

The image features a person in the lower right foreground, seen from the side, holding a large, dark, textured object. The background is a complex, multi-layered pattern of overlapping, translucent, geometric shapes in shades of teal, yellow, and white, creating a sense of depth and movement. The overall aesthetic is artistic and abstract.

RESEARCH DOCUMENT

A Story Unfold

Joeke van der Veen
Michelle Lievaart

Table of content

Introduction	2
Research question	3
Research topic	4 - 6
Research design	7 - 16
Summary	7
Quote	8
Postures	9 - 10
Similar projects	11 - 12
Experiments	13 - 16
Conclusion	17
Design prototype	18
Final design	19
Reflection	20

Introduction

A garment is nothing without the body. The body gives shape and form to the garment. Without the body the garment will be a meaningless pile of fabric on the floor.

But what if we saw it the other way around? Let the garment work as a medium to express emotions while listening to the body.

Body language is a way to express ourselves. Our nonverbal communication, the facial expressions, gestures, eye contact, postures and tone of voice, is very important. 60% Until 80% of our communication goes non-verbally. The ability to understand and use nonverbal communication, or body language, is a powerful tool that can help you connect with others, express what you really mean and build better relationships.

According to Amy Cudding, psychotherapist, speaking to someone who gives no non-verbal feedback, is even worse than being hackled.

Texting, emailing and twitter are new forms of communication without body language. That means that people who often use these text-only messages may be sending half the message and receivers easily can misinterpret this. The use of emoticons seems to be of no help in this matter. Research found that emoticons had no effect on the way a message was interpreted. It could even be more confusing. 'Typing LOL with a straight face' is a serious hit on Google.

We believe that body language eventually can become a forgotten language. That's why we want to bring back body language into a garment, that helps you express your feelings and discover the world of non verbal communication. With this garment we want to make a statement and bring back body language into real life communication.

Research question

How can body postures, as a form of non verbal communication, inspire expressing garments?

Research topic

Body language is one of the most important ways to communicate. This way of communicating is not only for human, also in nature we see a big variety in body language.

Chameleons for example use their skin color not only for camouflage, but also to communicate with others. Christopher Raxworthy, chameleon expert, says: "Males become more brightly marked to advertise their dominance, females become dark or flash red spots to advertise their hostile response to males or their non-receptive status. Aggressive chameleons may become very dark."

While chameleons have their own way to communicate, the body language of apes is much more similar to the way humans are expressing themselves. Amy Cudding is a psychotherapist who has done a lot of research to body language. "Don't fake it 'till you make it. Fake it 'till you become it" is a famous quote by her. She explains the nature of high and low power. High power is a feeling that will be expressed by exaggerated gestures. Apes, but also humans, naturally stretch out their arms and body. While low power will be expressed by taking as little space as possible. We will put our legs and arms together and reach our head to the ground. A natural reaction is to complement others non verbals. If someone is showing high power, we tend to make ourselves small, and vice versa.

According to Amy Cudding, the worst is when someone is not giving any non verbal feedback, because then we cannot tune our own body language to the other.

And this is actually what happens when we communicate via screens. For example e-mail, Whatsapp and Facebook are highly impersonal mediums; one cannot experience the more complete range of understanding that results from face-to-face contact with an individual. 'Typing LOL with a straight face' is a hit on Google and you can find a Facebook page with the same name which shows the digital way of expressing our feelings: expressing our emotions with emoticons and abbreviations while sitting behind our screen with a totally straight face. Digital ways to express ourselves are never as authentic, real and expressive as real body language. Once we understand this, we can keep it in mind when we are chatting or posting about our feelings. But will we remember how to express ourselves when we are communicating in real life?

Sources:

http://news.nationalgeographic.com/news/2005/09/0926_050926_chameleon.html

https://www.ted.com/speakers/amy_cuddy

<http://www.ruf.rice.edu/~kemmer/Words/emoticons.html>



Amy Cudding showing high power.



Another good example of high power, this stretched out posture inspired us for our visual research about postures.



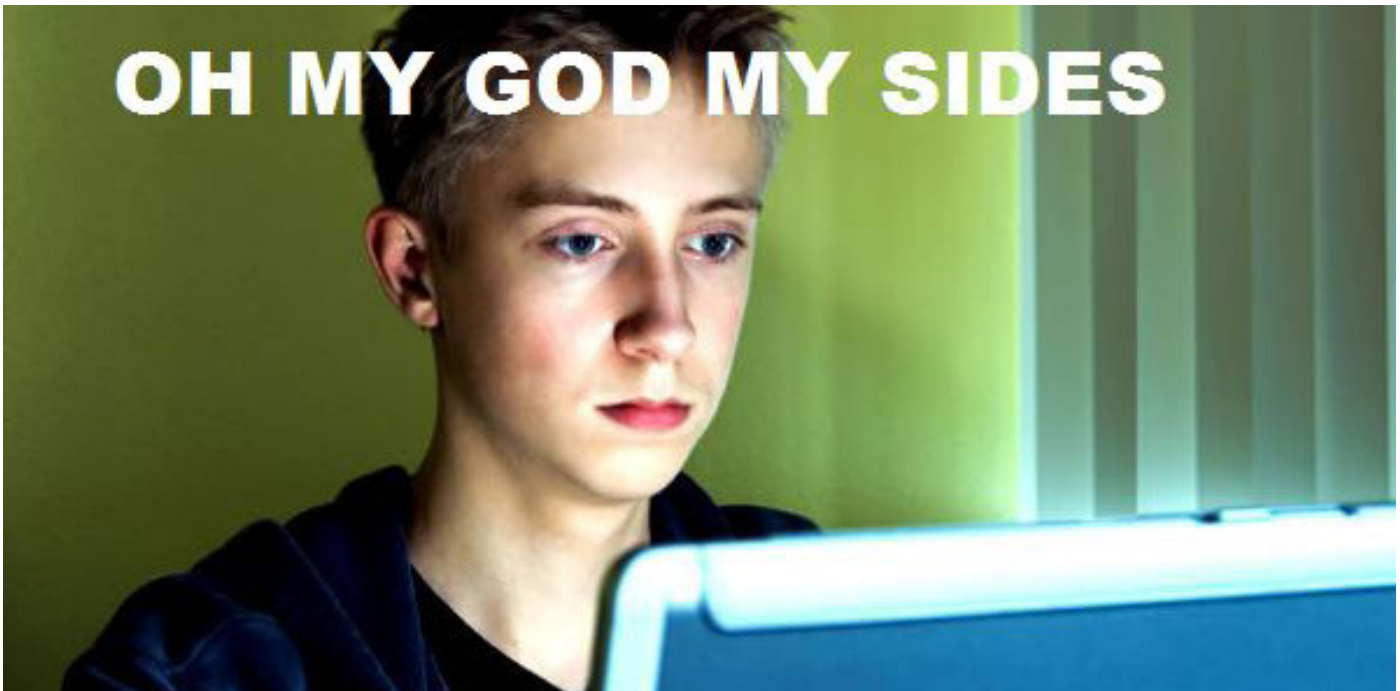
Low power, also interesting postures we used for our visual research.



