
**HYBRID
3D
FASHION
DESIGN**

documentation sprint 5

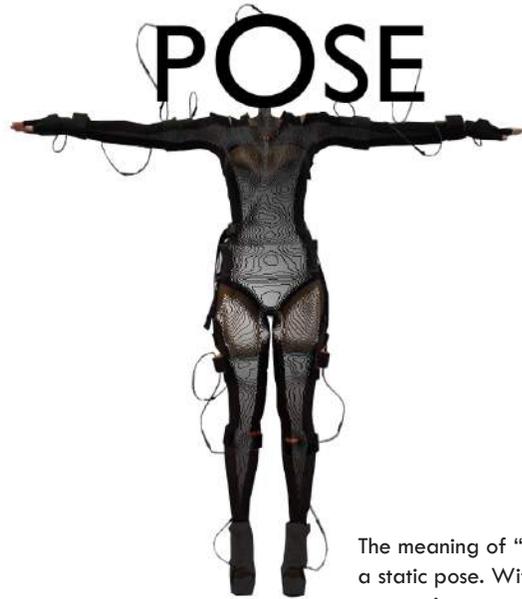
USER STORIES

1. **virtual fashion show concept & storyline**
2. **avatar design and animation**
3. **environment**
4. **fashion collection**
5. **bra simulation**
6. **garment simulation**

INDEX

1. virtual fashion show concept & storyline

LOGO'S SECOND SIGHT



The meaning of "T-Pose" is a designation of a static pose. With the brand we want to communicate our dynamical vision. So therefore this name is not interesting.

Final logo

SECOND
SIGHT

As a technology oriented fashion brand we scream innovation.
A new way of looking at clothing is what we aim to reach.

High ended, Ready to wear, Womens wear

second
second
second
second

second

second

MEANING OF SECOND SIGHT

Second Sight; is a form of extrasensory perception, the supposed power to perceive things that are not present to the senses,[1] whereby a PERSON perceives information, in the form of a vision, about future events before they happen (precognition), or about things or events at remote locations (remote viewing).[2]

SECOND

SECOND
SECOND
SECOND
SECOND

SECOND

We printed out "Second Sight" and placed it under the scanner.

1. environment concept

CONCEPT 1

INSPIRATION

Since the world is getting overcrowded, we update our surroundings to an artificial nature. The changeability of being everywhere all the time makes this earth transparent. Uploading ourselves into new levels of society. Higher,

greater, connected into a network of fused territories.

CONCEPT STORY

Day after day I'm in my cabin fantasizing about my other being. I put on my mask that updates me to my artificial cosmos.

And there, in that world...

I can be what ever I want to be, and that is who I really am. My legs are endless my mind is bright and my eyes can look

everywhere at the same time.

SELF-MOCKERY
DIGITAL FANTASY
TRANSFORMATION
BRIGHTENING

PERSONAL
APPROACHABLE
OPEN MINDED
INDEPENDENT
CHANGEABLE

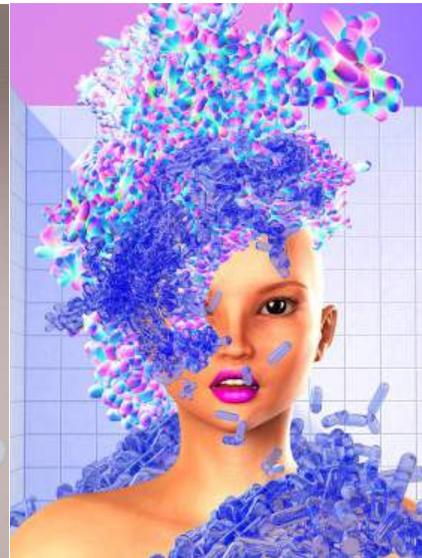
3 OUTFITS based on
reality
transforming
fantasy
lightening



REALITY



TRANSFORM



FANTASY

CONCEPT 1:

From reality, digital personality to transformation. This concept we found in the end too cliché. We want to go more into depth.

CONCEPT 2

NATURE CHANGES ALONG WITH US
We update our surroundings to an artificial nature. A changeable landscape created for our needs and wishes.

We upload ourselves into new levels of society. Higher, greater, connected into a network of fused territories. But who are we when we can be absolutely anything?

The changeability of being everywhere all the time makes this earth transparent. The unlimited immersion is what we're evolving into.

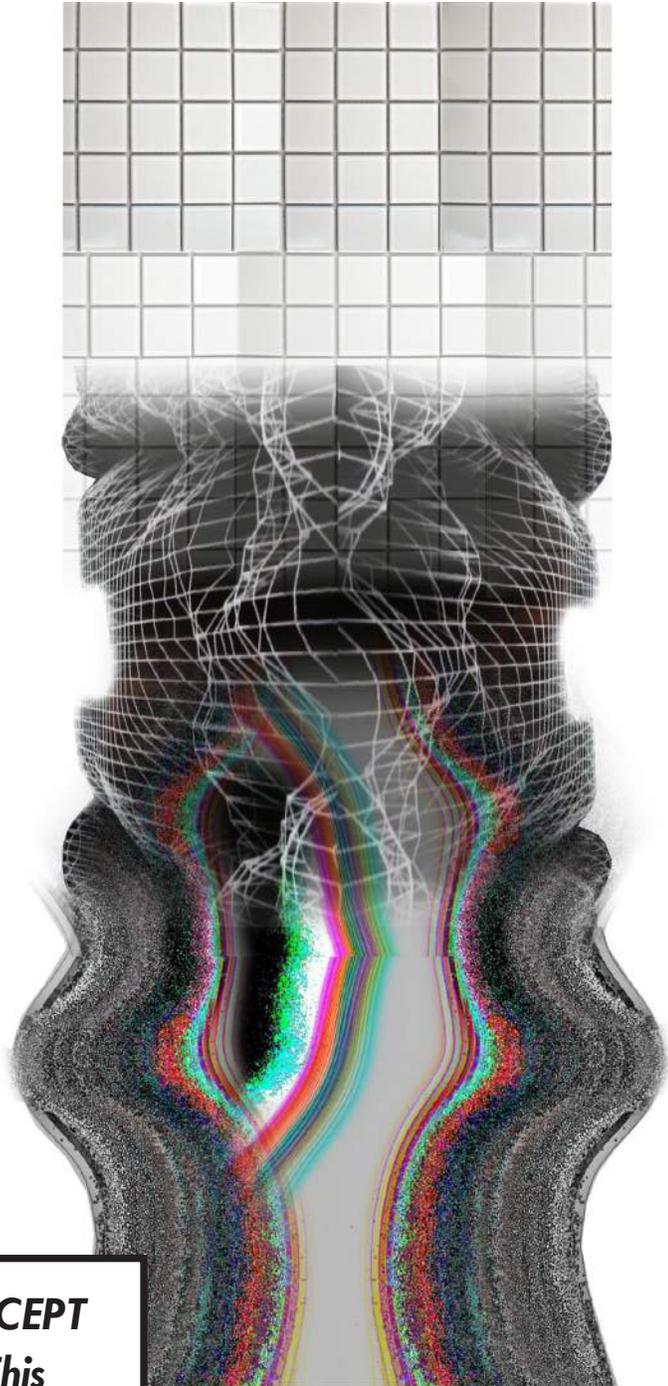
THE MUSE

I shape my own environment by coding the steps I take.

I am my own god, I am Blade.

This is Blade, the virtual alter avatar of Finn.

Finn flourishes in her technical studies, loves to create complex objects but she also loves gaming. While gaming she walks into her self-created dynamic landscapes. She turns into Blade. The fluctuations of the human body inspire her, which are much like the algorithms she uses to code her creations.

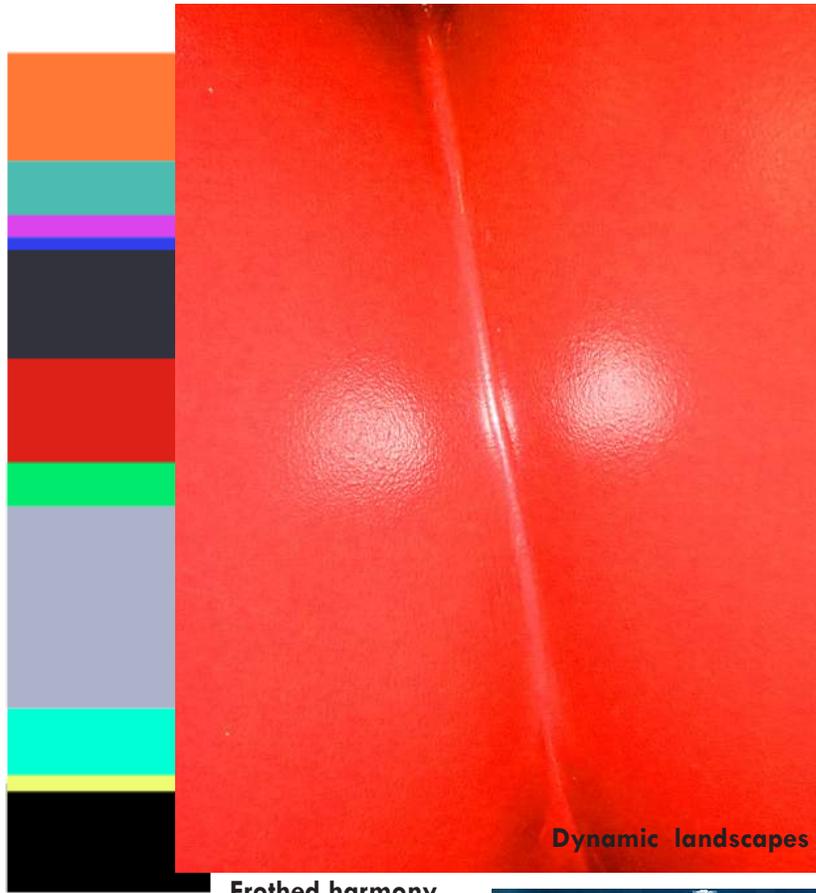


CONCEPT 2: FINAL CONCEPT

This concept we choose. This is the more layered version of concept 1.

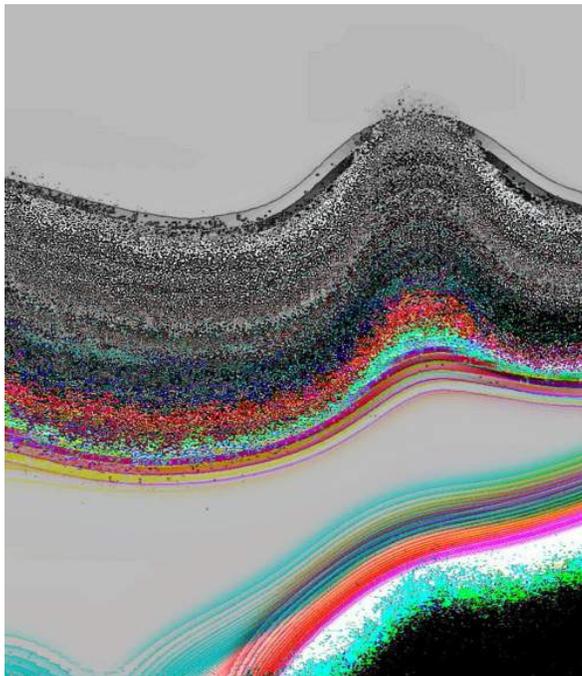
1. environment concept

FINAL CONCEPT

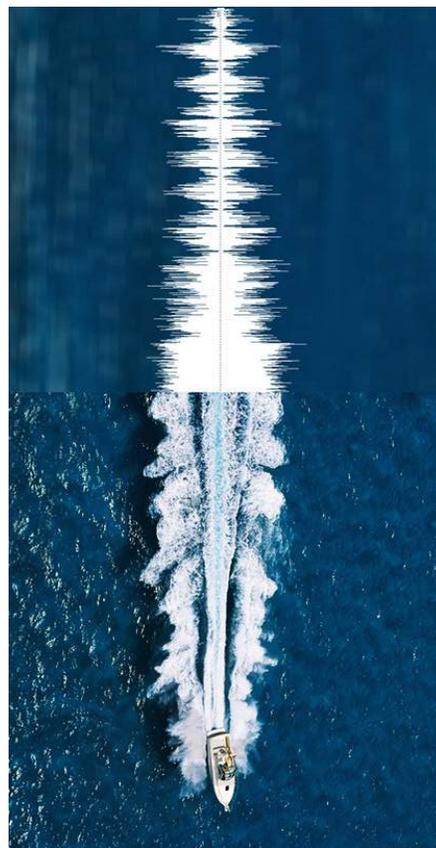


Dynamic landscapes

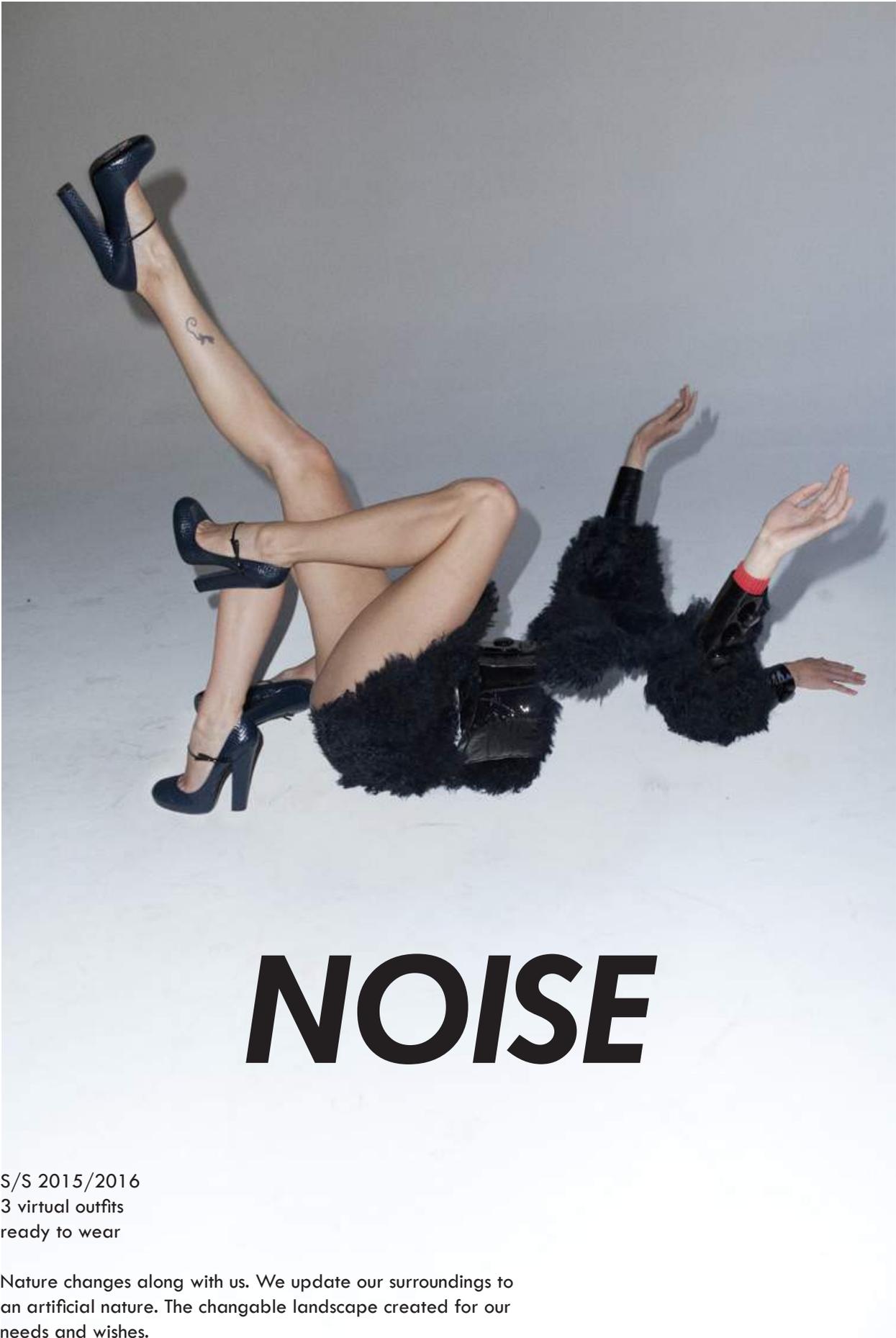
Frothed harmony



Distorted sexuality



Power



NOISE

S/S 2015/2016
3 virtual outfits
ready to wear

Nature changes along with us. We update our surroundings to an artificial nature. The changable landscape created for our needs and wishes.

1. environment concept

THE CONCEPT: WORLD'S FIRST LIVE VIRTUAL FASHION SHOW

1. Send package to all important customers, fashion gurus and press

The package contains VR glasses, joystick, earplugs and an invitation.

2. Fold the VR glasses, put your smartphone in it and see the count down.

3. When the live count down reaches zero, the audience put on the VR glasses, now they are present in the virtual fashion show where they can wander around by them self.

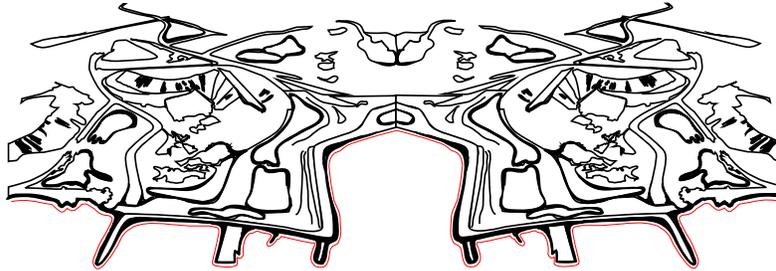
After the show a screen pops up with the question if the audience wants to stay in the fashion show or back to the app.

4. Now the app contains detailed information about the collection items where the audience can pre-order.

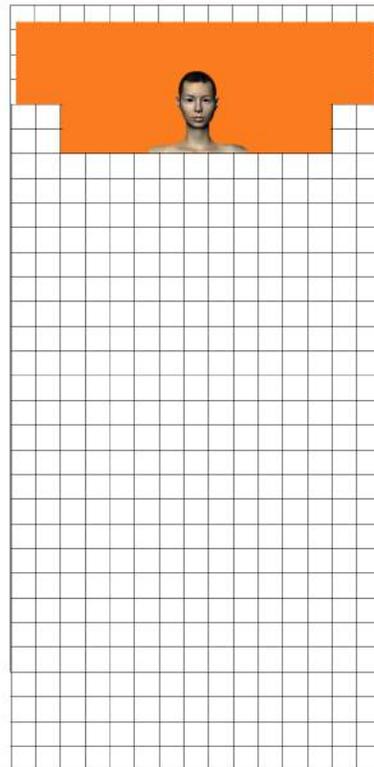
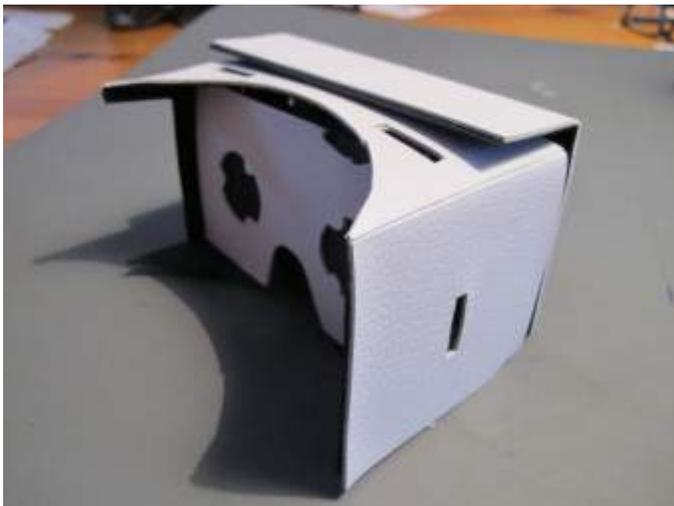
1. environment concept

1. PACKAGE PROTOTYPE

Send package to all important customers, fashion gurus and press.



Leather VR glasses for a fashion feeling
Not steady enough
Cardboard layer underneath
The contoure of the lays in the collection on top of the VR glasses.



1. FINAL PACKAGE



1. environment concept

2. LIVE COUNT DOWN

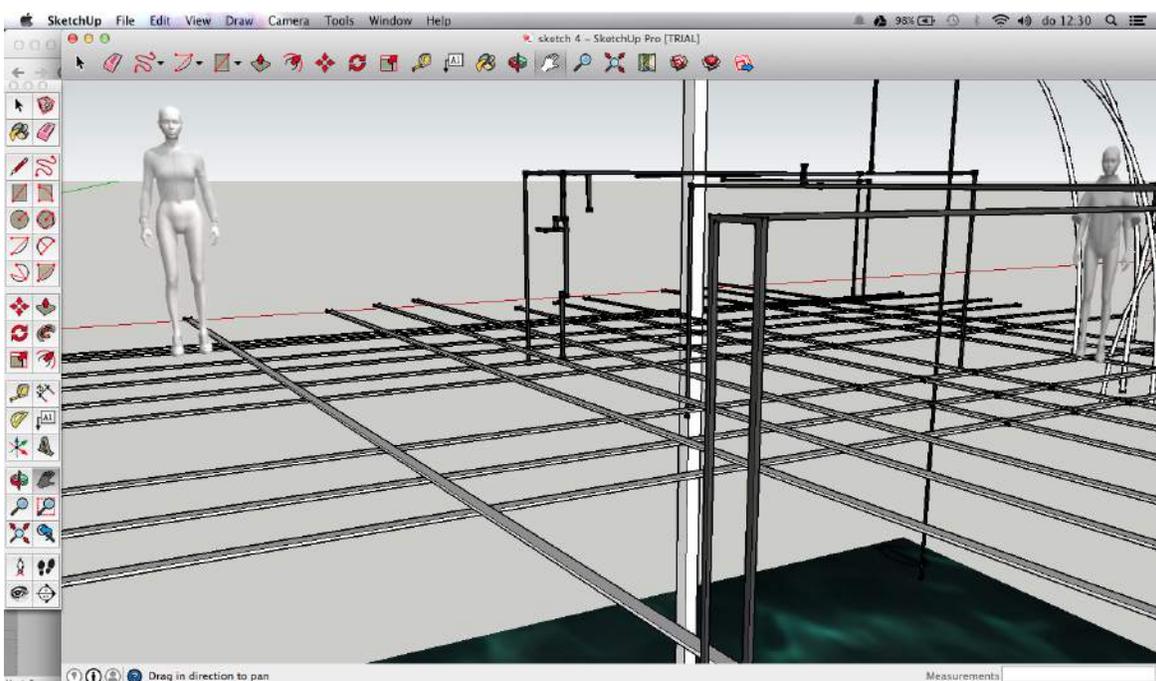


3. VIRTUAL ENVIRONMENT

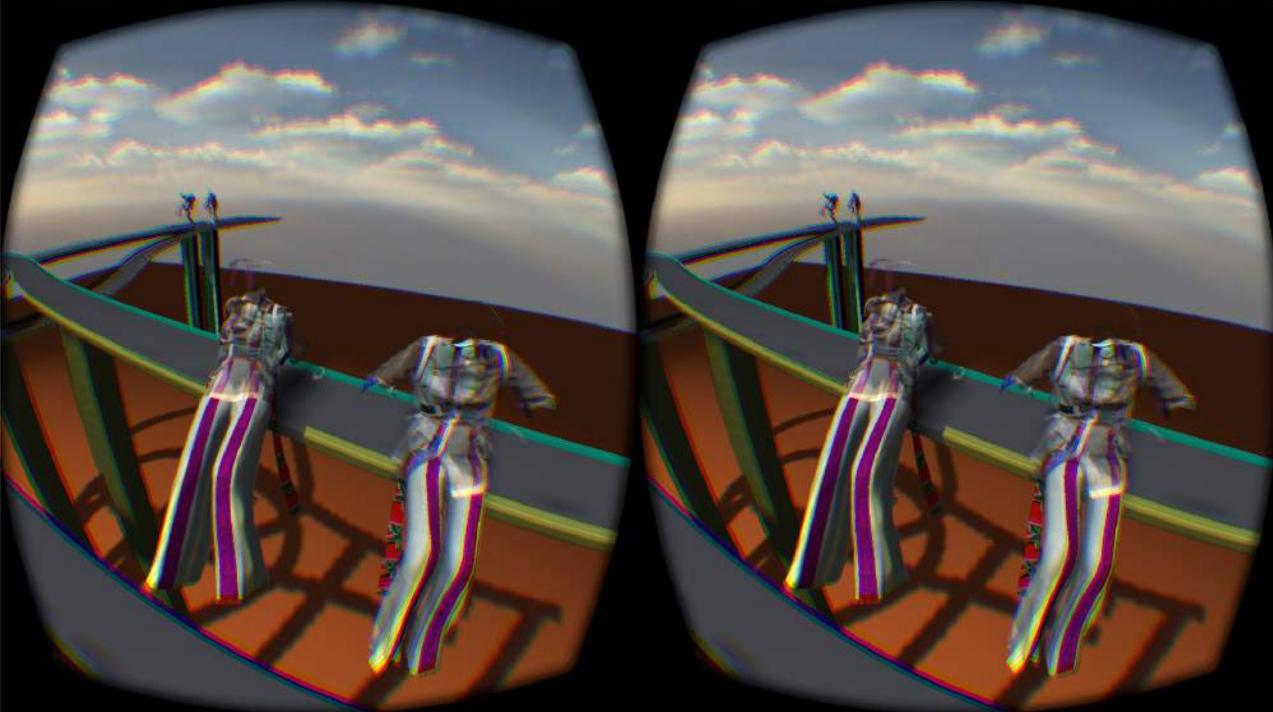
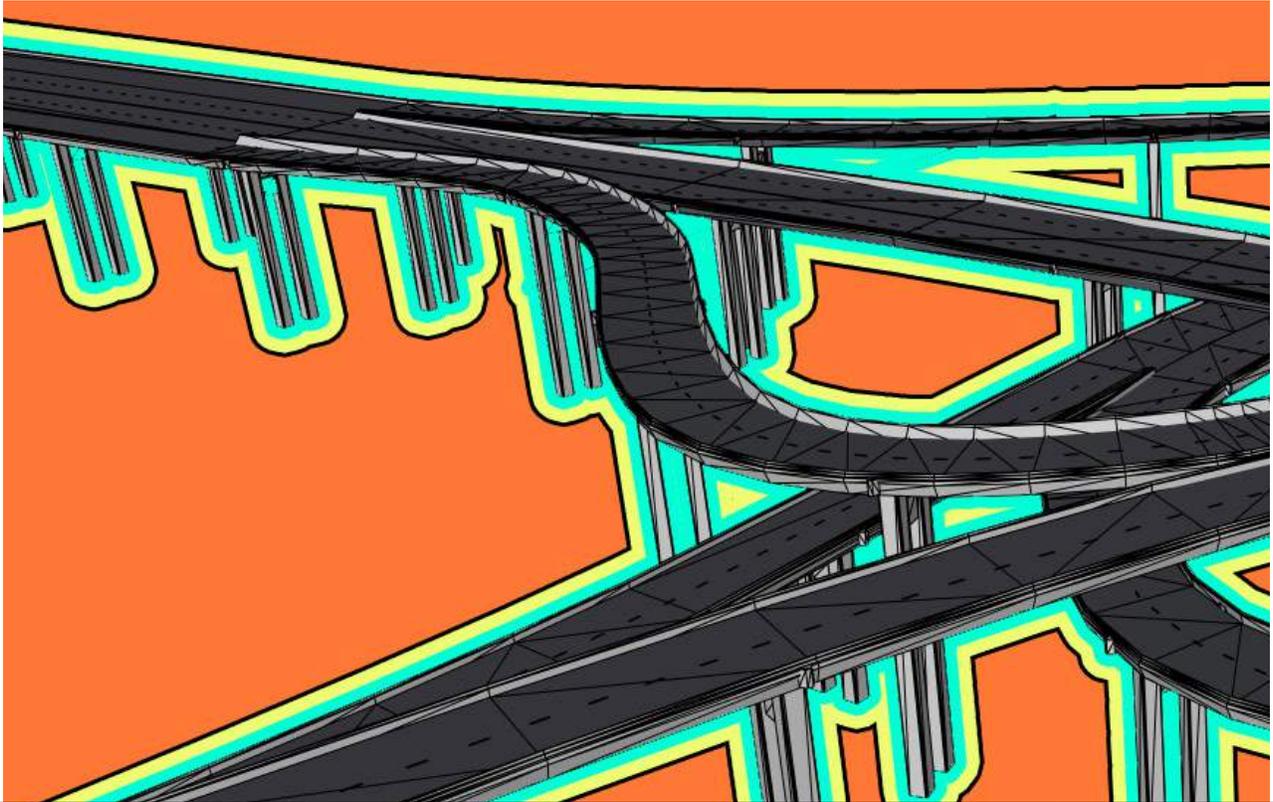


Vanuit zwart wit grid naar een 3d grid. Ik heb in Sketchup de omgeving gebouwd. Na het testen in de VR glasses bleek het te rommelig te zijn en lijdt het te veel af van de collectie. Daarnaast is de collectie veel meer organische vormen dan grafische strakkelijnen.

