVITY



| 3D CHARACTER ARTIST & FASHION DESIGNER

THINK TANK TRAINING CENTRE



ARTSTATION.COM/DYLANCAI

THE WINNER OF THE 2024 STUDENT ARTWORK CONTEST

**When did you start using
Marvelous Designer and
how did that affect your
workflow?**

I started in *CLO 3D* (*Marvelous* for fashion designer) as a fashion designer before transitioning to *Marvelous Designer* for *VFX*. My background in fashion gave me a strong foundation in pattern-making and garment construction. Having a fashion design background made the software more intuitive compared to those without prior experience. These skills have been essential to my workflow as a character artist. *Marvelous Designer* handles the simulation, while I use *ZBrush* for refinement and final details.

**As a student, how much
time did you feel was
enough to feel confident
with the software?**

I feel very comfortable using this software. With my background in fashion, understanding pattern blocks in the 2D viewport came naturally. The 3D viewport was more challenging at first, but I eventually grasped simulation and 3D sewing. In fact, sewing in 3D is much faster than in real life.

Interview
with
**DYLAN
CAI**

JUDICARA:
THE ARMORED SISTER



**MY BACKGROUND
IN FASHION
GAVE ME
A STRONG
FOUNDATION IN
PATTERN-MAKING
AND GARMENT
CONSTRUCTION.**

Explain the project – Intentions, goals to achieve, the approach to the cloth design, and references.

In Term 3 at *Think Tank Training Centre*, I wanted to challenge myself as a character artist for film. After mastering the fundamentals, I was ready to apply my knowledge of 3D and fashion by creating a full-length character in three months. My focus was on clothing, but I also incorporated form-fitting armor to highlight the anatomy underneath. I found a concept by *Volta's Forspoken* concept art of a religious nun, fully covered in clothing, armor, and accessories.



1 I designed most of the garments in *Marvelous Designer*, using my fashion background to create an asymmetrical skirt with a cascading drape on the right side and a train at the back. The skirt needed to be simulated after posing the character. To achieve this, I used a blend shape in *Maya* and cached the animation as an Alembic file. I then imported it into *Marvelous Designer* to simulate the garment with the animated avatar.

2 For the peplum pattern, I opted for an A-line skirt design to achieve this look. Hardening the fabric significantly enhanced the structural integrity of the peplum similar to Buckram. The pieces were then positioned along the waistline. To create the ruffles peeking out from beneath the peplum, I used a $\frac{3}{4}$ circle instead of a rectangle, as a circular shape that lays flat adds more volume to the ruffles.

3 I drew inspiration from Victorian and Edwardian styles for the sleeves, particularly the Leg of Mutton design. Splitting the pattern into four parts, similar to a beach ball, enhanced the volume beyond the basic Leg of Mutton design. The other sleeves feature a simple puff design, resembling a beach ball pattern. The sleeve cap is divided by a band that transitions into blouson sleeves, which are gathered at the cuff.

4 For the blindfolds, I used *Marvelous Designer's* pleat tool, which streamlined the process and eliminated the need for manual pleating. I selected knife pleats for the outer layers and a box pleat for the center piece.

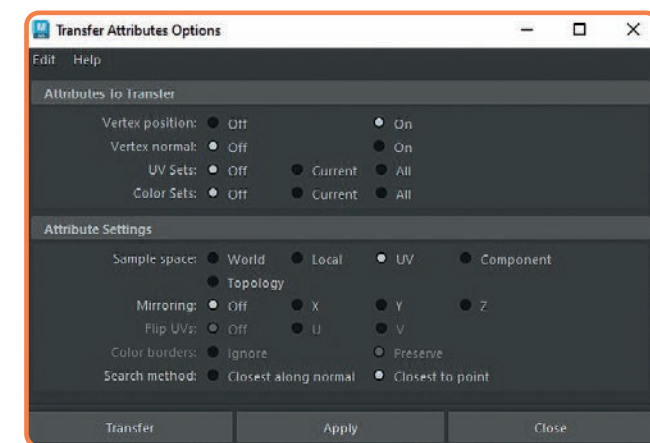
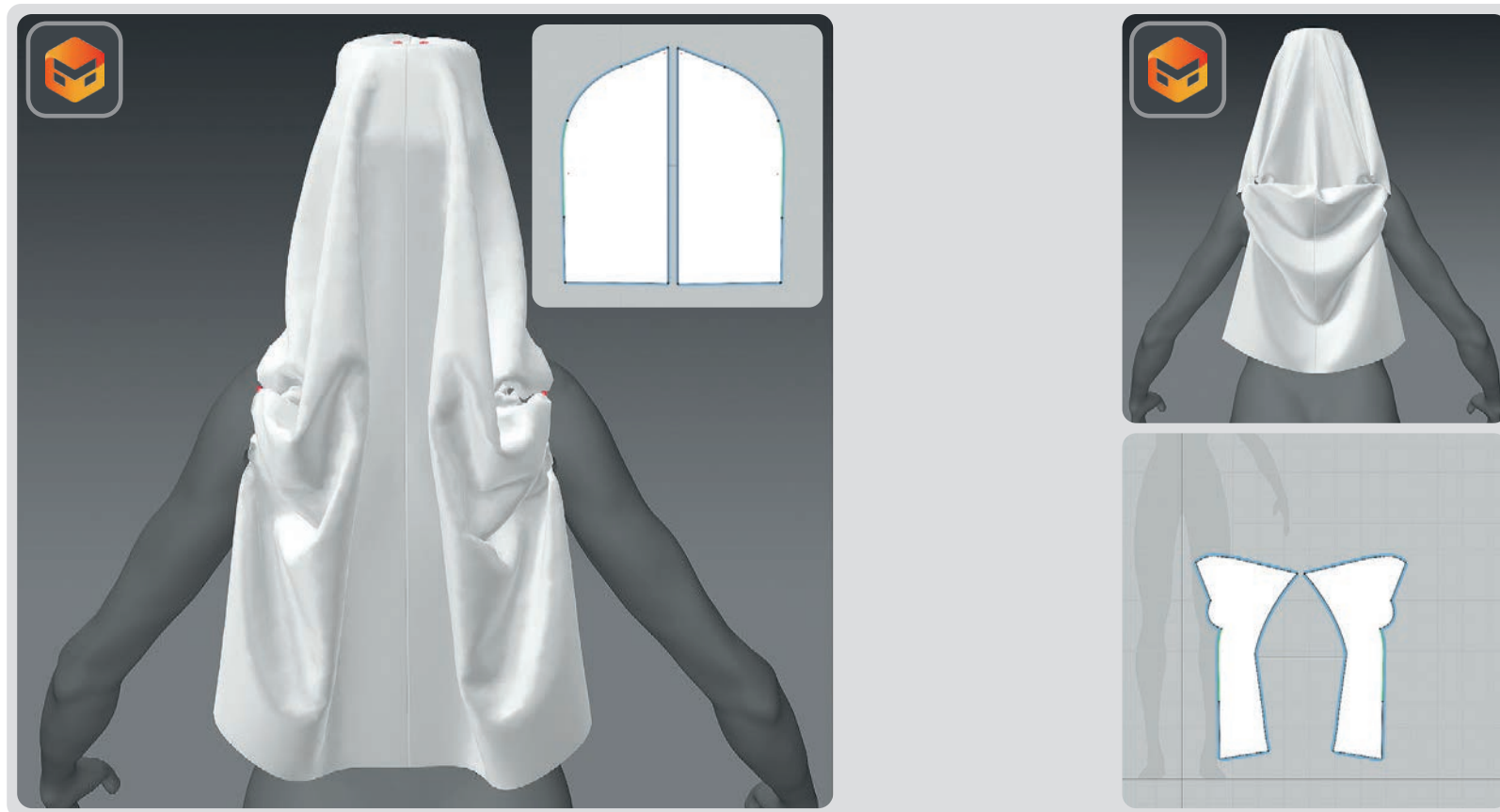


5 The veil was challenging since I wasn't sure of its exact shape. Instead, I draped it directly on the avatar, just as I would in real life. I refined the design by using the **Slash** and **Spread** tool to create the cowl at the back of the veil. The tacking tool was also useful for securing the fabric in place.

Do you know of any tricks you use/find to increase efficiency?

I find the superimpose feature in the 3D viewport incredibly useful for sewing tricky pieces, like the ruffles under my peplum, as it automatically positions the pattern based on the selected option (over, side, or under).

Marvelous Designer is also my go-to for creating creases, using the fold arrangement tool to bend the fabric in the desired direction.



Workflow in-out Marvelous Designer to other software. How do you prepare your project to continue working on other software?

I typically block out and create most of my clothing in *Marvelous Designer* before refining it in *ZBrush*. For skin-tight clothing, I prefer working in *ZBrush* as it's more efficient, especially for designs that don't require the natural wrinkles and drapery that *Marvelous* handles very well.

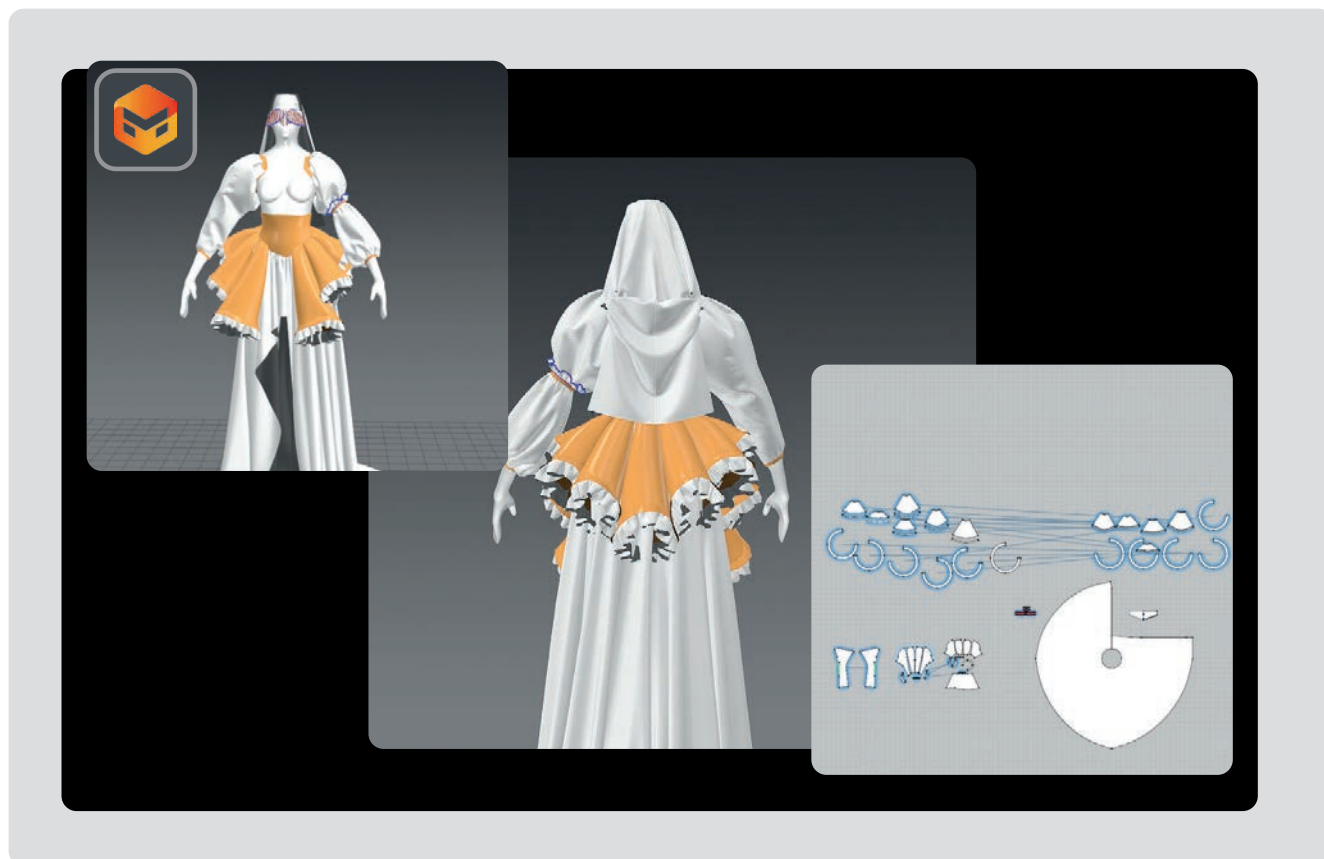
To prepare the clothing in *Maya* with clean UV and good retopology, I use the topology tool in *Marvelous Designer* to generate

clean topologies for my UVs and create a clone, preserving both the high-poly simulated pattern and the low-poly retopologized version. After exporting the meshes to *Maya*, I merge any vertices on the low-poly pattern where seams were sewn in *Marvelous*. I then add subdivisions to the low-poly mesh to match the high-poly pattern.

Next, I select the high-poly mesh first, then the low-poly mesh, and use the **Transfer Attributes** tool with vertex position and UVs enabled (all other settings off) to reproject the details. This method ensures clean UVs for the *Marvelous* patterns.

