

SOUND SHELL

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Communicating Bodies 2021/22
7. semester

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CONCEPT



We live in a constant exchange of information. This exchange takes place not only via technical aids, books or news services, but already begins with the communication with each other. You could say that human communication is basically nothing more than the exchange of information between individuals. This exchange takes place on both the verbal and non-verbal level and helps us to communicate with each other. But not only language plays an important role. Much more decisive is our body language, any movements with our body, which take up the largest part of our communication. Body signals and conscious or unconscious behavior can help a person to interpret and understand the other person, even without words.

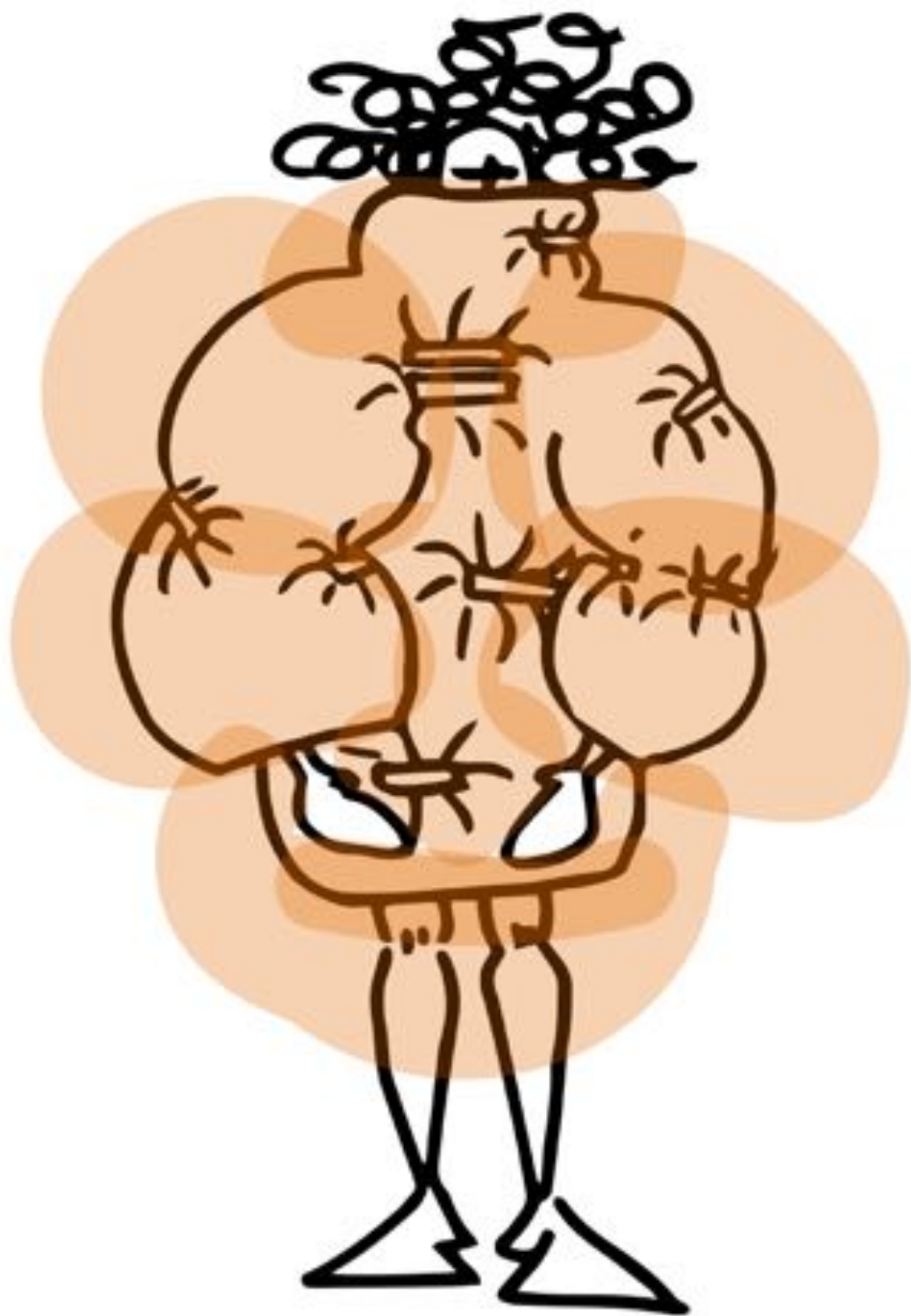
Not insignificant in this consideration is our clothing. It is the interface between the body

and the space and lays itself protectively like a second skin around our body. Thus, it is able to cover our movements and restrict us, as well as to strengthen and emphasize them. Therefore it is an important tool in the communication between people and its effectiveness should not be underestimated. But for example what would happen, if our second skin took on a different, unfamiliar form and imposed a certain way of moving with new characteristics? How would we move if we were embedded in stiff, unyielding material or in soft down that lightly surrounds us?