Out of the grid (Count down movie) to a 3d grid was the first concept for the virtual environment. Using Sketchup and testing in Oculus we saw that this had no a good effect. It was to messy and it distract from the collection. Next to that the collection has a lot of organic shapes, we want to use that as starting point for the environment.



3. VIRTUAL ENVIRONMENT



FINAL VIRTUAL ENVIRONMENT
Inspired out of a collection pattern.

1. environment concept

3. FASHION SHOW STORYLINE

De avatars zijn doorzichtig door verschillende redenen. De motioncapture suit die we gebruikt hebben is een oude versie waardoor de avatar niet heel natuurlijk loopt, transparant is dit minder zichtbaar. Daarnaast kost het veel geheugen om de avatar te simuleren, dit zou tenkosten gaan van de collectie kwaliteit.

Drie verschillende verhaaltjes voor de drie outfits.

Het collectie concept als uitgangspunt:

“Nature changes along with us. We update our surroundings to an artificial nature. The changable landscape created for our needs and wishes.”

De avatar kan met haar kleding de omgeving veranderen.



Outfit 1: She can manipulate her collar to protect herself.



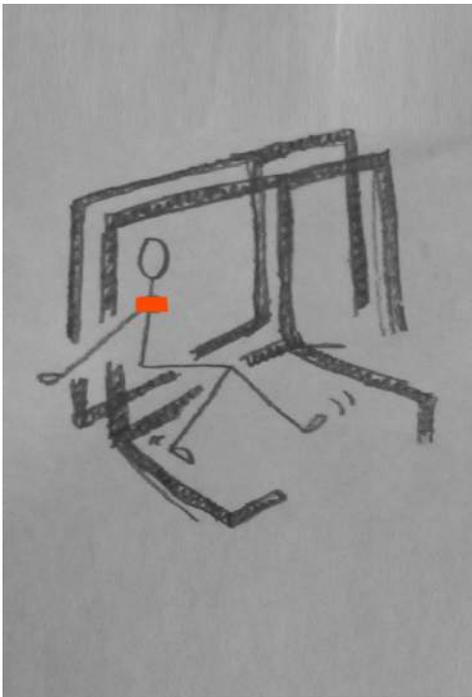
Outfit 2: let the horizon zips apart when she unzip her jacket.



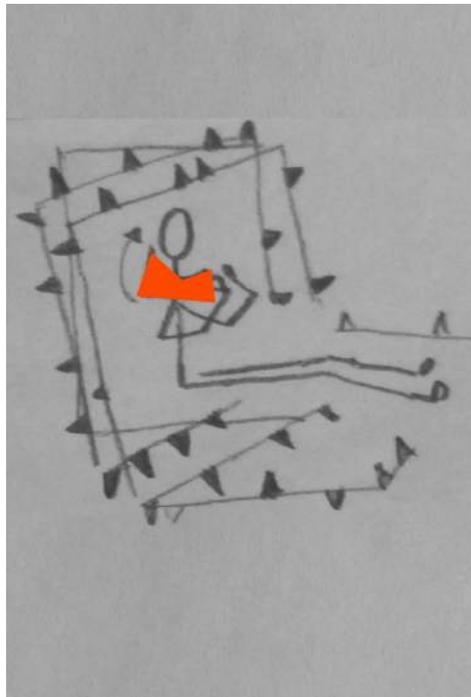
Outfit 3: Blows air around her when she blows her coat.



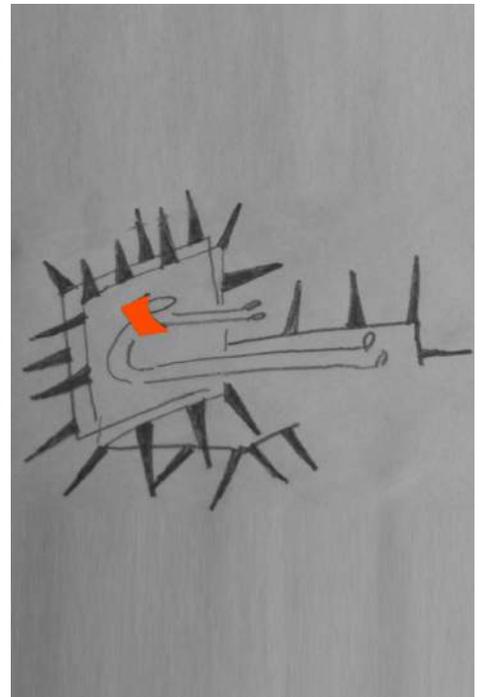
Outfit 1: She can manipulate her collar to protect herself.



1. sitting on the cliff, dangling with feet



2. put collar up

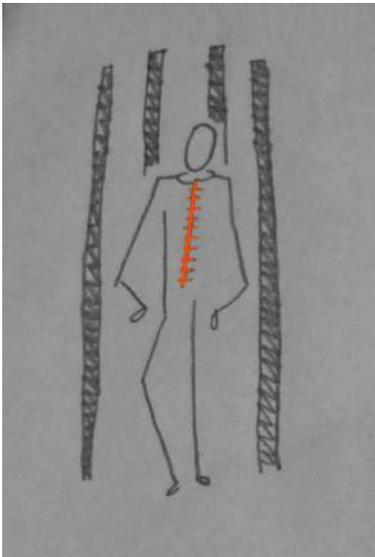


3. environment becomes spiky

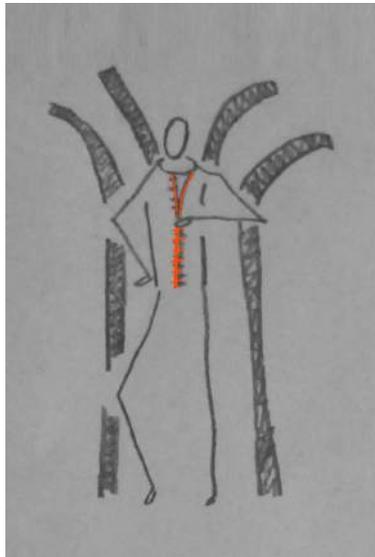


The zipper can not be animated when it should open and close. Not in Clo3D or in Maya. So we came up with plan B where the zipper is suddenly opened.

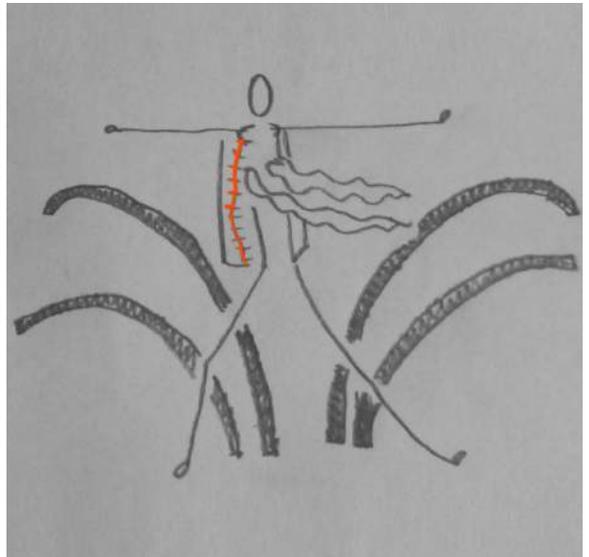
Outfit 2: let the horizon zips apart when she unzip her jacket.



1. sweater closed



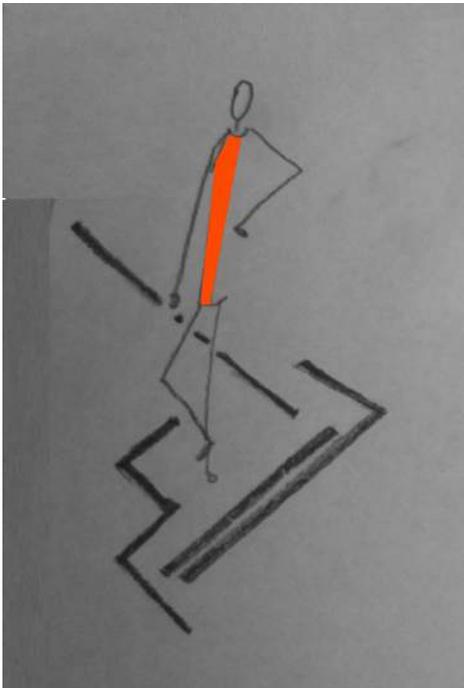
2. zipper opens, and lines bending



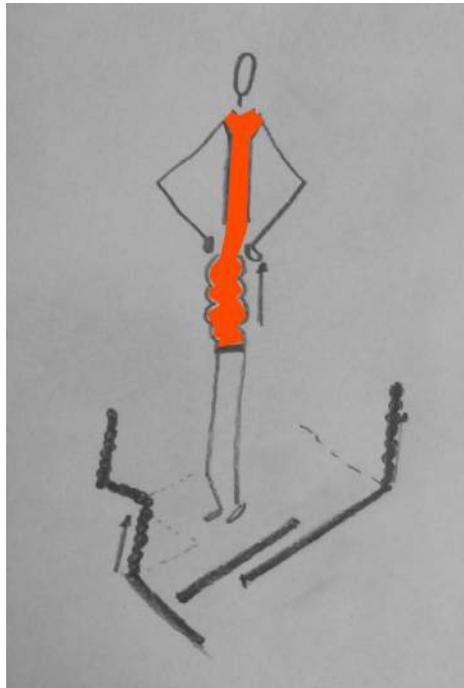
3. wind is blowing trough lines and clothing



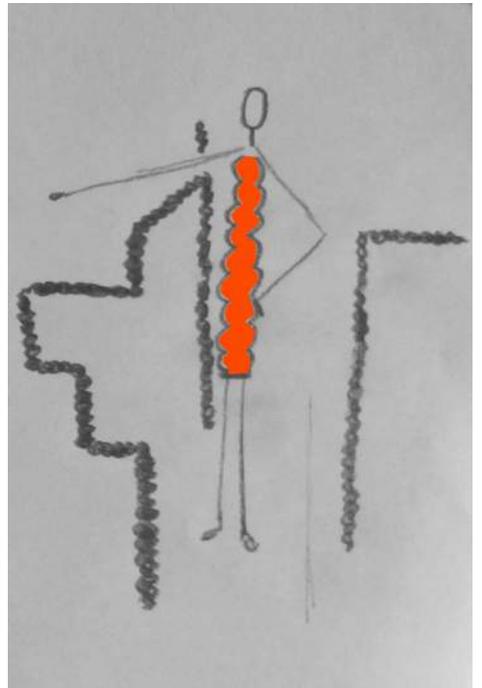
Outfit 3: Blows air around her when she blows her coat.



1. coat empty and lines are laying on the ground



2. she blows up her coat. the lines are slowly blowing up in the air



3. the lines are 3D blown up aswell for the coat.

FASHION SHOW USER TESTING



To test what fashion people think is interesting in a virtual fashion show we tested it. First we showed the virtual fashion show, afterwards asked them where they focussed on and if they understand the storyline.

The results were quite simlair: People are busy exploring what they can do them selfs in this world. Walk, watch, manipulate the environment, standing in the outfits. Next to that they just wants to put on the VR glasses and think 'wouw' I this world looks cool. The simulated and draping clothing they were very enthusiastic about.

Most fashion people never experienced a VR glasses they are busy with the basics of the medium.

The special effects in the virtual fashion show are very important. By using for example smoke and lighting the environment can be more mysterious.

FASHION SHOW MUSIC

DISTORTION
NOISE
TECHNOLOGICAL
LEKKERE BEAT
POSITIVE BACKGROUND
MYSTERIEUS

Inspiration:

The Sound of Cos, by Lernert & Sander

App of album, Biophilia, Bjork

American Horror Story Asylum Teaser 16 - Veiled



Interactive sound designer Evelien AI maakt de muziek.

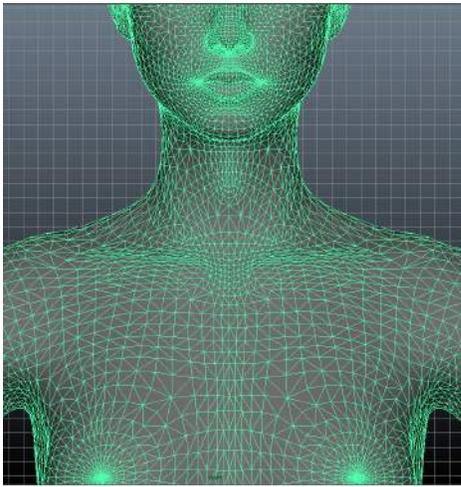
COLLECTION APP

When the audience is finished in the virtual fashion show they can take off the glasses, now they are in the collection app. Here they can see the collection and get more detailed information. And make an pre-order.



2. avatar design and animation

An important visual content of our virtual fashion show is the clothes simulation. In some 3D design softwares such as Clo3D, clothes of different materials can be simulated on avatars in different states, still or dynamic. There are already several avatars and associated motion files to choose from in Clo3D, but more can be imported from other 3D softwares. This helps to extend the possibilities of clothes simulation on various 3D models with all kinds of motions. Both 3D models and clothes simulation(as cache files) can be exported to other 3D softwares or game engines for further uses.



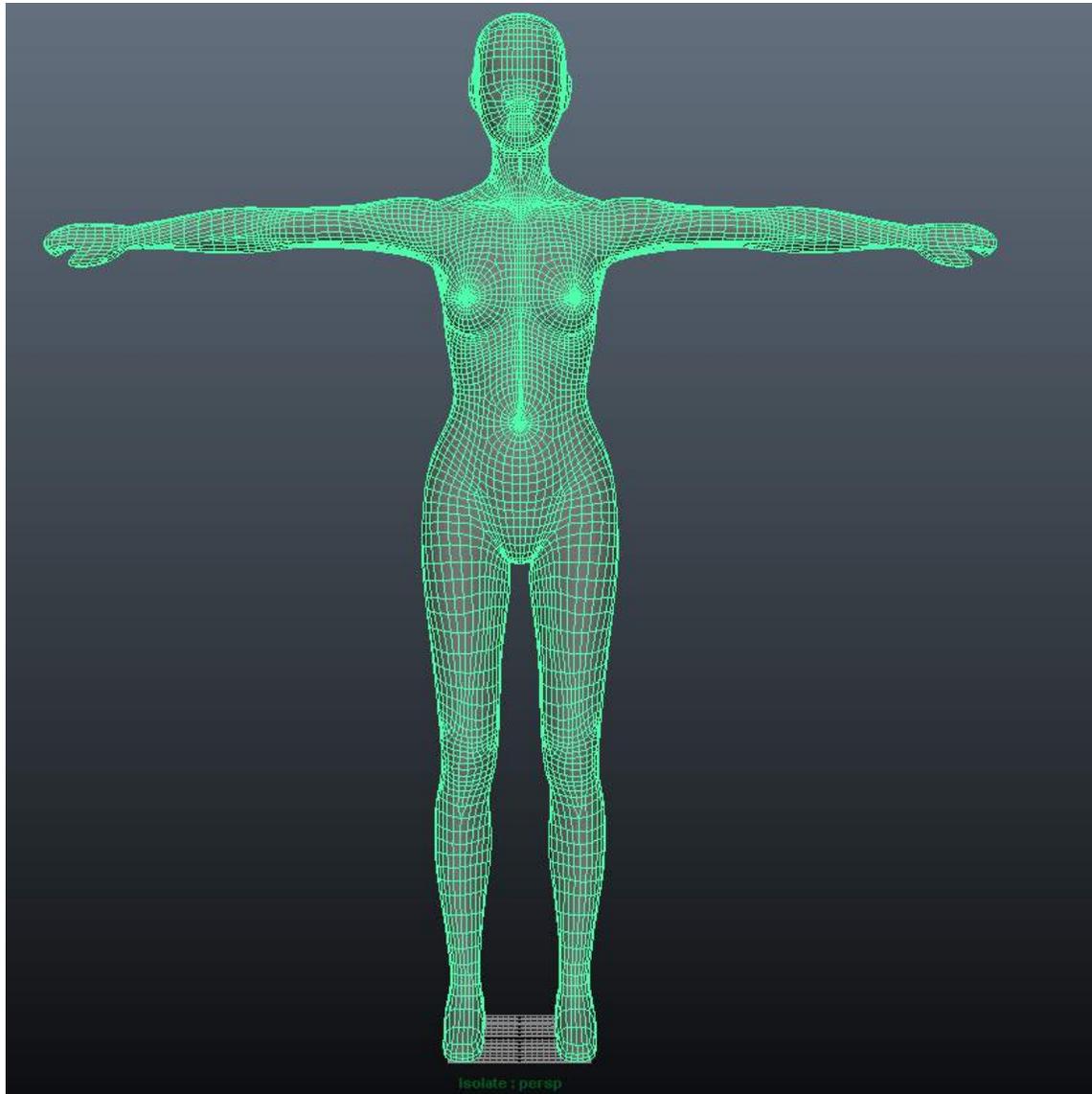
MODELING

In our workflow, we use one well-shaped avatar in Clo3D. The avatar is exported as OBJ file and imported to other 3D softwares(e.g. Maya). Note that The avatar from Clo3D has a rather complex mesh with many triangle-shaped polygons, which is considered as a less preferable model structure in making animations in Maya.

Another problem we notice is that while clothes are being simulated in Clo3D on this avatar, it always gets stuck on the eyes of the avatar (for instance if it designed with a hoody) and the program crashes. One reason for this problem is that the mesh of the eyes are built in a even more complex mesh to make it look realistic, which results in costing more computation power in the collision handling between avatar and clothes.

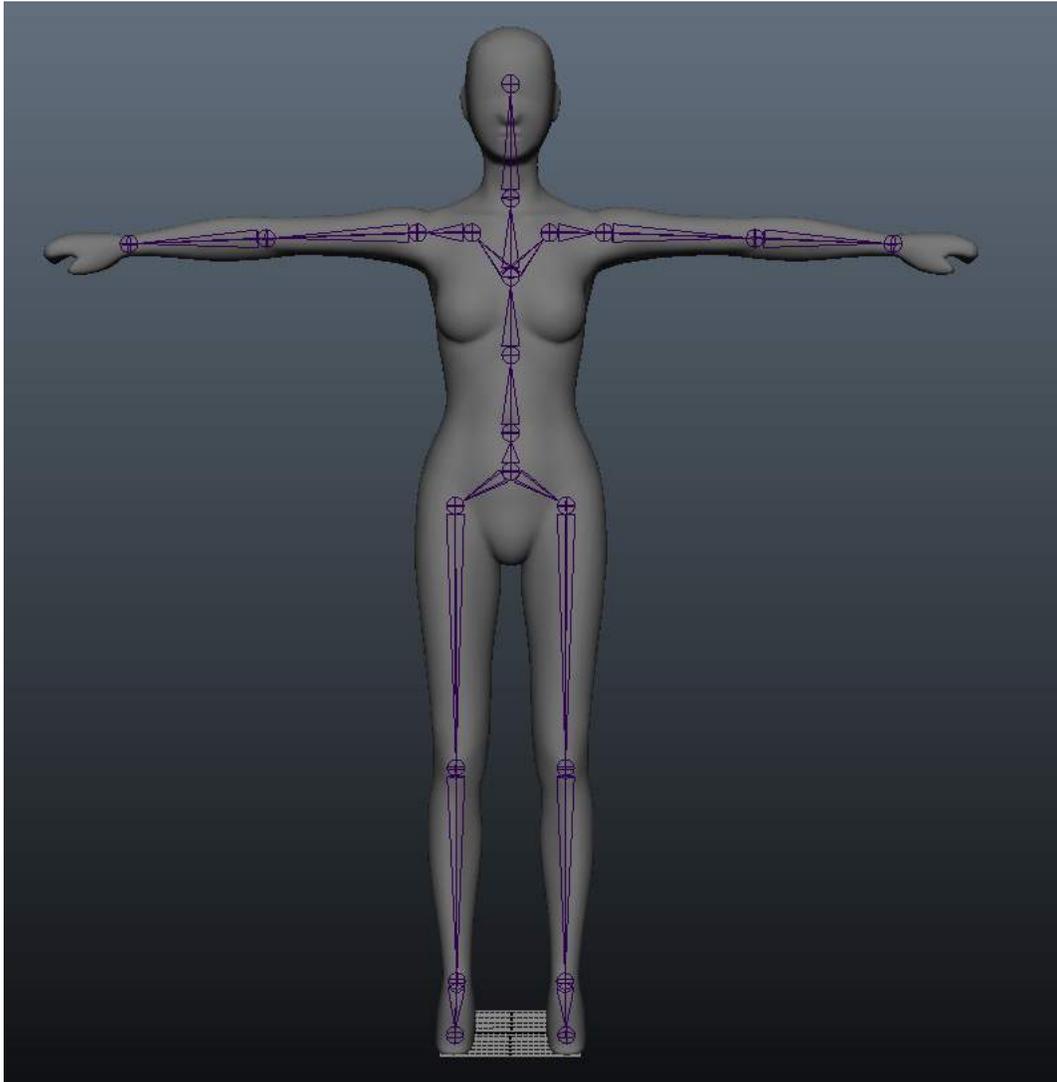


To solve these problems, we decided to first clean up the mesh of the avatar by using only quad faces and building a simpler version of the head, hands and feet where the mesh is complex.

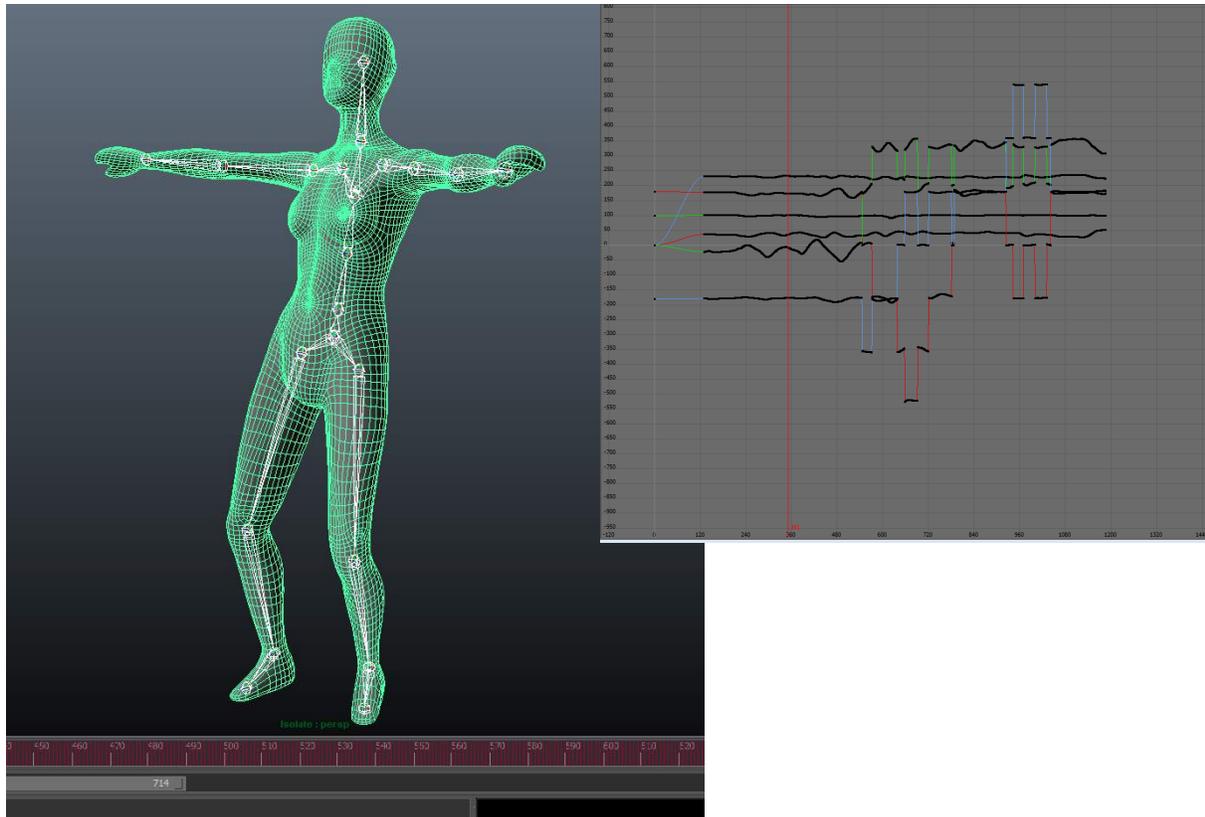


ANIMATION

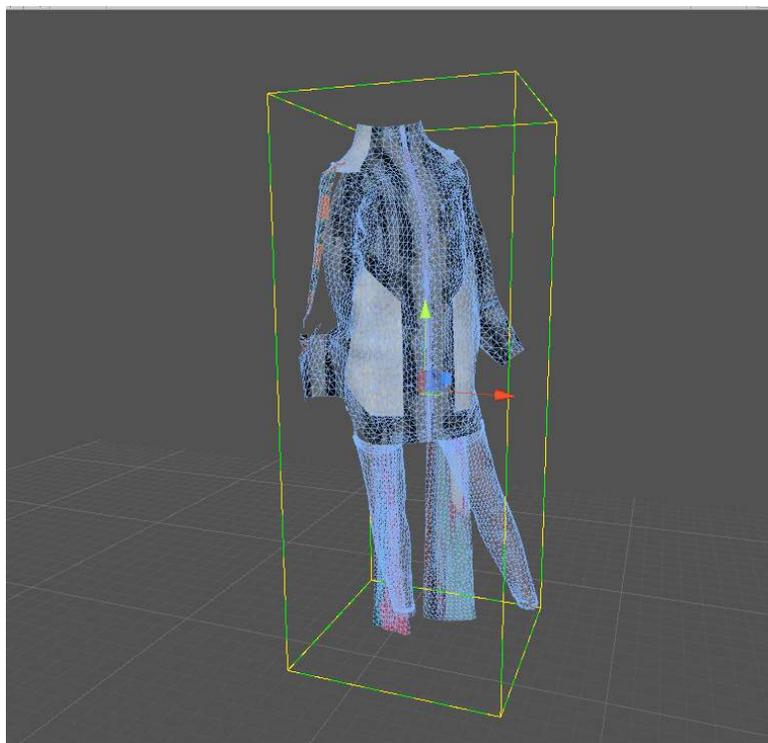
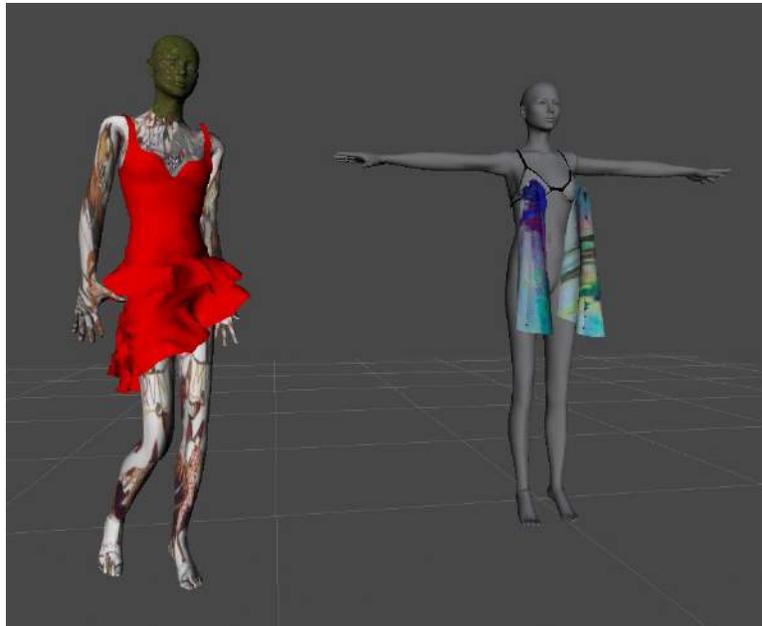
In Maya we build an skeleton inside the model using HumanIK system and bind the skeleton with the skin.