How was your experience using Marvelous Designer?

My experience with *Marvelous Designer* has been excellent. It handles much of the heavy lifting, making it an essential part of my workflow for any character with garments. I have also helped fellow students integrate it into their process, significantly improving their efficiency. I highly recommend it.



MARVELOUS DESIGNER SPOTLIGHT ON STUDENT CREATIVITY

| FREELANCE ARTIST

SCHOOL OF VISUAL ARTS



ARTSTATION.COM/SHUYI_LI

Interview
with
SHUYI LI

SHAMAN

Hi, I'm *Shuyi Li*, a junior at the School of Visual Arts majoring in 3D Animation and VFX. Although my major is focused on animation and visual effects, I have always been interested in clothing production. *Marvelous Designer* allows me to design clothing as if I were cutting fabric in real life, and its powerful simulation function allows me to get started quickly without having enough time to learn other simulation software.

This has greatly improved my work efficiency and made my production process more intuitive and efficient.

As a student, how much time do you think it takes to feel confident with the software?

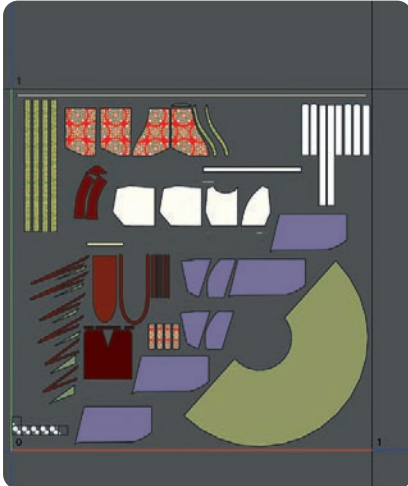
The learning curve for *Marvelous Designer* is relatively gentle, and the operating logic is similar to real-life clothing production, so it is quick to get started. As long as you master the basic shortcuts and operating methods, you can quickly create clothing and continue to refine the details in practice.

**MARVELOUS
DESIGNER ALLOWS
ME TO DESIGN
CLOTHING AS IF
I WERE CUTTING
FABRIC IN
REAL LIFE.**

Please introduce your project – intentions, objectives, approach to fabric design and references.

My project focuses on ancient Chinese clothing, especially the design of costumes for sacrificial dances. I hope to show the cultural atmosphere of ancient society and the characteristics of fashion at the time through this work.

Ancient Chinese clothing was mostly made of silk, and was characterized by being flowing and loose-fitting. This, especially in the context of sacrificial ceremonies, emphasized the sense of movement and layering of the clothing. These elements became the core reference for my design.



How do you use Marvelous Designer? Are there any tips to improve efficiency?

Marvelous Designer is a powerful clothing simulation software that covers almost the entire process from cutting to simulation. It is relatively easy to get started with, and I highly recommend it to all designers who need to create fabric assets.

To improve efficiency, I suggest that students can directly search for garment cutting diagrams online and model them in *Marvelous Designer*, as the operation logic is highly consistent with the actual cutting process.



How does Marvelous Designer collaborate with other software? How do you prepare a project to continue production in other software?

Marvelous Designer is highly compatible with 3D software such as *Houdini* and *Maya*, especially in terms of material rendering and animation simulation. The built-in UV unwrapping and re-topology functions allow garments created in *Marvelous Designer* to be seamlessly linked to other software, greatly improving work efficiency.

How was your experience using Marvelous Designer?

Marvelous Designer is an easy-to-learn and comprehensive software that fully meets my needs for 3D clothing production. It has excellent simulation effects, is intuitive and efficient to use, and allows me to focus more on the design itself rather than tedious technical details.

MARVELOUS DESIGNER SPOTLIGHT ON STUDENT CREATIVITY



| 3D CHARACTER ARTIST

THINK TANK TRAINING CENTRE



ARTSTATION.COM/AMELIEFISCHER

Interview
with
**AMELIE
FISCHER**

LORD (REAL-TIME)

My name is Amelie Fischer, I am currently a student at *Think Tank Training Centre*. My journey into the realm of 3D began during my time studying Media Technology at university and I fell in love with 3D art immediately. After graduating I wanted to focus more on character and cloth creation, so I joined *Think Tank*. I learn different software which helps me in my workflow a lot, one of them is *Marvelous Designer*.

When did you start using Marvelous Designer and how did that affect your workflow?

I started using *Marvelous Designer* in my final term in university. I wanted to make my first realistic character but struggled a lot with the cloth creation. So I stumbled across *Marvelous Designer* on the internet and since cloth simulation fascinates me I integrated this software into my workflow. It was very easy to learn by watching a few tutorials on *YouTube* as the user interface is quite simple.

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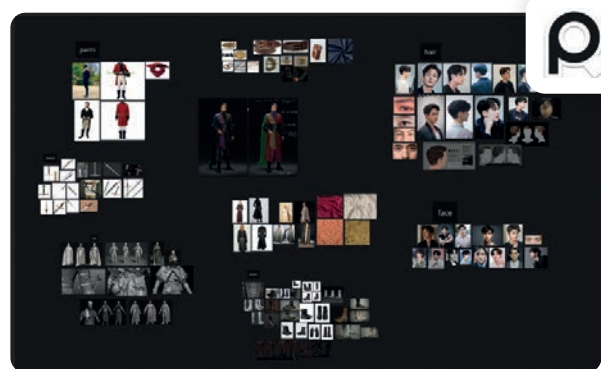
As a student, how much time did you feel was enough to feel confident with the software?

To be honest, I was a bit intimidated by the program at first, as I had no experience with anything like this. But since the user interface is actually very clear and I quickly found my way around, I was able to see the first good results within 3 to 4 weeks. Creating the garments became more enjoyable from week to week, as it is actually comparable to real life. You just have to think realistically – Where do you cut now? Where are the seams visible? To get a feel for this, the ready-made patterns from *Marvelous Designer* are very helpful.

I USED A LOT OF PINS AND WOULD ADVISE ANY NEW ARTISTS WORKING WITH THIS PROGRAM TO DO SO.

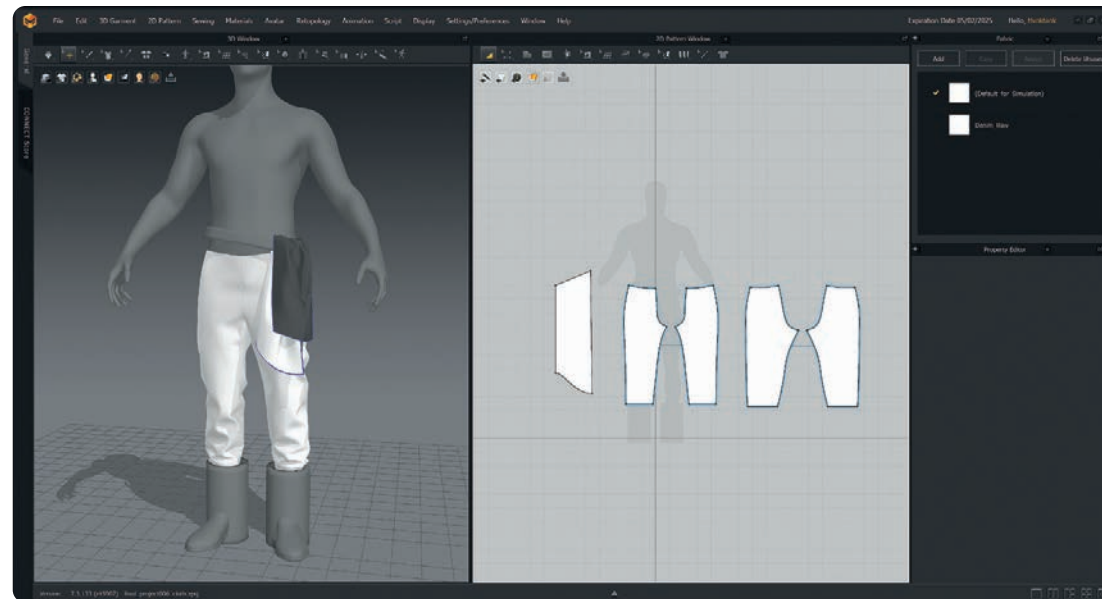
Explain the project – intentions, goals to achieve, the approach to the cloth design, and references.

My main goal for this project was to show and improve my skills in fabric modeling and texturing so I chose the beautiful concept “*Lord*” by *Zaicon* for my final project during my advanced term at *Think Tank Training Centre*. I always start with a mood board in pureref, where I collect inspiration, references, patterns and various materials for my concept. To get a better overview, I would recommend studying the concept. I have subdivided the entire garment to understand what belongs together. Defining the different materials and shapes of the clothes is also very important. Every material looks and feels different. The fabric selection in *Marvelous Designer* is very helpful for this in order to get the most realistic result.



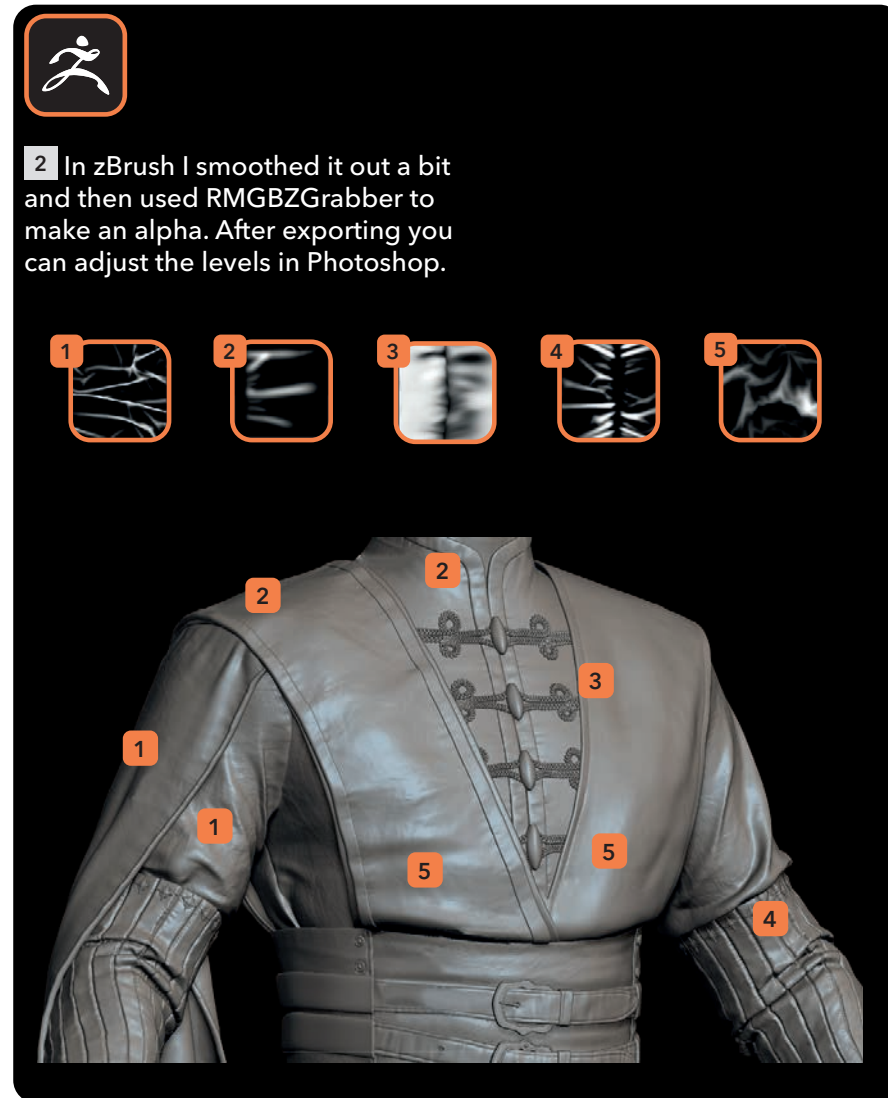
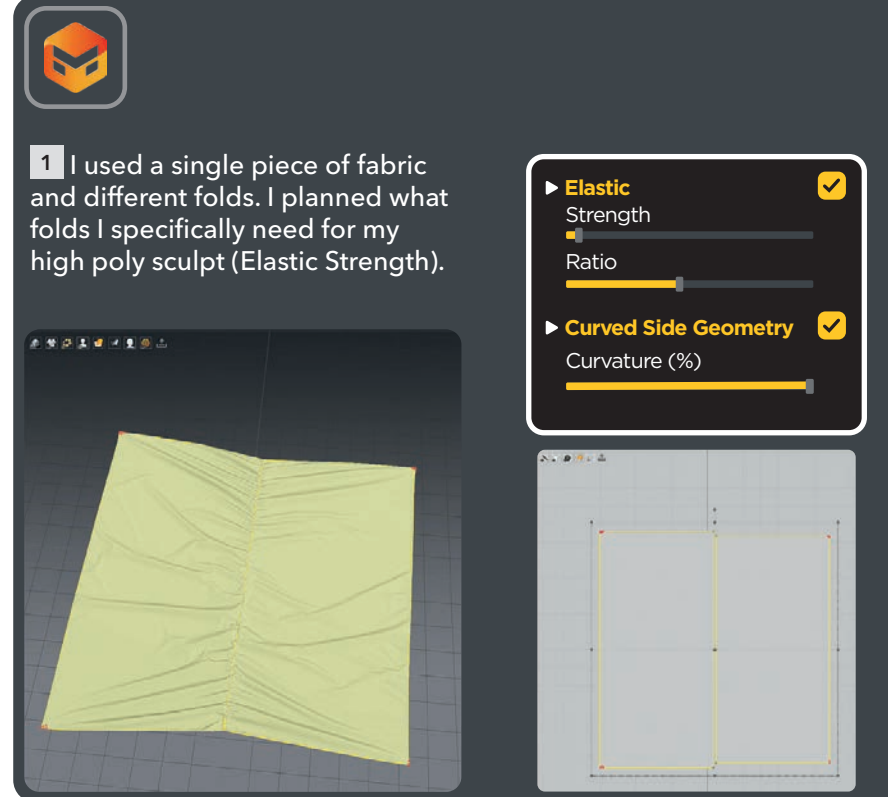
How do you work with Marvelous Designer? Do you know of any tricks you use/find to increase efficiency?