Top image:
Collaboration between Craig Green and Moncler in FW19, photographed by Amy Gwatin

Lower image:
„Exploded View“, December 2007
Photographic collaboration between Lucy McRae and Bart Hess



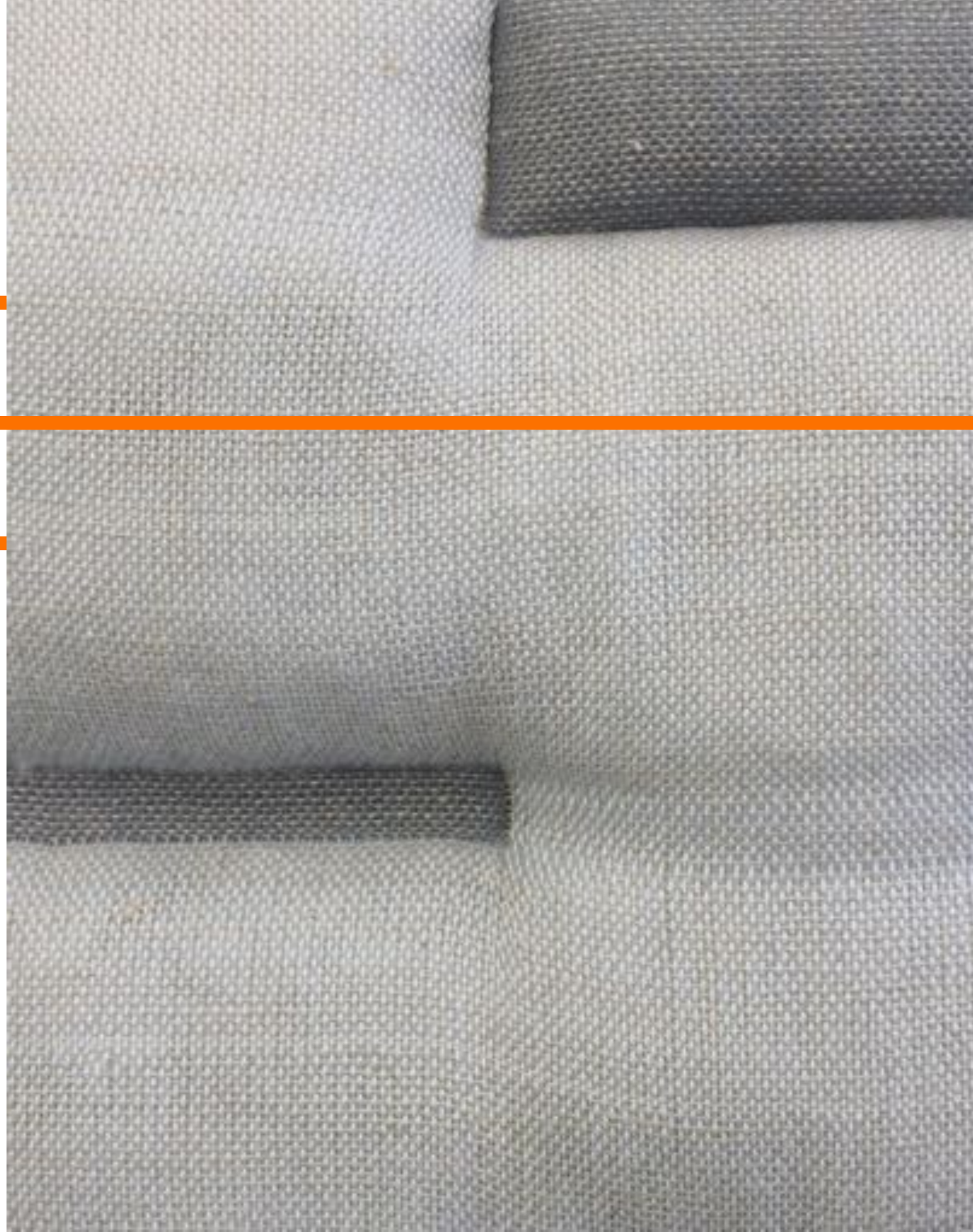


The project is about the idea of shaping the second skin of the human being into a soft, voluminous shell and investigating possible ways of movement in the space and interactions between people. How can movements take place when one is isolated and shielded from the outside world on the one hand and can generate protection from the new surface on the other? How does one behave when one's clothing becomes a soft place of retreat that can offer one tranquility, but at the same time form a tight cocoon around one?

A garment is developed to investigate this question in detail by allowing the wearer to experience and perceive the space and their own body differently through movements in the second skin. By omitting the sleeves, one can no longer rely on support of the hands, but must find one's own balance and stability. In this way, movements in the room take place

in a more uncontrollable and exploratory way and the wearer embarks on a journey of discovery. In addition, by integrating textile sensors (which can respond to pressure), a synthetic sound is created that allows the person to communicate in a new, digital way. The experienced feeling of security, but also confinement, is thus acoustically underlined and arouses curiosity to try out other movements.