Then we can animate the model with different motion data which can either be recorded with a motion capture suit or downloaded from internet. Motion data is recorded with sensors located on different parts of human body, mostly representing very realistic movements. It can also be baked into animation and altered or edited based on different purpose. In our case, the animation of avatar will be first baked into skeleton animation and edited a bit to look more natural, and then exported as a geometry cache file.

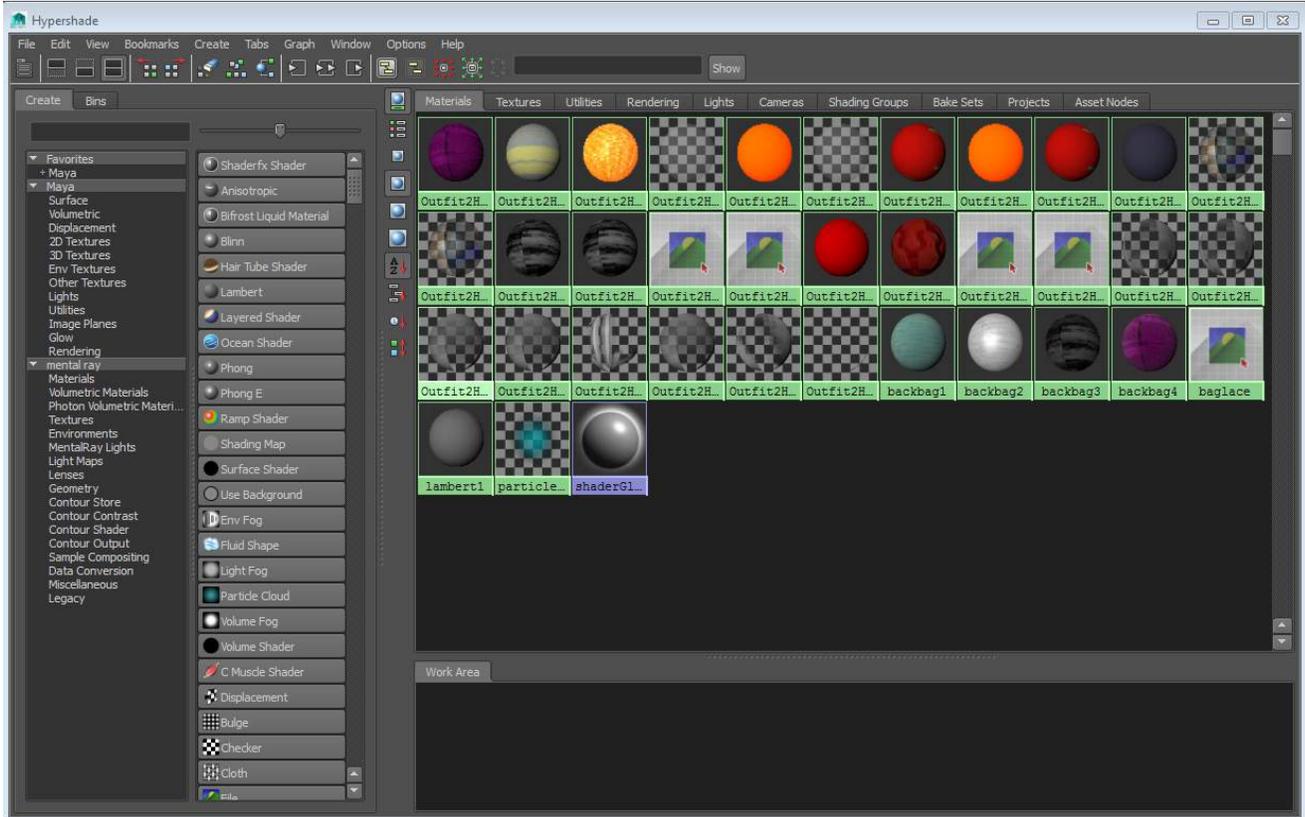


Next we export the avatar from Maya as OBJ file and import it to Clo3D again together with the cache file. Clothes will be first designed on the avatar and later simulated with avatar animation. We can export the clothes simulation as cache file too. This cache file is then imported into Unity engine and applied on the corresponding 3D models using some 3rd-party plug-ins (e.g. Megafiers or PC2Unity). We can also use Megafiers to control the speed and looping mode of the animation.

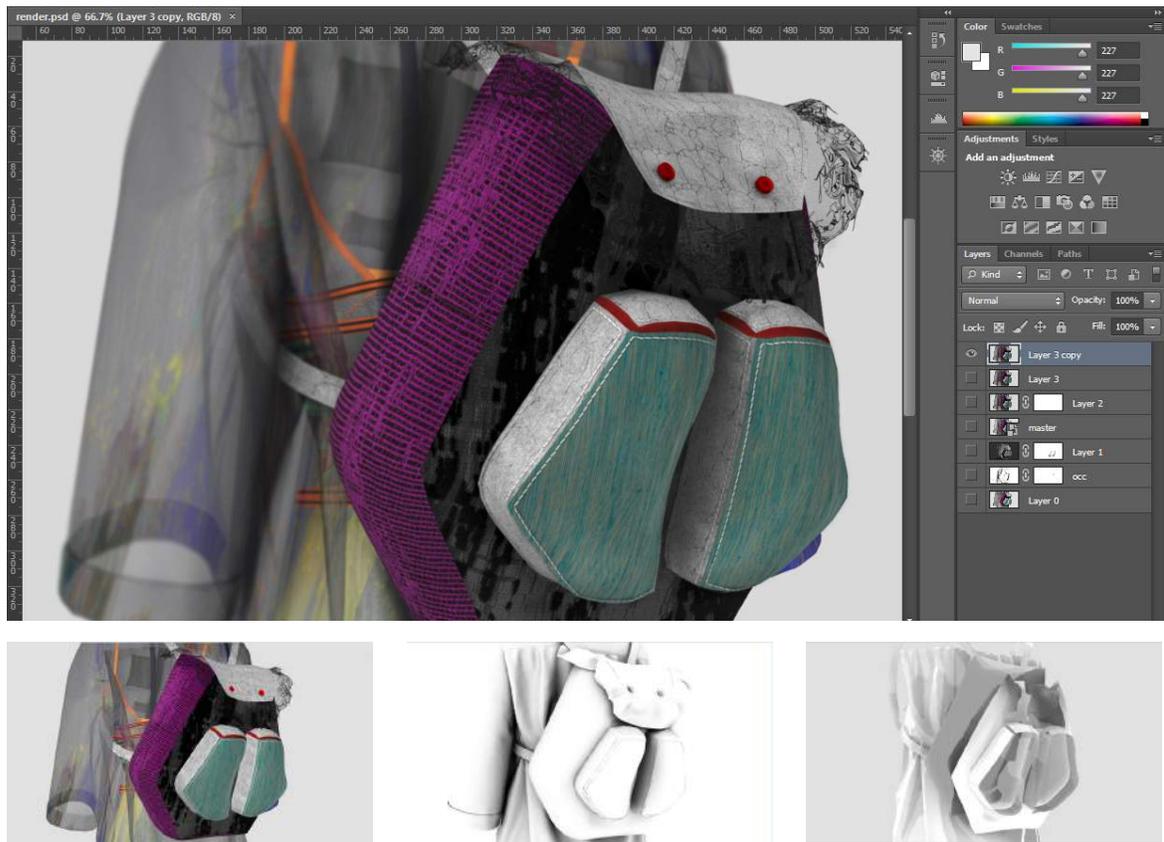


RENDERING

The image rendering of the clothes details is done using Maya Mental Ray render. Different shaders for each type of fabric are created in Maya and then applied on the model.



Next is to create proper lighting set that focus on the specific part of model which is to be rendered. Different types of render layers can be created in Maya, such as diffuse colour layer, occlusion layer, shadow layer, specular layer etc. In image editing programs, by controlling how much each layer is applied we can change the image effect based on our need. We rendered 3 layers (diffuse colour, collusion and shadow) as separate images and the final composition is done in Photoshop.

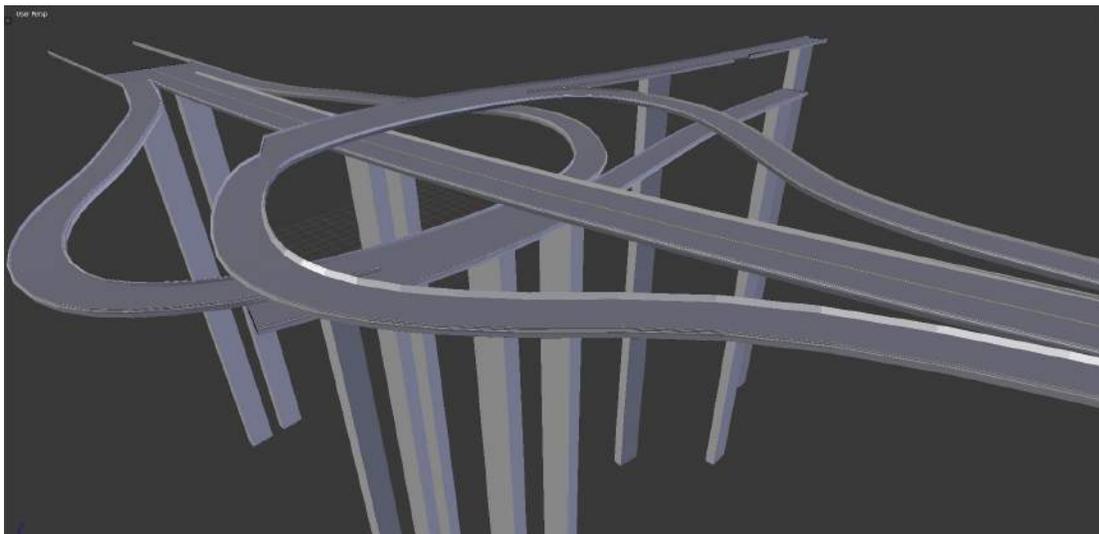


3. environment

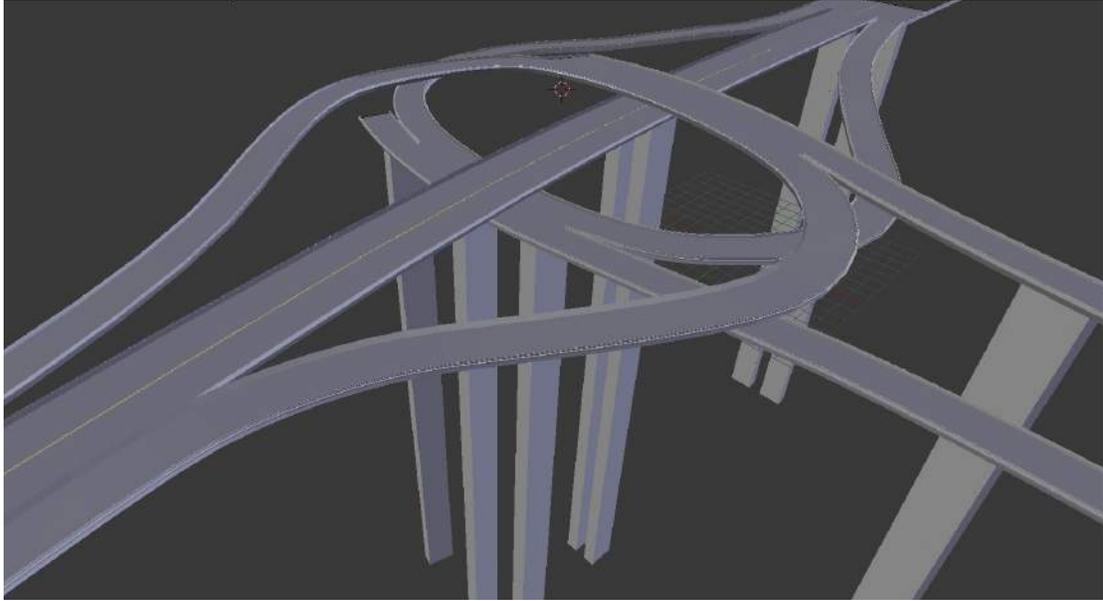
We have chosen several images as inspiration for our collection then we have decided to use them as inspiration for creating the environment as well. In this way it would fit the whole concept story.



figur 1: Print made by Amber Slooten

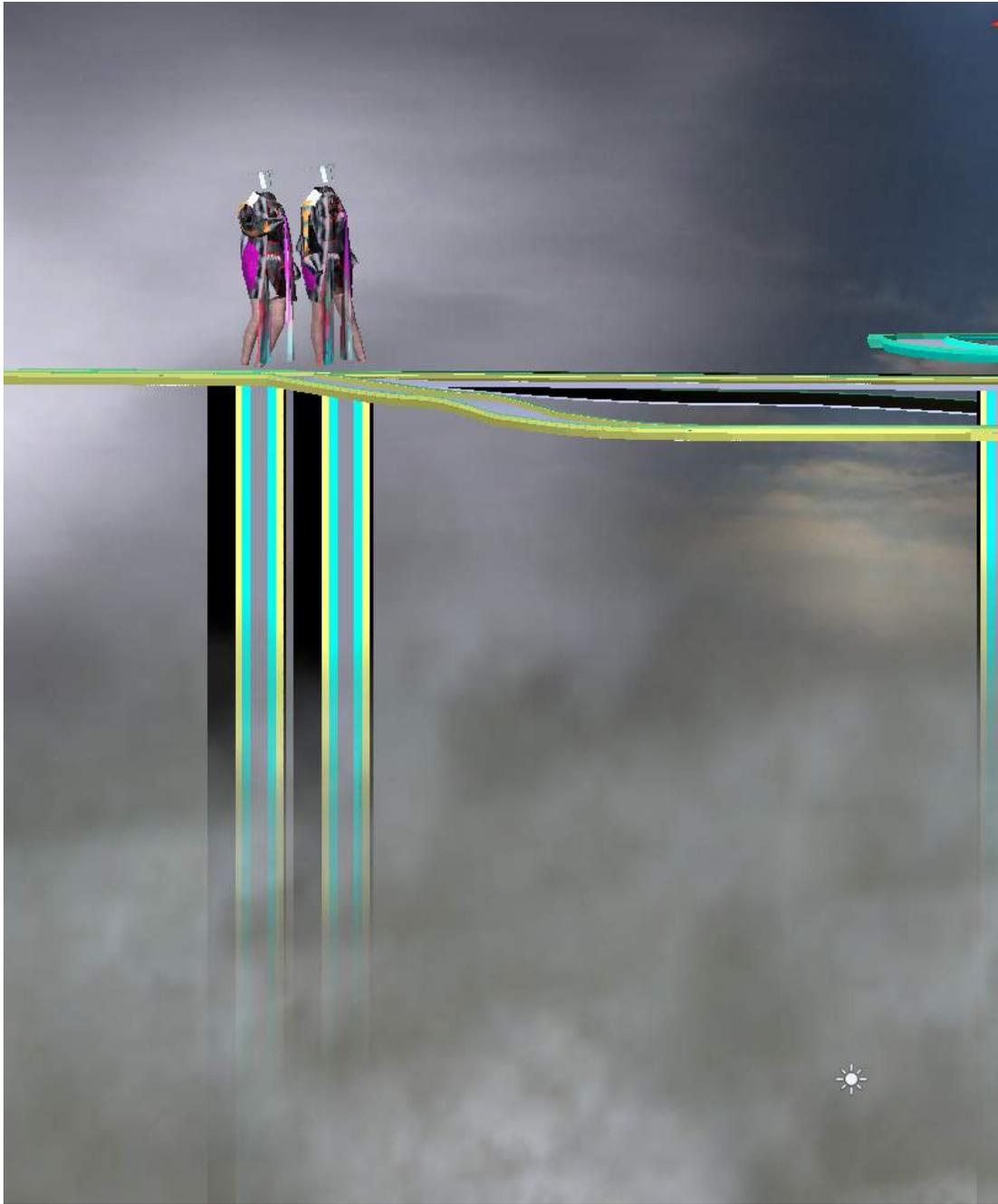


figur 2: Finalize the environment in Blender by Kaveh Khorramian

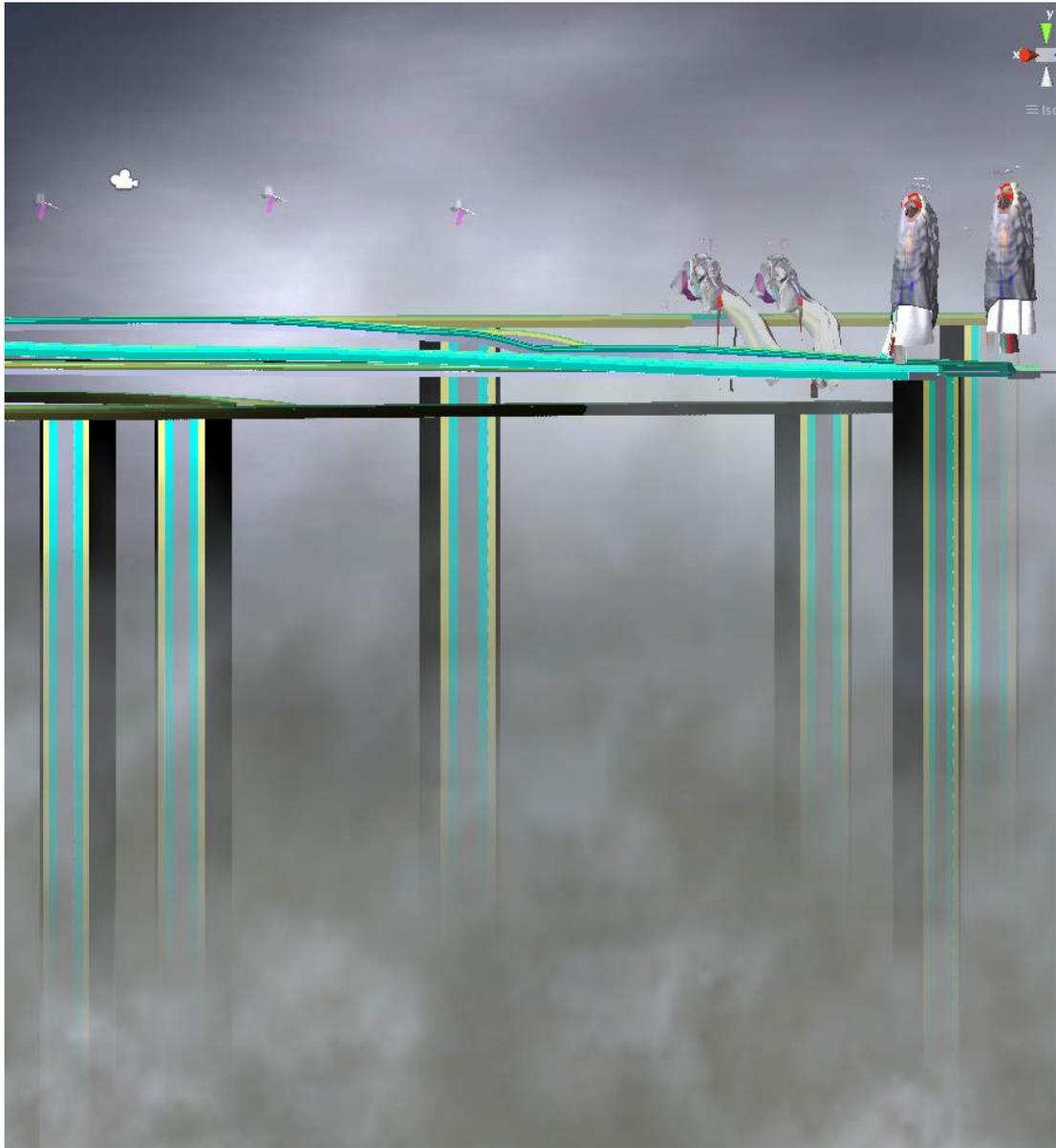


figur 3: Flnalize the environment in Blender and Unity by Kaveh Khorramian

We used Unity 3D to create the app because we found it a good game engine. Unity is not made for modelling, so I decided to build it in a fast and user friendly software like Blender and then import it to Unity. As we have chosen to make an animated environment according the avatar's actions, we thought that it would be easier to create the animation in Blender as well, to then import it to Unity 3D.

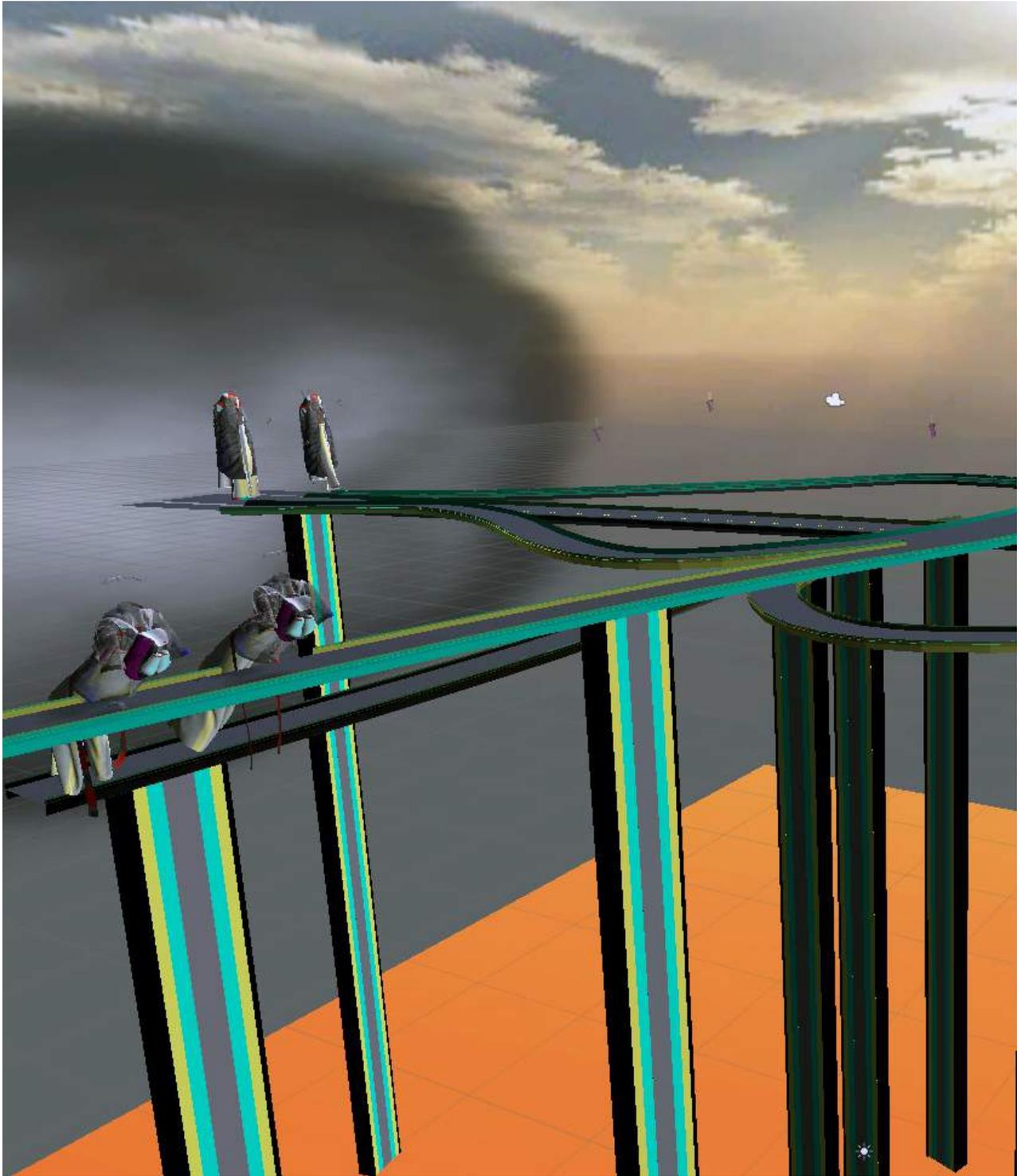


figur 4: Apply shader, using fog and special effects in Unity, Made by Kaveh Khorramian

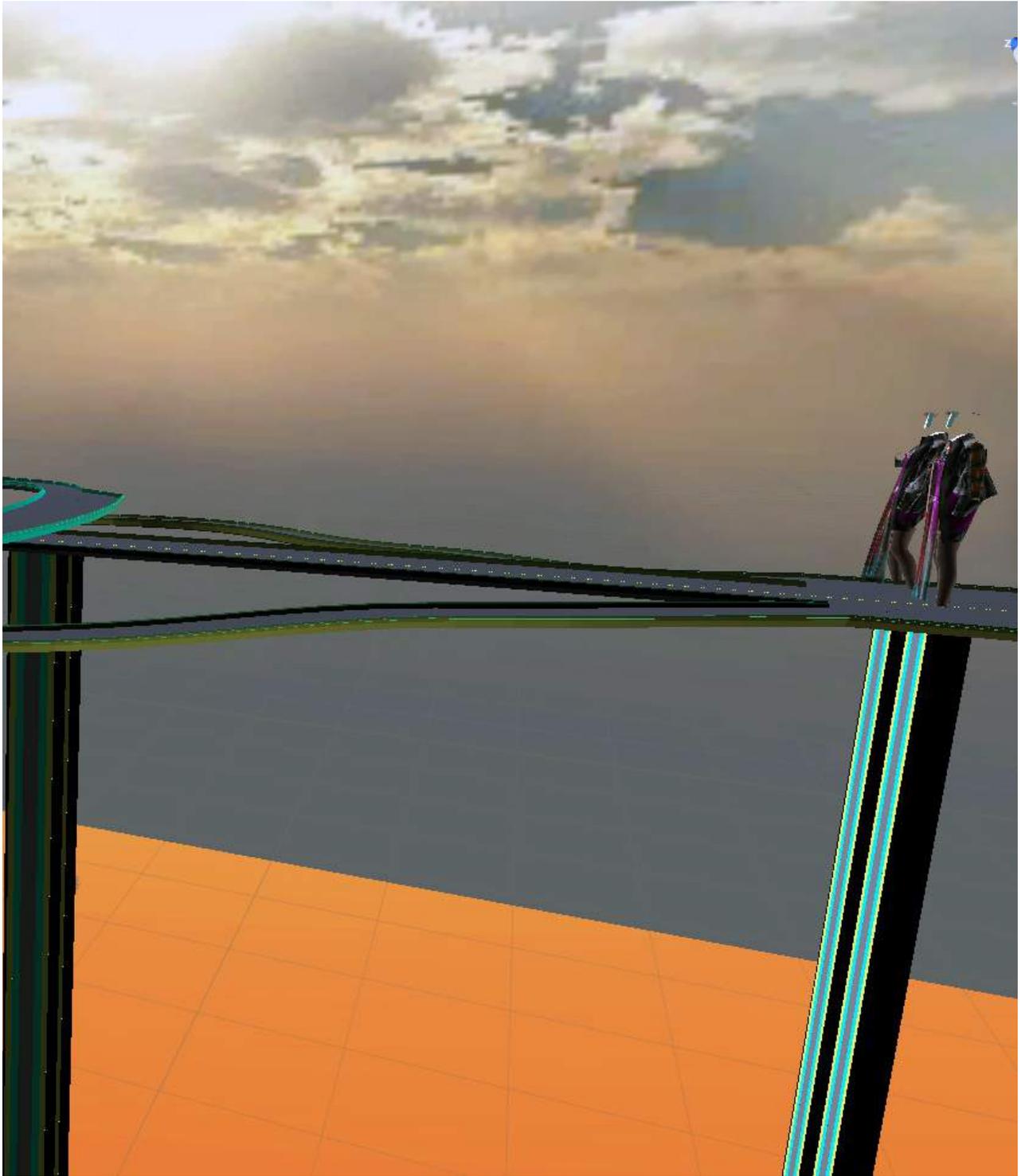


figur 5: Apply shader, using fog and special effects in Unity, Made by Kaveh Khorramian

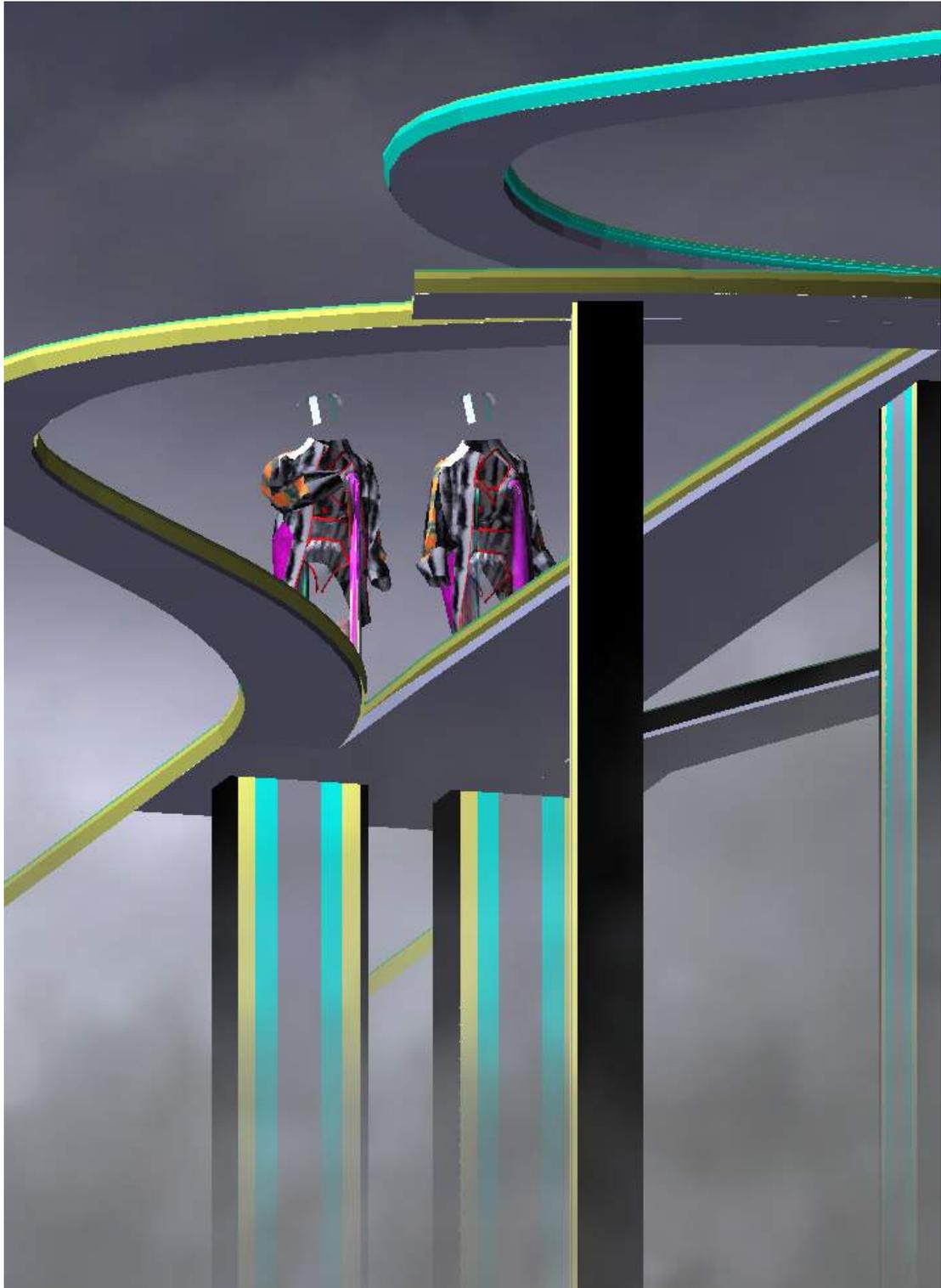
To make it more fitting with the whole concept our group decided to make environment more mysterious by using fog and smoke and special light effects.