Complementing others non verbal's. Interesting how the body postures show who is in charge.



No non-verbal feedback, this kind of body language we have to avoid in the design of the expressing garment.



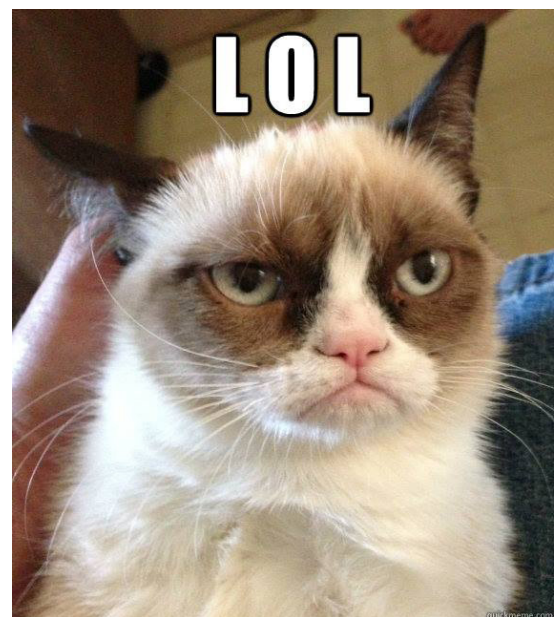
OH MY GOD MY SIDES

My face when I type "LOL"



"LOL"

FALSE. YOU TYPED THAT WITH A STRAIGHT FACE.



LOL

Typing LOL with a straight face. These images made us realise that the lack of body language is a worldwide phenomenon, which is a cause of the social interaction via screens.

Research design

Our research consists of different steps, here is a short summary:

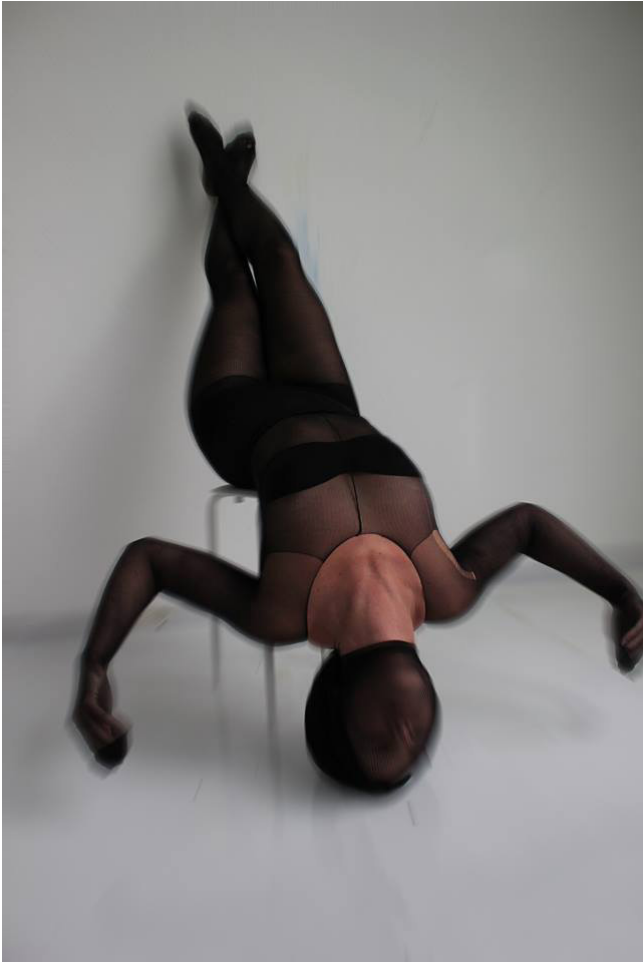
First, we investigated how relevant the topic body language was, by researching different sources about communication (see 'Research topic').