PRODUCTION PROCESS



For the production of soft, voluminous textiles, the technique of weaving in two layers, (also called double weave) is used. This type of weaving involves the creation of textiles consisting of two layers, which can be woven independently or joined together in the weaving process. Foldable or double-walled fabrics are created, which have many possibilities for further processing and application. In this project, the production of the double weave is used to integrate small pockets into the fabrics, which are filled with conductive and non-conductive wool and still closed again during the weaving process. Small cushions are created that not only give the garment its soft, voluminous shape, but also form the textile pressure sensors. By using conductive threads in both the upper and lower fabric and filling the pockets with conductive wool, a sensor is created whose con-

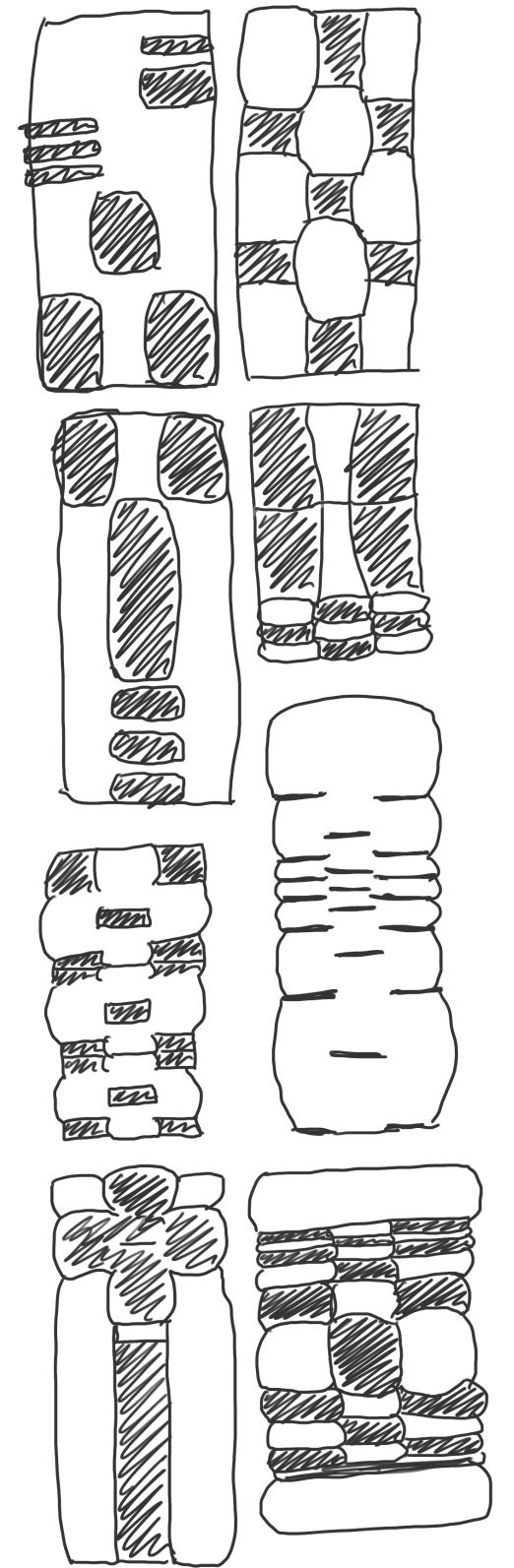
ductivity increases through physical pressure. This sensor is now used to create a synthetic sound using the PD program and give the garment an acoustic effect. Since the woven textiles are to be further processed after the manufacturing process without trimming, various sections in the fabric are filled with wool and others remain empty. This has the effect of folding these areas and thus obtaining a three-dimensional shaped garment without further cutting.