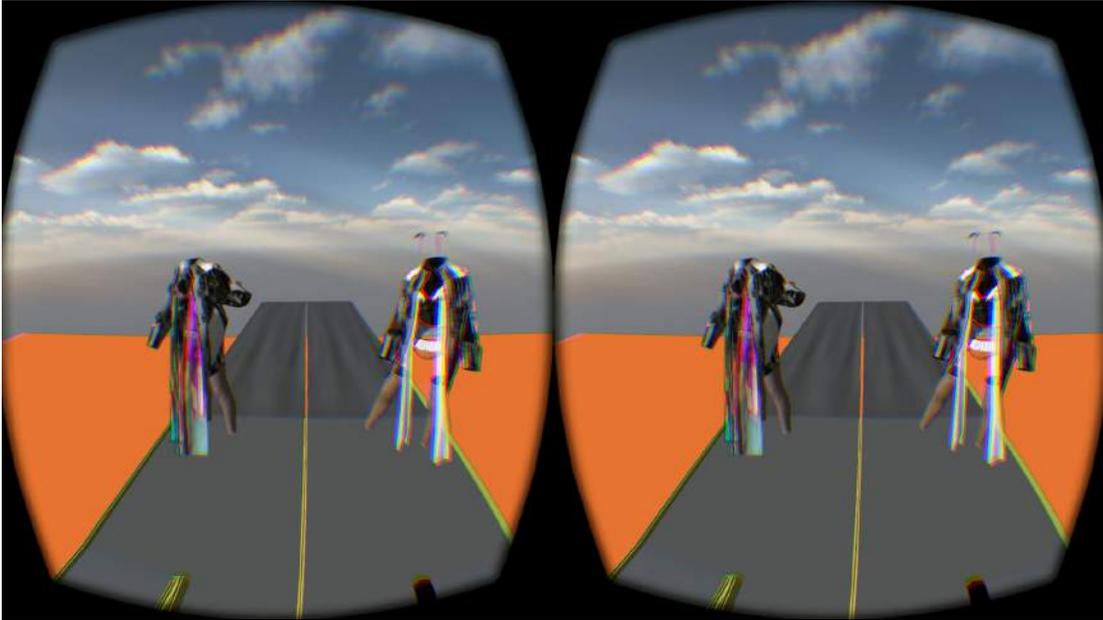
figur 6: Apply shader, using fog and special effects in Unity, Made by Kaveh Khorramian



Setting the action time between environment and outfits was the critical part. The animation had to start when the audience got closer to the outfits, about less than 10 or 12 meters so we need an animation controller script that our group mate Jurrien Meyrhan the app developer.

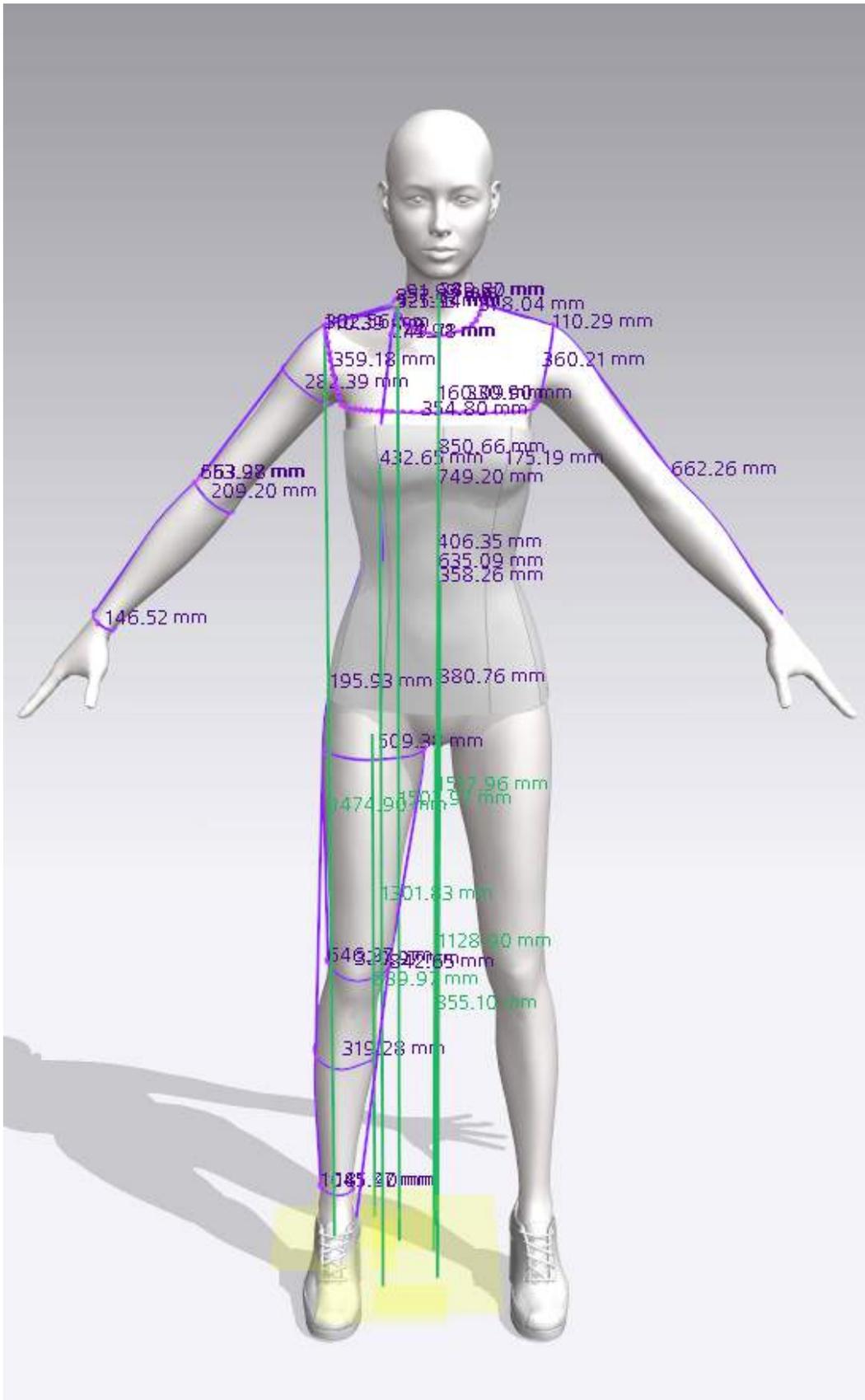


figur 7: Apply shader, using fog and special effects in Unity, Made by Kaveh Khorramian



figur 8: Set the animation time between outfits and environment in Unity

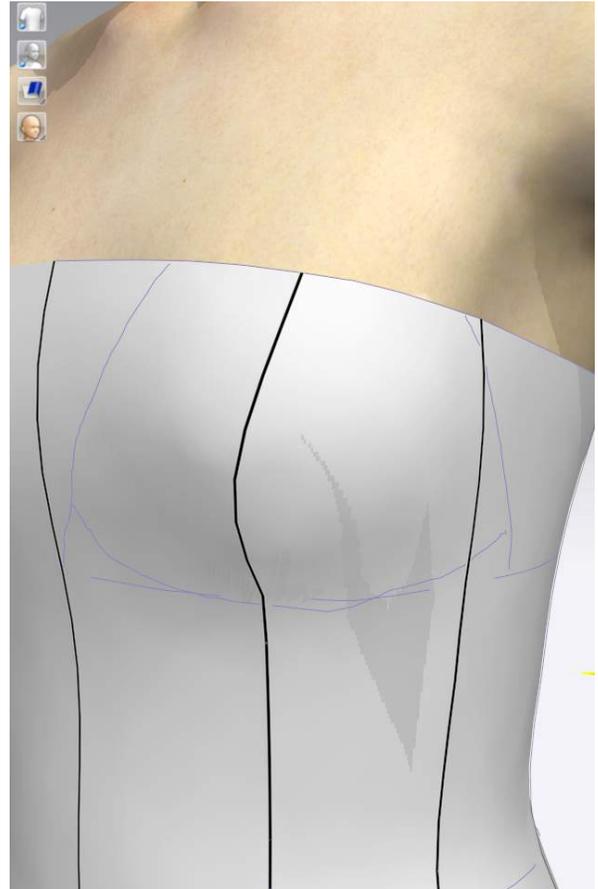
4. fashion collection



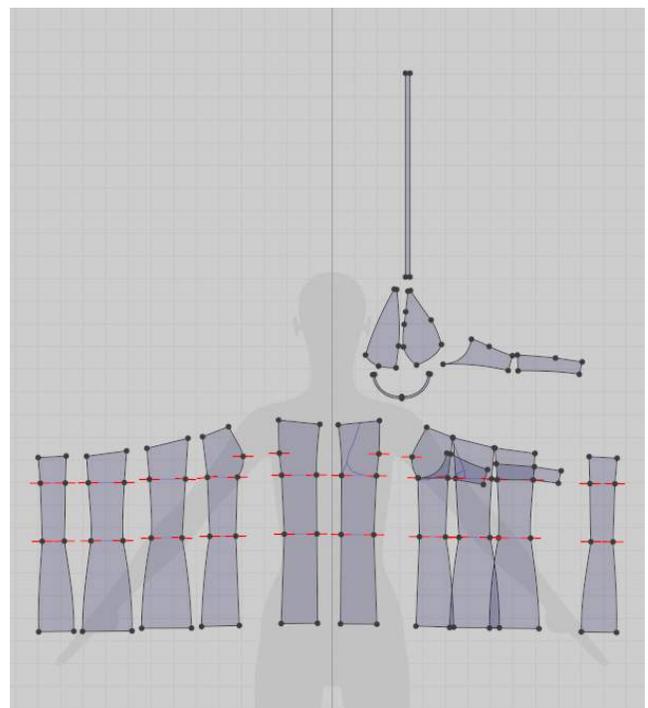
Sizes of the model. Basic corset pattern is draped on the mannequin. Sizes are all measured from the physical model in the movie we shot of the motion capture suit.

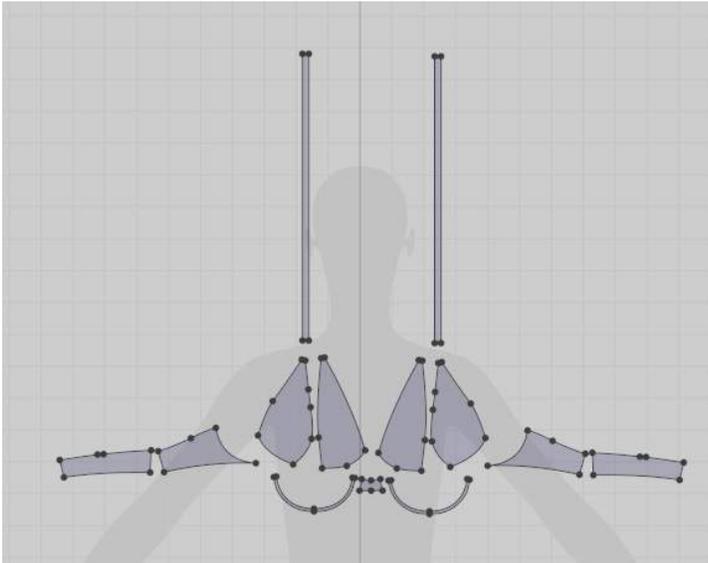
MAKING A BRA

Drawing on top of the 3D pattern to see shapes on 2D pattern. Very easy technique to create bras or swimwear, or anything close to the body. Also an easy way to create seam lines.

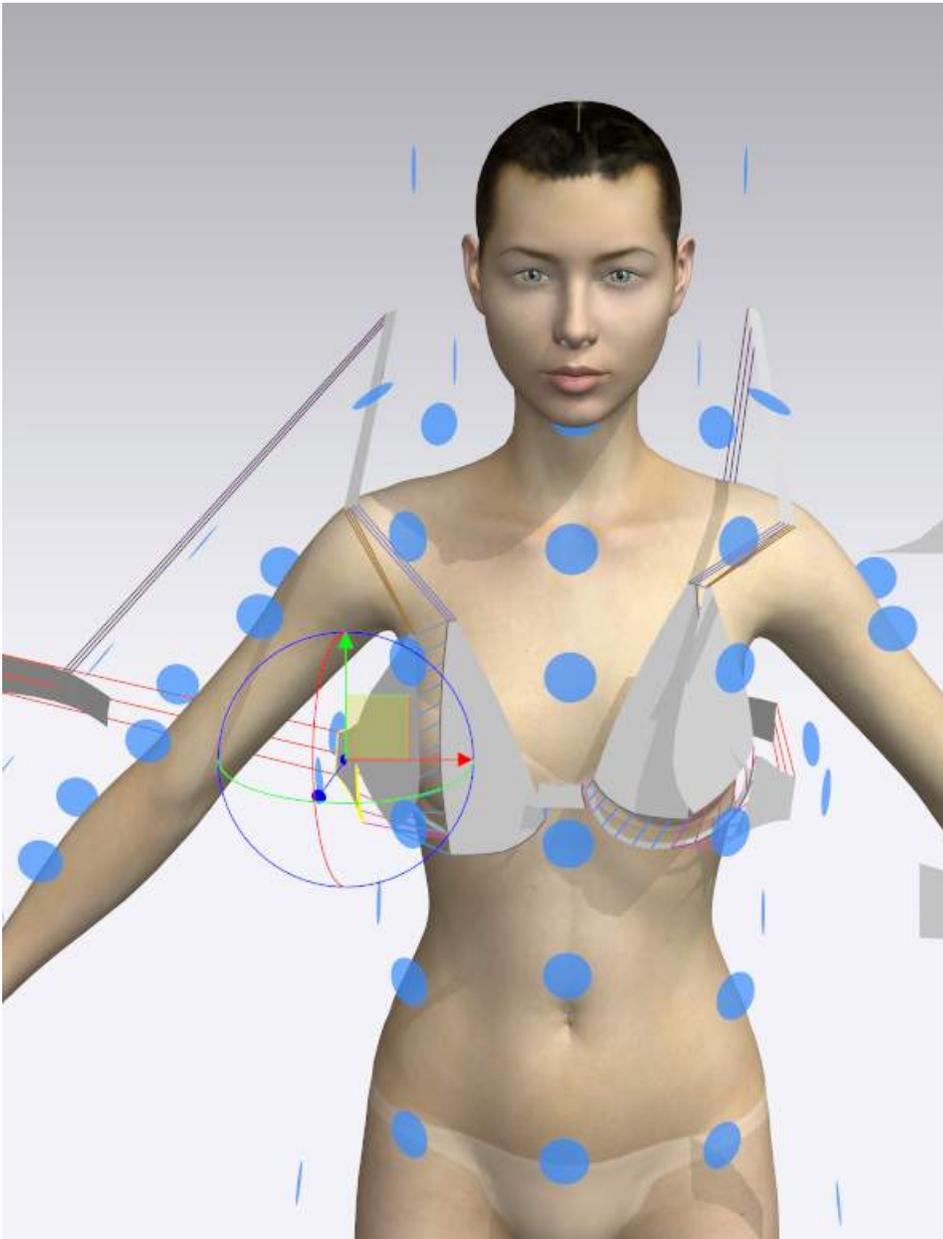


The corset pattern and the bra pattern both visible in 2D and 3D.

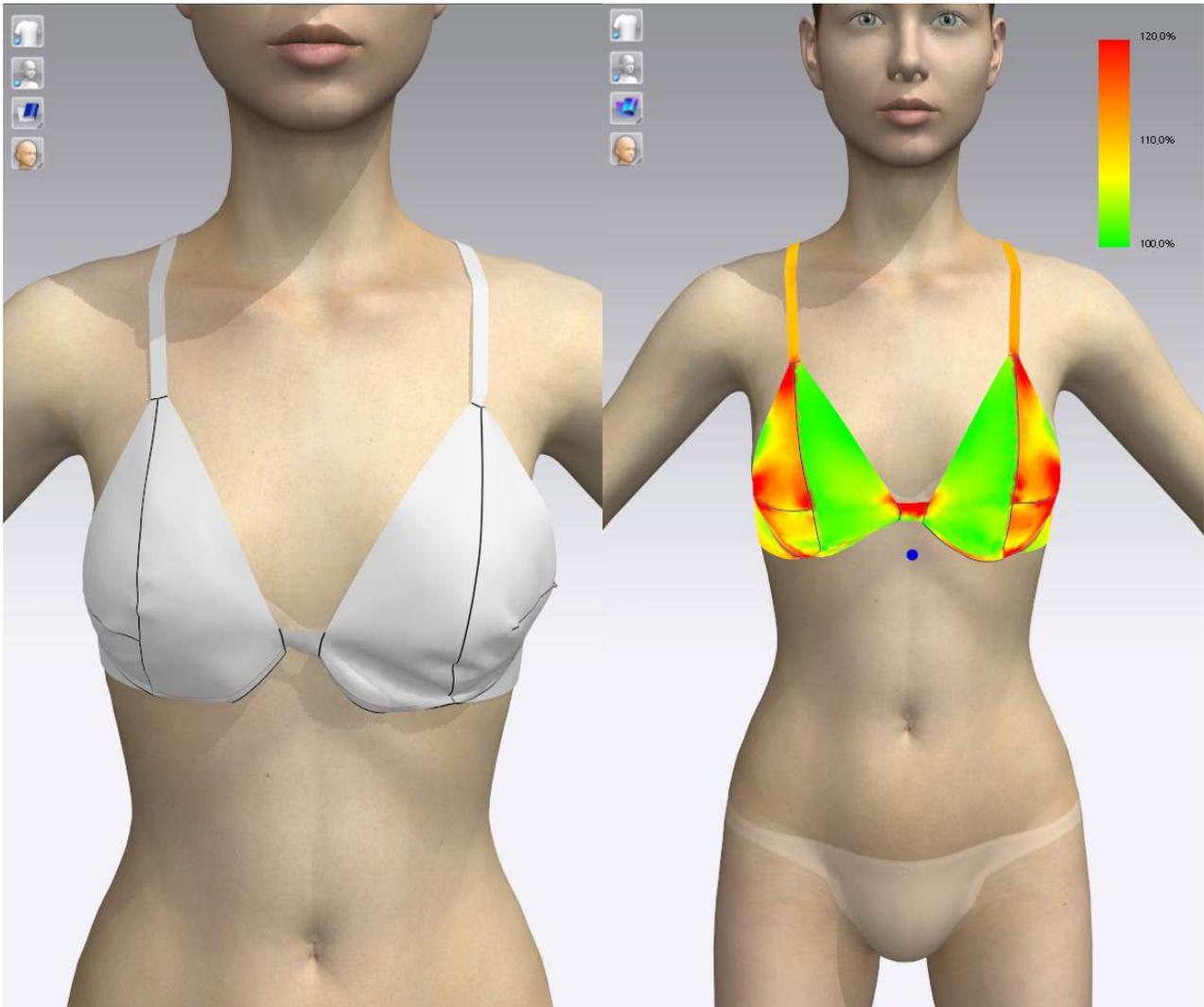




The first draft for a bra pattern, now we can fit it on the avatar.

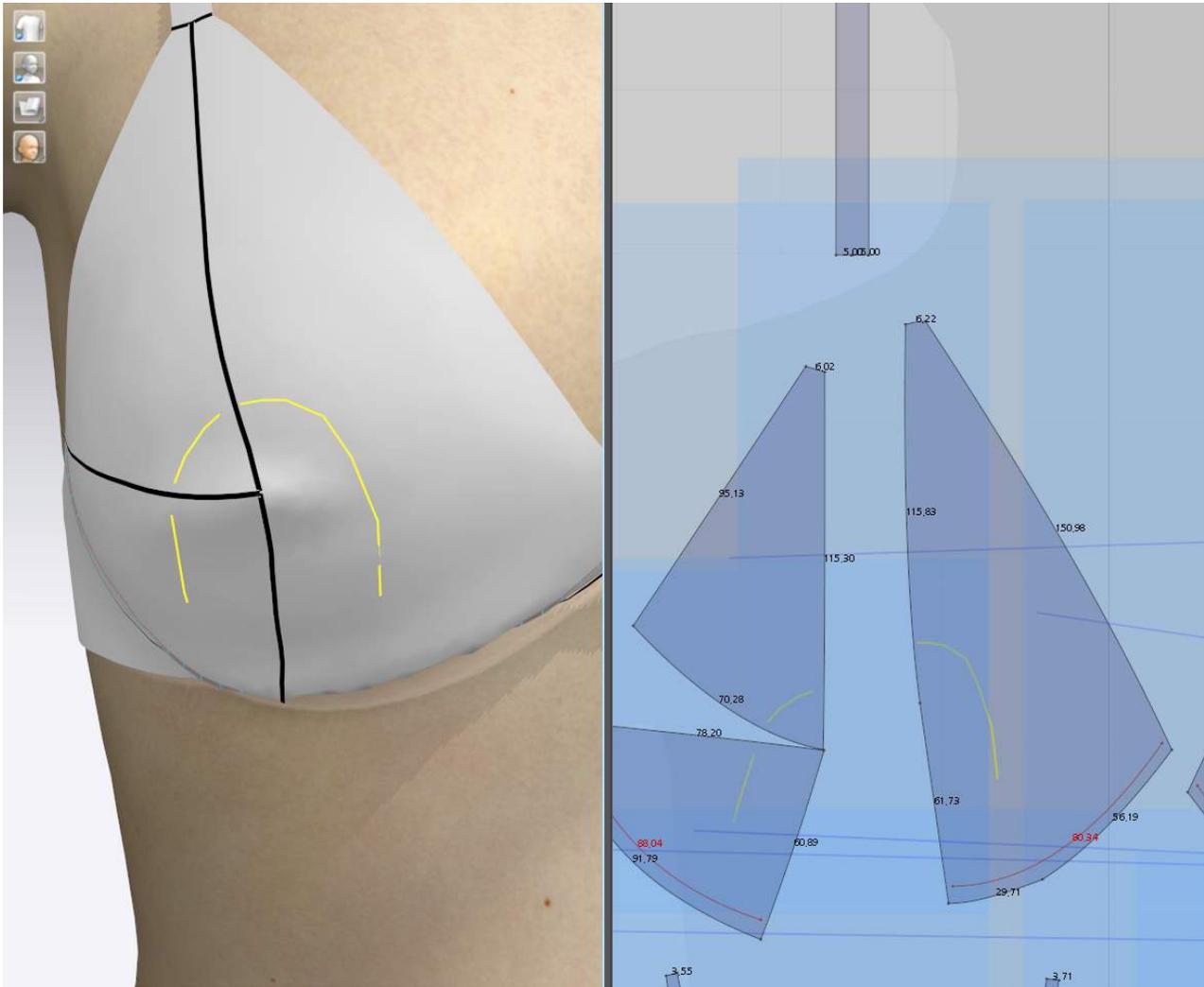


Draping the created pattern on the avatar, using positioning points and the gizmo tool.



Fitting the bra, left is fitted, right is not fitted.

The fitted bra visible in a tension map. Here you can see how much pressure is on certain pieces of the bra.



Drawing a line on the bra to create a seamline for the extra pieces of fabric that will be draped on top. It is visible in 3D and 2D, so you can draw internal lines in the 2D pattern.



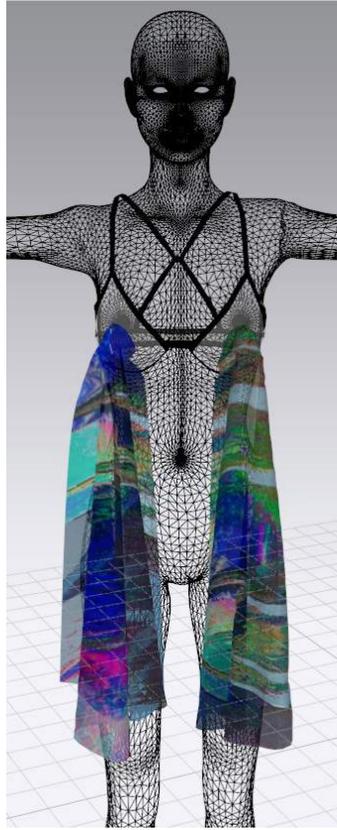
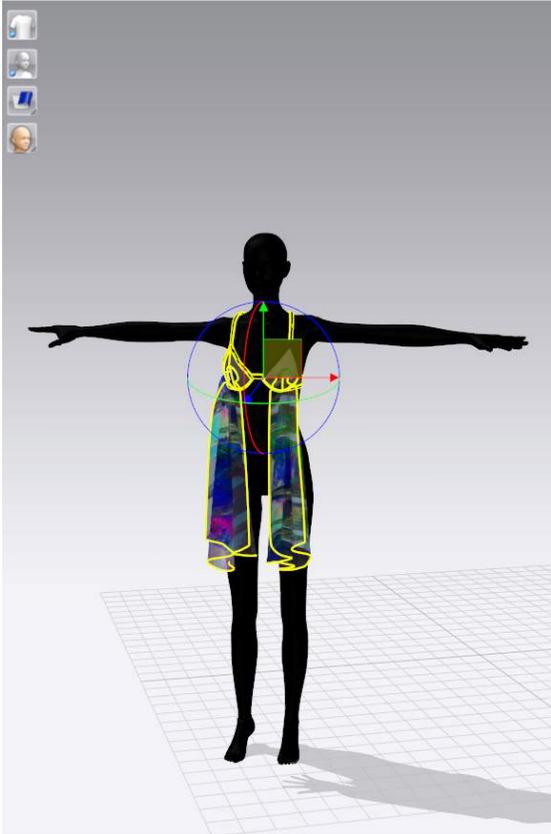
The draped pieces attached to the bra.



