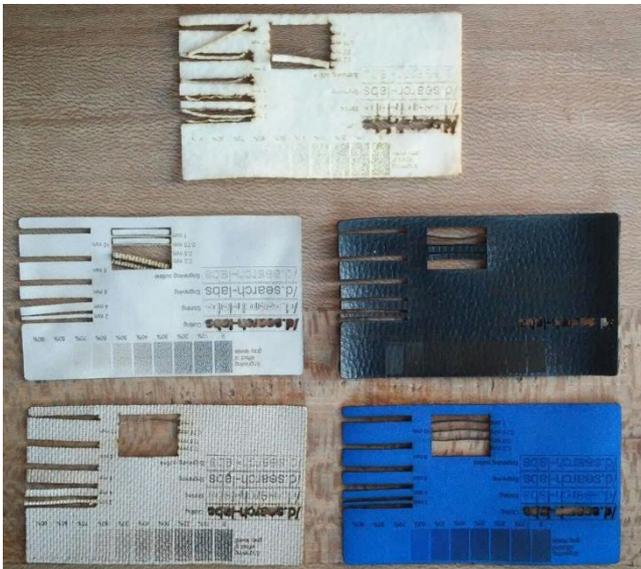
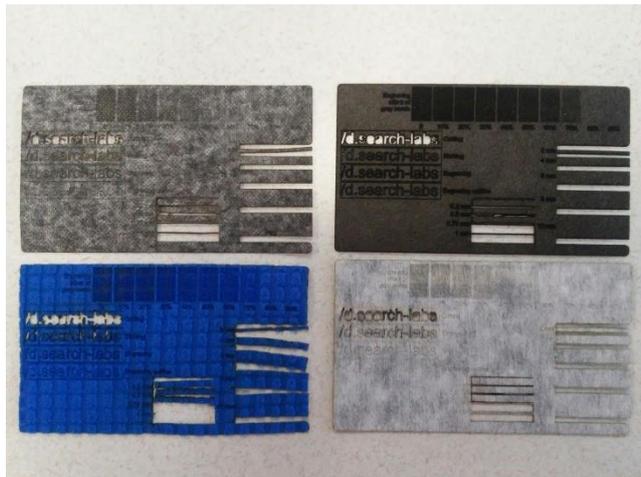


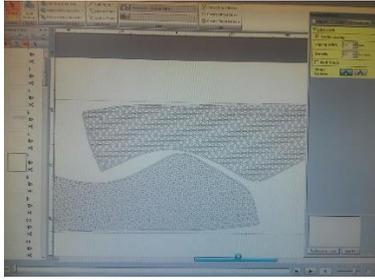
Reflection Tara Mengelers Digital Craftmanship

I was very excited when I heard we are going to learn how to make our own shoe. I choose this elective, because I wanted to explore the possibilities of modern craftsmanship. An important thing I experienced during this elective is that you can't think for the material, you have to think with the material. Therefore it is important to see how a material behaves. Therefore I made several test pieces of different fabric I liked with the laser cutter to see how the fabric could reacts on the laser cutter. An interesting fabric I found was a

fabric that is used as curtain. It exist of three layers of fabric in the order, white, black, white. If you engrave through only the first white layer, the black layer shows up what gives a cool effect.

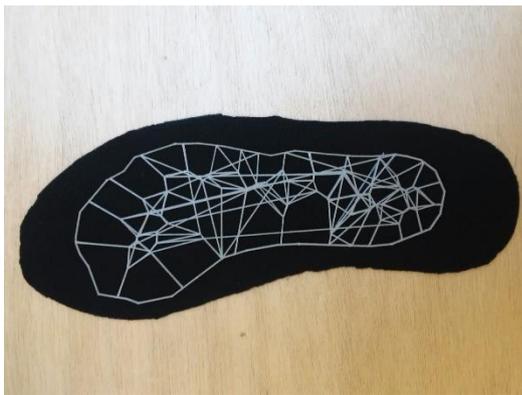
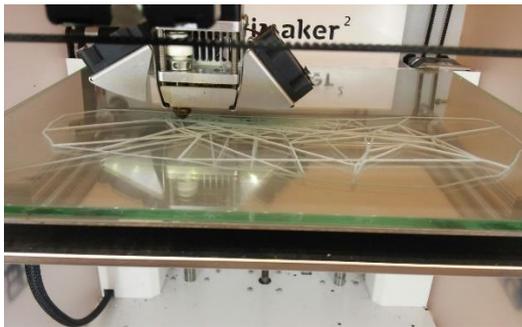
For the mathematics. I had never thought I was able to create all these interesting looking patterns since I have not much experience with processing. Due to this elective I was introduced in computing mathematical figures. In the beginning I found it hard to figure out what part in the processing codes I had to change to also change the pattern. So in the beginning I practiced with a standard pattern of Loe Feijs. During the elective I managed to also create my own figure. I figured out that you just need to see what mathematical formula you have to use. I also have more confidence now that I can create a pattern by myself and I don't need to search and use an existing code. This is a great tool to use in future projects, since I now know how to create the figures I want. Also using formulas makes it easier to change the pattern since you just can change a variable. This is a great advantages, because it can save a lot of time in the production process.