Using pins is a very strong tool in my opinion. It's very helpful especially while using many layers and the garment should stay in this specific position. The correct position of the avatar is also important. I always make my clothes in the A-pose as this gives me better results in terms of realistic folds. In addition to this I sometimes add props I already made to bring my clothes in the shape I need. In this example I imported my blockout



of the belt as an avatar to create the cloth hanging over it. In order to make the pants properly I created cubes to get a better result since the pants stack on the boots.

Another thing I realized during this project is using *Marvelous Designer* in a sustainable way. Since I wanted to push my high poly sculpt to a higher level I have to make it look very detailed and high quality. You can't just use *Marvelous Designer* for simulating your clothes but also for really cool alphas for your further work. I created natural folds on a plane and brought it into *zBrush* in order to get the alpha out of it.

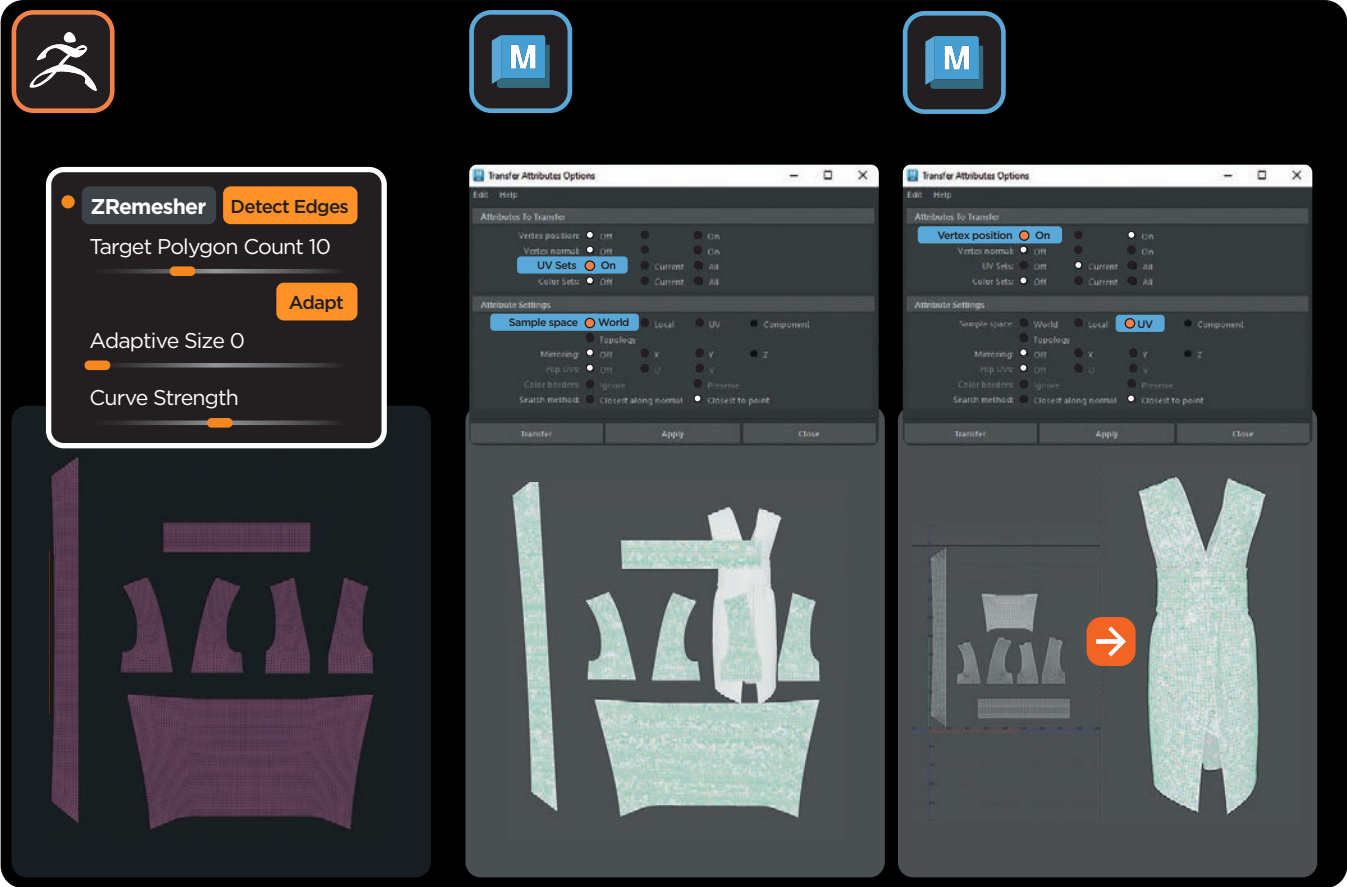
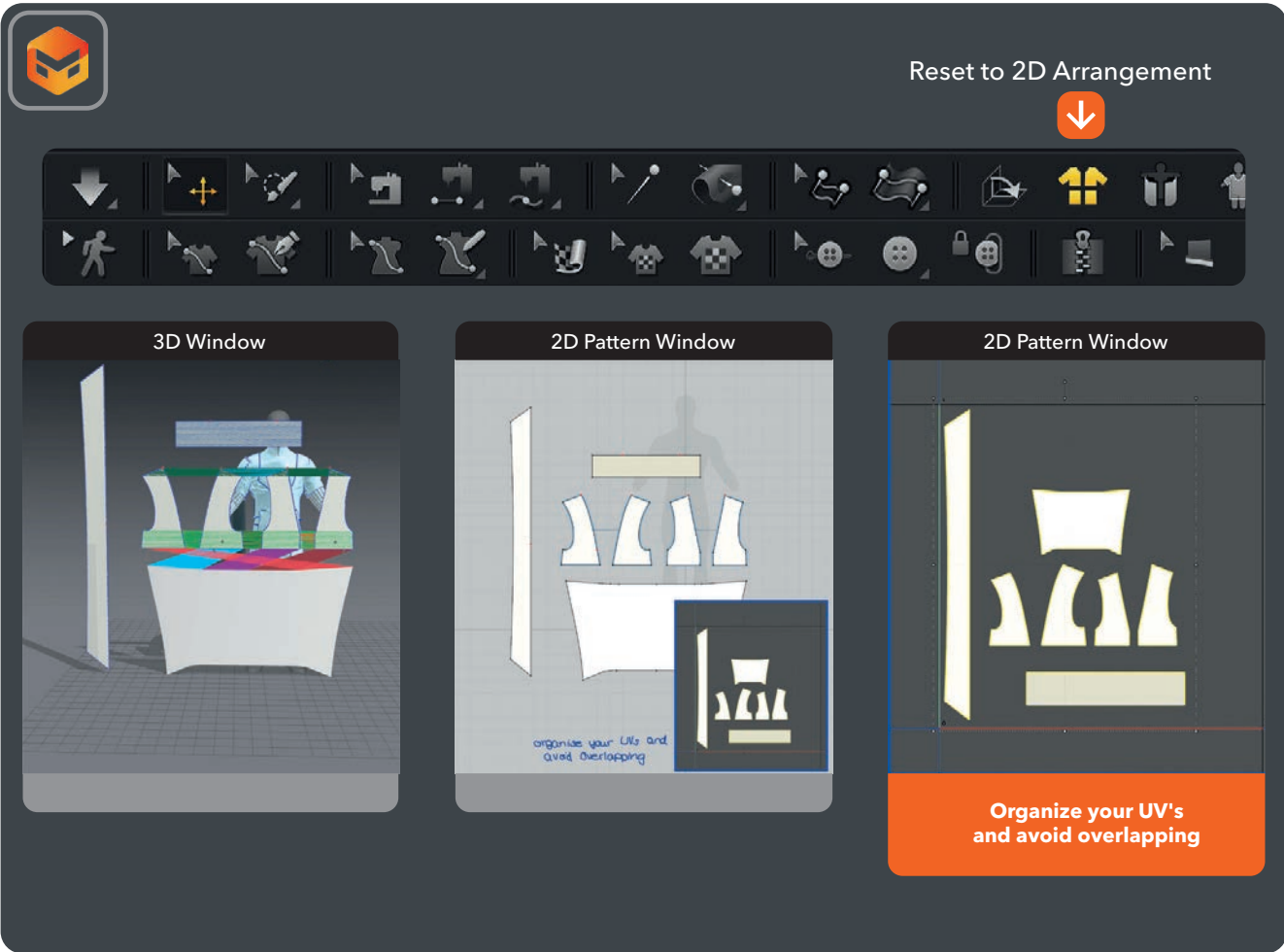


Workflow in-out Marvelous Designer to other software.
How do you prepare your project to continue working on other software?

I wanted to start with quite a clean topology even though the time schedule was very tight. So I used the **Transfer Attribute's** tool in *Maya*. Basically I start with exporting the garment with UVs **weld** and also the flat version **unweld** of it click on **"Reset 2D Arrangement"**.

Then I bring the 2D pattern to *zBrush* and *zremesh* it. I recommend setting the adaptive size to 0 for a cleaner result. If there are any issues or the garment is too complex I adjust it in *Maya* with the quad draw tool. Since *ZRemeshing* destroys the UVs I bring everything to *Maya* and transfer the UVs to the new *zremeshed* 2D version. You can set the sample space to world as it's in the same position and we just need the UVs. (Select the mesh with the UVs first and then the mesh you'd like to transfer it to!) Once it's done and the UVs are copied over you can easily transfer the vertex position in order to get the original shape as the 3D mesh. Now you can delete the history (in the **Edit** tab) and export it.

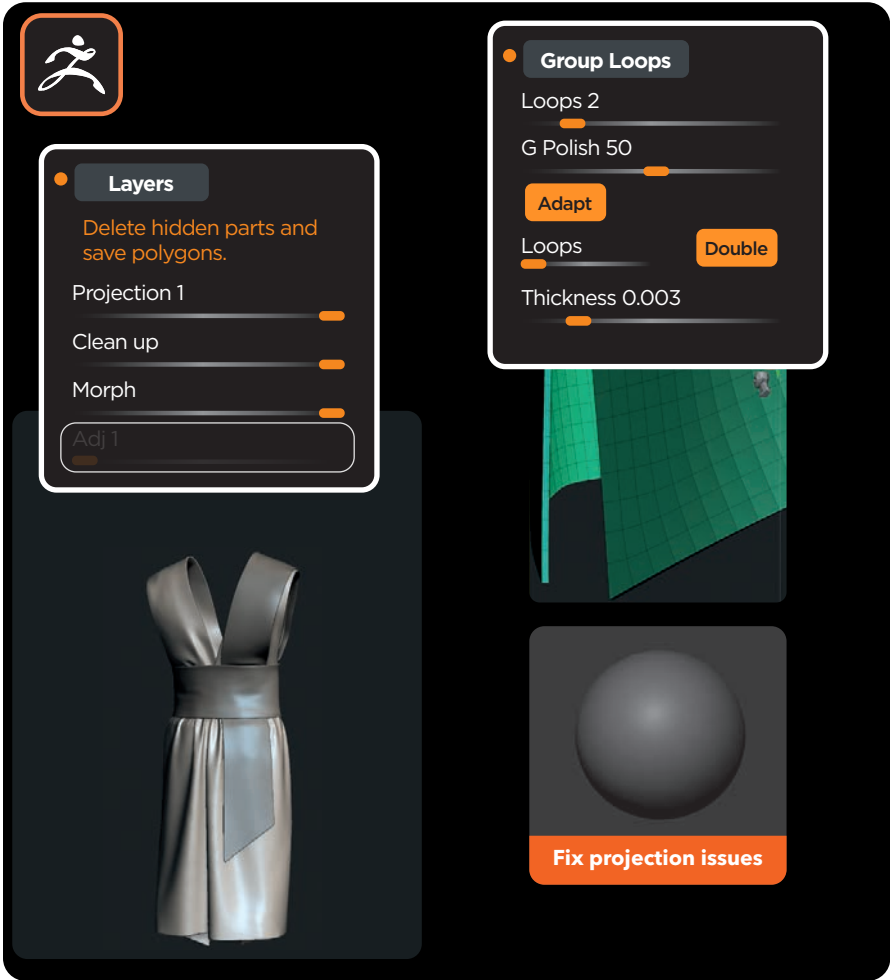
When I finally bring my garment to *zBrush* I add thickness by selecting **Edge Loop** > **Panel Loops** in the **Geometry** tab. Make sure you set the **Elevation** to **-100**. Then you can import your high poly mesh from *MD* and project the details to your new low poly mesh. I would recommend creating a separate layer for this and reprojecting after each subdivision level for the best result. Sometimes the projection causes a few issues. To fix them you can store a morph target before projecting and turning off the layers. Afterwards you can create a new layer for it and easily paint over the deformed area.