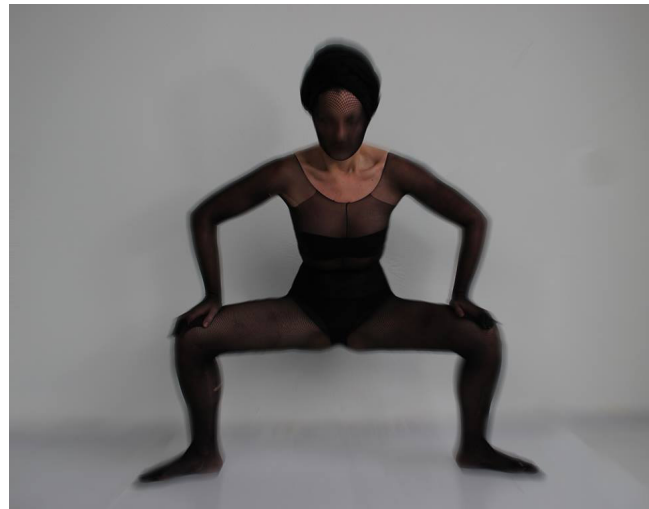
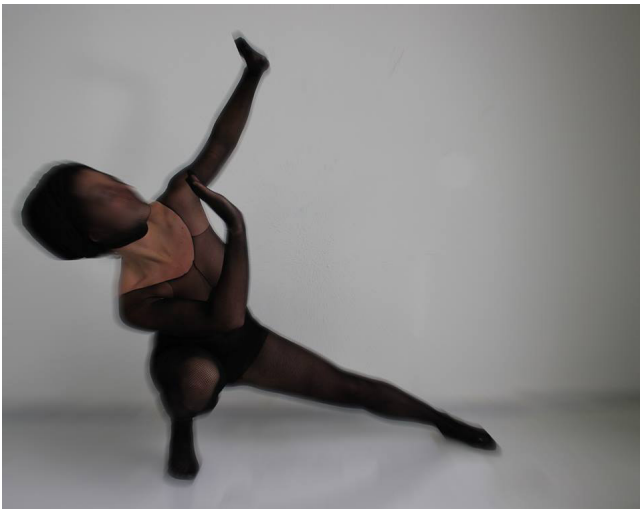
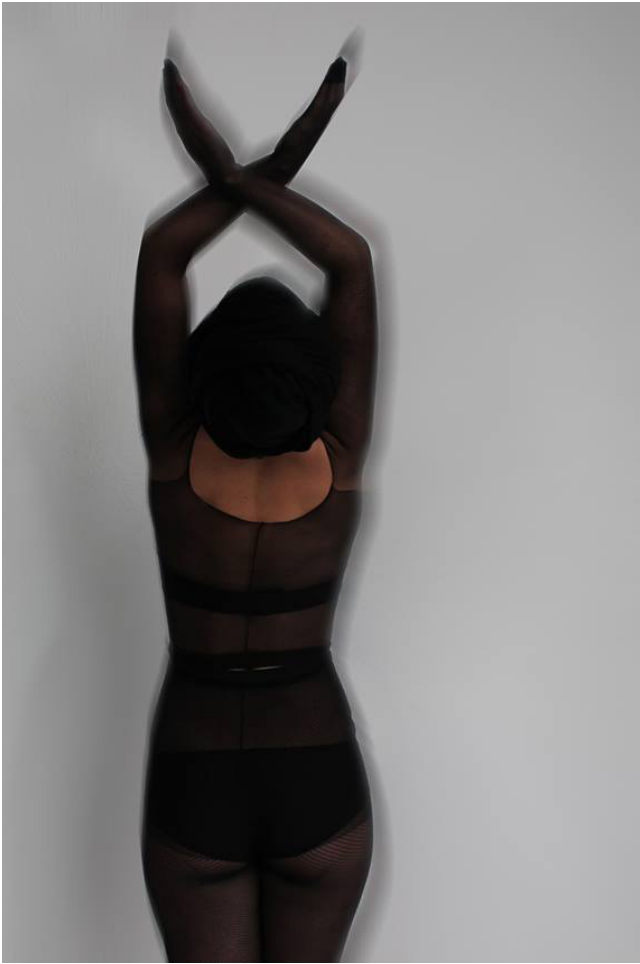
Then, by studying the movements of dancers, who really exaggerate their body language, we came up with a couple of postures we wanted to use for the garment. These postures go from low power to high power.

By doing a research to expressing garments and objects from other designers we visualized our ideas and discovered the possibilities of different materials. We were really interested in garments and objects that move and interact with the body. For example the bamboo objects from Maria Blaissee that transform by the movement of dancers.

The last step was to experiment with creating the idea we had in mind. We decided to use a folding technique that allowed bending, stretching out and shrinking. By folding different patterns we chose the most flexible pattern and we used the plotting machine to engrave the folding lines. After a meeting with Ricardo we discovered the possibility to change the color of the garment by using Neopixels and an arduino, which was an option to exaggerate the body language even more. A flex sensor allowed us to measure the posture and adapt the color to the posture.

'Garments become a second skin that lives, breathes, grows and deforms.'
- Rijksmuseum Twenthe about Bart Hess





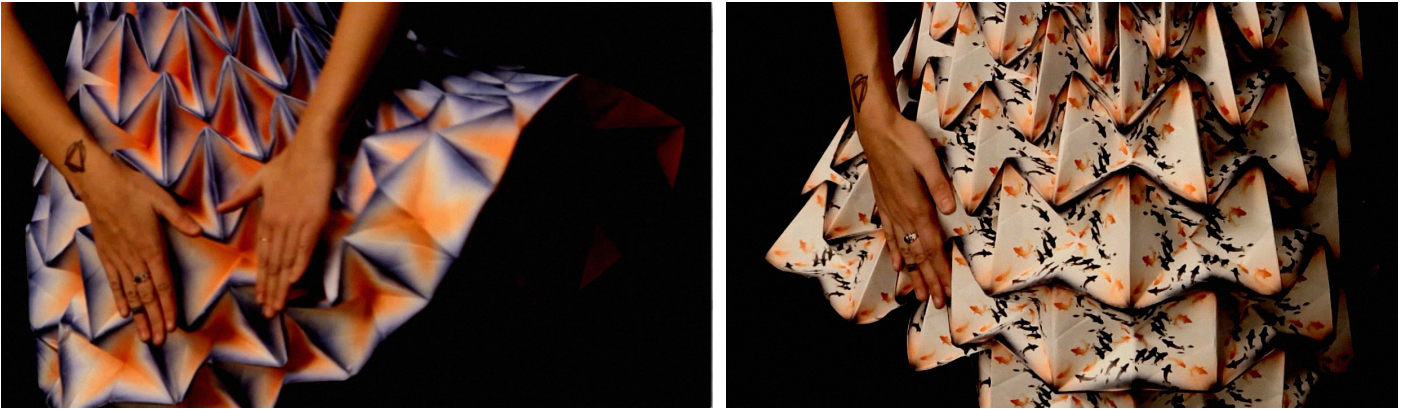
Selection postures: shy, dreary, happy, angry.

A research to dancers who exaggerate their body language inspired us for these eight postures. The postures are going from really small and withdrawn (low power) to big and stretched out (high power). This will create the most diverse movement and transformation in the garment. We noticed that the arms are the most important when changing your posture. This made us realize we had to focus on the arms when designing the garment. We also wanted to use the arms to measure the posture and mood.