Here I am attaching extra bands on top of the fabric to create a kind of seam tape effect.

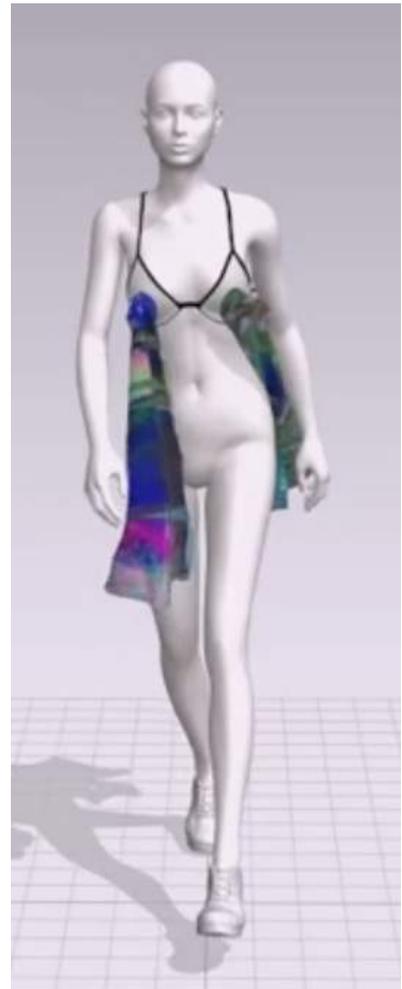


The finished bra shape and the colouring on the right.
As you can see the fabric of the cups is transparent.



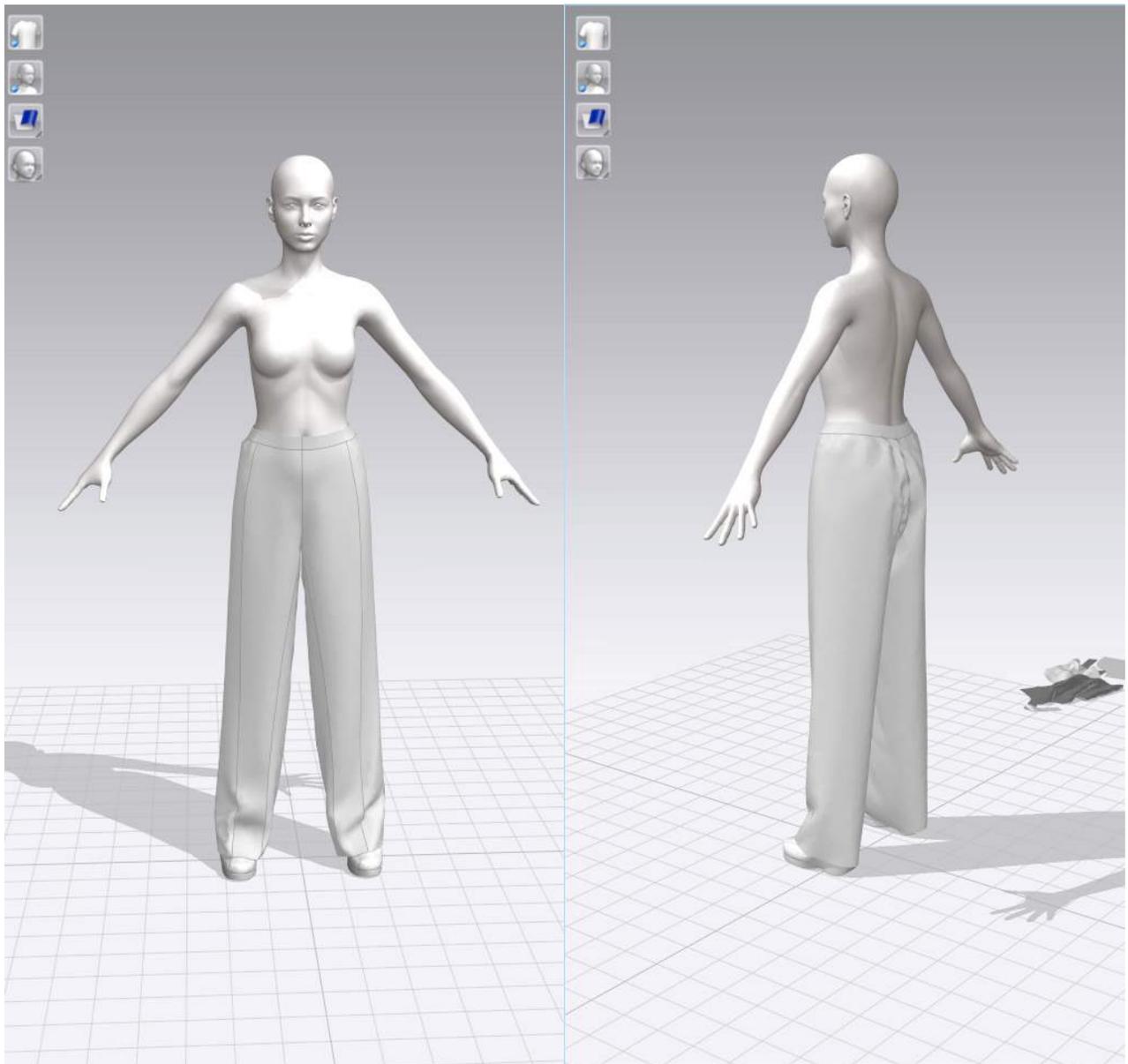
Preparing the garment for animation. The avatar had to be in T-pose to achieve the right animation data. The avatar was different so I selected the whole garment and moved it with the gizmo tool. Here you can also see the model in mesh. We're not quite sure why the avatar is black.

The bra fell off her body the first time the animation ran, but then we increased the friction of the bra and the avatar and that made it stick better to the body. Left is the first try, right is the second try.



JUMPSUIT

Here are some trousers I created. I started with the basic pattern of trousers and broaden it to wide leg trousers. This is the first drape with many mistakes.





I narrowed the waist part of the trousers into a more fitted shape. I attached some pattern pieces of the bra I made earlier to realize the idea for a jumpsuit. Extra pieces are attached in different ways.

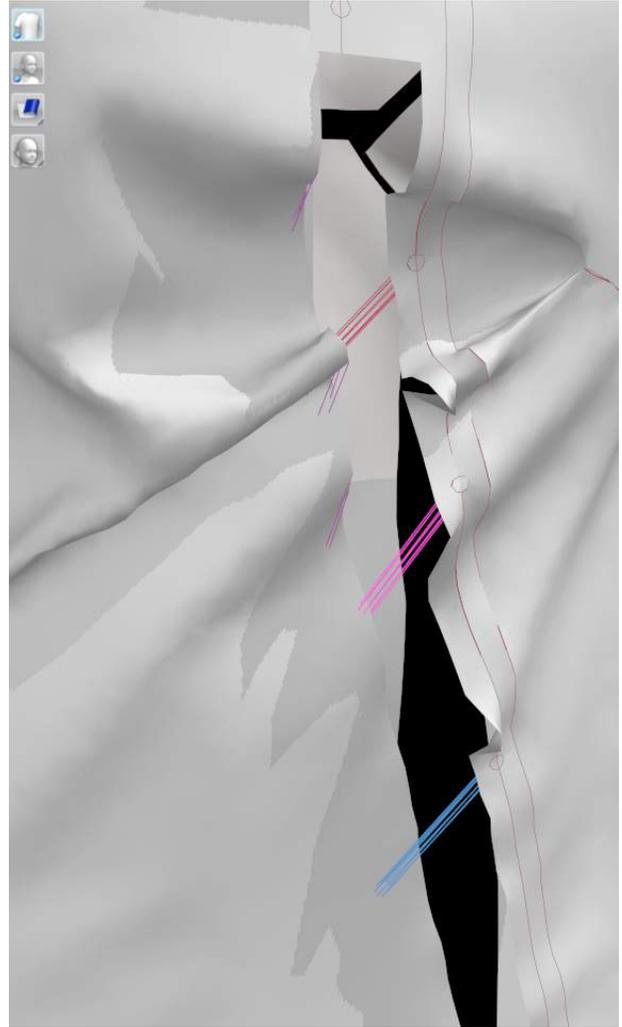


BLOUSE

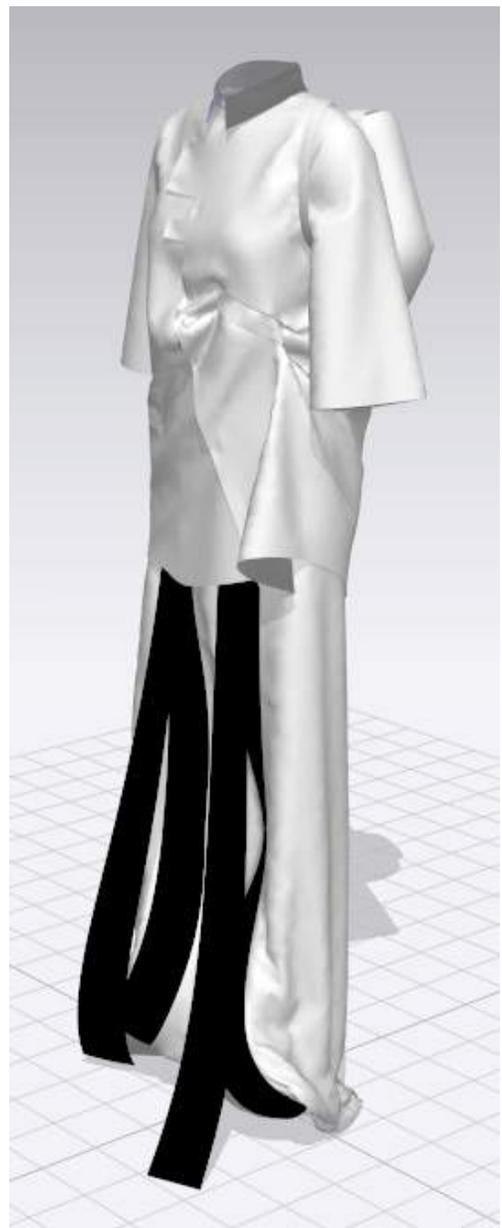
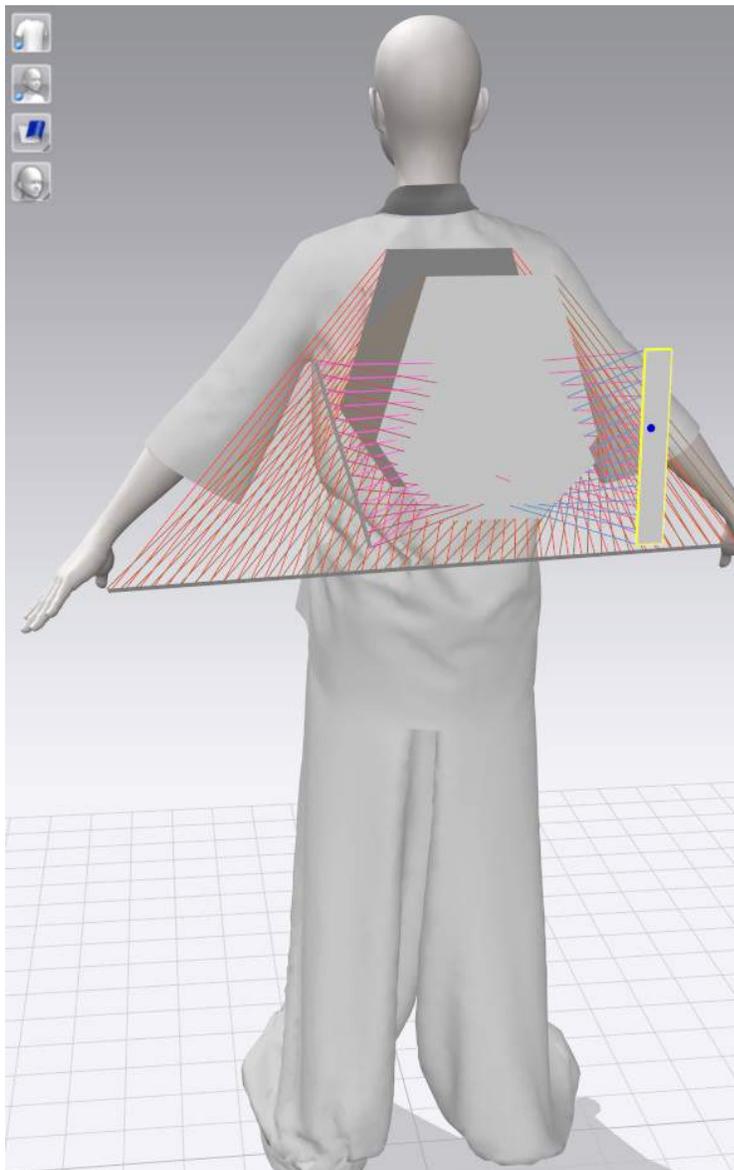
I created a draped blouse on top of the jumpsuit. Started with a basic pattern of a blouse and then draped it on top of the model and created a draped shape by drawing and sewing.



Here I created a placket for the blouse, so an opening with buttons that you could not see. I created small circular shapes on both sides of the closure and sewed them together.



BACKPACK



I also created a backpack on top of the blouse by using a very stiff fabric.



I am doing some experiments with buttons and buttonholes. Later on I chose a concealed buttonhole closure.



JACKET

I started draping a jacket from one of the patterns I made earlier.





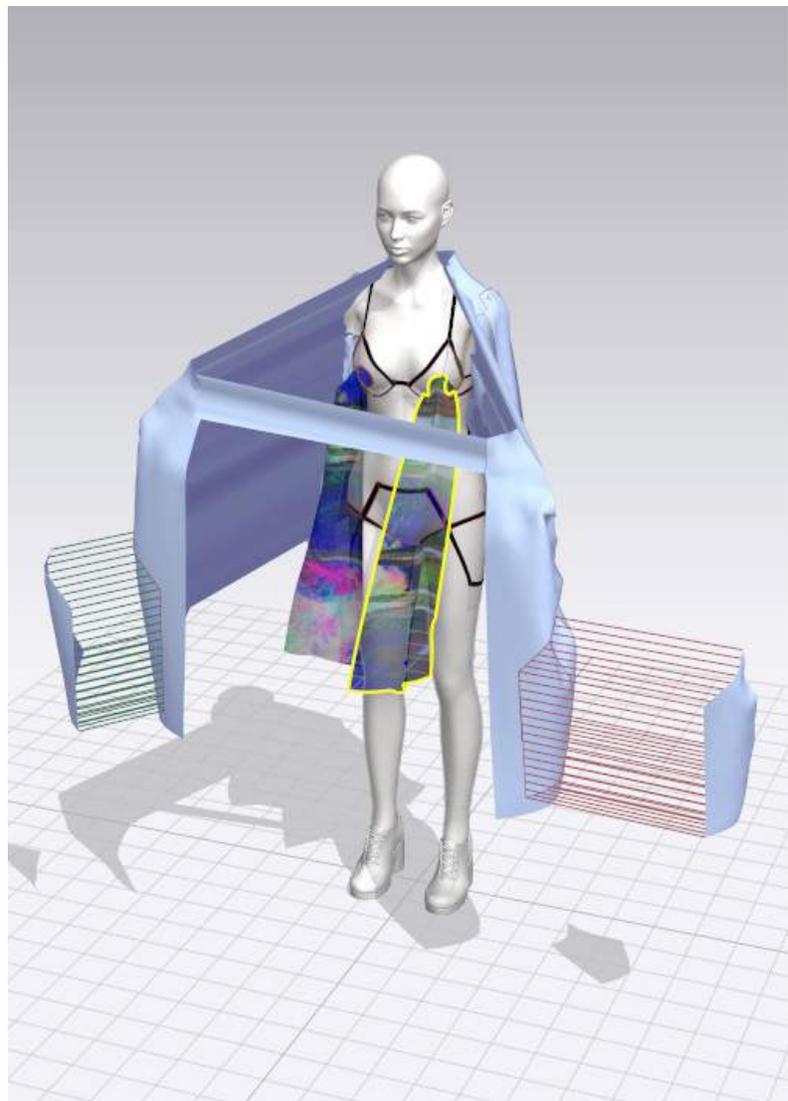
Sleeve try-outs.







Here is the bra with the brief. I wanted to drape the jacket on top so therefore I freezed (Freeze option right mouse button) it, later on I could've better done it the other way around, so freezing the brah and draping the jacket.

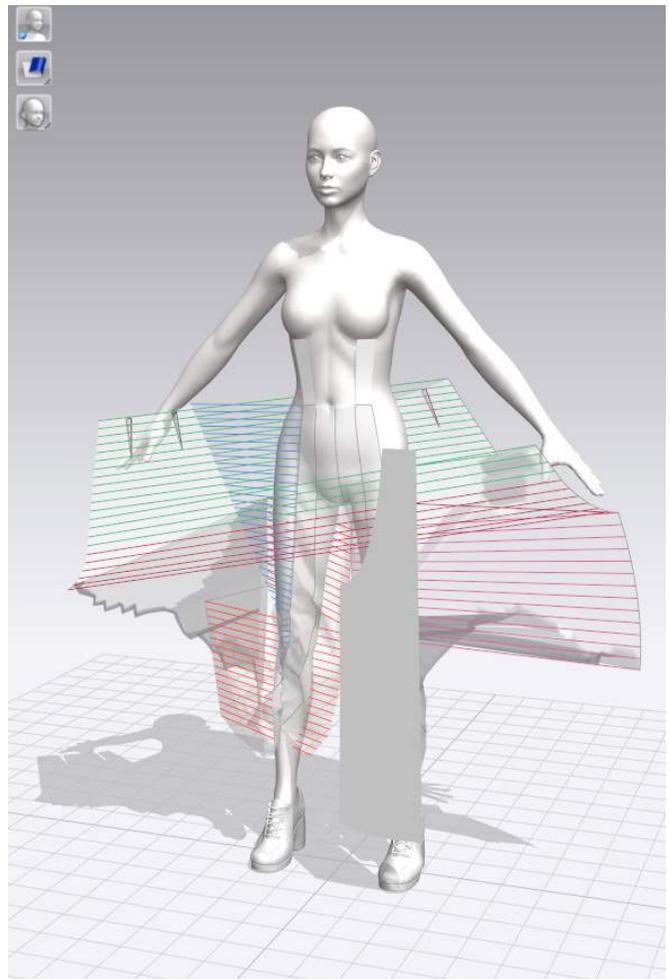


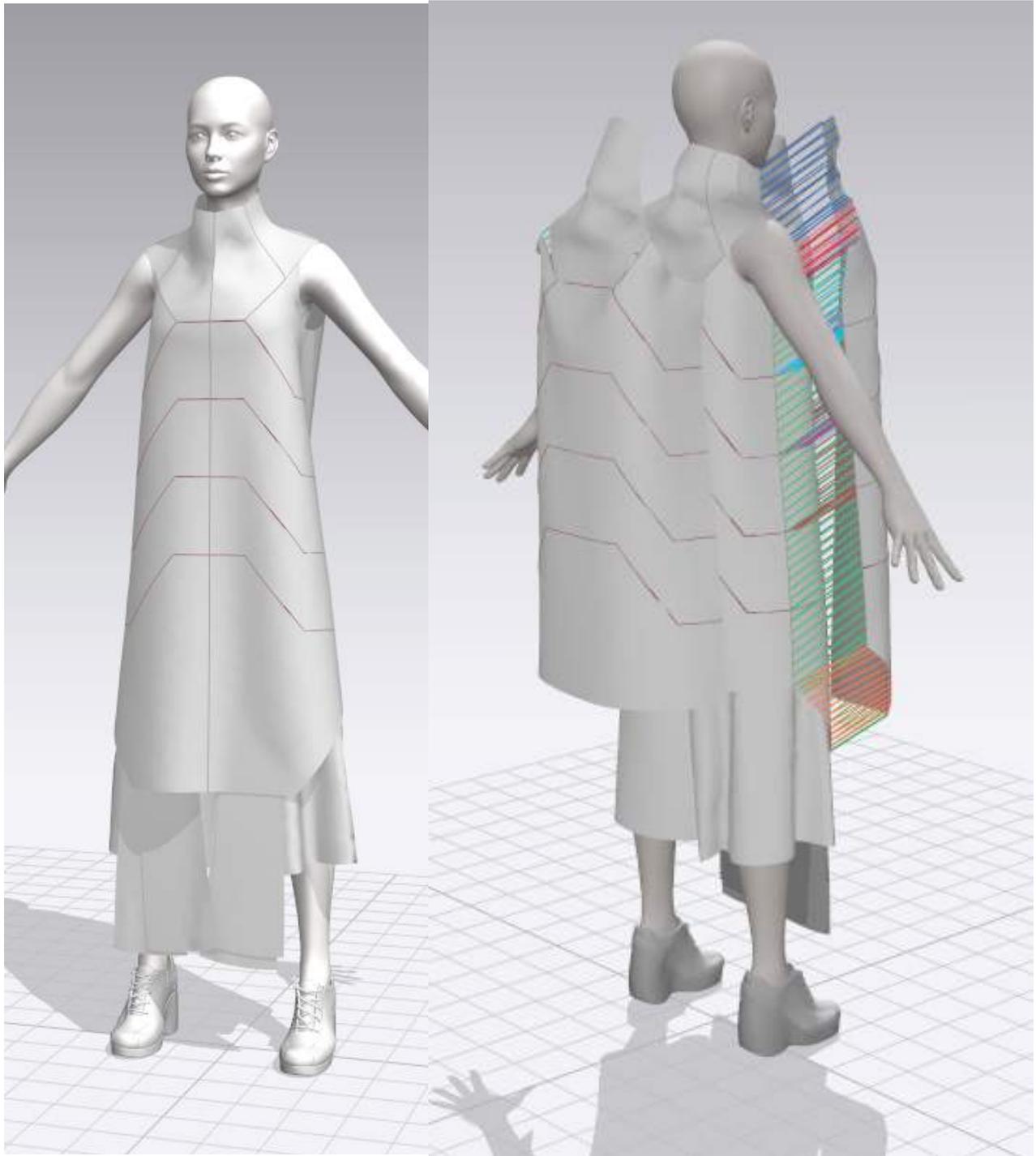
TROUSERS

I draped these trousers out of the jumpsuit pattern. The seams were put to elastic at the front that's why they curl so weirdly.



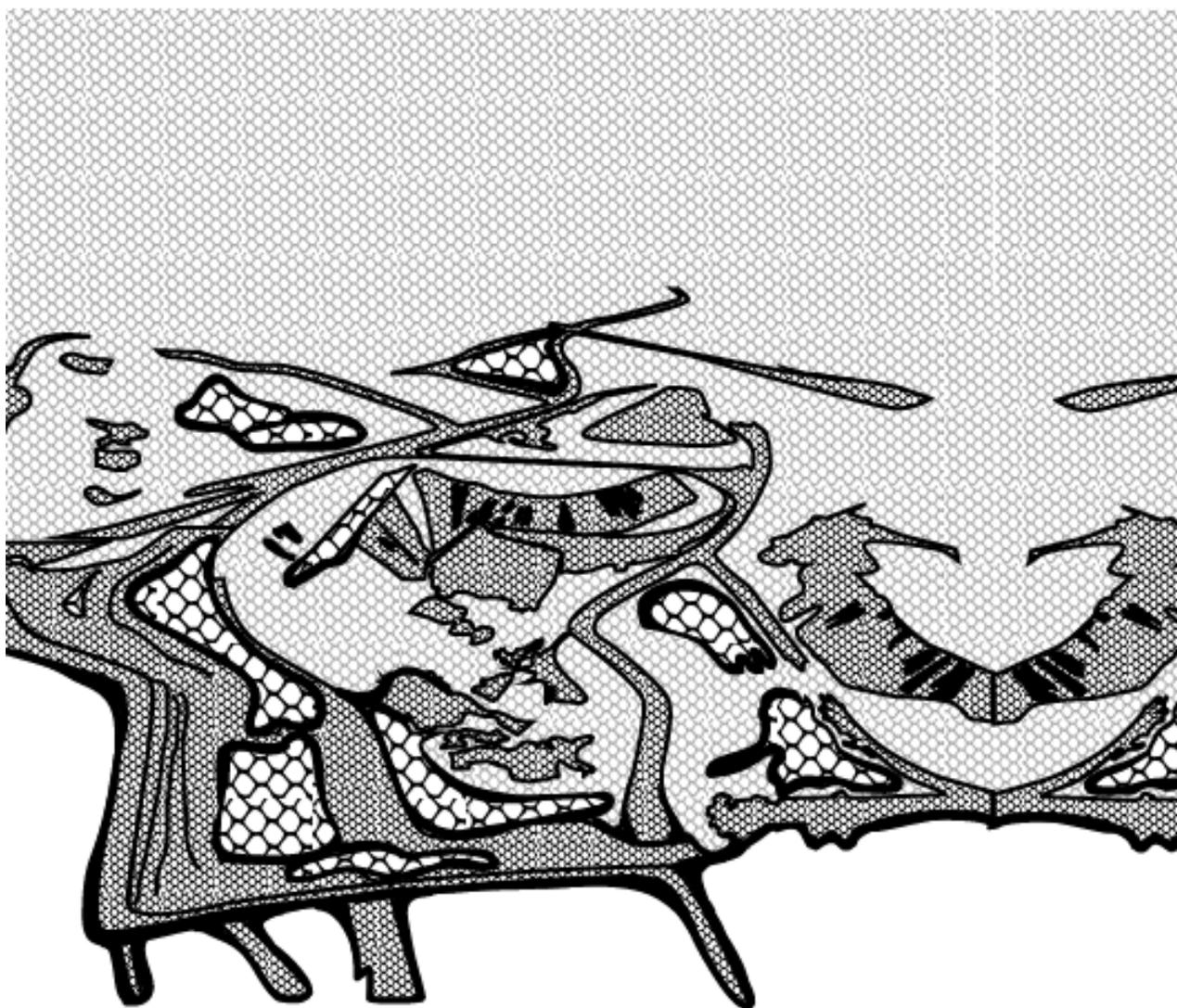
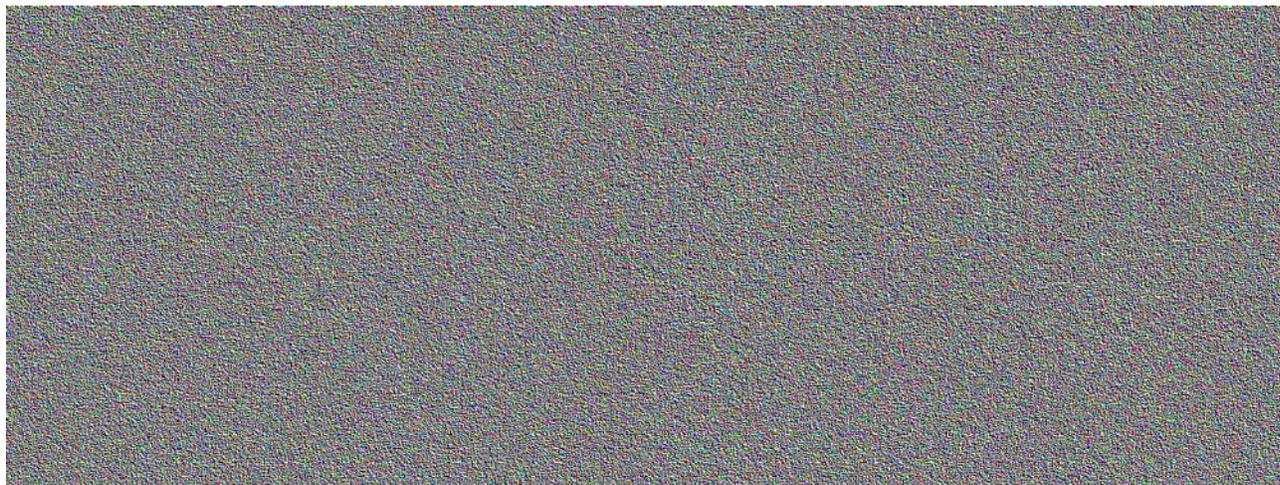
Here I am rearranging the pattern so I can drape it well.