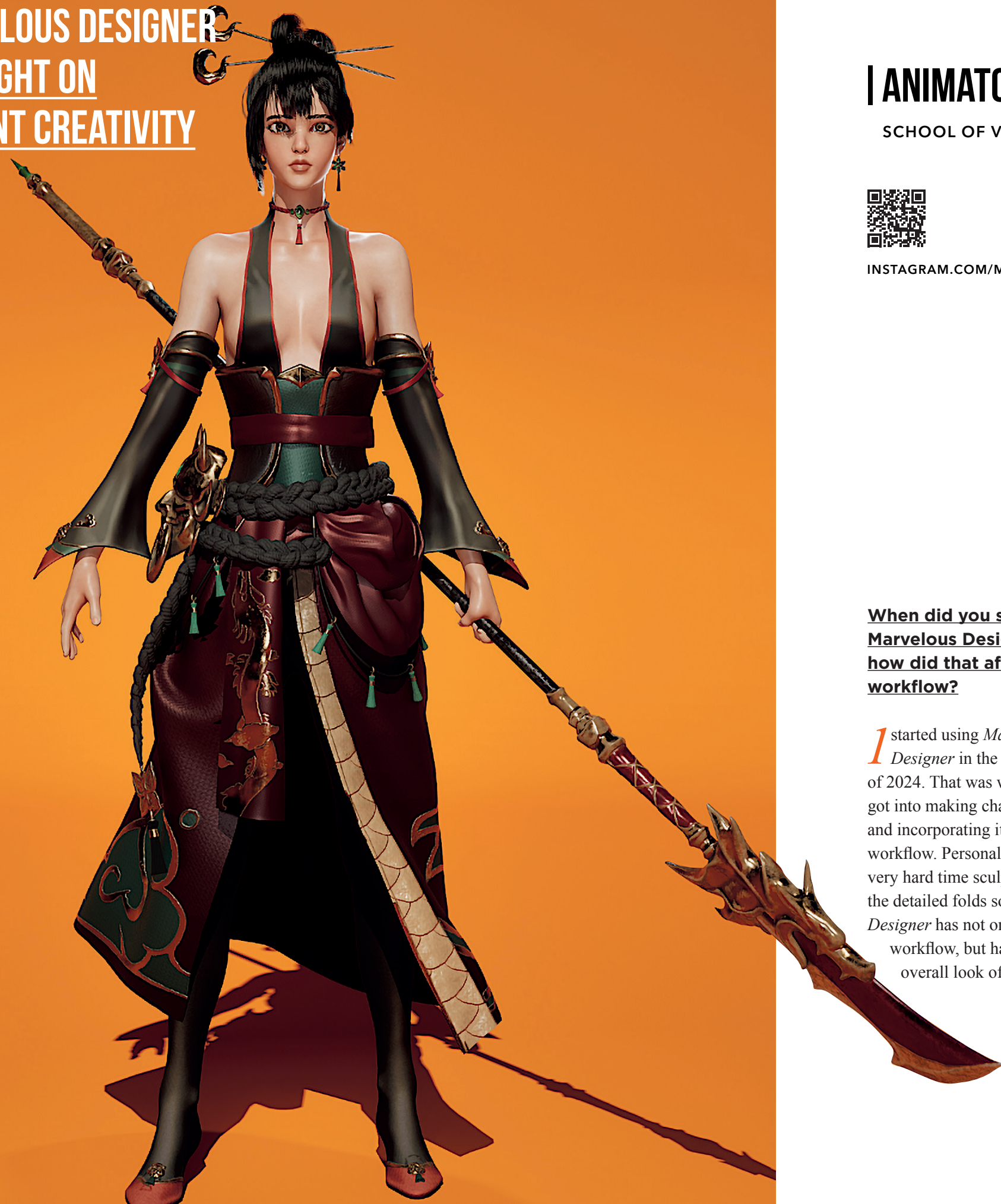
Another tip for your *zBrush* file: The higher the quality of your project the heavier the file gets. You can delete the areas you won't see to save polygons. In order to do this select your mesh, hide the back side and grow the selection (**CTRL + Shift + X**).

How was your experience using Marvelous Designer?

Marvelous Designer is a very strong program because it is unbeatable when it comes to simulating fabrics. Without this software, I would only achieve half as good results and I could no longer imagine my pipeline without it. I would recommend everyone to take a look at *Marvelous Designer*, as many companies are now using it.



MARVELOUS DESIGNER SPOTLIGHT ON STUDENT CREATIVITY



| ANIMATOR

SCHOOL OF VISUAL ARTS



INSTAGRAM.COM/MR_WINGLY/

When did you start using Marvelous Designer and how did that affect your workflow?

I started using *Marvelous Designer* in the summer of 2024. That was when I just got into making character art and incorporating it into my workflow. Personally I had a very hard time sculpting all of the detailed folds so *Marvelous Designer* has not only sped up my workflow, but has improved the overall look of all of my art.

As a student, how much time did you feel was enough to feel confident with the software?

As of all programs, learning one for the first time is extremely daunting. However, I can confidently say that *Marvelous Designer* has a very intuitive UI and was quite easy for me to get the hang of. I personally got confident with the software in the matter of two days but I believe that a week of trying it out is more than enough for any artist out there.

**I CAN
CONFIDENTLY
SAY THAT
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Interview
with
**MATTHEW
LEUNG**

春花 CHUNHUA - ORIENTAL
LANCER GIRL

Explain the project - Intentions, goals to achieve, the approach to the cloth design, and references.

I have for the most part only done stylized characters for now so I wanted to try a more hyper-realistic character. I wanted to be able to create a character that not only looks very good, but is also interesting. I found the reference on *Artstation* by an artist named *AeLi Kim* and thought her illustration was perfect. It was extremely scary at first looking at all of the folds and details but I decided to just give it a shot.

I USED A LOT OF PINS AND WOULD ADVISE ANY NEW ARTISTS WORKING WITH THIS PROGRAM TO DO SO.

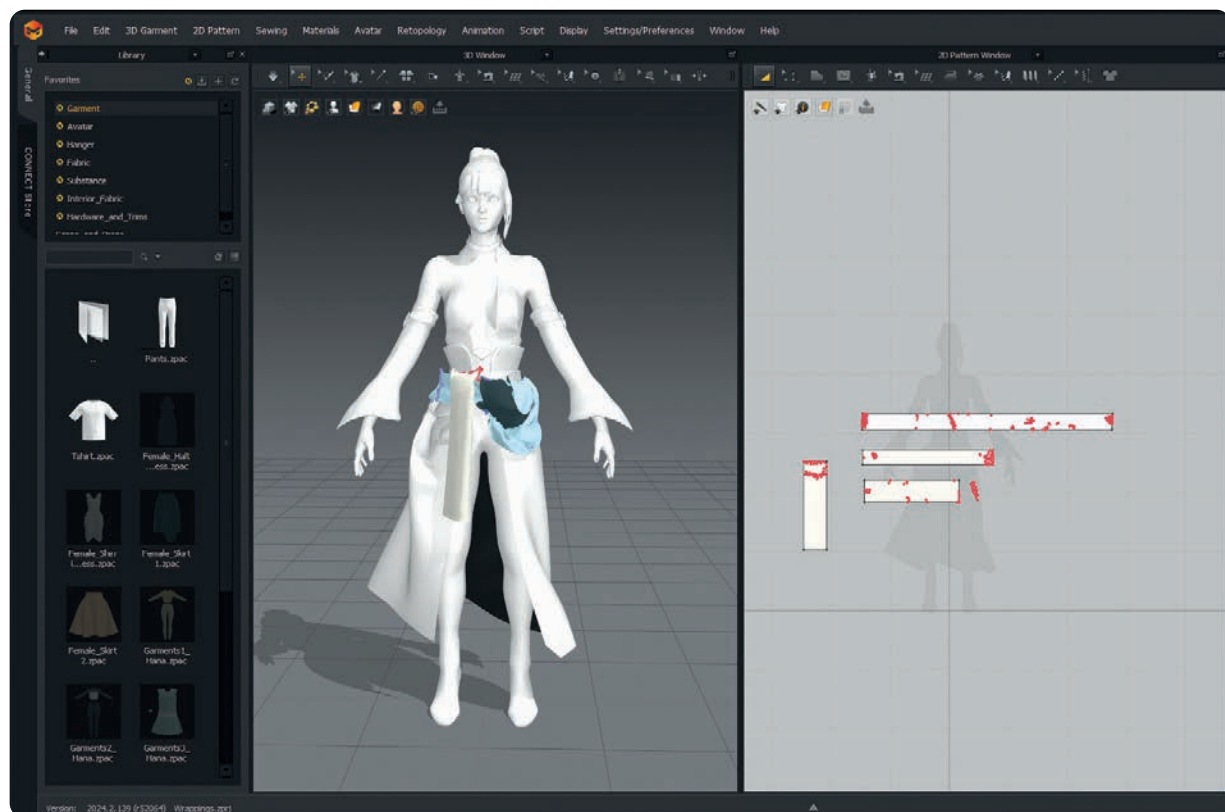
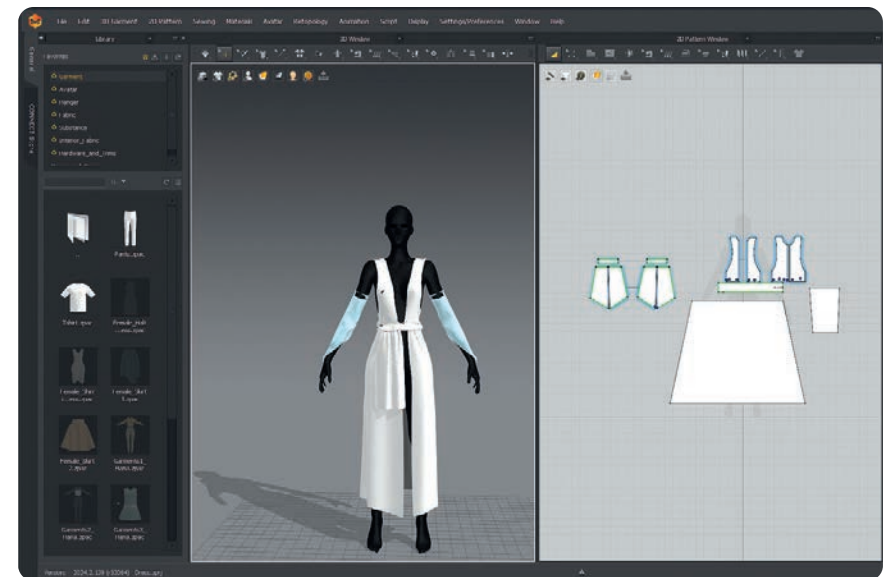
Do you know of any tricks you use/find to increase efficiency?

I used a lot of pins and would advise any new artists working with this program to do so. One last thing I recommend to increase efficiency is to freeze the garment when it is in a good position. It is important to do that to make sure that shape is not lost.



Workflow in-out Marvelous Designer to other software. How do you prepare your project to continue working on other software?

I used *ZBrush* in correspondence with *Marvelous Designer*. I would import and export in **FBX** format. I had to scale up my base mesh model a few times in *Marvelous* as the program tends to use real-life scale when simulating the garment. *Marvelous* makes exporting to other programs really easy as it gives us an option to export in quads and with all of its UVs already done.



MARVELOUS DESIGNER TIPS: EXPANDING YOUR CREATIVE HORIZONS

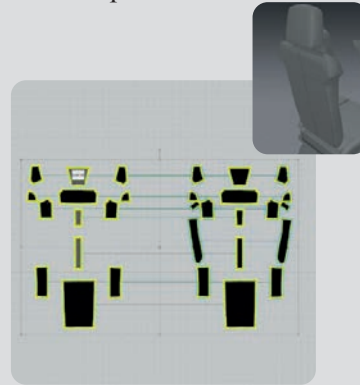
Car Seat Design by Sergio García

This project is not based on any real reference or model. Allowing me greater maneuverability and freedom to show one of the workflows for this type of asset.