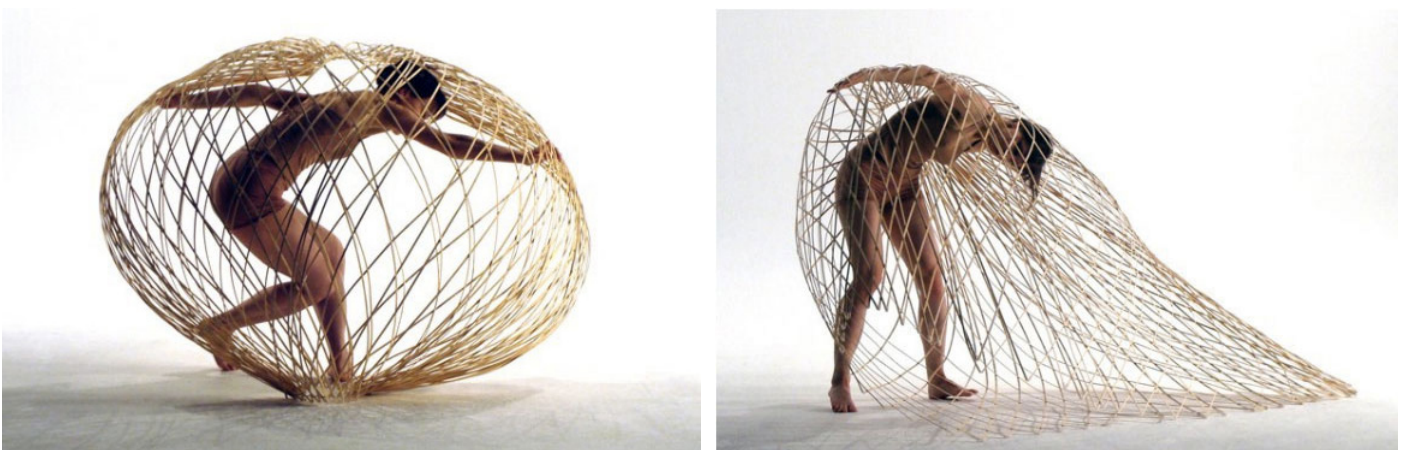
Air Dress by See the Unseen

Dress that changes color by using wind reactive ink, which makes us think of the skin of a chameleon. We wanted to create the same kind of overflow of color.



Unfold by Jule Waibel

Moveable dress made with the same folding technique we used. This shows how flexible the folding technique is, that's the reason why we used this kind of folding technique.



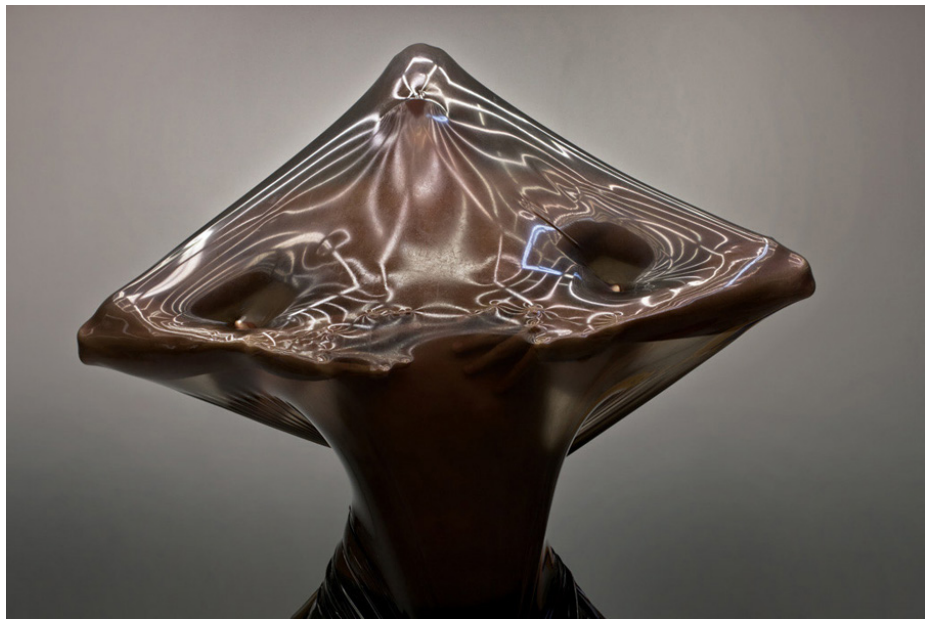
Bamboo by Maria Blaisse

The emergence of form shows a variety of objects transforming by movement of dancers. This inspired us to look to the movements and body language of different dancers.