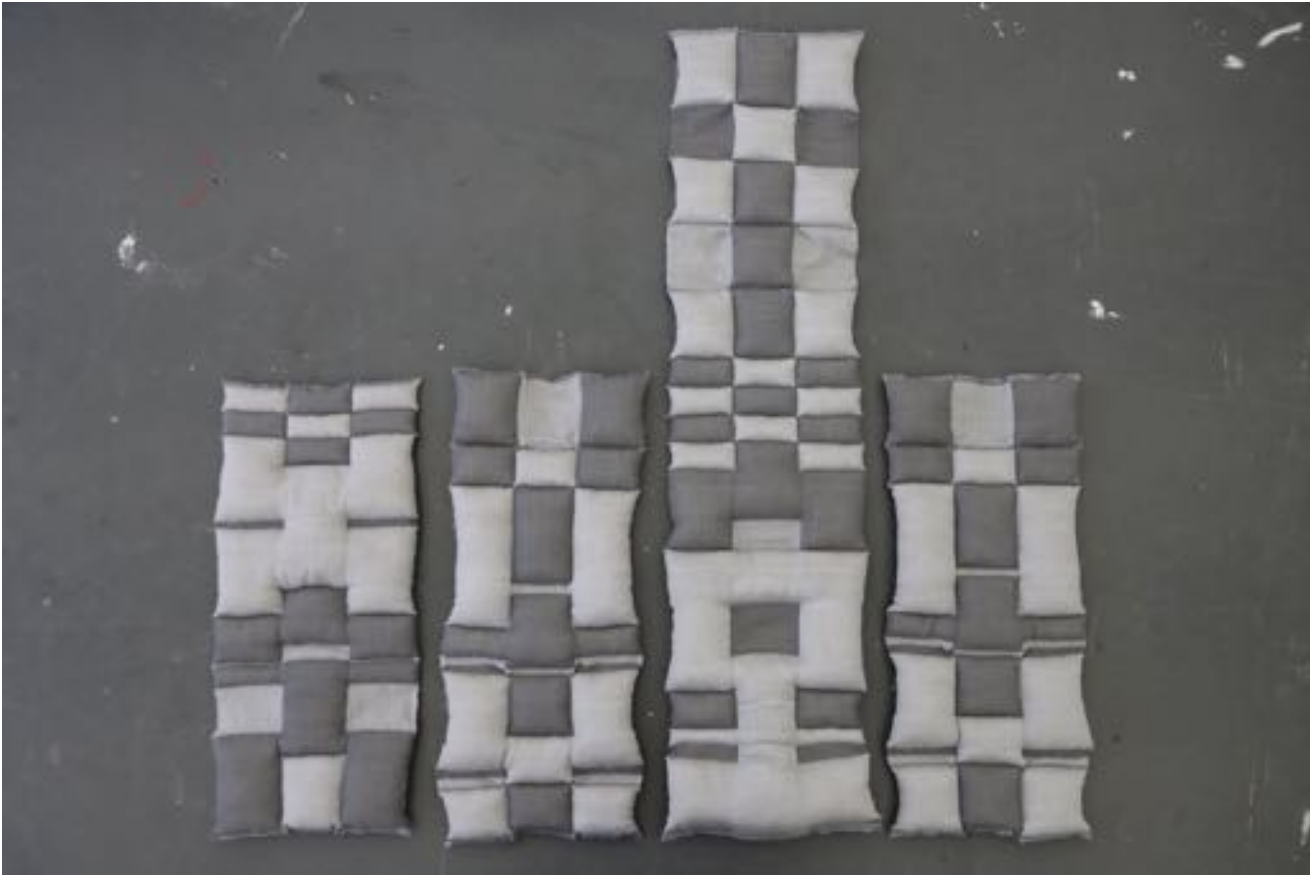




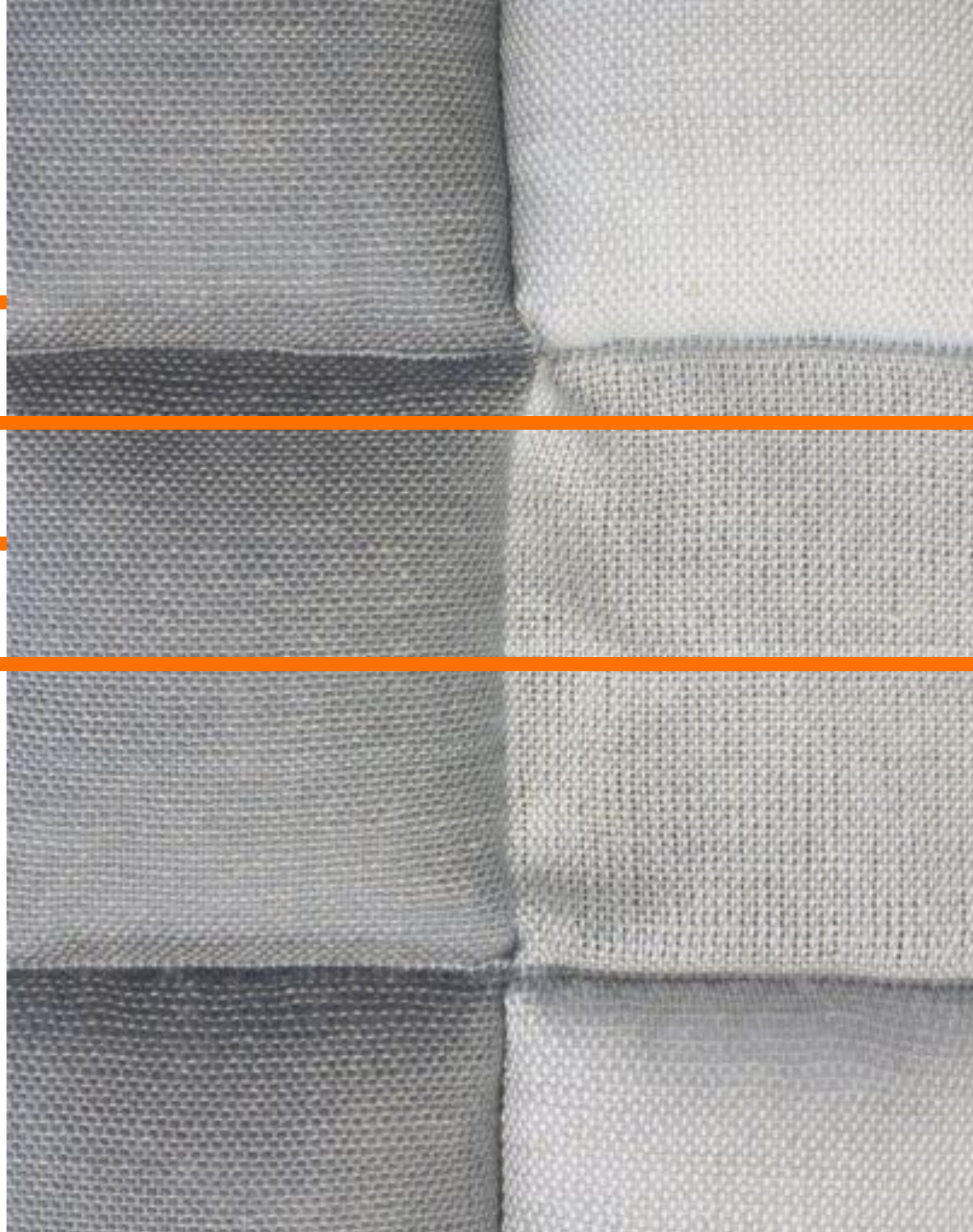
The division of the pockets determines in which direction the fabric can be bent at the end. In addition, the pockets can be also filled with wool in different amounts and thus determine the degree of hardness of the fabric.