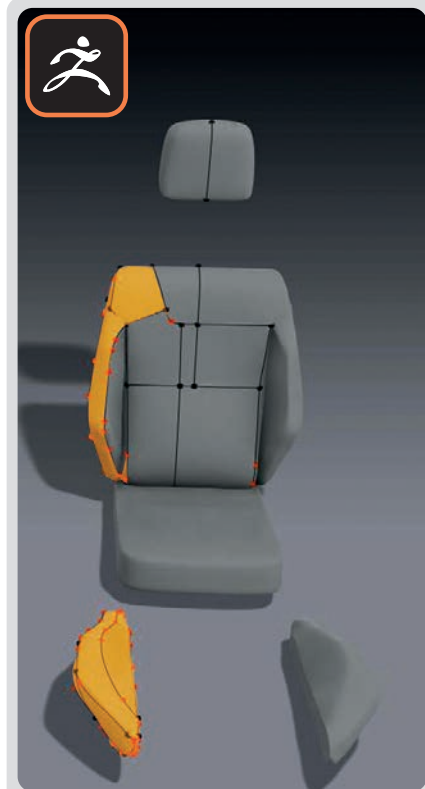
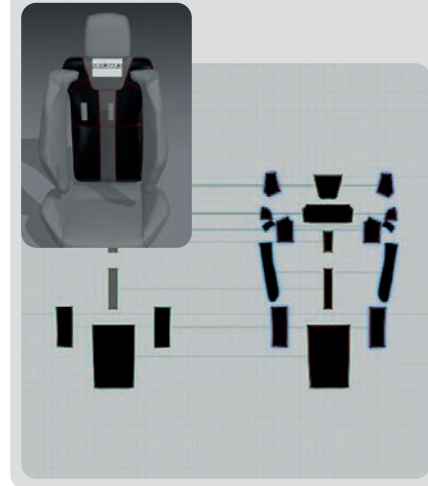


3 This first layer will help maintain the rigidity of the upper patterns, as the seams created by cloning will keep the position and shape of the pattern extracted from the base mesh.

In the image below, you can see the creation of a symmetrical pattern.



4 In projects of this type, where there are multiple parts to model but not animate, we can create them by blocks. Freezing or deactivating those that are already completed helps lighten the load on our computer.



1 Initiating the project by creating the base mesh in Zbrush. Create these base meshes taking into account that they will be the fillings for the seats, or at least the space that we want them to cover.

These meshes will help me lay out the different patterns using the **3D Line (Avatar)**.

I imported all the meshes as one file. One avatar. You can work on them one at a time, but it is preferable to have all the parts as a single avatar so you can work with the parts in the same project. Dividing the different parts into garments can end up being unnecessarily confusing.

2 Initiating the modeling of the Seat

I start the project by using a single base mesh composed of multiple parts. I will simply use the **3D Line (Avatar)** tools to draw the patterns or design of the seat. It is important to note that the **3D Line (Avatar)** tools do not have the capability to create symmetries, so in this workflow, I work from one of the sides. It doesn't matter which one. Once a pattern is created for one side, it can then be mirrored, and the two patterns can be sewn or joined together.

It is normal for the seat not to have a seam running right down the center across the entire seat. Therefore, we use the tool to join external lines and convert the central patterns into unique patterns.

B This side will be cloned as simmetrical pattern with sewing



5 After creating a block, freeze it. Create the following. When ready, deactivate the first block and remove the backing of the avatar from that position. Adjust the recently created part to the frozen part with the active simulation. Once done, we freeze both blocks and repeat this operation.

This image would be 3 completed Blocks. The backrest, base, and side which are duplicated with symmetry. In general, the steps are simple, as you basically draw the conceptual design on the mesh, extract a first layer for stability that will remain frozen throughout the process, and then a final layer that will be the visible one.

At the end, we can remove the inner layer and keep only the visible one.



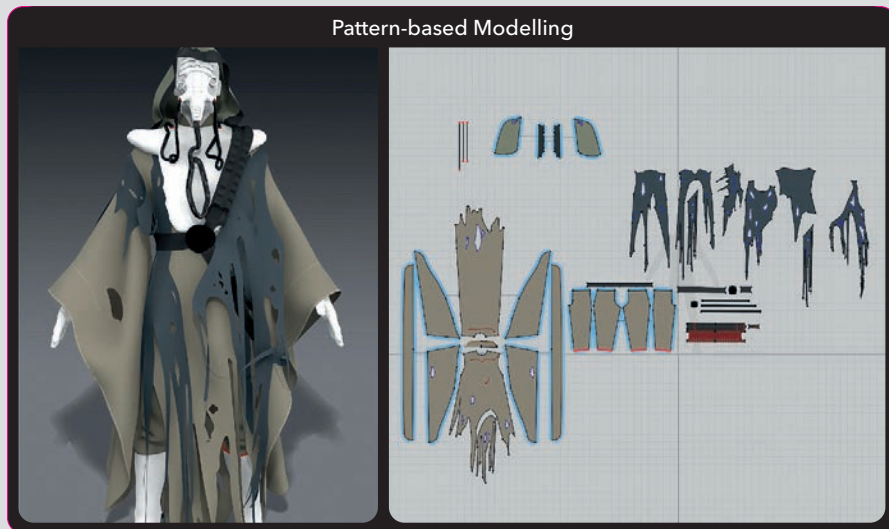
MARVELOUS DESIGNER TIPS: EXPANDING YOUR CREATIVE HORIZONS

**CFX Workflow
Tips & Tricks**
by Sean Frandsen



**MANY
PARAMETERS
ARE ANIMATABLE
IN MARVELOUS
DESIGNER.**

1 I recommend checking out the *Marvelous Designer YouTube* channel to watch the four in-depth videos that detail how this project was made. *Marvelous Designer* is used extensively for building garments for digital characters and for cloth assets in environments in the VFX and gaming industry. But *MD* is also a very powerful physics-based simulator that can be used in professional studios for cloth FX work or CFX. Because garments are both built and simulated in *MD*, the resulting cloth simulations look very realistic as *MD* uses real world physics to calculate both drape and movement as well as fabric settings that are based on real world properties. *MD* gives results that are much faster and usually more realistic and accurate than other software and because it is fairly easy to learn, results can be obtained very quickly.



The pattern-based modelling approach not only causes clothing to drape realistically but will affect its movement when it is simulated. Layered clothing and interactions between different cloth assets is difficult and time consuming to set up with other software but *MD* makes these complex simulations easy and accurate giving results one would expect in a real-world scenario.

For this CFX project I started first with some concept drawings. Once I had a rough idea, I started by building a simple landscape and then I built the tent structure that the tent would be draped from.



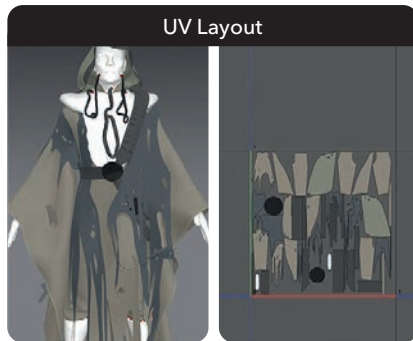
2 The tent was simulated and then point caches containing the animation data were exported and easily plugged into the *MD* tent object. Alembics can also be used to export but point caches are ideal for when multiple shots are being simulated. They are also preferred for when edits are done to a garment after export from *MD*. UVs were modified after and the edges of the cloth on the tent had the edges thickened after being exported from *MD*. These edits were done in *3DS Max*, but the same principle applies if using *Maya*, *Blender* etc.

In the front of the tent, a heavier canvas would be needed that the character could push open when it emerges from the tent. This was all set up with fabric settings. Friction was set to zero as the cloth needed to slip off the character easily when it exited. The wind also picks up speed as it steps out of the tent. So the wind strength was animated. Many parameters are animatable in *MD*.

4 Using different fabrics for different parts of a garment give results that reflect how these heavier or stiffer cloths etc. will react.

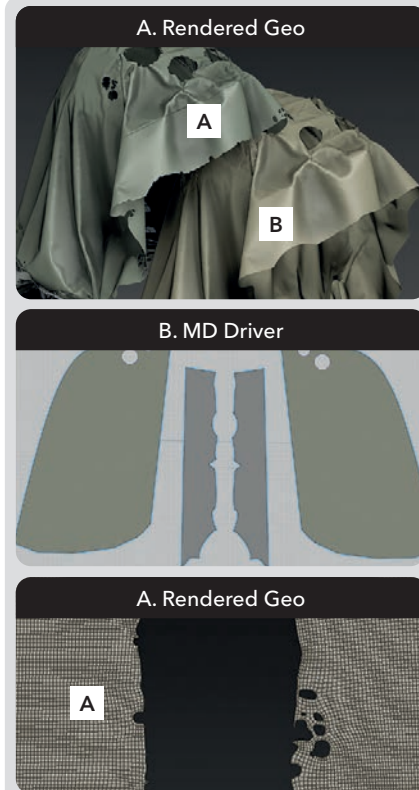
Another effective way to simulate complex geo that has been modified after export from *MD* is to use a basic *MD* cloth object to 'drive' the geo that will be used in final renders. It is often desirable for an artist to take a garment into *Zbrush* and sculpt additional details.

- A** Leather
- B** Canvas Cotton
- C** Trim
- D** Stitches



3 The animated avatar without clothing was simulated going through the heavy and thick tent flap cover first. The avatars skin thickness was set from the default of 3 to 12 to accommodate the clothing that would be simulated after this initial simulation. Next the tent flap was exported as an alembic with thickness and then brought into a new file as an added avatar and this time the character was simulated with clothing on. This same method was used for when the character pushes aside the hanging baggage as it moves within the tent.

Because *MD* is pattern based, UVs are easily generated as the patterns are just 2D pieces sewn together to fit on an avatar or character.



5 The *MD* driver was built by exporting 2 OBJs from *MD*. One with all patterns flat and another with the patterns in the draped position. Both were exported as thin and unwelded geo. They then were then used as blendshapes or morph targets in order to build the final geo on top in a flat state. In the above image, it was much easier to make a copy of the flat *MD* shape and then add all the tattered edges and holes in this flat state. The render geo was then wrapped to the *MD* 'driver' and so whatever driver did the render geo would follow. *PC2* or *Maya* caches

could be added for each shot to the *MD* driver and the render geo would follow. It takes a bit of time to set this up, but it only needs to be done once and so for multiple shots, all that is needed is new simulations in the shot being recorded and then the point caches exported and plugged into the *MD* driver

The boots were created in *Marvelous Designer* as well as part of the gloves but these did not need to be simulated so they were just skin-wrapped to the body.

6 Because it is difficult to sim cloth against avatars with many different angled parts, I used these proxy models to sim against, leaving a slight gap between the character and the proxy chest and shoulder pieces. This was necessary as some of the clothing fit between the armor and body.



7 The oil derrick hoses were also built and simulated in *MD*. The skin on the zeppelin was also done in *MD*. *MD* simulations are fast and physically accurate and complex simulations are very quickly set up. Though there are other cloth simulation software, *MD* is by far the easiest to use and studio quality simulations are much quicker to generate. While other software generally has multiple functions, *MD* and *CLO* single mindedly focus on one thing. Clothes. But no software produces better results as quickly or efficiently.



MARVELOUS DESIGNER TIPS: EXPANDING YOUR CREATIVE HORIZONS

Discover Better Workflow with Marvelous Designer and Unreal Engine
by Brandon Yu

Marvelous Designer and Epic Games have been longtime partners. We have released two new features, **LiveSync plugin** and **USD export simulation data**, for our mutual clients. In this article, we would like to cover the power of these two features to improve your workflow.

Both the **LiveSync plugin** and **USD Export for Simulation Data** are tailored for users who frequently toggle between *Marvelous Designer* and *Unreal Engine*, but each serves a different purpose.

- **LiveSync Plugin:** The feature is primarily aimed at simplifying the tedious import and export process. mesh, materials, skeletal animations, and geometry caches can all be imported and exported with just one click.
- **USD Export Simulation Data:** Specifically designed to work with *Unreal Engine 5.4's* updated **Chaos Cloth** feature, this tool enables real-time simulation effects, translating complex clothing physics from *Marvelous Designer* directly into *Unreal Engine*.

Let's dive into how these tools enhance the design and animation workflow by walking through a case study featuring a fairy character animation sequence.



LIVESYNC PLUGIN:

After Install and Activate LiveSync, ensure that *Marvelous Designer* is running, then open the **LiveSync Editor** in *Unreal Engine*, and click the “**Update**” button.

1 The scene in *Marvelous Designer* is imported into the **LiveSync Editor**. In the editor, we can see that the shader balls have been automatically created based on the fabrics assigned in *Marvelous Designer*. We can also activate **Unified Material**; by clicking update again, the plugin will generate unified materials based on UV coordinates.

2 The capabilities of the **LiveSync plugin** isn't limited to importing. MetaHuman characters, or any skeletal meshes, can be exported to and from *Unreal Engine*. Making it easier to create and simulate clothing for your characters.

3 With all assets successfully imported, we used *Unreal Engine's* **Sequencer** to animate and render the final scene. The fairy's clothing, wings, and environment elements like calla lilies were all modeled and simulated in *Marvelous Designer* before being synchronized with *Unreal Engine* via the **LiveSync plugin**.