For my own shoe I wanted to make a shoe that is comfortable to wear in the summer. So it had to become airy and not sweaty. That's also a reason why I choose the color white, because that color is for me related to the summer. To make the shoe airy I choose to experiment with the embroidery machine, since I saw you can solve the base in water so an open knit is created. I never worked with the embroidery machine before so I first experimented with different knits to find a good knit and pattern to

use for my shoe. In my test I choose for different patterns and they seemed to be good and strong, but on the long term one of the patterns fell apart. Unfortunately, this was also one of the stitches I used for my shoe and there was no more time left to make a new one, since it occurred during the last stage of assembling the shoe. So the next time a better testing of the solved knits is needed.



Since the upper of the shoe is embroidered, the sides don't give very good support to your feet. Therefore to give some support to the feet, I investigated how to do this with insoles. I investigated the pressure points of the human feet and where you need to support the feet. What I found was that in sport insoles, there is more gel on the points where people put pressure on, for example while they are running. For "normal" insoles you have to make the points higher where no pressure of your foot is, but normally should be. So this is different for each person, what makes the insole personal. I used different techniques to find these points for my foot. I first tried it with a plastic bag to get the outlines of my foot. This didn't work well because there was too much impurity in the stretch marks of the plastic bag. In addition this technique was impractical to convert to a program as Processing. For the second technique I used a blank paper and a wet foot. By stepping with a wet foot on the paper you leave a mark

with the pressure points of your foot while walking. For me this didn't worked very well. The contrast of the wet parts wasn't big enough to see to make a clear picture out of it, but with the footprint of Troy it worked well. So it would be interesting to know what makes this difference. Because this technique didn't worked out for me I had to find another technique. For the third



technique I putted my foot on the scanner. This was the best technique because you get a very clear picture of your foot. Something I have to take in consideration is that I didn't put full pressure on my foot, because I was afraid the glass would break. I converted this picture of my foot to Processing. Using the voronoi sole make program of Loe Feijs, I made a pattern that has a higher concentration of cells where I needed more support. The file that was created I putted in the program Rhino to scale it in the right size and to place it in the right position so the 3D printer could print the file. I sent this new Gcode to the 3D printer instead of the Gcode created by using the voronoi program.

Looking back on the time I spent on the process, I already scheduled more time for this elective than other electives, because I expected this elective would be time consuming. Despite the time I scheduled it still took more time than I expected, because of the small amount of time that the embroidery machine 3d printer and the laser cutter where available for each person. Also the practical part for example making the shoe was more time consuming than I had planned.

The service for Troy



The sole of a shoe behaves differently in high temperatures for example in the summer than cold winter. The sole

has a higher resilience in summer and is more flexible. This causes that the support for the feet changes in high temperatures and low temperatures. Therefore we developed a service which tells you what insole you have to wear according to the temperature of the weather. These insoles are perfectly fitted to the customer's feet and support the feet where needed. To get our shoe, a customer can go to the brand store or to the online shop. If the customer goes to the shop, he first picks a shoe he likes. After this, a professional makes a scan of his feet and personal insoles are created. The customer can wait until their insoles are ready and take them home or he can choose the option to let the insoles delivered. If the customer goes to the online shop, he can first pick the shoe he likes. After this, the customer is guided through the process to create his own personal insoles. The customer is thought how he can make a scan of his own feet and how he has to make the pattern to support his feet. The insoles and the shoes are delivered at the customer's home. The customer can download an app on his phone which is linked to the weather forecast. This app tells him which insoles he has to wear in his shoe. The material we choose for the insoles is felt. In optimal circumstances, this would be merino wool. We choose this wool, because it is a strong high quality material and it regulates temperature very well. We embroidered the pattern for good support of the customer's feet on the felt. For creating



the support pattern, we used voronoi cells. We clustered the cells that were in the same area. This clustering is something we could have done with processing, since now we did the clustering by hand. For the next time we also could have tested with 3D printed insoles and heat press the insoles on top of the felt.