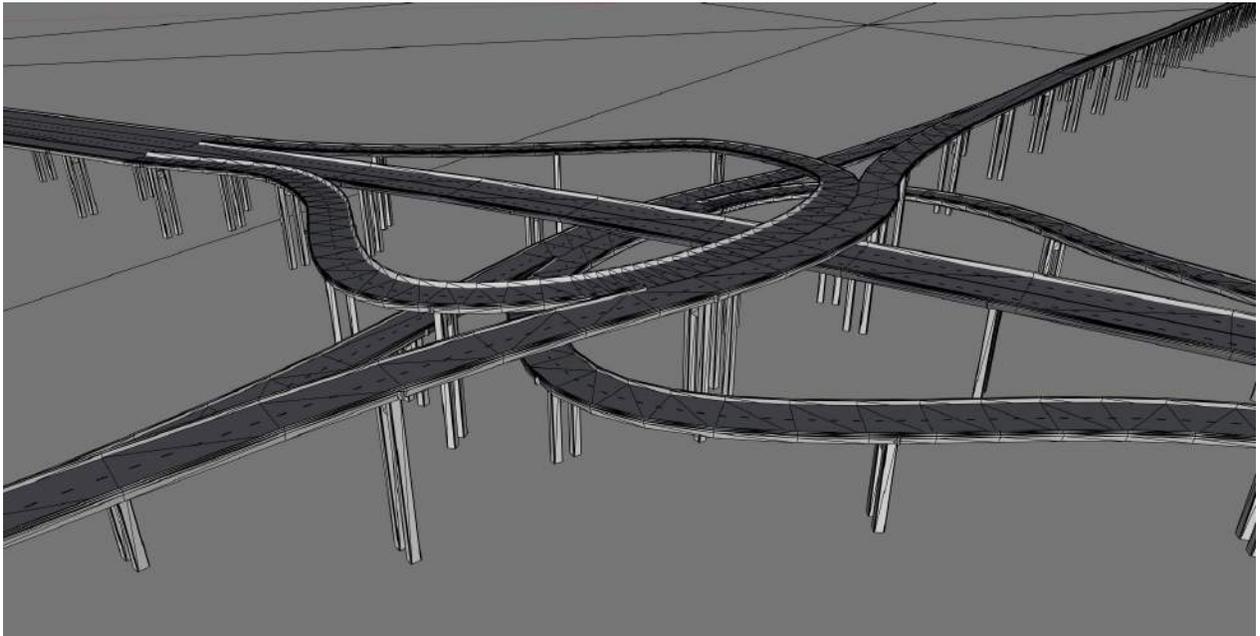




I created internal lines and copied the patterns, enlarged them and then sew them back on top of the jacket. In this way you get the puff effect you see on the right.

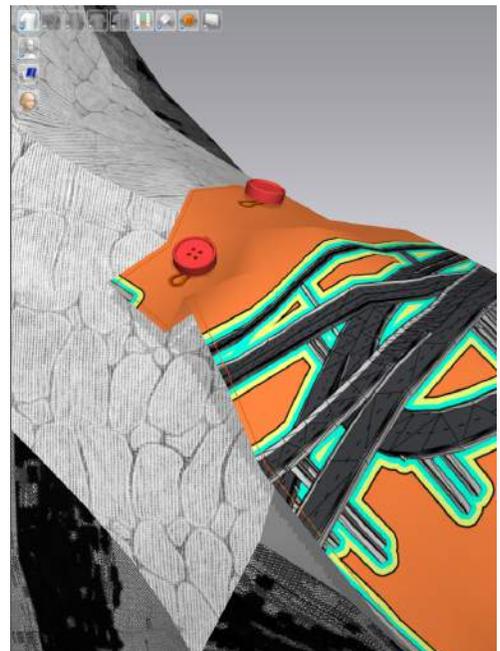
PRINT DEVELOPMENT

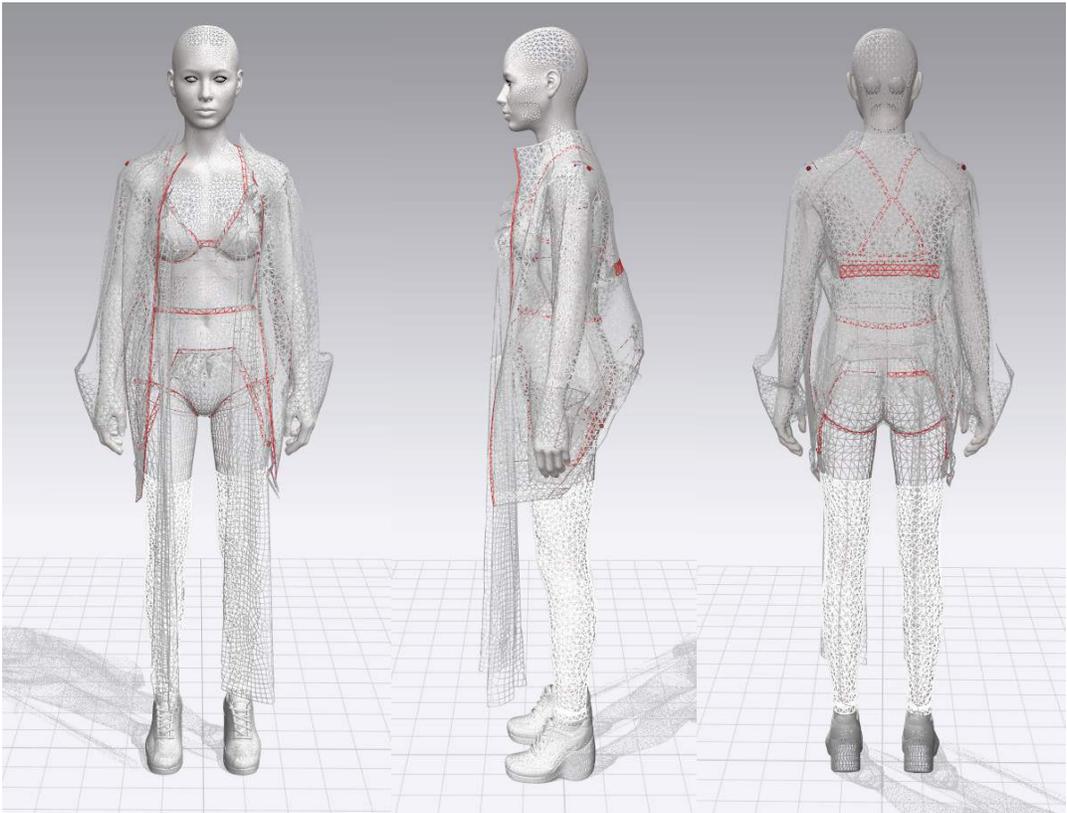
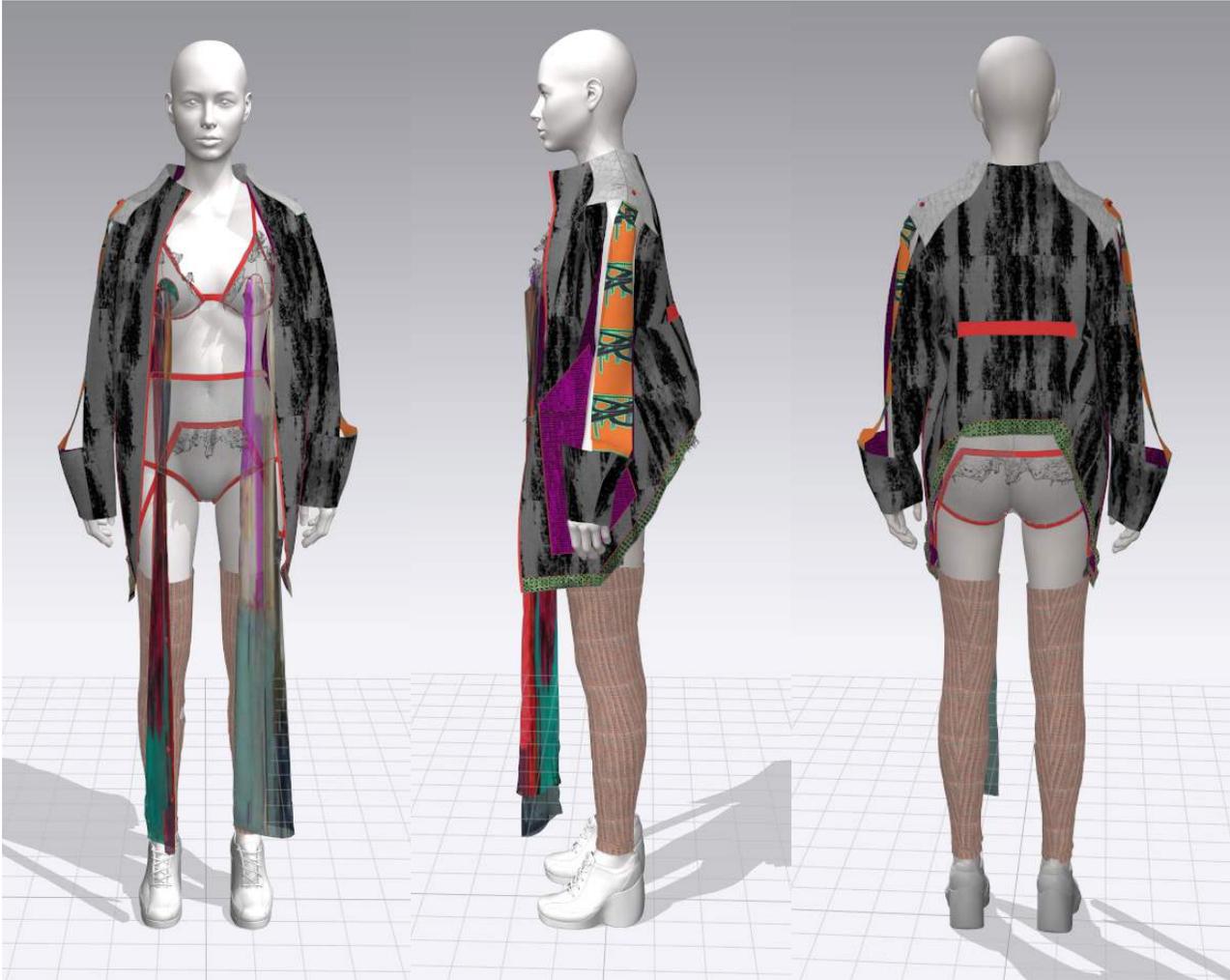




PRINTS

Colouring the outfits with my prints and scanned in fabrics.





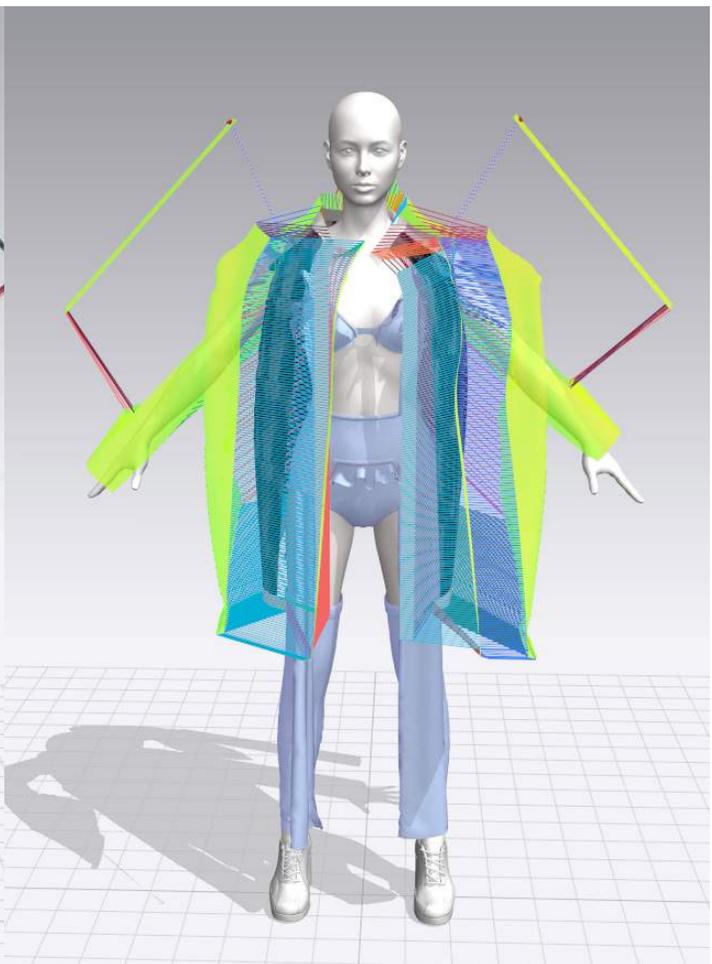


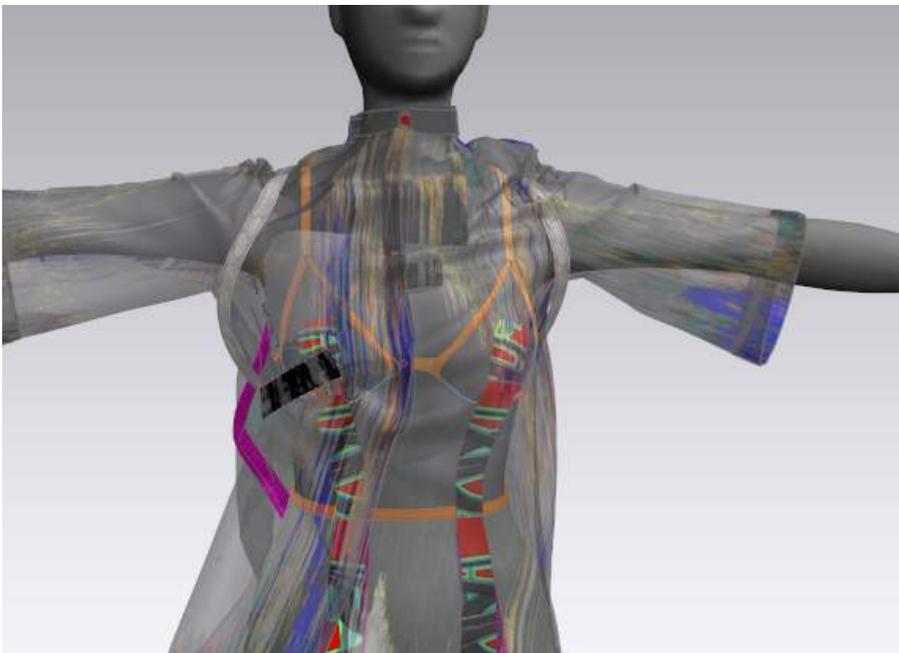
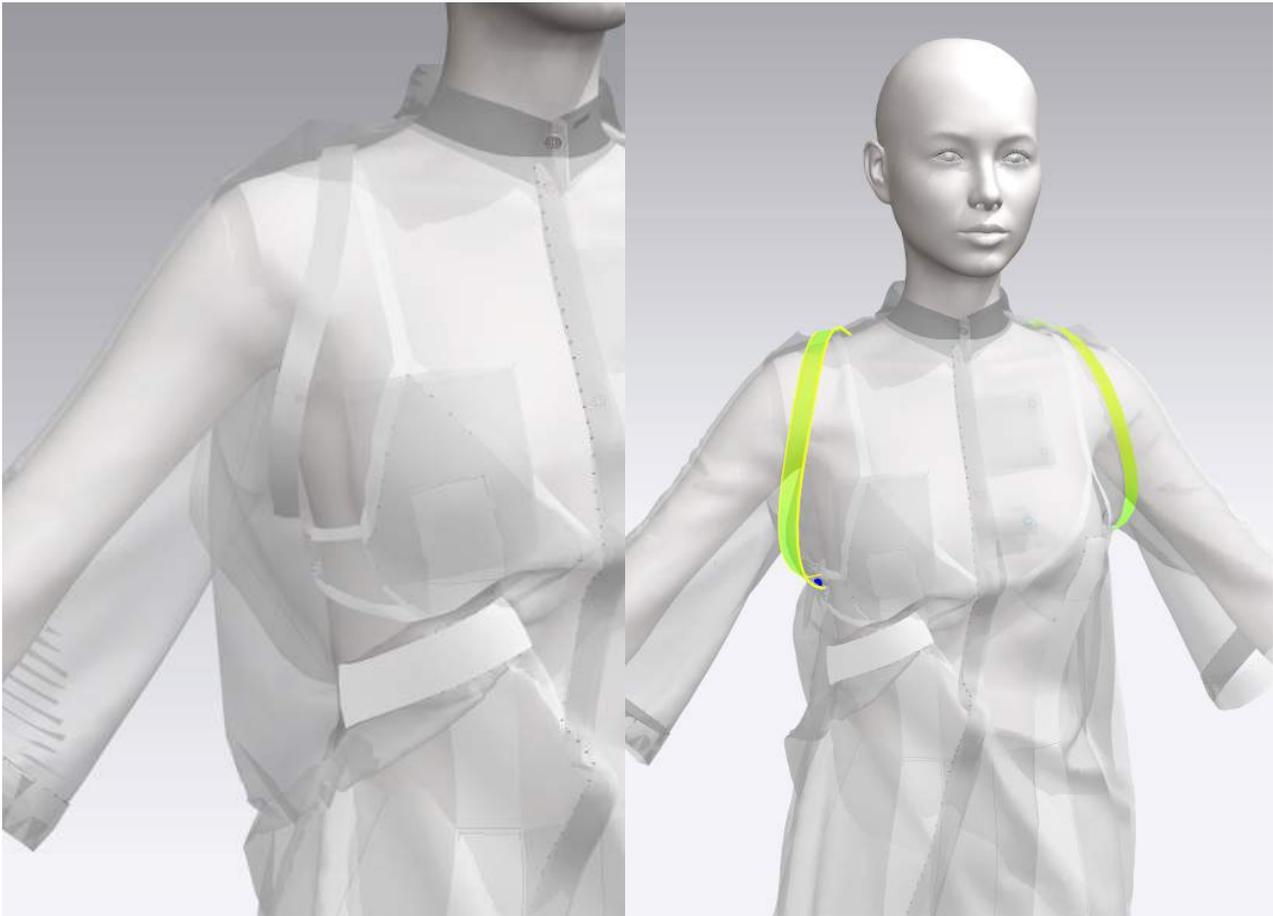
Here I added the small details with pictures and transparency effects. I also added the stitches.



LINING

Creating a lining for the jacket draped earlier by putting the second layer of fabric in layer one. This did not work out. Freeze is better for lining.

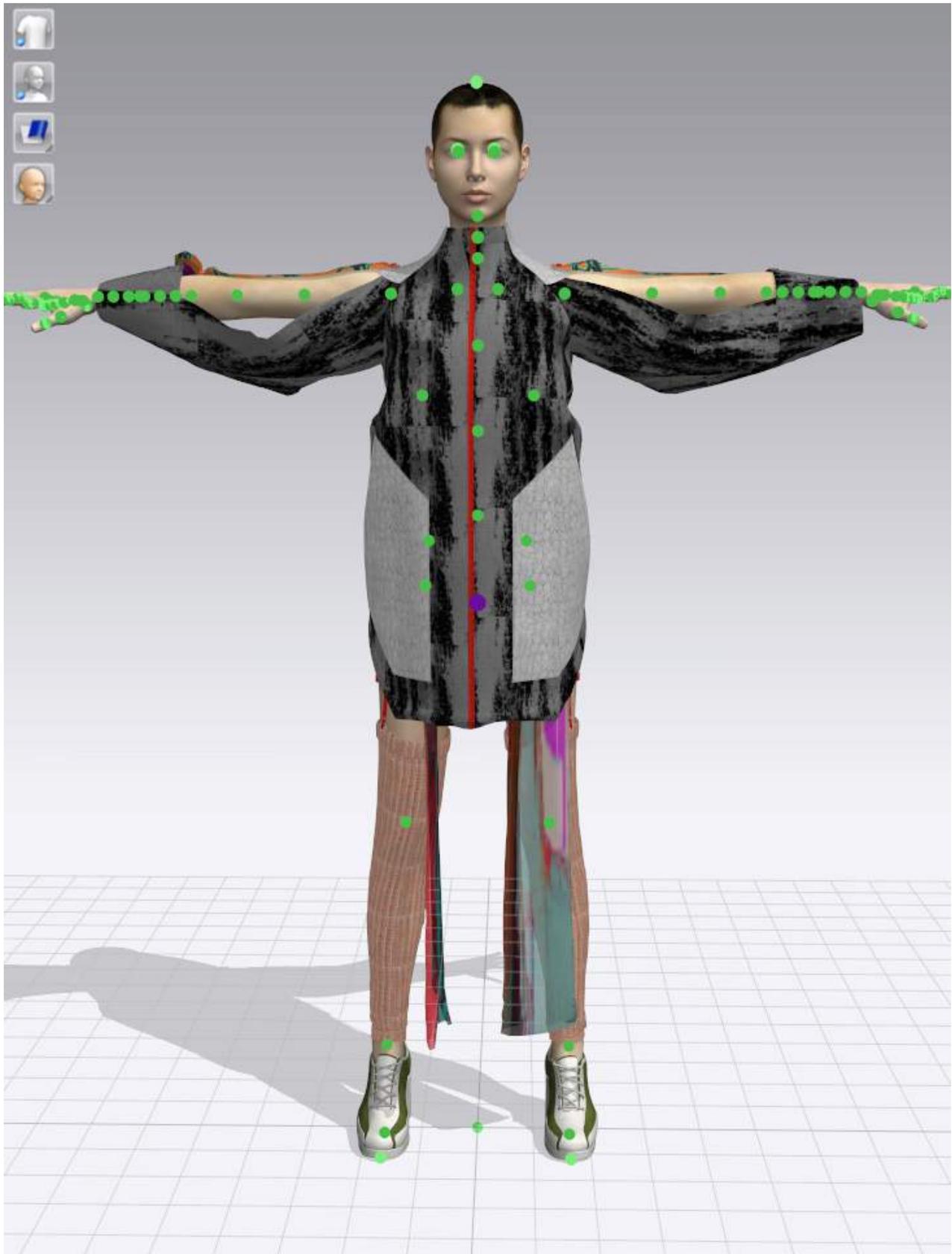




Draping the backpack with no layers and with layers does make a huge difference. The program remembers later on in what layer it has been for animation.

Preparing the outfit for animation I had to adjust the clo avatar with control points given in clo. The avatar had to be T-pose in order to make the transition between avatars smooth.

ANIMATION

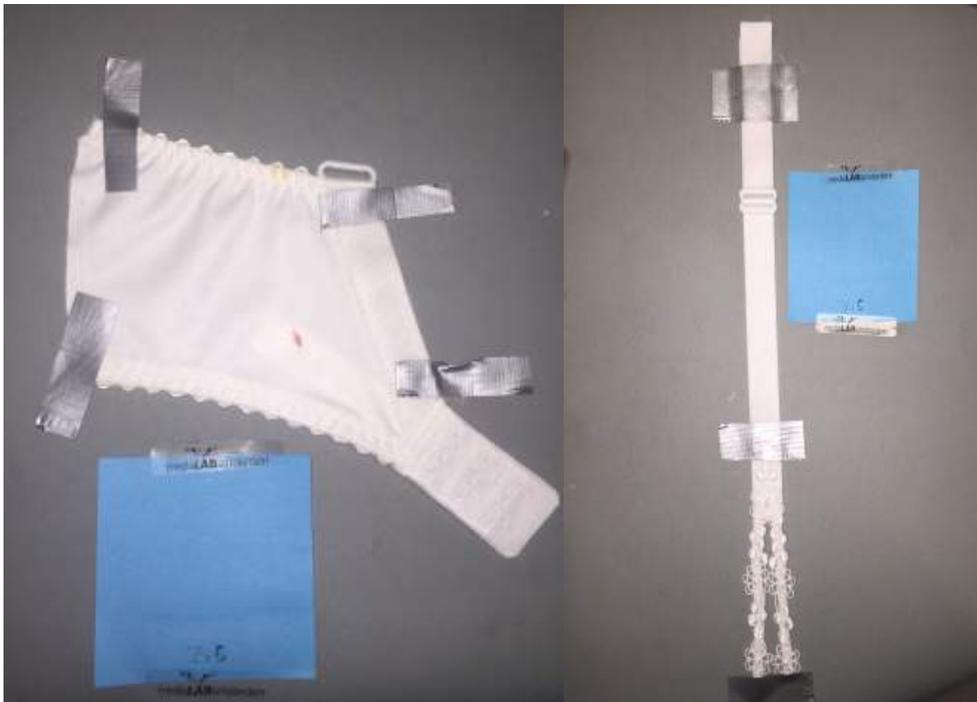


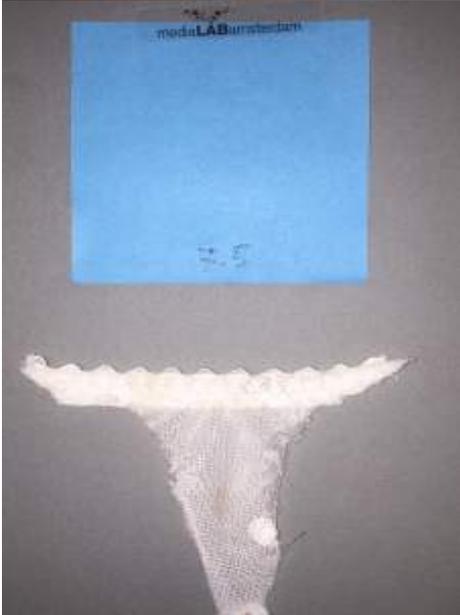
5. bra simulation

Making real size patterns in Marvelous Designer workflow

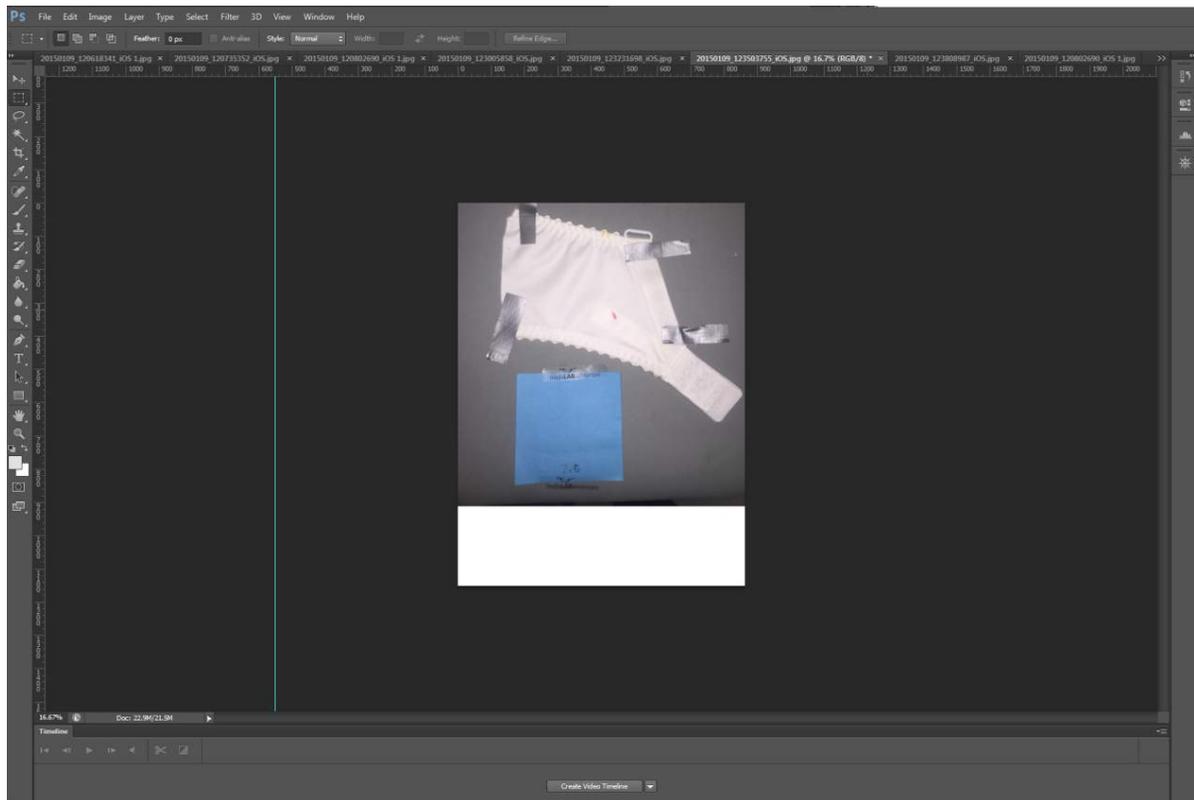
In this workflow you get to learn how to make real size bra patterns in Marvelous Designer.