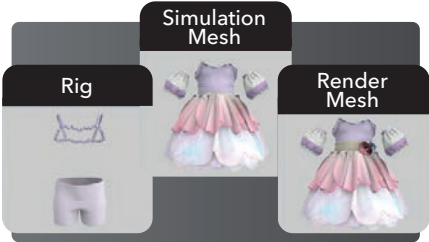
LEVERAGING CHAOS CLOTH WITH USD EXPORT:



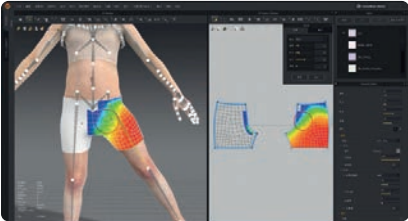
The **LiveSync** plugin is suitable for rendering animations, creating videos, and cinematics using *Unreal Engine*. It can also be used to import environmental assets from *Marvelous Designer* (such as the calla lilies in this scene). But for users seeking real-time fabric simulation, *Marvelous Designer's USD Export Simulation Data* is an invaluable asset, especially when paired with *Unreal Engine's Chaos Cloth*. Let's break down the process:



1 Optimizing for Chaos Cloth: The fairy's garment, with its complex layering, needed to be optimized before importing into *Unreal Engine*. By splitting the dress into three parts—skinned mesh, simulation mesh, and render mesh.



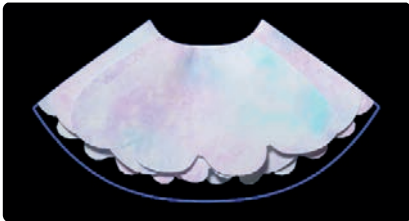
2 The garment that does not need to participate in the simulation is skinned to the character's body. The close-fitting garment does not need to participate in the simulation. Using *Marvelous Designer's EveryWear Toolkit*, we performed automatic retopology and rigging. **EveryWear** is an automatic optimization toolkit for virtual clothing in games. *Marvelous Designer's Quad Optimize* option can achieve auto retopology.



3 The primary challenge with this fairy's dress is that the petal skirt has too many layers, making it heavy and complex. The approach we used to optimize the skirt was to represent the multiple layers through textures instead of geometry. First, we split the skirt into two parts and unfolded it. Then, we created a simplified proxy model and used an orthographic view to render different AOV channels as texture maps. This significantly simplified the geometry, while the textures gave the illusion of layered complexity.

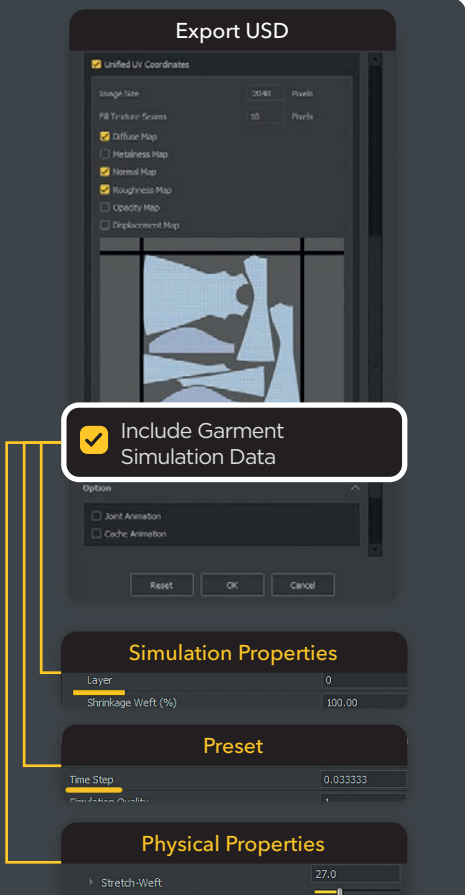


4 (The above image shows the skirt unfolded in *Marvelous Designer*, and the image below illustrates how these layers are represented using textures.)



EXPORTING THE USD FILE

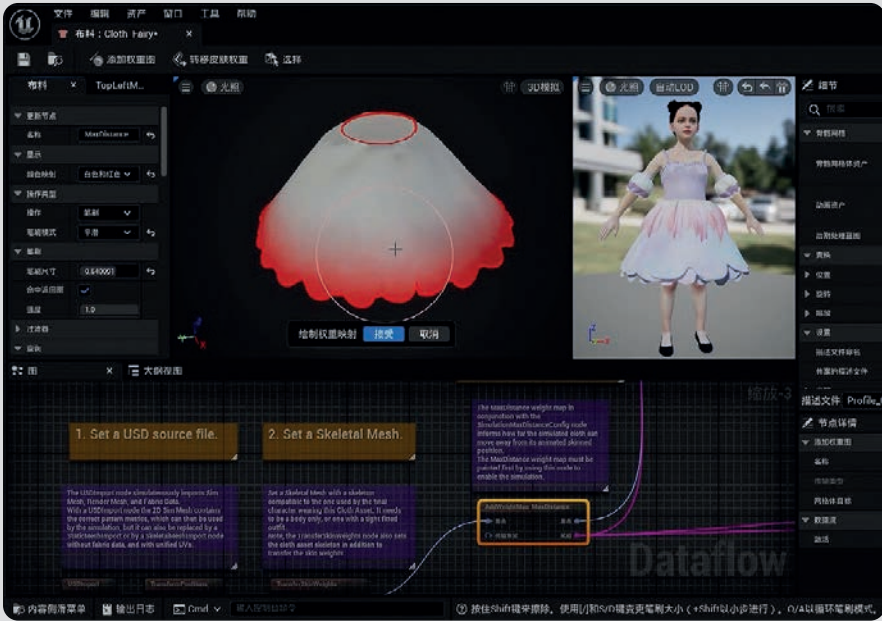
Once the model is optimized, we can export the USD file. Uncheck the option to export all avatars, select multiple objects in the export settings, and enable the "thick" option and unified UV coordinates. Crucially, ensure that the Include garment simulation data option is enabled. This will preserve all the physical properties assigned in *Marvelous Designer*, such as shrinkage and collision settings, so they can be read by *Unreal Engine's Chaos Cloth*.



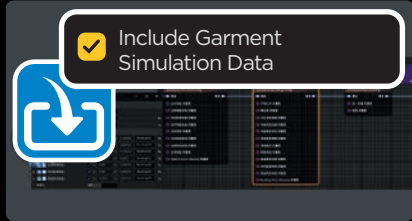
CLOTHASSET SETUP IN UNREAL ENGINE

Back in *Unreal Engine*, we need to create a **ClothAsset**. Import the USD file exported from *Marvelous Designer* and select the skeletal mesh, which was also imported using the *Marvelous Designer LiveSync* plugin. This process skins the clothing to the character. In the preview scene, make sure to select the same skeletal mesh again.

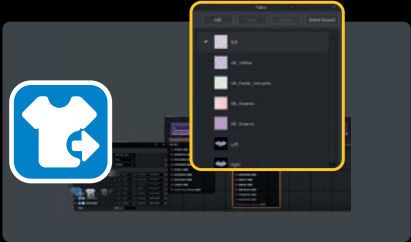
Next, we'll paint weights for the maximum distance property. It controls which parts of the fabric will participate in the simulation. Areas painted with 0 value represent regions that will not be simulated and are instead skinned directly to the character's body. Use a smooth brush to create a gradient effect for the weights.



FABRIC PHYSICAL PROPERTIES



The next three nodes are used to define the physical properties of the fabric. Normally, adjusting fabric properties is the most complex part of cloth simulation, but since we exported the physical properties from *Marvelous Designer*, this step becomes much simpler. By enabling the arrow icon on each parameter, we can directly use the fabric properties imported from *Marvelous Designer*.



Additionally, a clothing icon next to the nodes allows us to use the weight map generated in *Marvelous Designer*. Different fabric presets were applied to different patterns in *Marvelous Designer*, and the weight map is automatically exported with the USD file.



To enable the clothing to collide with the character's body, we need to create a physics asset. This asset should be added to the **SetPhysicsAsset** node in *Unreal Engine*.

Other Key Nodes for Cloth Simulation

- **SimulationCollisionConfig:** Controls fabric thickness and friction. Enabling the arrow icon will use values imported from *Marvelous Designer*.
- **Self Collision:** Disabled by default for optimization. Enabling it will allow basic self-collision using spheres. Or use the more precise but more costly collisions through the **SimulationSelf CollisionConfig** node.

- **SimulationSolverConfig:** This node manages global settings for the solver. Increasing the number of iterations strengthens the stiffness of constraints, but increases CPU load. Adjust the Substep value to improve collision accuracy at the cost of higher CPU load. Both settings must be optimized for performance and accuracy.

You can also add aerodynamic effects to the simulation. By introducing wind fields, the clothing will move naturally during idle animations, making the character appear more lifelike.

Level of Detail (LOD) Settings

The final part of the preset involves configuring LOD (Level of Detail) settings. Different LODs will activate based on the camera's distance from the character.

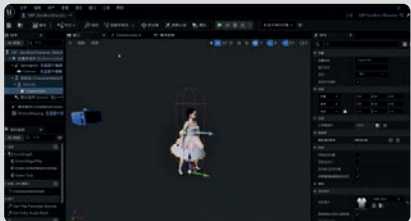
MERGING THE SIMULATION AND RENDER MESHES



If a proxy model was used for simulation, we need to remove it as the render mesh using a **Delete Elements** node.

Then, import a detailed render mesh, either as a static mesh or through a USD import node. Then use the **Merge Cloth Collection** node to combine the simulation mesh with the new render mesh.

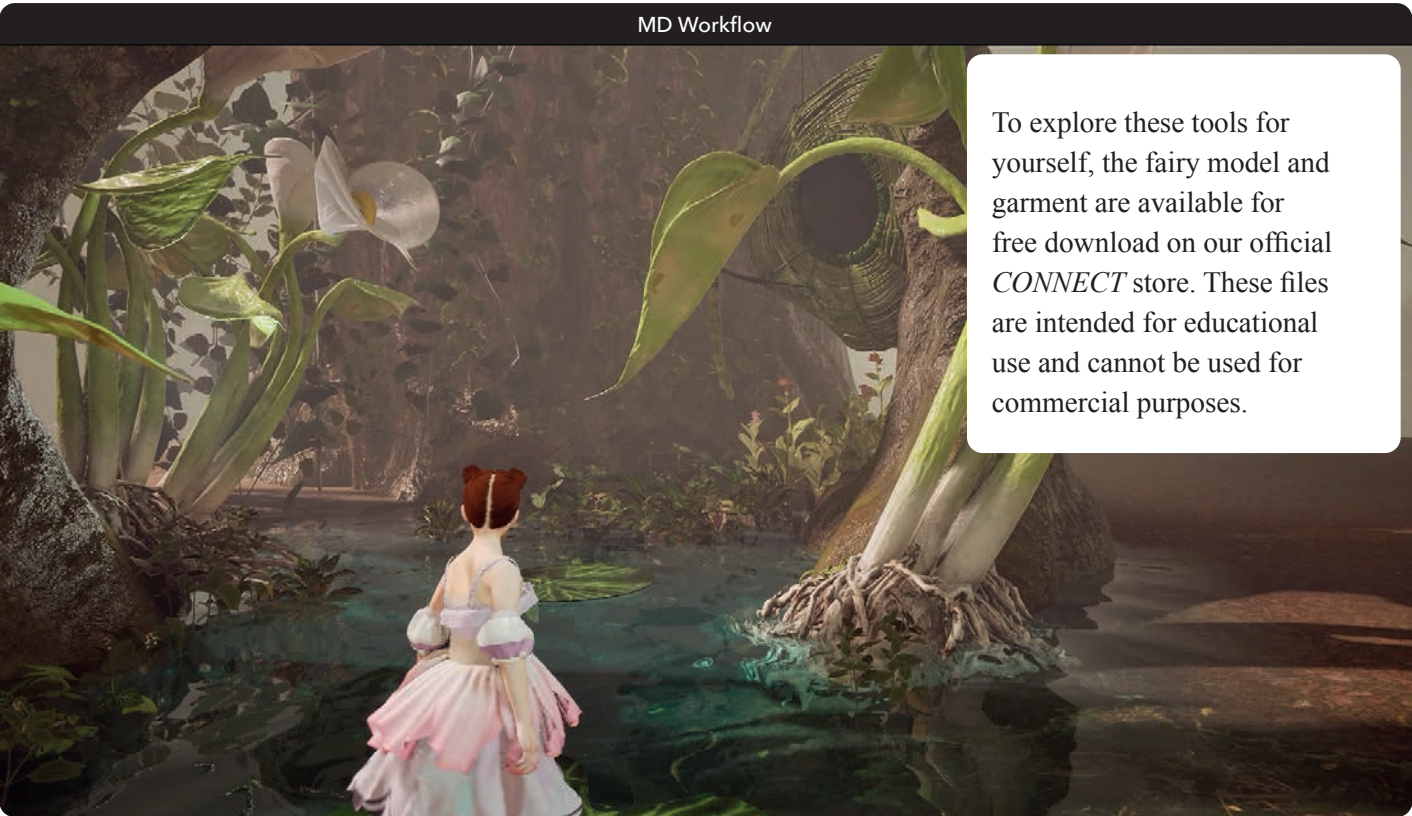
FINAL SETUP IN THE CHARACTER BLUEPRINT



In the character's blueprint, add a **Chaos Cloth Component** and parent it to the character. Select the cloth asset we just created and adjust the position and rotation parameters if necessary. Compile and save the blueprint.