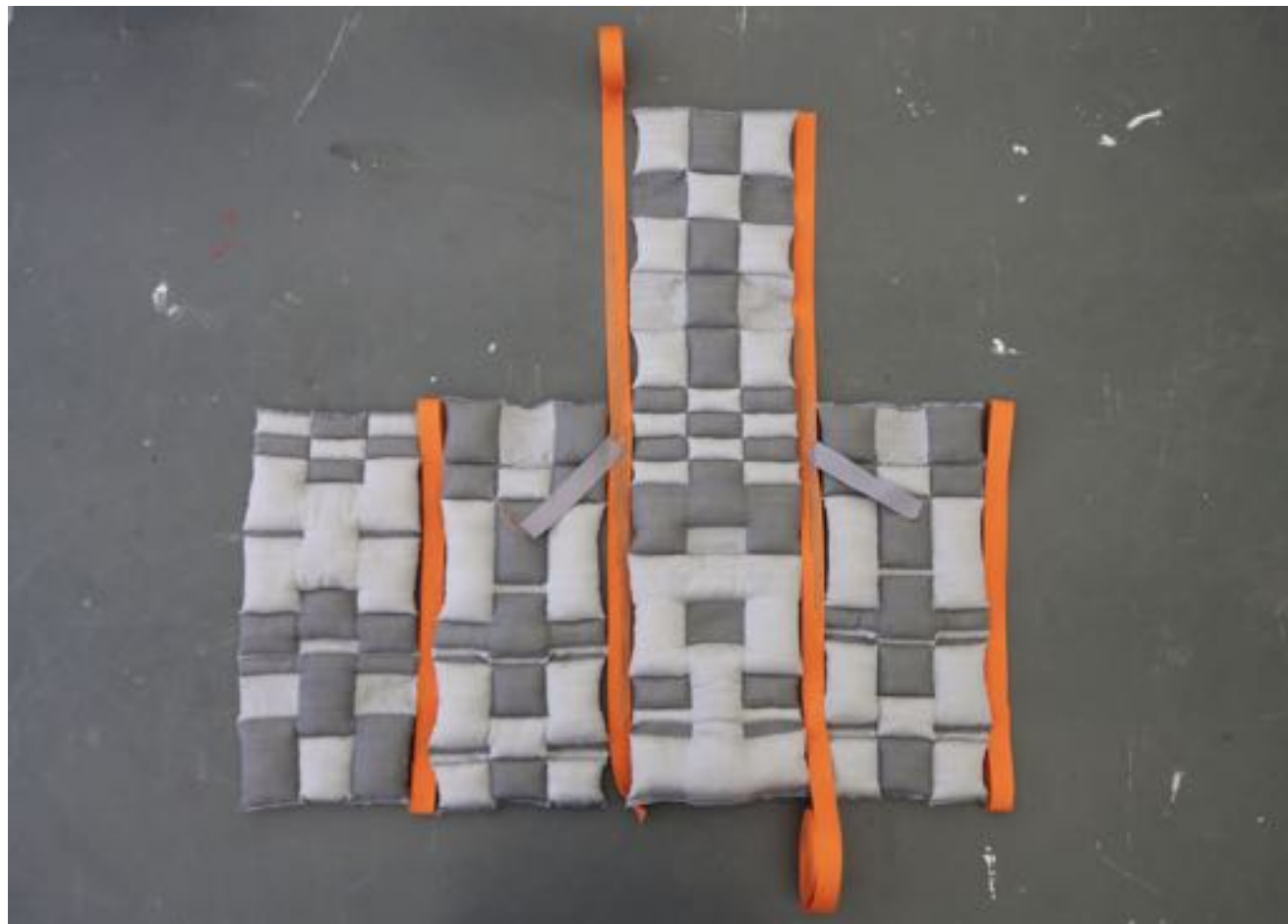






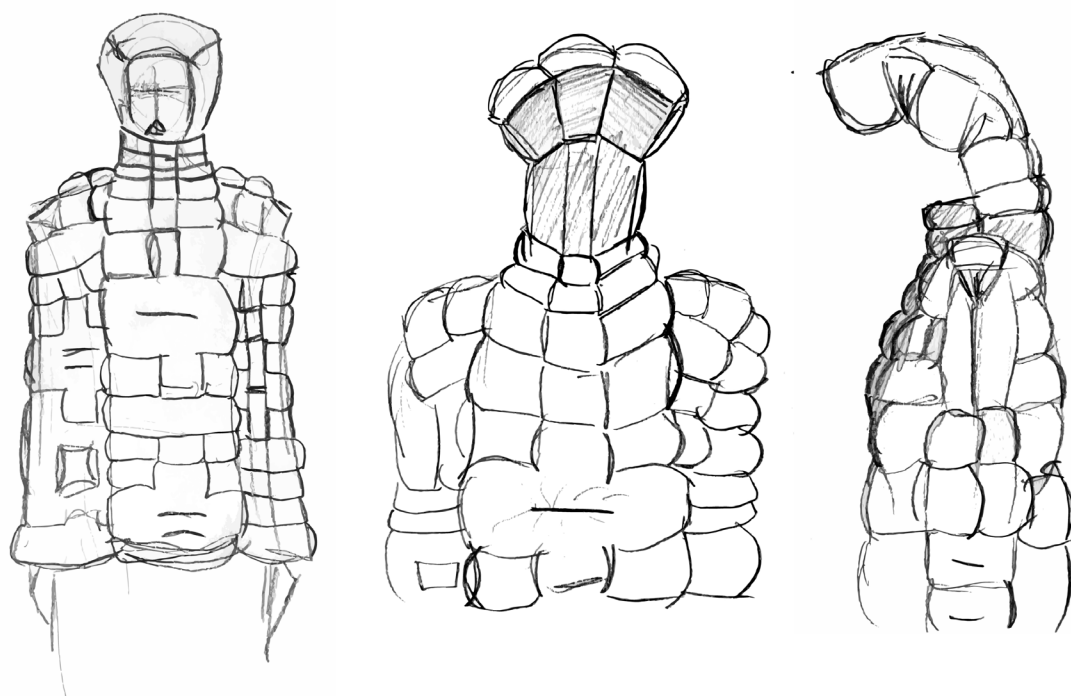
CLOTHING DESIGN





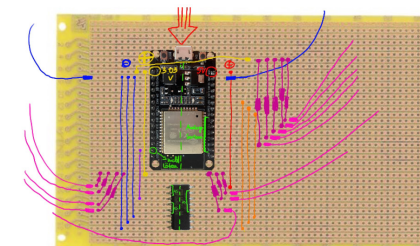
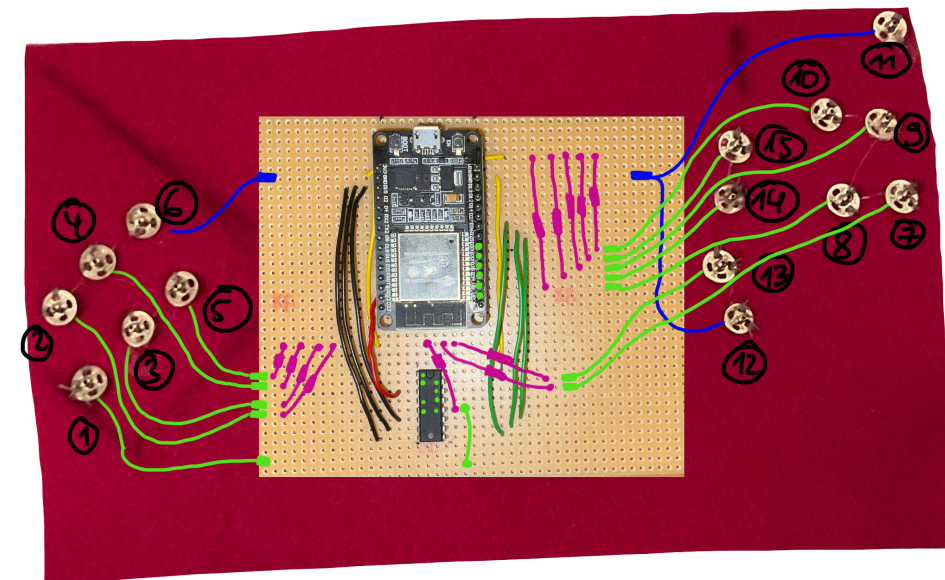
With the help of this process, a kind of poncho was designed, which is equipped with a hood and has no sleeves. For this purpose, the individual fabric panels are further processed in their original form without cutting. Unfilled areas were sewn into shape. This was implemented on the hood and shoulder. To add color accents to the garment and create a place for the wiring of the sensors, orange bands are worked into the garment. They form the basic framework for the connection of the sensors, which are distributed all over the fabric and lead to the ESP. The ESP is a microcontroller with which the data from the textile sensors can be sent wirelessly to a computer with the help of a Wi-Fi router. With the help of the program PD, this data can now be evaluated and thus control the synthetic sounds that were previously created in the program. All wiring and tapes run up to the upper ster-

num, because that is where the ESP is located. This place was chosen, because there is the least contact and the technology would not interfere with movements in the costume.