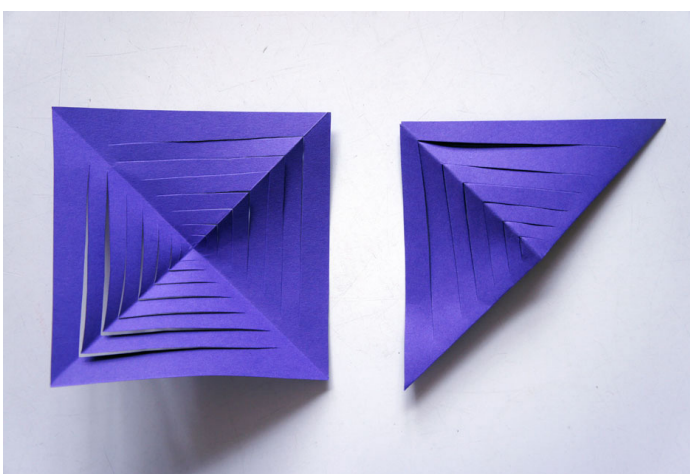
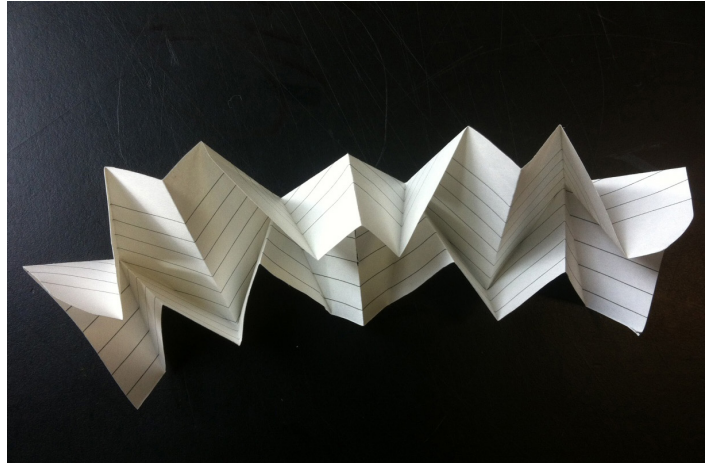
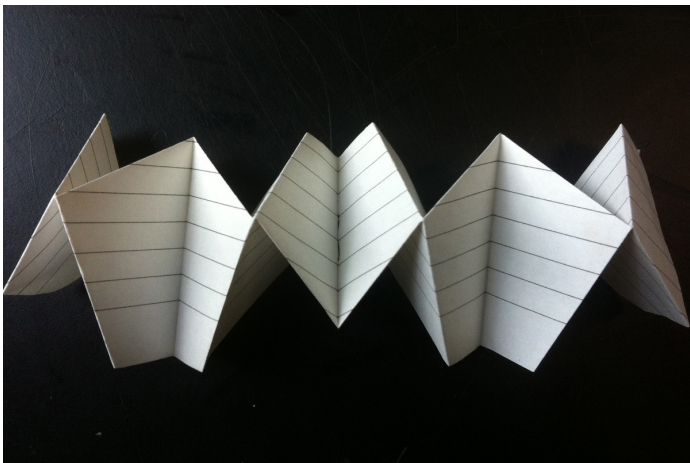
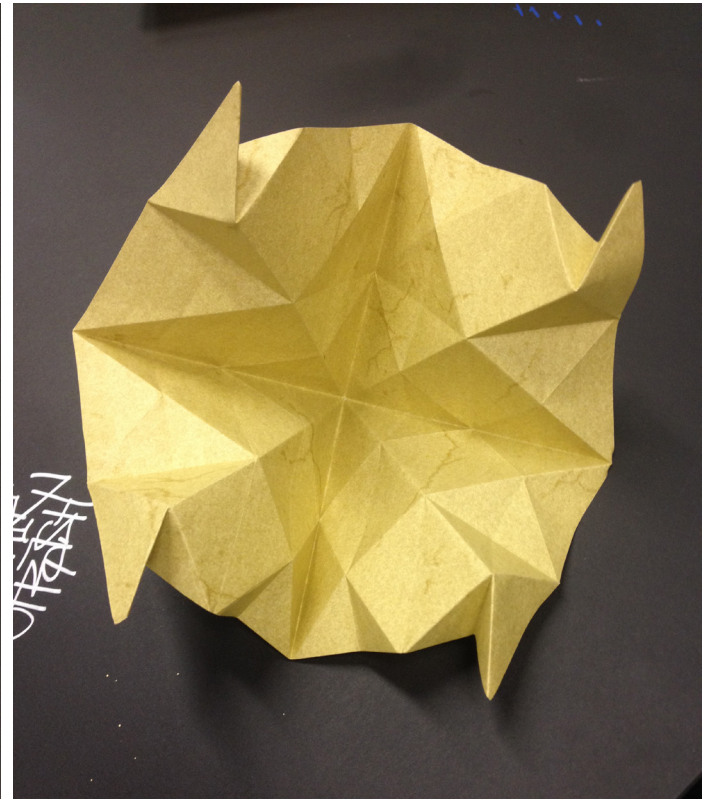
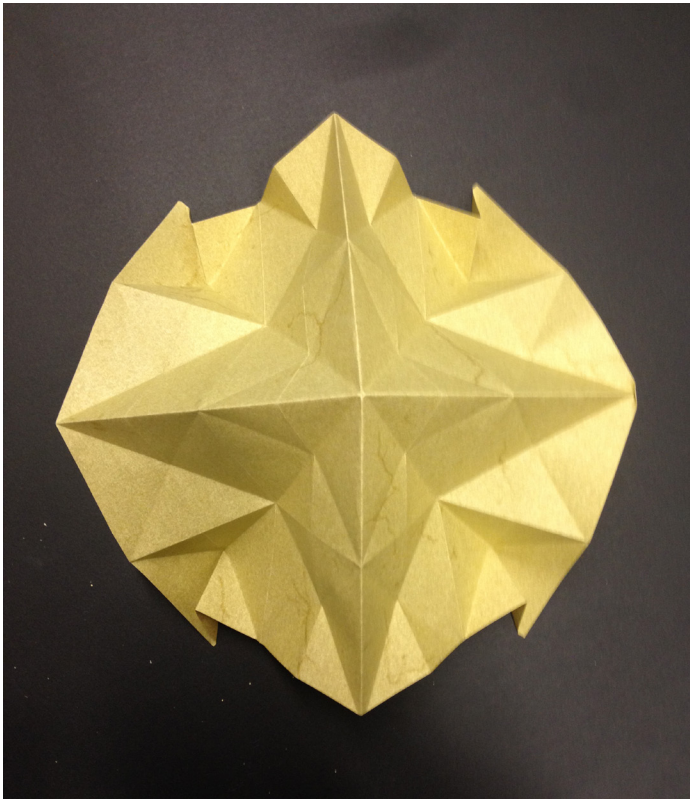
SYNCH by Katherine Roberts-Wood

Another layered, chameleon skin look-a-like, garment. In the end we didn't work with a layered structure, but this kind of layers were an important starting point for us to visualize our idea.