Now, the clothing has real-time fabric simulation properties and will react naturally in the game environment.

Whether you're creating cinematic sequences or in-game assets, the combination of *Marvelous Designer's* **LiveSync plugin** and **USD Export Simulation Data** delivers a seamless, efficient workflow. The tools allow for rich, detailed simulations and quick iterations, significantly enhancing productivity.



To explore these tools for yourself, the fairy model and garment are available for free download on our official *CONNECT* store. These files are intended for educational use and cannot be used for commercial purposes.

MARVELOUS DESIGNER TIPS: EXPANDING YOUR CREATIVE HORIZONS

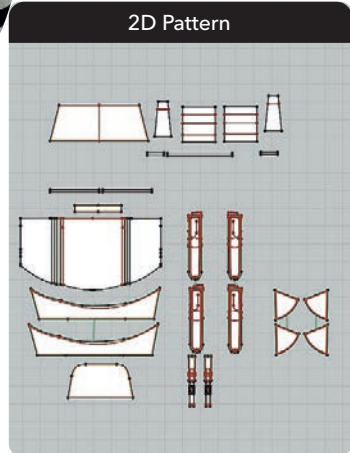
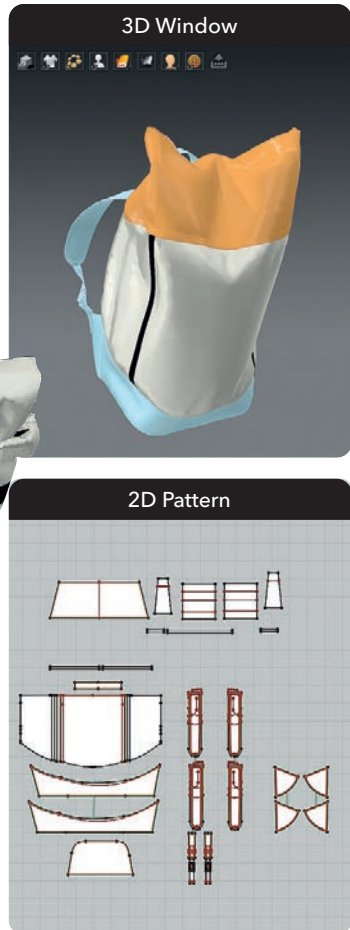
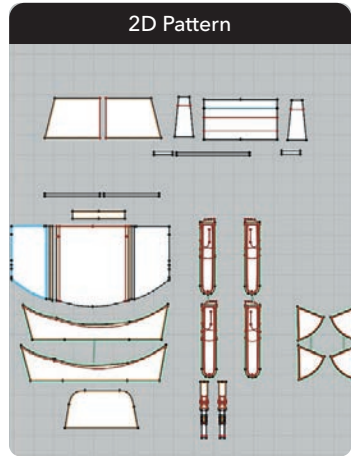
Process of Making Backpack with Trims by Nao Sakamoto

I begin by creating the backpack's base shape using a single layer and simple box shape, along with single-layer shoulder straps. Starting simple provides a good foundation for the details to come. I used Strengthen for these base patterns because I don't need any wrinkle simulations yet.

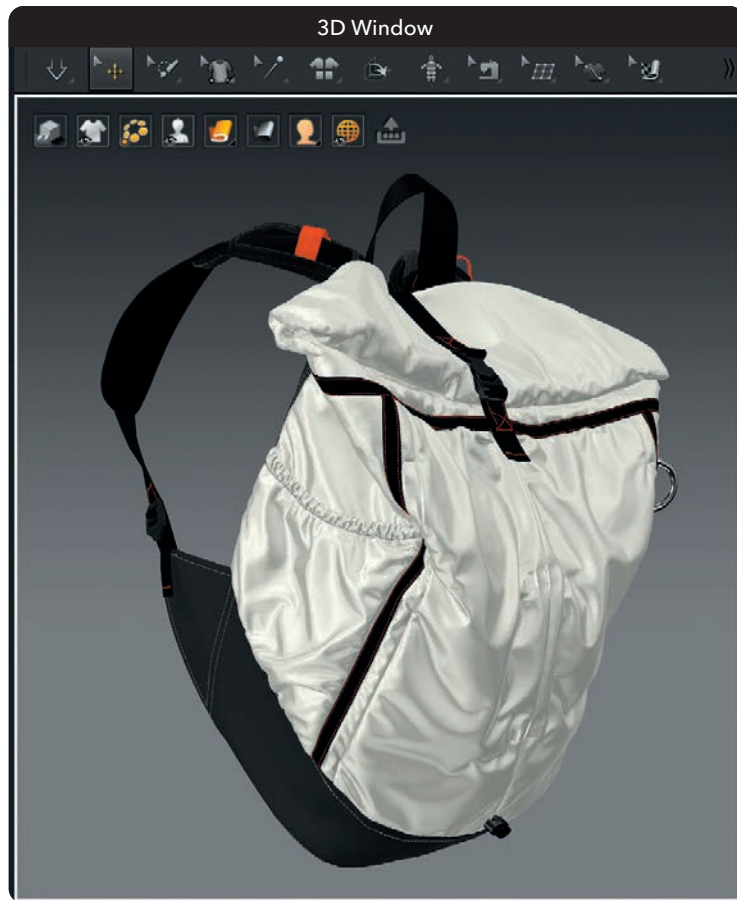
At this early stage, I position the avatar to ensure natural weight distribution when the backpack is suspended. Rather than going for a simple backpack design, I opt for a fold-down opening style with a nylon wrinkled fabric to showcase what *Marvelous Designer* does best – creating realistic wrinkles and incorporating detailed elements like trims and ropes on top.



For the fold-down design with the straps, start by creating internal lines at the folding points and use the **Fold Arrangement tool** to shape the folds. Sew together the folded line to where it's folded, to keep the fold in place. Later when the shape is confirmed, duplicate the patterns with **Layer Clone** to add some extra dimension. The **Tack**, **Freeze**, and **Pressure tools** help maintain stability when making the folds and simulation. Another tip is to change the **Gravity** to 0 in the **Simulation Properties** when doing the folding. It can be easier when the fabric doesn't fall down all the time. Once the fold sits properly with a clean silhouette, secure it with a strap.

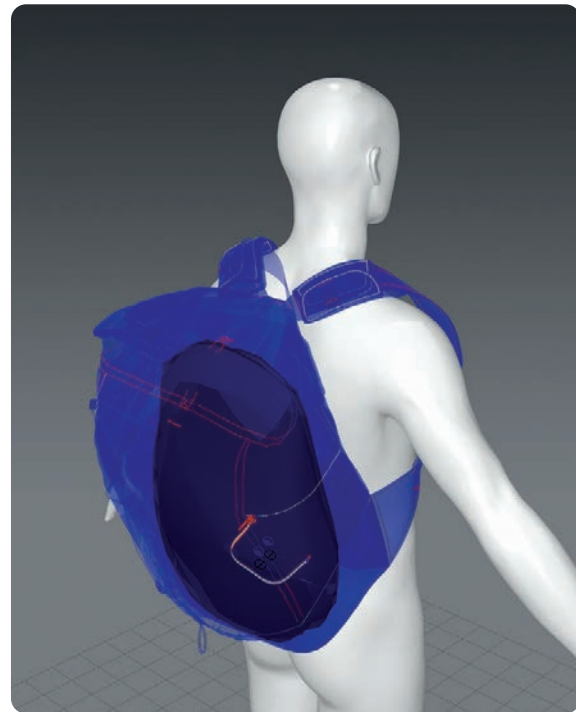


To create sturdy black straps, significantly increase all Fabric Properties values, including **Stretch**, **Shear**, and **Bending**. This creates a rigid material that holds its shape without unwanted flexibility. Adjusting these properties is crucial for controlling how the fabric behaves. Position the buckle trim carefully on this reinforced material to achieve a natural, functional appearance. All trims used in this project are available for download through *CONNECT*, which offers extensive high-quality options to enhance the design.



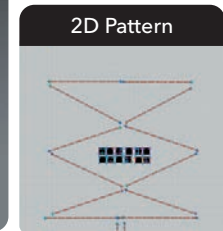
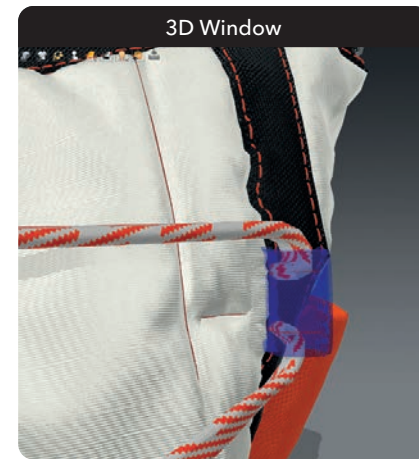
1 To achieve that sporty wrinkled look that gives the backpack its distinctive character, I employ a two-layer pattern system where the outer layer is slightly larger than the inner one. The Pressure settings, combined with the Pinch tool, helped simulate the wrinkles in the style needed. I spend considerable time adjusting these settings to achieve the perfect balance of wrinkles – not too dramatic but enough to give the fabric that authentic sporty look.

I reset these settings to zero, the wrinkles remain thanks to the size difference between layers, creating a natural-looking effect. The slightly oversized outer fabric creates natural wrinkles and emphasizes details like seam lines and subtle puffing, particularly where different style fabrics meet. I enhance dimension by combining contrasting fabrics – soft, thin nylon alongside sturdy black material – to define the top and side design lines. These intersection points become opportunities for interesting design details.



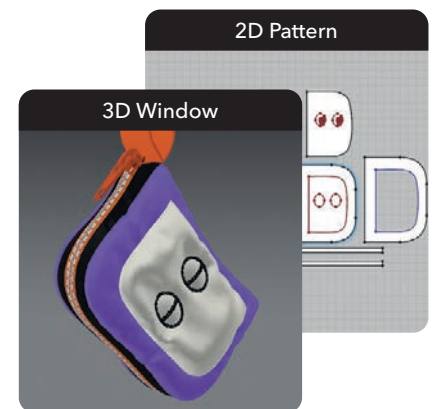
2 To give the backpack realistic volume and weight, I import and position a rough mesh object inside. The mesh object not only creates authentic shape but also helps control fabric behavior during Pressure adjustments, preventing unwanted floating effects.

3 The rope is created from using long, thin rectangular patterns sewn into the black straps. The positioning of internal lines proves crucial here, as it determines how the ropes emerge from the strap loops, recreating the look of interconnected ropes. The particle distance should be set very low here for optimal results, ensuring the ropes maintain their shape and have stable simulation.

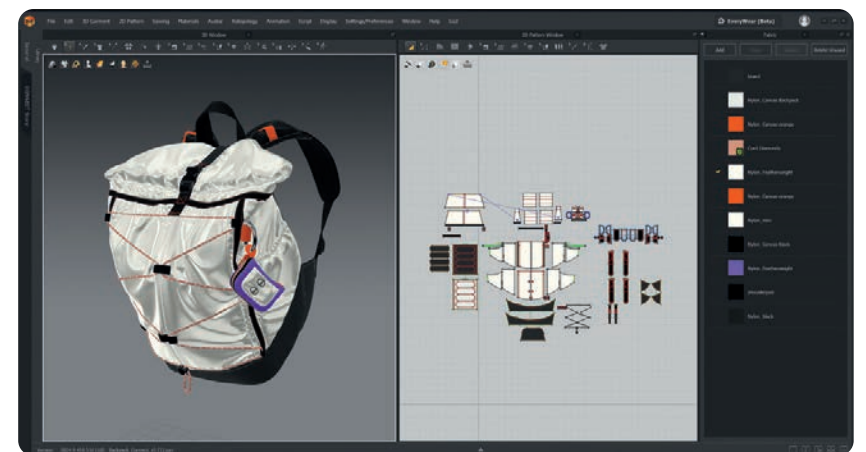


4 As finishing touches, I add Topstitch to add to the design and realism.

5 You can also use the Topstitch for embroidery elements such as the eye design for the smaller case on the side.



6 Working with different fabric qualities in Marvelous Designer allows me to build these intricate details layer by layer, experimenting with various combinations until I achieve a nice balance. The result is a fun, street-style backpack that combines technical functionality with contemporary design elements.



MARVELOUS DESIGNER 2024.2: EXPLORE THE LATEST FEATURES & ENHANCEMENTS



Exciting new updates in 2024.2, with key improvements in simulation, interoperability, and more.



GPU Simulation Improvements

GPU Simulation now matches the accuracy of CPU simulation and can even be used for Animation Caching. With significant performance improvements, GPU simulation delivers faster results, allowing for quicker pattern creation and simulation in the 3D window, with simulation quality that matches that of CPU simulation. Artists can now seamlessly switch between the faster GPU simulation and the trusted, stable CPU simulation from previous versions.