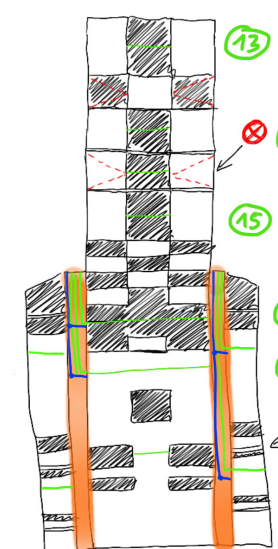
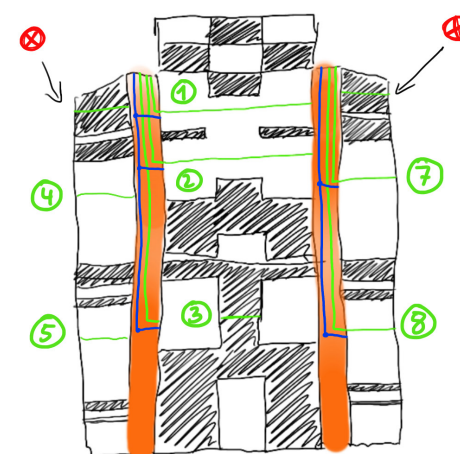




The drawings show all connections from the sensors to the ESP. They are numbered so that I don't lose track and can also set the values individually in Arduino.

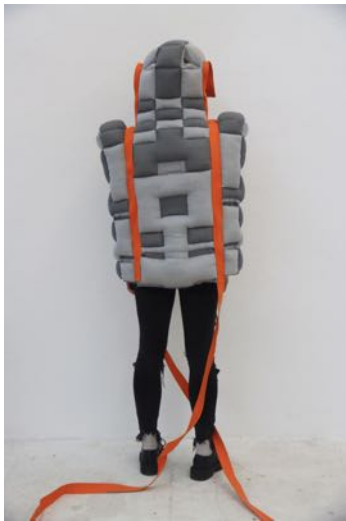


⑥, ⑪ und ⑫ => GND



- = 5V
- = Verbindung vom ESP zum Multiplaxer
- = GND
- = A, B, C
- 2-4 25, 26, 27
- = mögliche Anodepunkte für analoge Sensoren
- = Sensoren
- = 3.05V





BEING INSIDE

At the beginning of the project, the focus was strongly on the consideration between the body, which is wrapped in a soft, voluminous shell, and the space around it.

This focus changed somewhat in the course of the project and became more and more a consideration between the body itself and the second skin that surrounds it. The space as a so-called third skin only became relevant again for later considerations.

Because, contrary to expectations, people who tried on the poncho entered directly into an interaction with the soft shell and only secondarily with the space around. They hunched their shoulders, hid in it and seemed to sink into it.

In addition, all people seemed to get a feeling of warmth, but also security, which tempted them to stay longer in the top. It seemed as if a kind of retreat was created, in which one crawls away to escape the hustle and bustle.

Apart from that, it was also observed that all the movements that took place were curious and exploratory. It takes a short time to get used to the unfamiliar shape of the garment and to test out ranges of motion that do not involve the arms. Consequently, the movements were also rather unfamiliar and testing. The consequence of this was that the space became more and more involved in the movement sequences and could form support. And still the performance between the enveloped, protected human being and the outside space, which has different material qualities, or even with other people, can be extended infinitely.









SOURCE LIST

IMAGE CREDITS:

image page 9 top: Collaboration between
Craig Green and Moncler in FW19, photogra-
phed by Amy Gwatin

image page 9 bottom: „Exploded View“, De-
cember 2007
Photographic collaboration between Lucy
McRae and Bart Hess

other images: Saskia Buch

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THANKS TO:

EMILY FUHRMANN

ELISA MARTIGNONI

FREIA ANTONIA WEISS