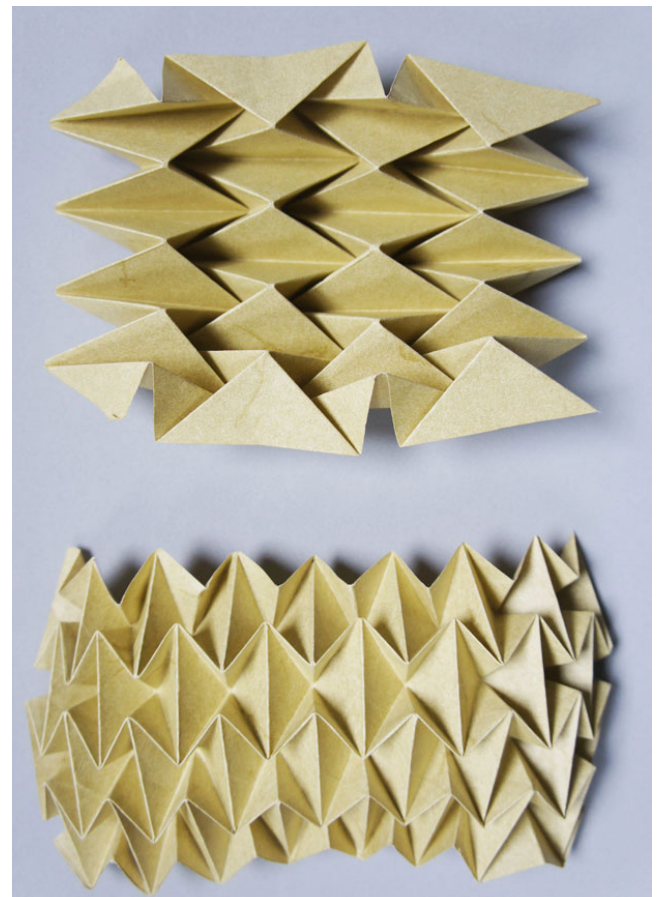


Mutants by Bart Hess

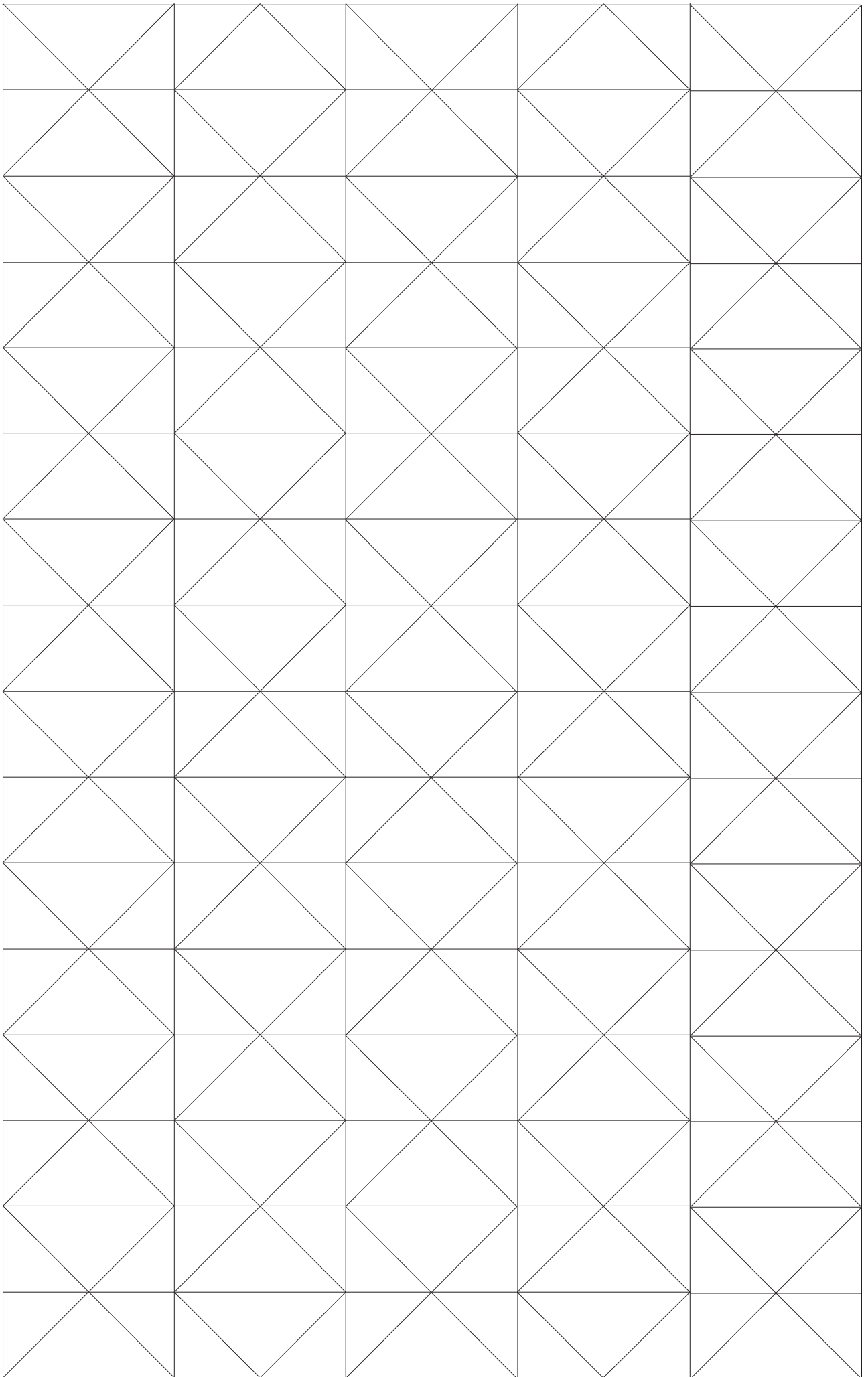
Flexible material getting deformed by the body. Not only the material, also the postures of the models of this project were important for our research. You see how the material changes from a low power posture to a high power posture. This kind of movement we also wanted to use for our garment.