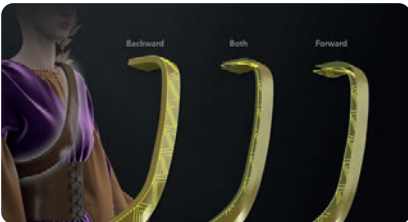
Trim Simulation with Improved Collision Accuracy

This update gives artists more control over collision properties such as weight and stiffness, improving the realism of garments beyond just perfect wrinkles and amplifying the level of detail artists can achieve in their simulations through trims. .



Advanced Pinching with Soft Selection

The new soft selection tool offers more control than ever. Unlike earlier versions that limited selection to a single vertex, artists can now use customizable soft selection to apply smooth falloff shapes during simulation. This makes it easier to fine-tune details or adjust intersecting patterns, providing far more control and flexibility compared to previous iterations.



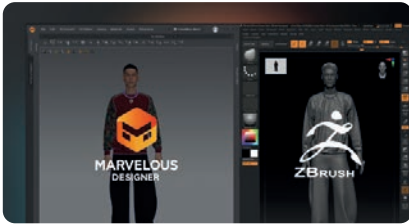
Add Thickness Geometry Option

This feature reduces the need for external editing by enabling you to express thickness directly within *Marvelous Designer*, bypassing third-party software. The thickness is represented with geometry that carries its own UVs, streamlining the workflow and simplifying the design process.



Enhancements to Automatic Quad Remeshing

The latest update focuses on reducing irregular meshes and improving quadrangulation quality in terms of mesh flow and structure. Where manual adjustments were once required, this update, along with recent retopology tools, gives artists the ability to automatically achieve optimal quad mesh distribution within *Marvelous Designer*.



GoZ Plugin Improvements

GoZ Plugin can now be used with the latest versions of *Marvelous Designer* and *ZBrush*

COMING SOON: THE FUTURE OF MARVELOUS DESIGNER 2025.0

THE INDUSTRY
STANDARD
FOR 3D CLOTH
MODELING &
SIMULATION.



Keyframe Animation

You have more power to customize your animations by setting keyframes for Simulation Properties or **Wind Controllers**, giving you precise control over your animation cache perfect for crafting dynamic, life-like motion with greater flexibility and creativity!



Human IK (Inverse Kinematics)

Adjust your avatar more organically using the **Human IK** option under the **Show Joint Setting**. This feature is especially helpful for those less familiar with rigging and posing, as it automatically identifies the correct alignment between different joints in the pose.



Schematic Render Mode

Elevate your 3D Window view with enhanced visual quality, including shadows and highlights. When you need non photorealistic render with emphasized edges to resemble a more illustrated look. This feature also provides a more accurate preview of the garment.



Extended GPU Simulation Capabilities

Steps have been taken to improve the GPU Simulation and match CPU accurate calculations. When time is so valuable, being able to use the best performance of your PC without reducing the quality of the simulation becomes essential.



Marvelous Designer Linux Support

To meet the demands of fast-paced studio workflows, **Marvelous Designer** is coming to **Linux**! Designed for seamless integration into production pipelines, the software will be available on **Rocky Linux 9** and higher, with compatibility for **Red Hat Enterprise Linux 9** and beyond starting in 2025.

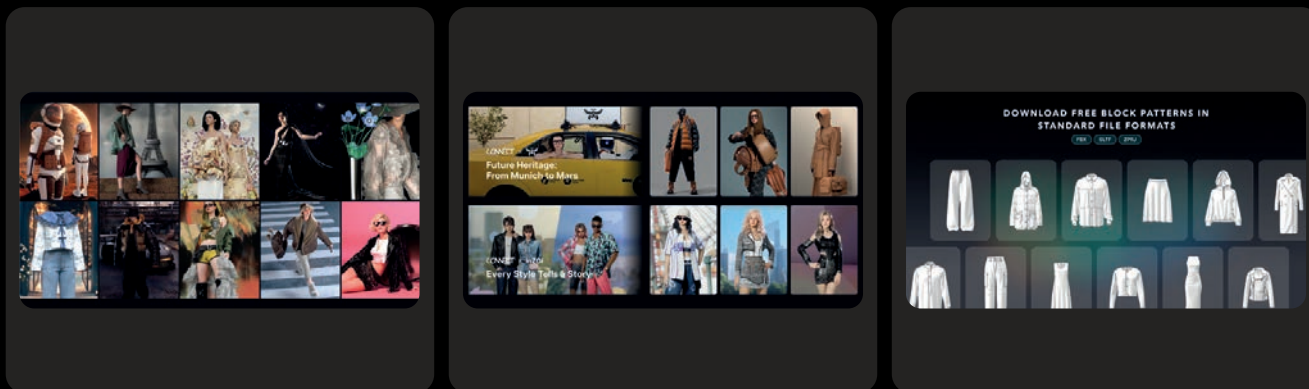


New Library Window

The redesigned Library Window lets you explore and manage assets with ease while keeping your 3D and 2D workspace clear. Quickly access more than 60,000 assets from the **CONNECT** marketplace or create a custom library to organize your own. Work smarter, design faster.

WELCOME TO OUR NEW COMMUNITY

CONNECTING CREATORS WORLDWIDE



CONNECT

The go-to hub for *Marvelous Designer* creators— discover free assets, engage with the community, participate in contests, find job opportunities, and sell your assets to earn!

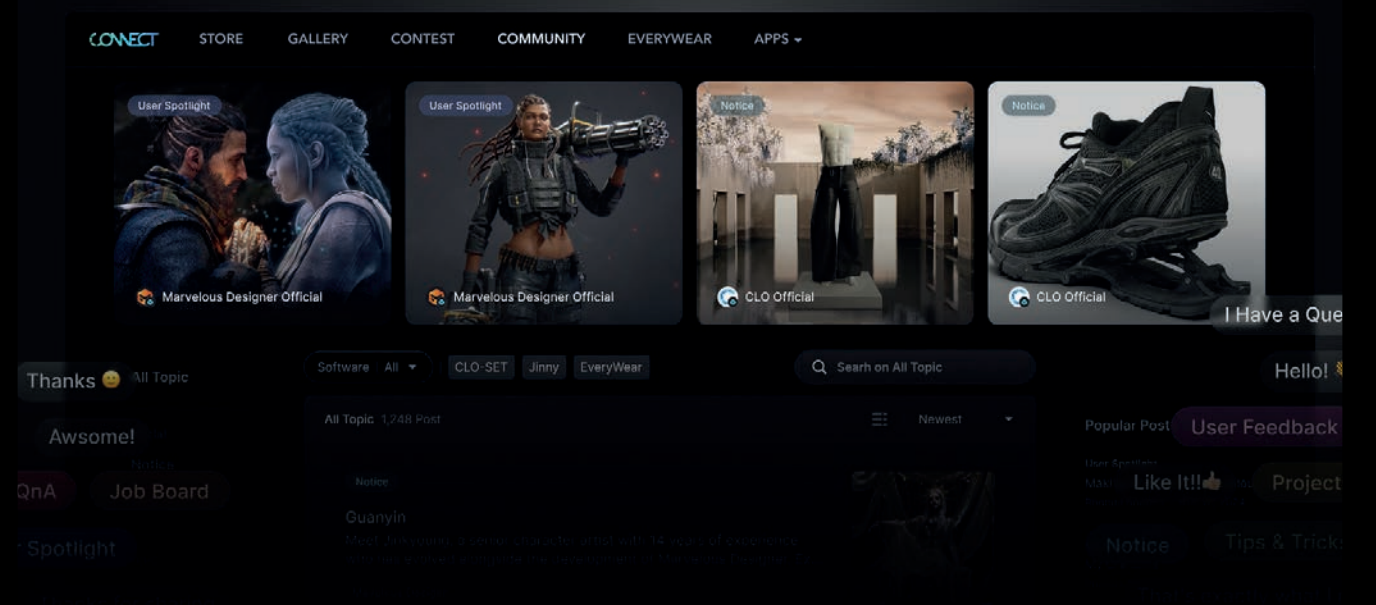
CONNECT is a global community and open marketplace for *Marvelous Designer* & *CLO* creators to showcase portfolios and build networks. Beyond a marketplace, it has hosted 10+ contests with fashion and game companies, offering exciting prizes.

Join now and be the next winner!



WELCOME TO OUR NEW COMMUNITY

FOR INNOVATION, COLLABORATION, AND INSPIRATION!



Marvelous Designer is excited to introduce **CONNECT Community**, a brand-new community space designed for creators across all *CLO Virtual Fashion* platforms. Whether you're a digital fashion artist, a game designer, or a 3D enthusiast, **CONNECT** is your place to share ideas, learn from others, and collaborate on groundbreaking projects.

In this vibrant community, you'll find inspiration, resources, and discussions on everything from 3D garment creation to workflow optimization. **Connect** with like-minded creators, showcase your work, and explore new opportunities together.

Join us and be part of a growing network of *Marvelous Designer* users shaping the future of digital fashion and beyond.

TAILORING THE EXPERIENCE: MARVELOUS DESIGNER'S COMMITMENT TO USERS



EveryWear

Create, optimize, and export character outfits effortlessly with EveryWear.

EveryWear is a powerful feature package in *Marvelous Designer* that optimizes garments for game environments.

Scan the QR code to watch the full video of *Marvelous Designer* Jersey and discover how EveryWear can be integrated into various game environments.



For creators:

Streamline your workflow with Auto Fitting, Auto Rigging, Polygon Optimization, and Texture Baking, UV Packing, Weight, and Sculpt Brush, allowing you to optimize clothing designs quickly and export them directly into game environments.



For companies:

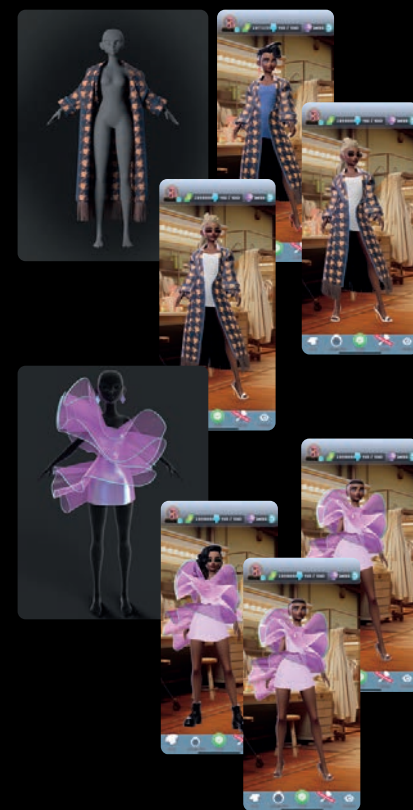
CONNECT serves as a solution for high-quality, optimized asset sourcing for your in-game store. It bridges the gap between your game's clothing asset needs and talented creators who can deliver game-ready designs tailored to your specifications. Additionally, assets can be customized to match your game's style, business requirements, and preferred file formats. For inquiries, contact us at: connectbiz@clo3d.com.

Bringing Creativity to Life: Past In-Game Collaborations

inZOI Game Contest



Fashion League Game Contest



Marvelous Designer Certificate Program

Starting in 2025, *Marvelous Designer* will launch a Certification Program for academic institutions that have been requesting it over the years. This initiative is designed to equip educators with the necessary training and expertise to maximize the potential of *Marvelous Designer* in their curriculum.

The program will initially roll out regionally, with a phased expansion to ensure accessibility for institutions worldwide. Our goal is to provide a structured certification process that enhances teaching methodologies and supports the next generation of digital fashion creators.



GALLERY OF FAME
CELEBRATING 2024'S
ARTISTIC ACHIEVEMENTS



Armor Creation
in Marvelous Designer



© Sarah Prado 2024.01



The Swat Warrior Project



© Alsu Rakhimova 2024.02





Pioneer of Marvelous Designer
for Digital Sculpting

© Masato Ohata 2024.04



Treasure



The-Oyabun







© Chu Ying 2024.09



King Lear



Retail Display In Barcelona



© Sangyeop Jeong 2024.10



© Diego Conte Peralta 2024.11



Marvelous Designer in CFX



© Alex Savelev 2024.12



Ranchero (Bounty Hunter)

UNLEASH YOUR CREATIVITY



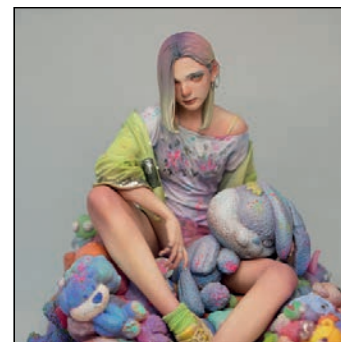
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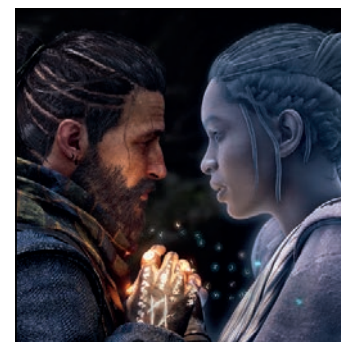
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