First you need to take apart the bra or if you have all the pieces separate, you can use them instead so there is no damage done by taking the bra apart and that way you get an even better result. For this workflow I used a 'Stanley knife' to get all the pieces separate. When you have all the pieces you put them on a flat surface with good lighting and a reference object from which you know the size, in my case a piece of paper from 7,5 by 7,5 cm. You make sure you get the real shape by using tape to get the deformation of the shape away caused by the stretching of the patterns. Then you make a photo from the top of all the patterns. Underneath you see all the pictures I took.

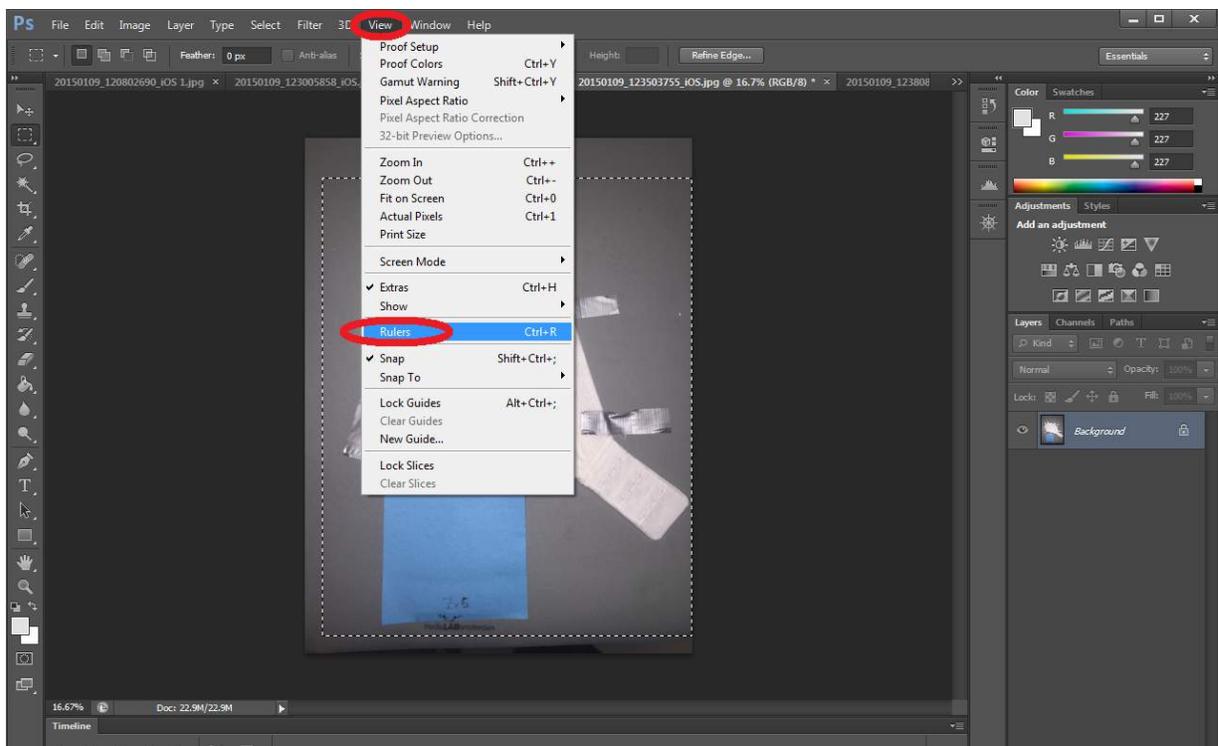




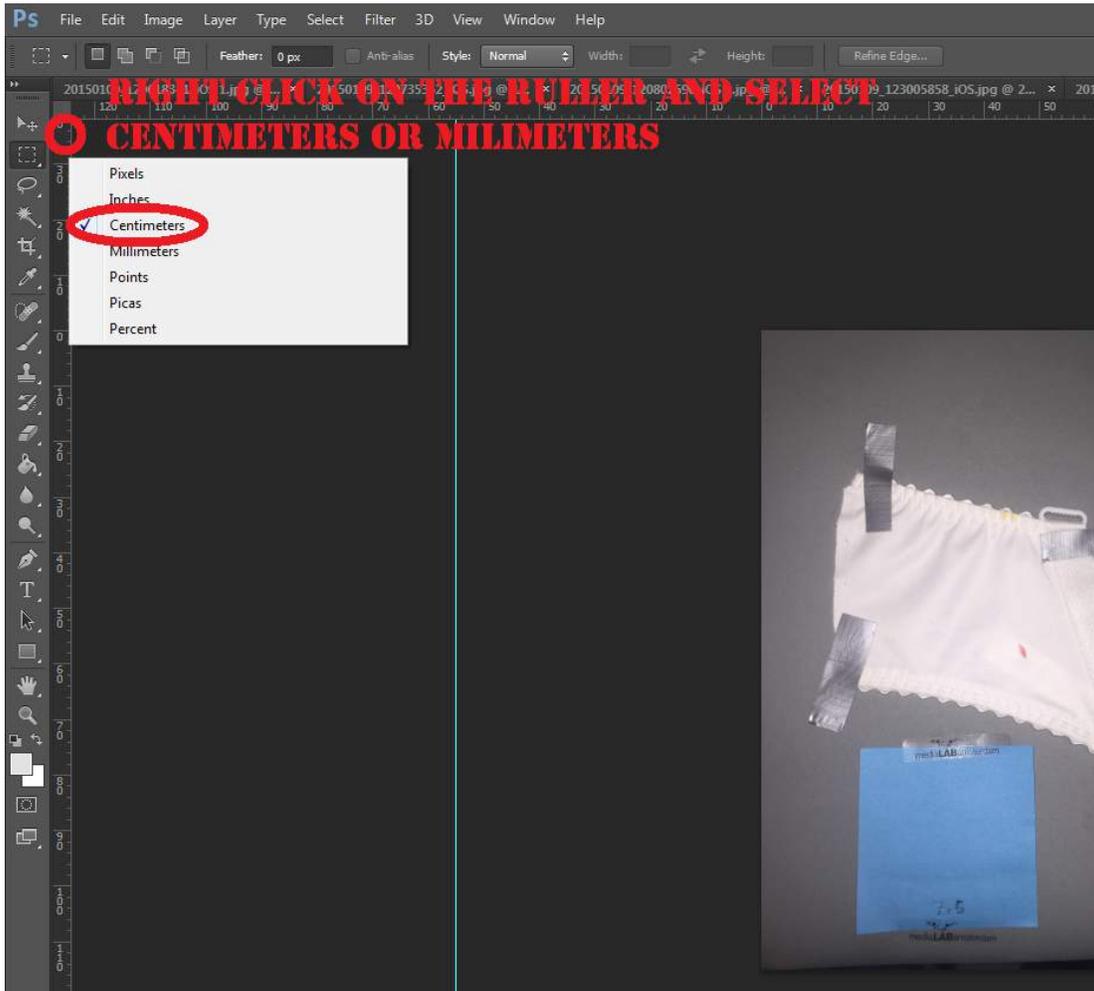
Now you can put all the images in photo shop (or another program where you can apply a ruler and scale images) where we scale all the pictures to the original scale. So in my case I used photo shop.



Open the ruler by going to 'View' and then go to 'Rulers'.



Right click on the ruler that appeared on the outside of the workarea and choose the required size, for a bra 'centimeters' or 'millimeters' are the best option.



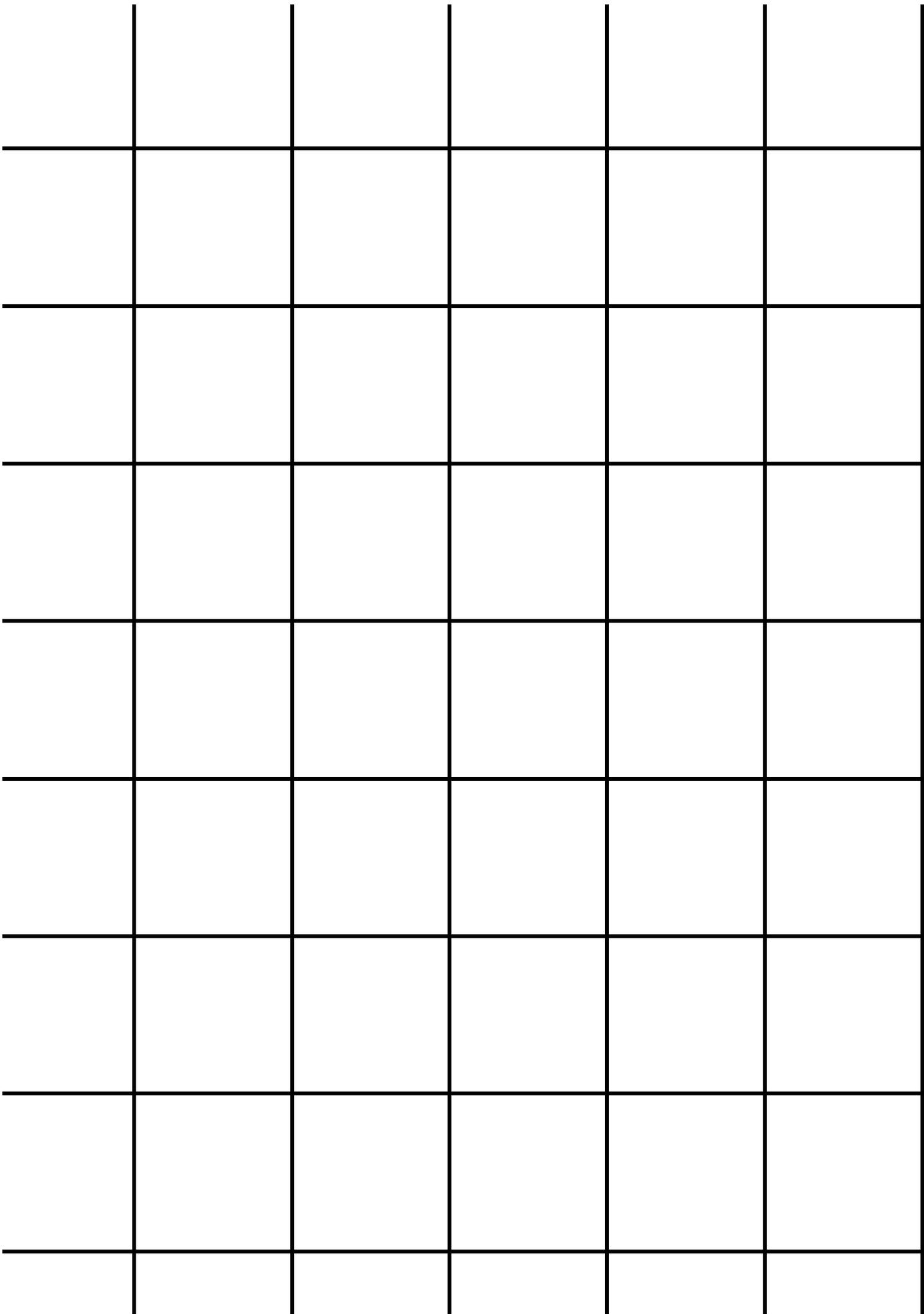
Now you position the reference object above the pattern piece and make sure you scale the reference object together with the pattern piece to the required size, so 7,5 cm or 75 mm like illustrated in the screenshot below.

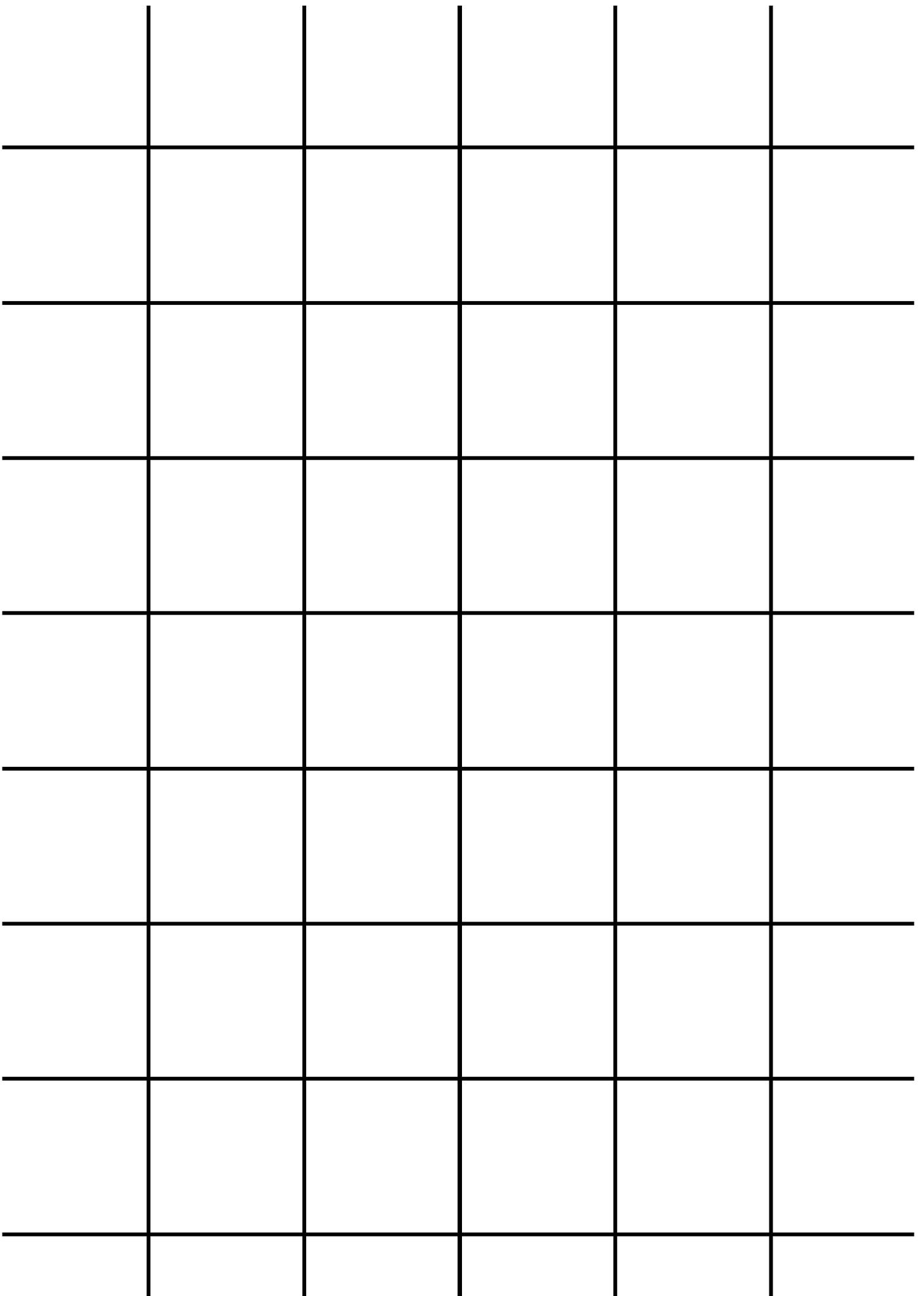


Having done so for all the different pattern pictures, you can now insert those images in the 2d pattern drawing field in marvelous designer and trace the lines in order to make the pattern shapes of the bra. Again be careful not to scale the images after loading them in, because they already have to required size. Also load in the avatar with the correct breast size in centimeters. This will automatically be asked by the program after choosing the avatar. After this you can proceed with making the sewing lines in order to simulate the bra. Good luck!

**HYBRID
3D
FASHION
DESIGN**

documentation sprint 6





world's first...

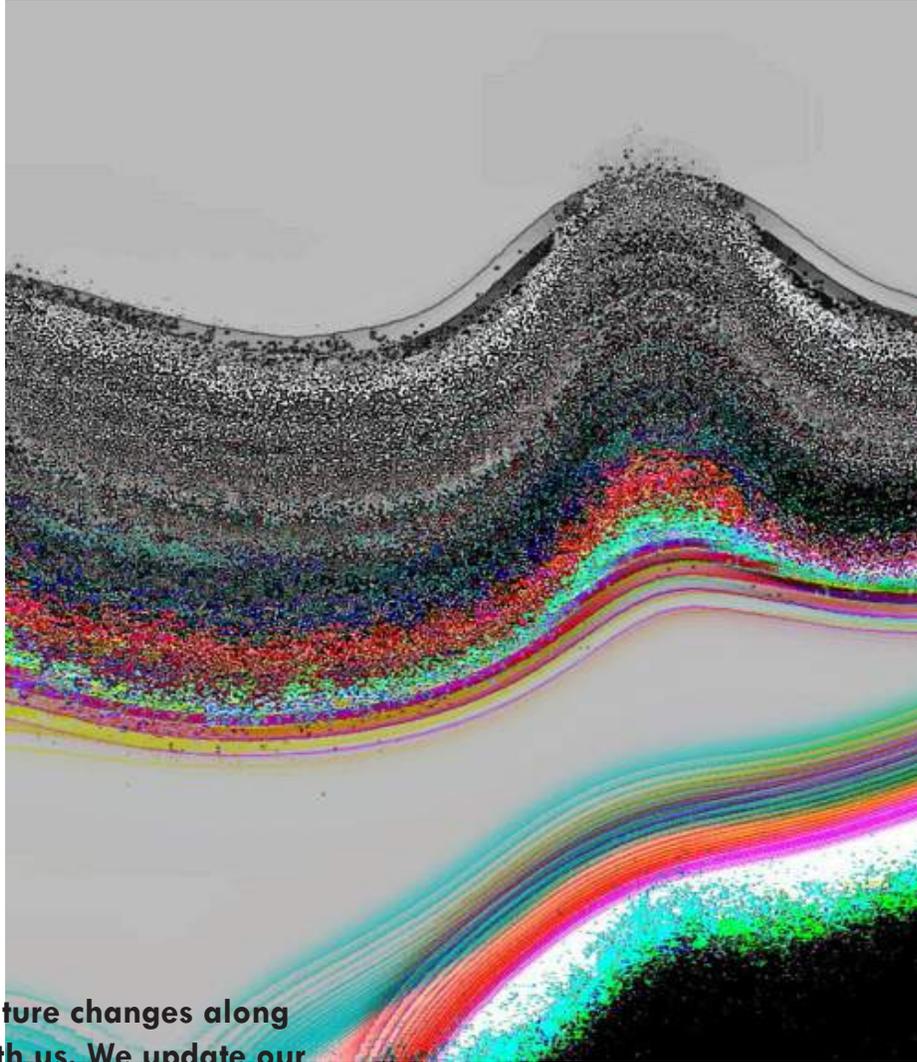
**LIVE
VIRTUAL
FASHION
SHOW**

the collection

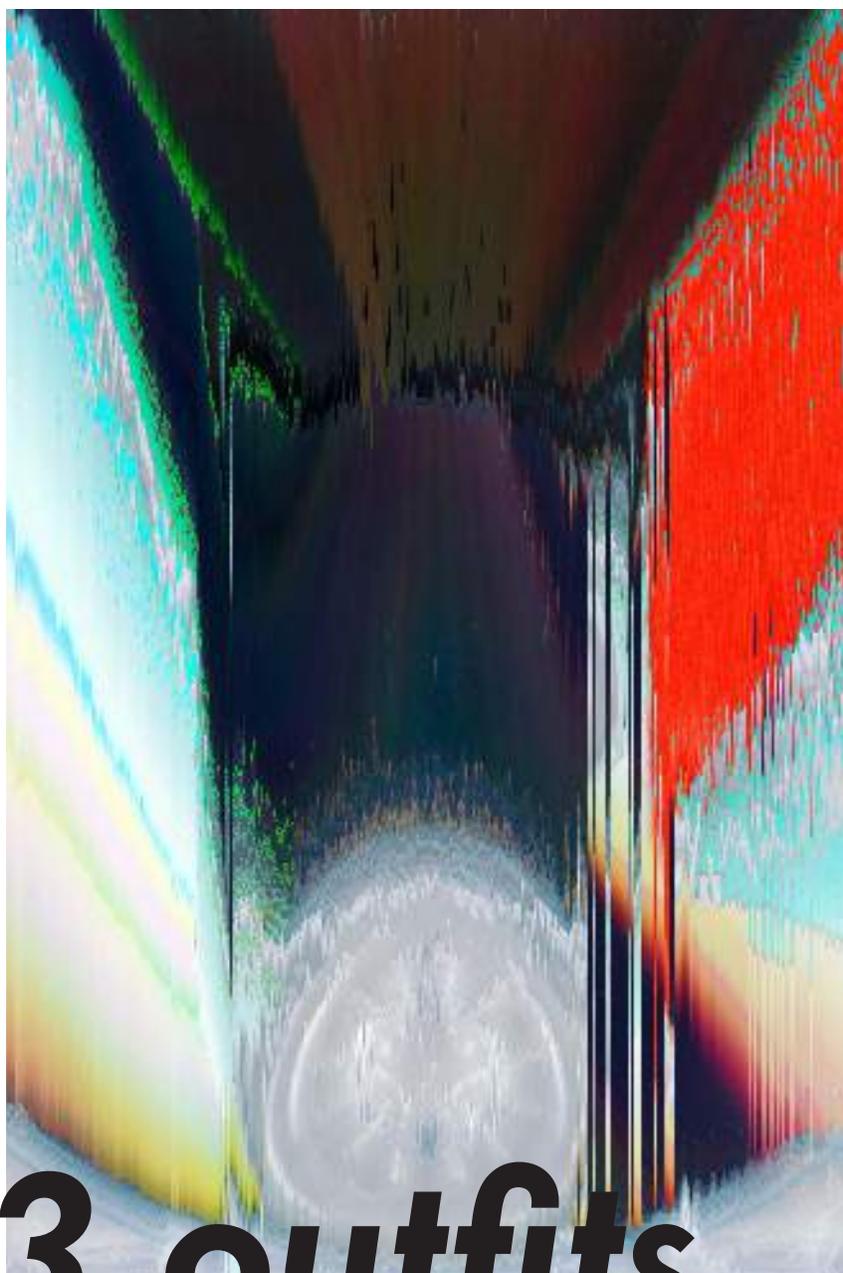


NOISE

concept

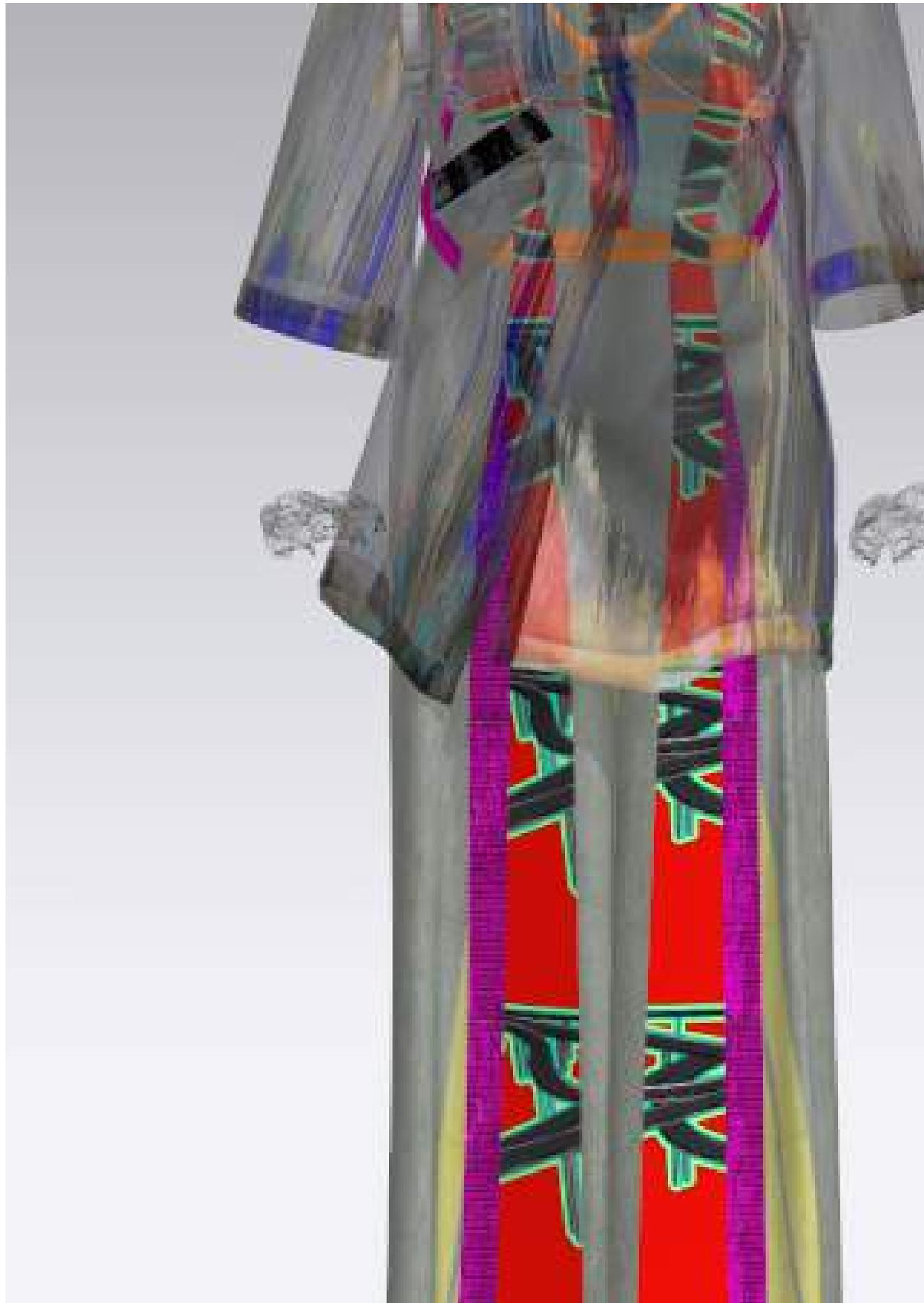


Nature changes along with us. We update our surroundings to an artificial nature. The changable landscape created for our needs and wishes.



3 outfits

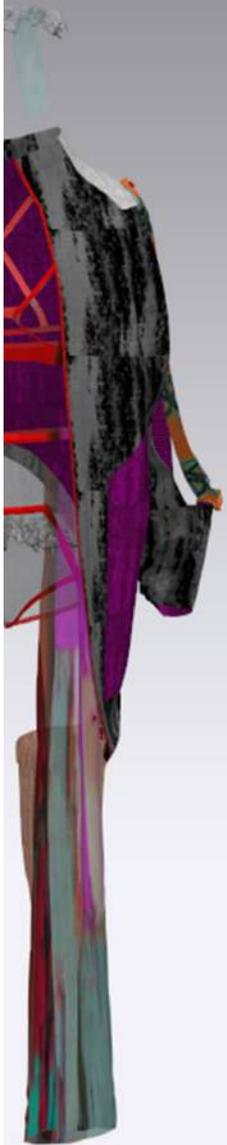






**inspired
by human
landscapes**





the fashion show



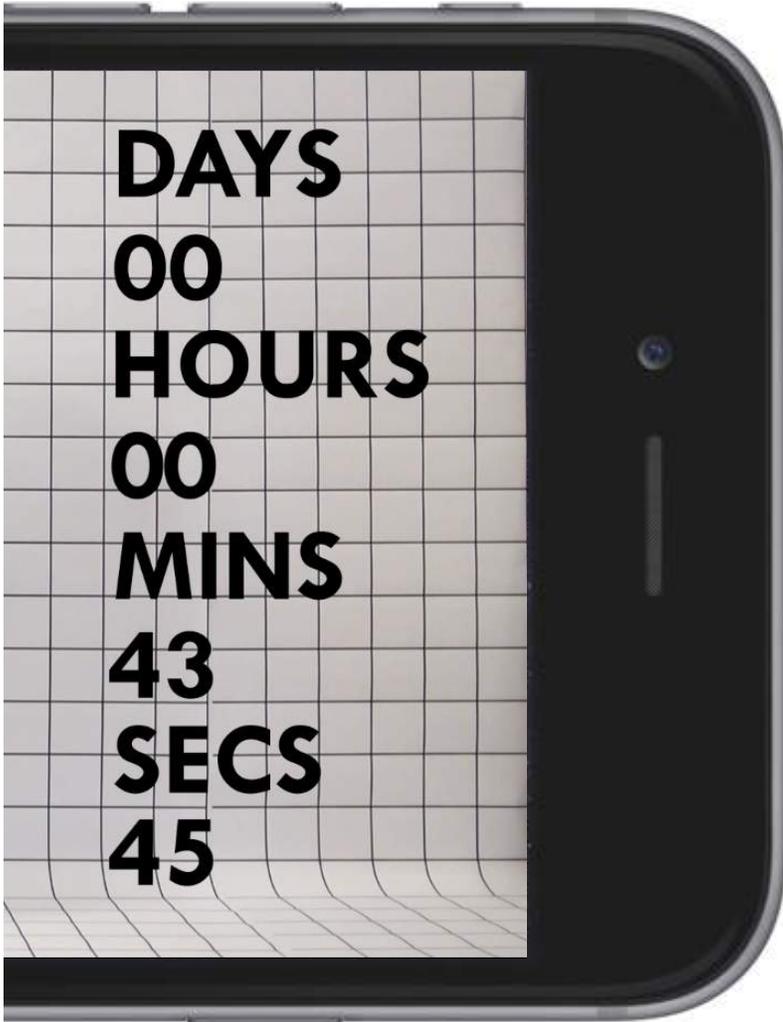
how it works

1. Second Sight sends packages to their customers and fashion press all over the world. The package contains: VR (virtual reality) glasses, joystick, earplugs, an invitation and a link to download the app.
2. Put your smartphone into the VR-glasses and be a part of the virtual fashion show.
3. After the show the app changes into a platform where people can share their opinions about the collection and pre-order.