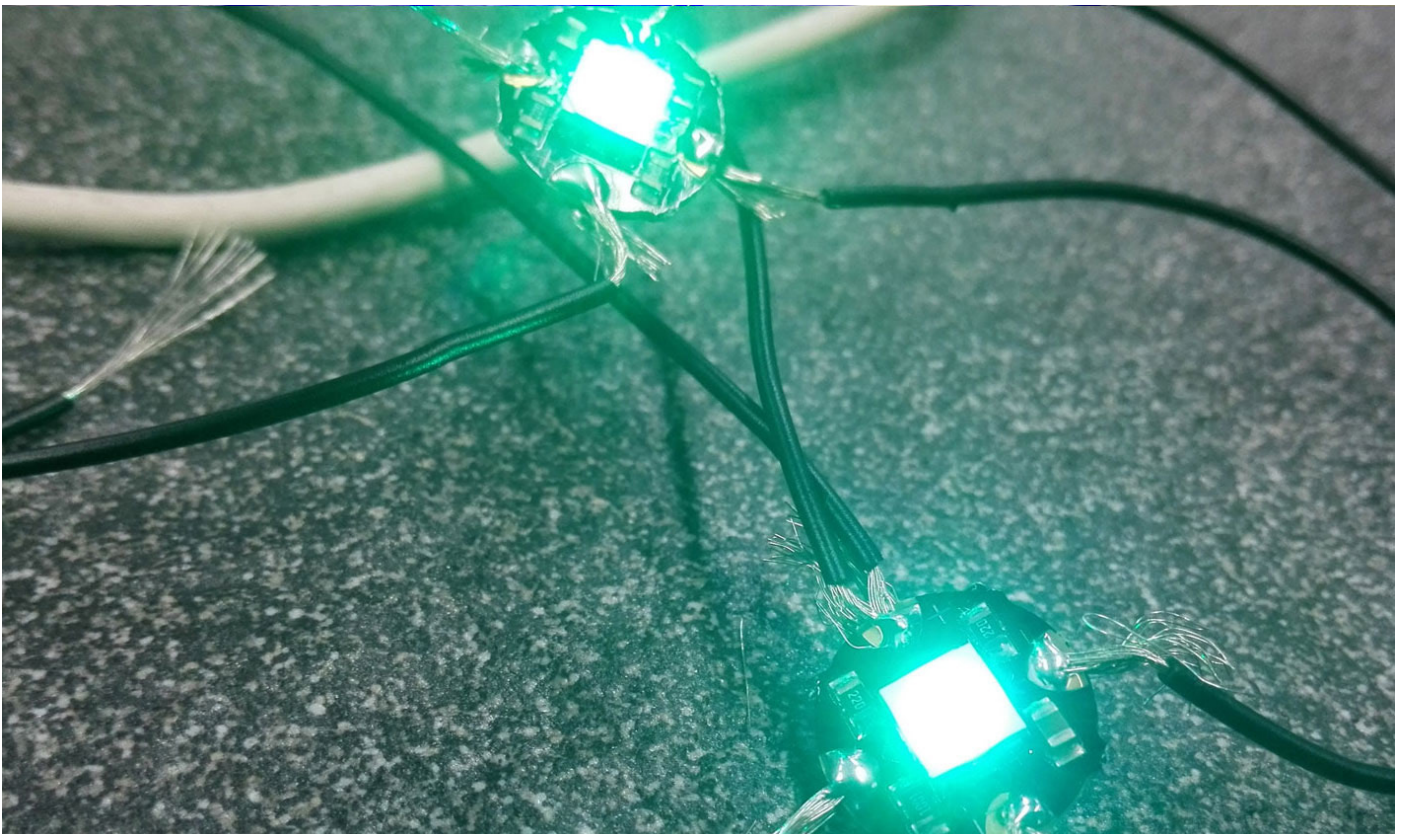
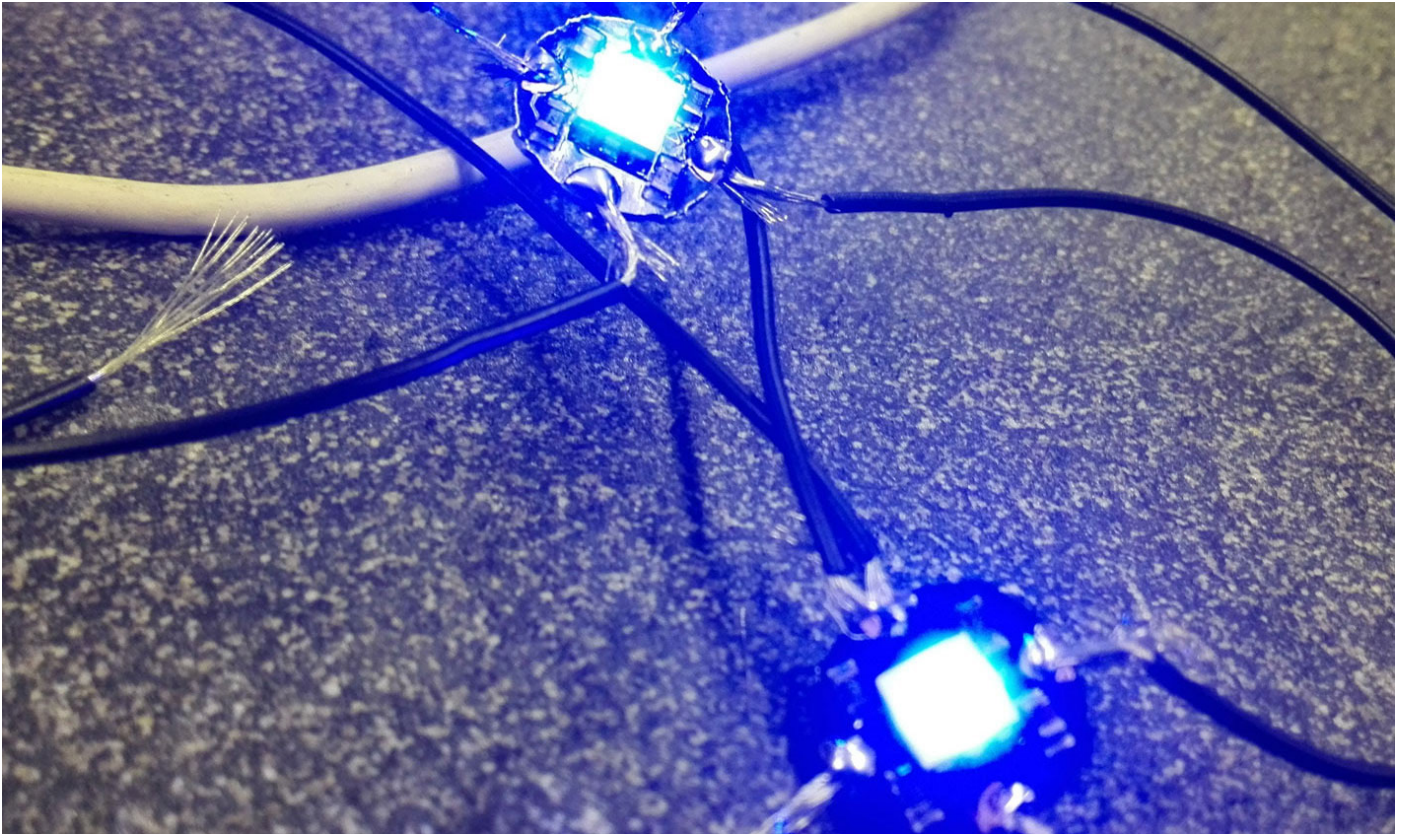


Experiments with folding structures. The first one was actually an accident, but we liked the shape very much. Only the flexibility wasn't really interesting. The second one could totally shrink and stretch out, but we didn't think it would work out if we only had these strings to work with. We also tried cutting, but we found out that it missed the 3D structures that foldings have. The 3D structure from the last experiment was really interesting, but it lacked flexibility.