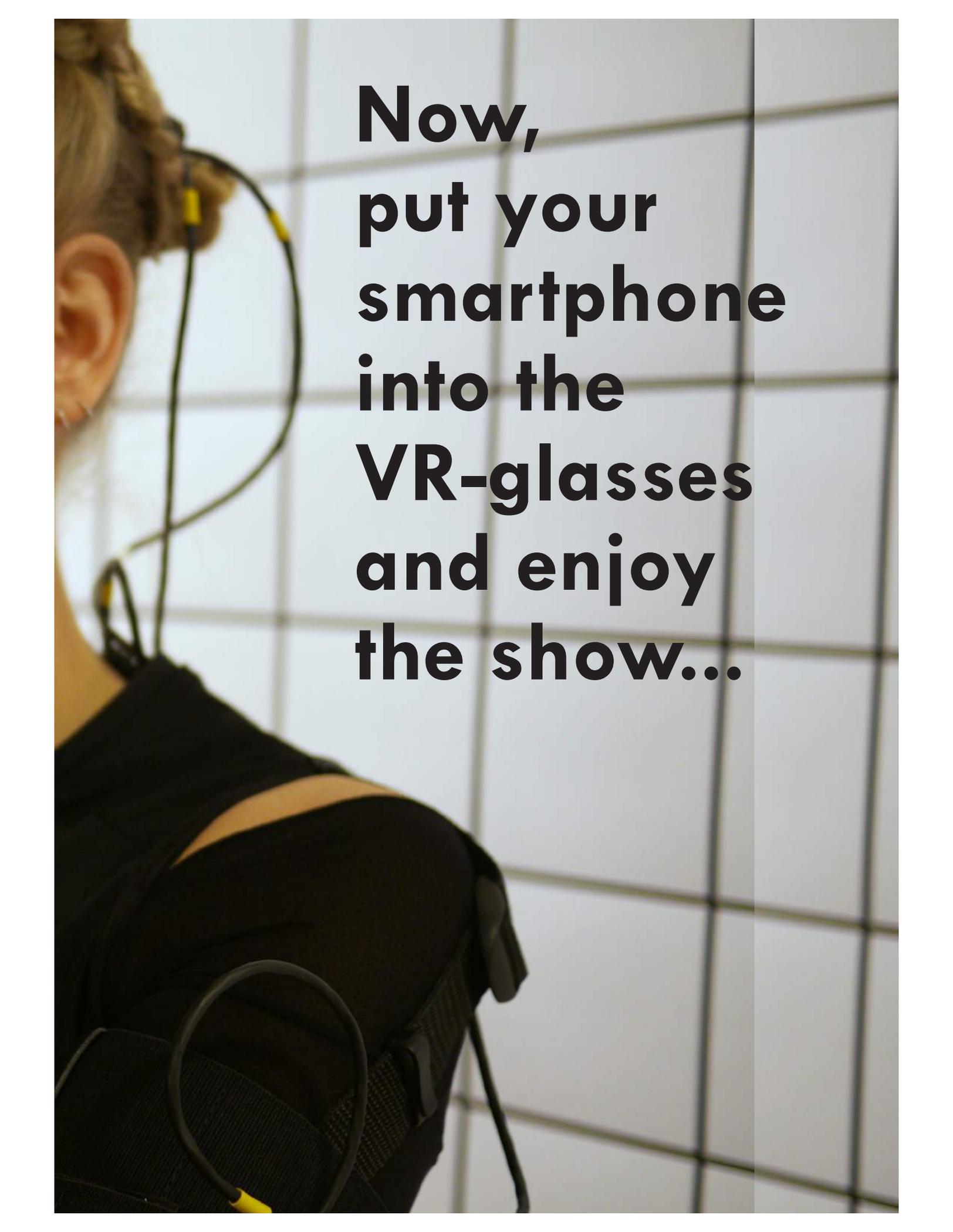
LIVE COUNT

how it works



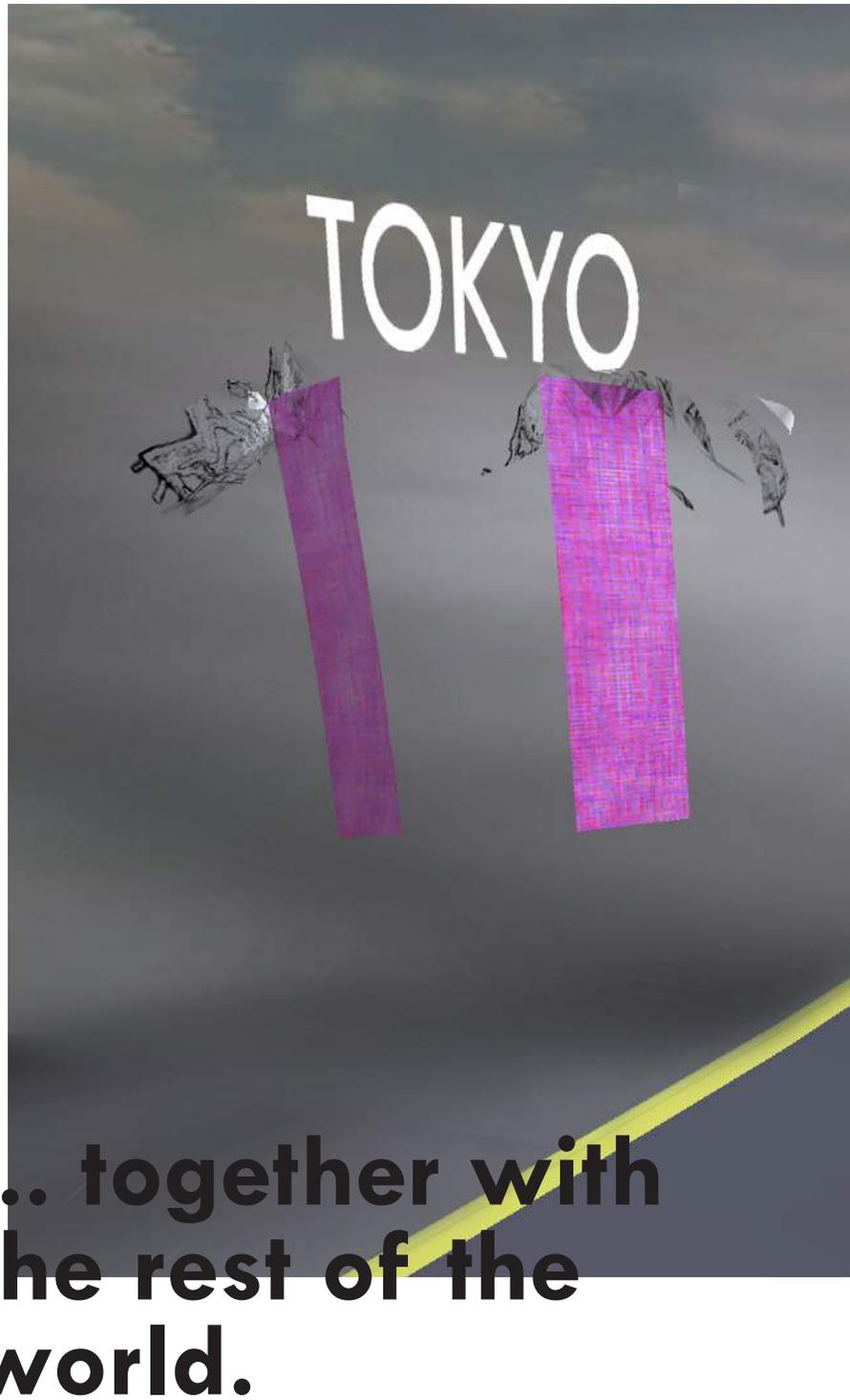
DOWN



A person is shown from the side, wearing a VR headset. The headset is black with yellow accents. A black cable with a yellow connector is plugged into the side of the headset. The person is also wearing a black harness with a yellow strap. The background is a white wall with a grid pattern.

**Now,
put your
smartphone
into the
VR-glasses
and enjoy
the show...**

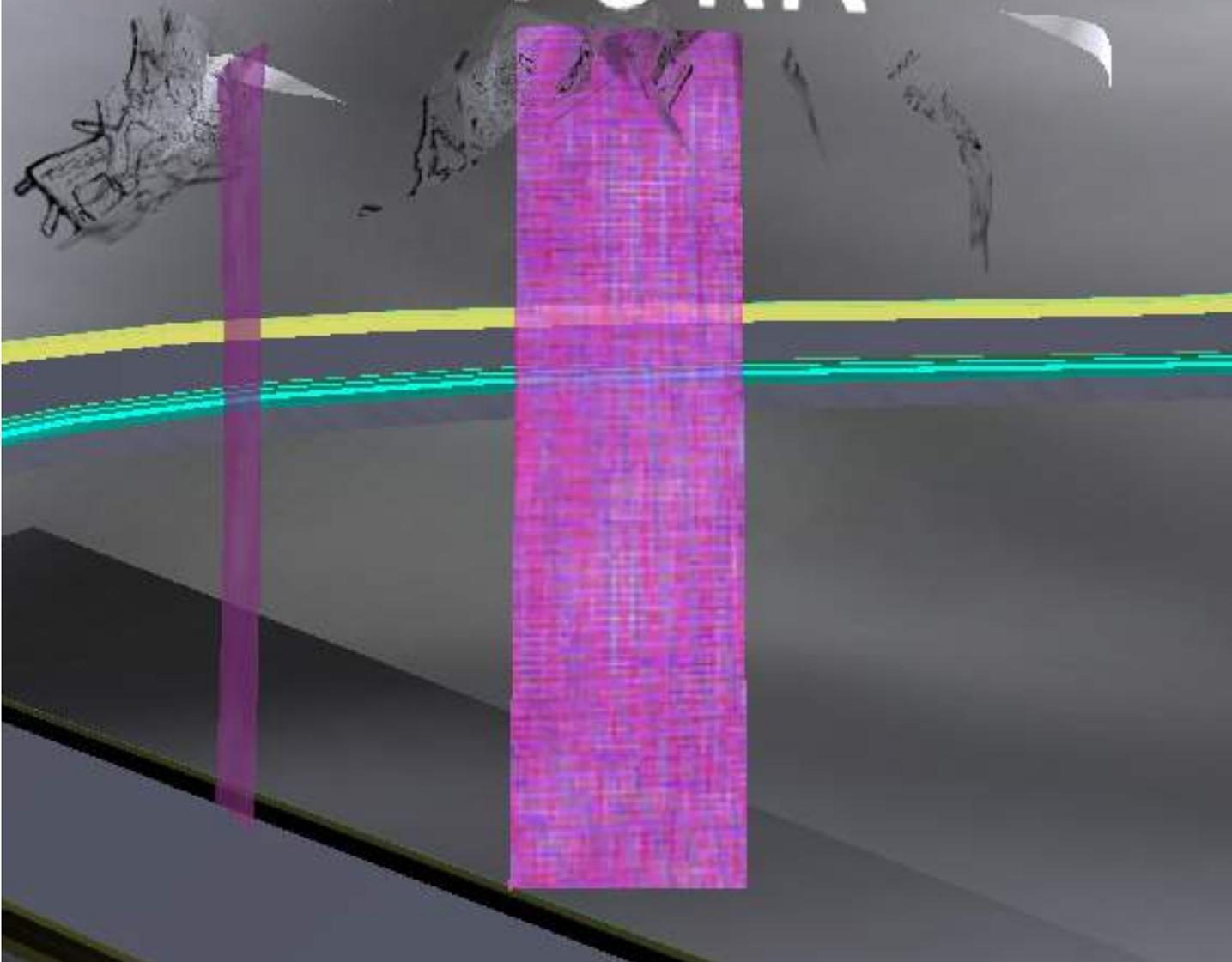
the audience

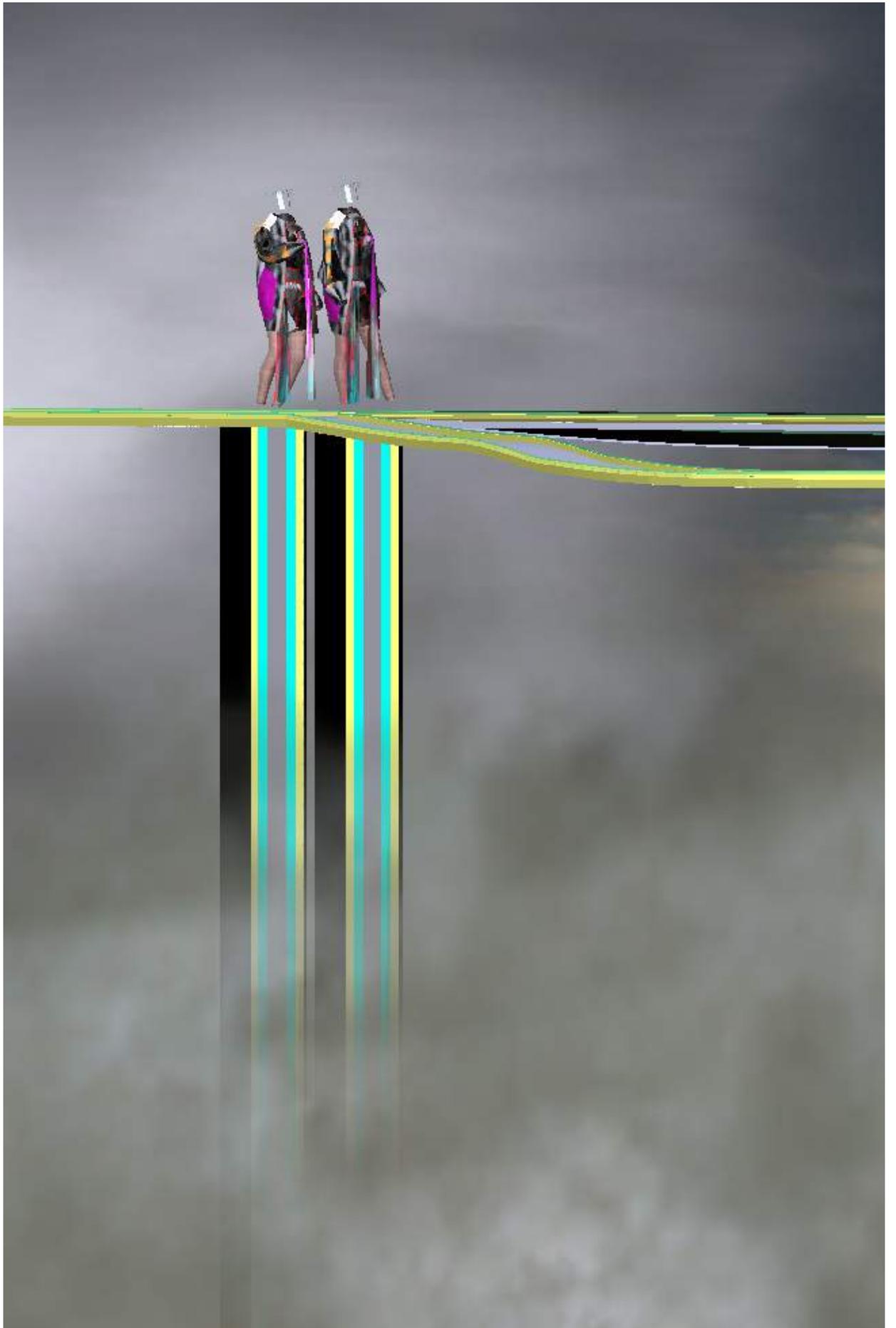


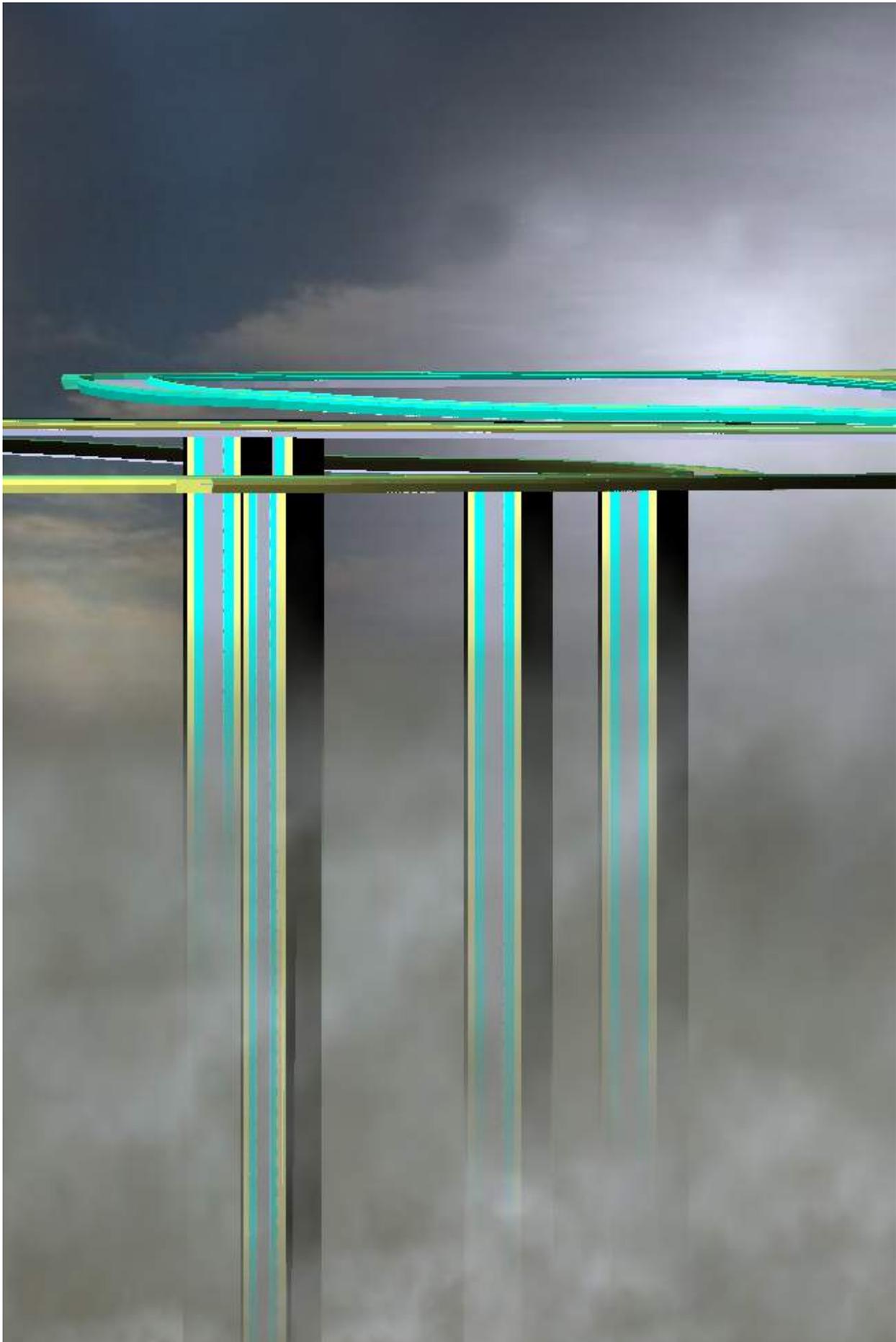
**... together with
the rest of the
world.**

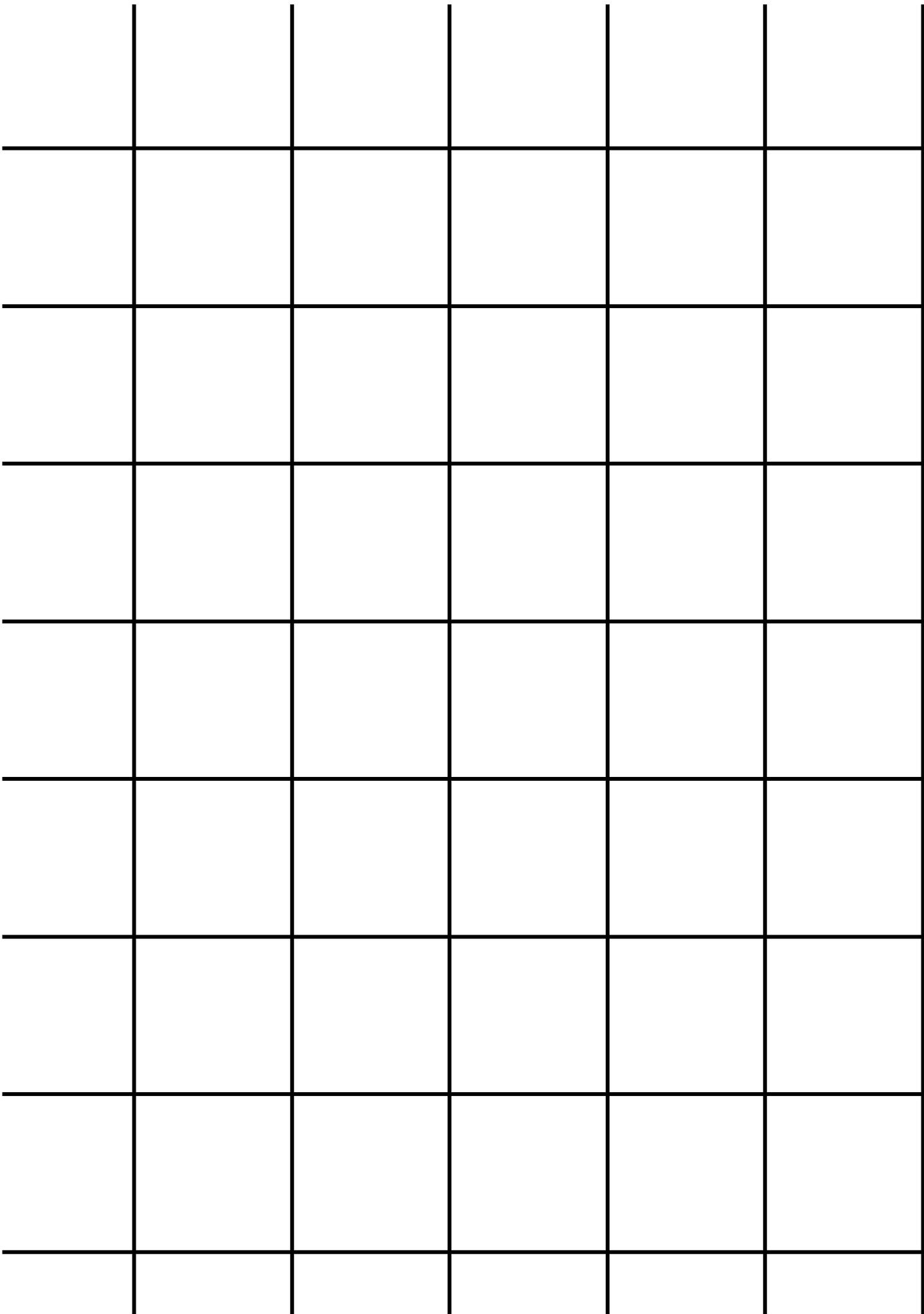
NEW YORK

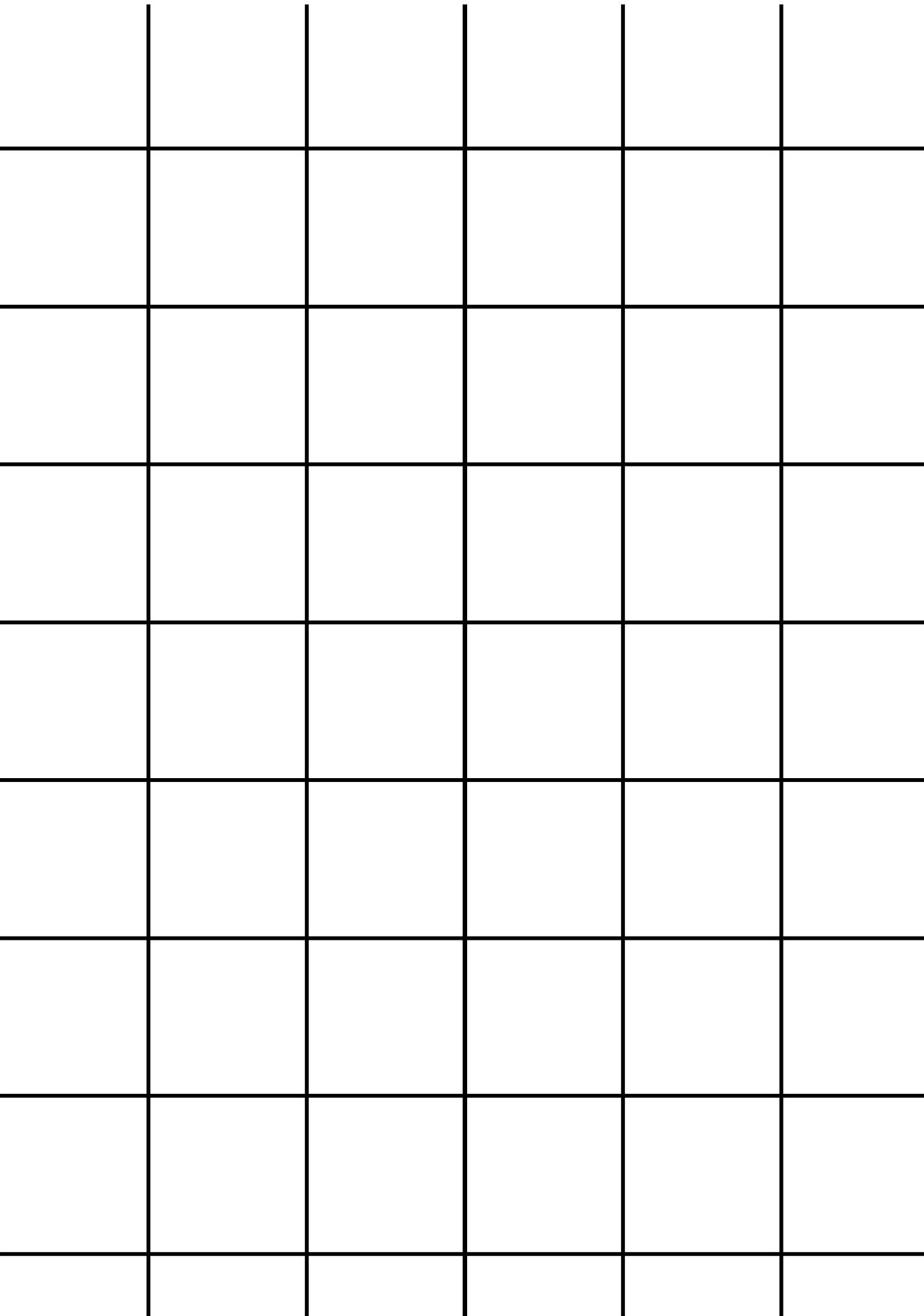
TOKYO











avatar movements



MAKING OF

after th



COLLECTION APP

e show



- 1. To get detailed information about the collection.**
- 2. To give Second Sight feedback.**
- 3. To share opinions.**
- 4. To pre-order.**