We chose these two folding structures to work with because of its flexibility. They can totally shrink and then totally stretch out, which communicates the idea of low power and high power. The 3D structures are also an aesthetic feature of the techniques, which made us think of the scales of a chameleon. The pattern of the last technique was easy to duplicate into a 2D pattern in Illustrator so we could engrave the folding lines with a plotting machine. We chose to use a firm but light transmittance paper.





In order to create different colors with different postures we used RGB Neopixels, an Arduino and a flex sensor. The flex sensor is connected to the arm, which will measure when the posture is showing high or low power. The skin of the chameleon inspired us for the colors. When the arms are bend it will show purple and blue because this means that you are shy and when the arms are stretched out it shows yellow and red, these colors communicates an aggressive mood.

Conclusion

How can body postures, as a form of non verbal communication, inspire expressing garments?

Body language is an international language spoken by all of us. This language reveals the way we feel. Due to modern technologies communication nowadays goes through screens and there is a lack of bodylanguage. Because up to 80% of our communication goes through bodylanguage, a lot of miscommunications appear while talking through screens with each other. Our fear is that bodylanguage in the future will be a forgotten language.

Thats why we wanted to develop a garment that works as a medium to express emotions.

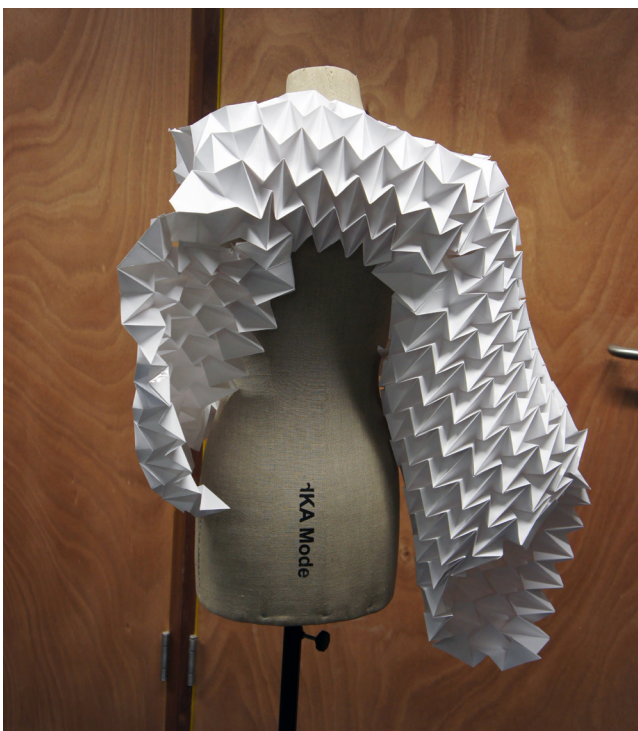
Investigating the topic body language gave us the idea to work with low and high power and to use the transformation from low power to high power. A research to similar projects allowed us to discover even more possibilities and to visualize our concept. Investigating body language of dancers gave us the idea of eight postures that are expressing four moods: shy, dreary, happy, angry.

Letting the garment change from form and color as your body language changes so the garment will grow along with you to become a second skin. A garment that lives, breaths, grows and deforms. This will give a whole new meaning and dimension to the garment.

It will be a new way of communicating and bring people closer to each other. During the development of the garment we found some difficulties in finding the right techniques to create a garment that could move and also change color. We chose to use a folding technique that could change shape, by focusing on the upper body, and color, by using flex sensor and Neopixels. The Neopixels will light up in a different color when certain bodypostures are made. The colors were inspired by the colors of a chameleon, which change along with the mood. With as a result a garment that expresses emotions in colors and form.

The result is a conceptual prototype which expresses body language, growing along with your mood.

Design prototype



It was a challenge to shape the foldings around the body without getting a big ball-shaped garment. That's why we have incorporated a twist into the garment. The garment doesn't cover the whole body, but only the parts that are important by moving your upper body. We focused on the upper body because if you communicate with someone this part of the body is in your field of view. The long sleeve is important because it's focusing on the movement of the arm, which is an important part while expressing your feelings. The sleeve will shrink and stretch out when the movement changes from high power to low power.

Final design



Reflection

Strengths

A strength of our project is that we were working with a relevant topic. There is a lot of discussion about the way we communicate with each other and if the effect of social media is causing a lack of body language. There is less face to face communication. This made us realize we could participate by bringing people together by making face to face communication easier and more fun.

The folding technique allowed us to create an expressing garment which moves along with the body. We used the colors, inspired by the skin of the chameleon, to fortify the body language.

Weaknesses

Folding the garment took a lot of time, the result was that we had less time to focus on the technical part and to make pictures of the garment in the right context.

Another weakness is that we had problems in the beginning with formulating the research question and the purpose of our project. We were much more focused on the aesthetics of the garment. Later on we realized it was necessary to focus more on the research topic.

Opportunities

The flex sensor allowed us to measure just one movement. An opportunity would be to combine different kind of sensors to measure different movements. The garment would communicate even more and complexer moods.

Another opportunity is to make a picture or video from the garment were it's placed in the right context which makes the purpose of the garment much more clear.

Threats

When the garment is expressing different movements and complexer moods, a threat would be that it will be too complex to understand the meaning of the garment at first sight and that the relation between colors and moods will be too unclear. But this will make people think about it.