



MORPHOGENESIS

Biowear as political intervention

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„The revolution in biotech and infotech will give us control of the world inside us, and will enable us to engineer and manufacture life.“

- Yuval Noah Harari, 21 Questions for the 21st Century

ABOUT



Algae leather ingredients

What might a future look like where we live in partnership with nature instead of exploiting it?

How can new technologies and Biodesign help us pave the way for new ways of making, working and living together in social communities?

Can Bio Design be a liberating design practice leading to self-actualisation and personal autonomy?

Bea Brücker's work is situated at the intersection of Biodesign and technologies such as 3D printing, computing as well as the development of compostable biomaterials. She is fascinated by combining the natural with the digital to create future design practices for ethical and ecological fashion. Her work „Morphogenesis“ is set in a speculative reality characterized by pandemics and dead zones. In this scenario, individuals band together to use Biofashion as a political movement that empowers people through the creation of tools and communities. Using mathematically generated Multiscale Turing patterns and self-bred algae leather, a new design system is being built that could lead to autonomy and combat the effects of the climate crisis.

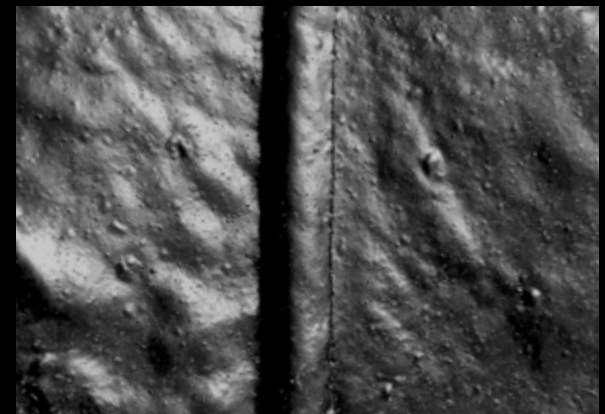
ALGAE LEATHER

The bio leather is grown from algae and will be transformed into outfits using moulding techniques and 3D printing. Due to the rapid growth of algae, we are seeing a significant increase in dead zones in the ocean. However, algae are not only harmful, but can be used as an important food source, as a natural air purifier and for compostable clothing.











BENEFITS of Algae leather



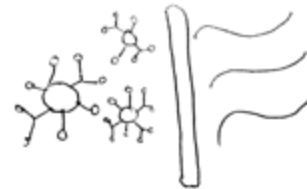
REPAIR / REUSE



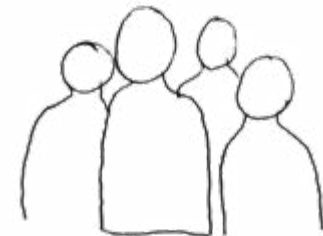
PERSONAL BIOLOGY:
AUTONOMY & TRANSPARENCY



COMPOSTABLE



NATURAL AIR PURIFIER



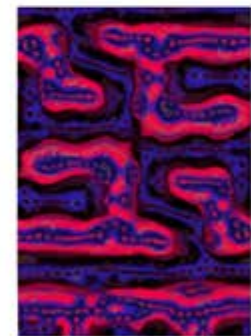
COMMUNITY FORMATION

TURING PATTERNS/ REACTION- DIFFUSION SYSTEMS

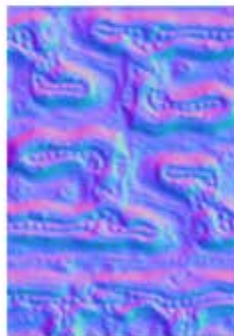
Reaction-diffusion systems describe processes in which a local interaction and a diffusion takes place, whereby the pattern formation in nature (e.g. zebra stripes) can be explained mathematically. With the help of a computer model we created mathematically generated patterns by working with this algorithm. This project focuses on the exploration of this digital design process in combination with biomaterial.



turing patterns in nature



mathem.generated pattern



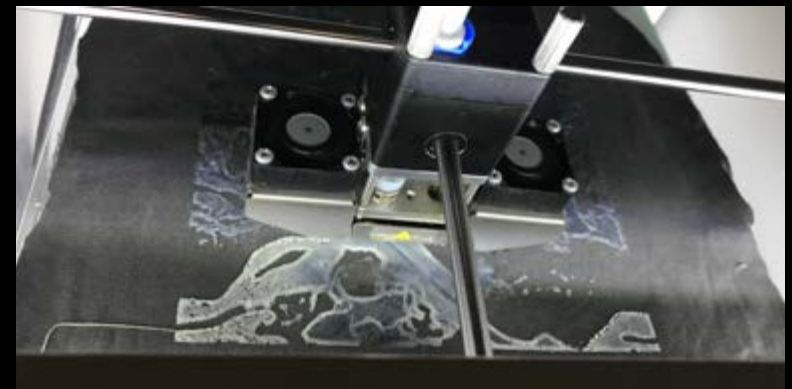
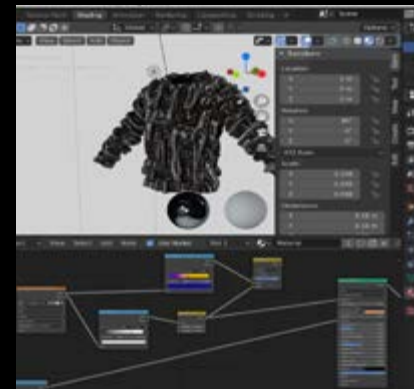
normal map



laser-cut: turing patterns on wood



TURING PATTERNS_ algorithm in biology





DIFFERENT BALANCE BETWEEN 3 AGENTS

in my design process

1 Mostly directed by me - TODAY

2 Mostly directed by the digital-
NEAR FUTURE

3 Mostly directed by the biological
-FAR FUTURE

TODAY

MOSTLY DIRECTED BY ME

ENGRAVED
A L G A E
LEATHER





ENGRAVED BIO LEATHER





TODAY/NEAR FUTURE



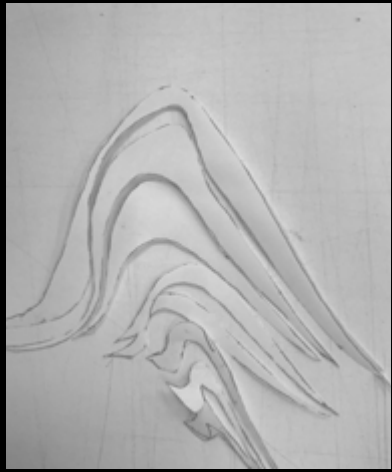
MOSTLY DIRECTED BY ME

FINDING SHAPES

THROUGH ITERATIVE

DRAPING

WITH TURING PATTERNS





A close-up photograph of a person's torso and arms. The person has extensive, colorful tattoos, including a large skull and crossbones on the chest, a ship on the upper arm, and various symbols on the hands. They are holding a piece of fabric with a pink and blue pattern. The background is a plain, light color.

NEAR FUTURE

MOSTLY DIRECTED BY ME & ALGAE

ALGAE PRINT

in collaboration with Meredith Wood



ALGAE PRINT



ALGAE HEMP



ALGAE MOULDED

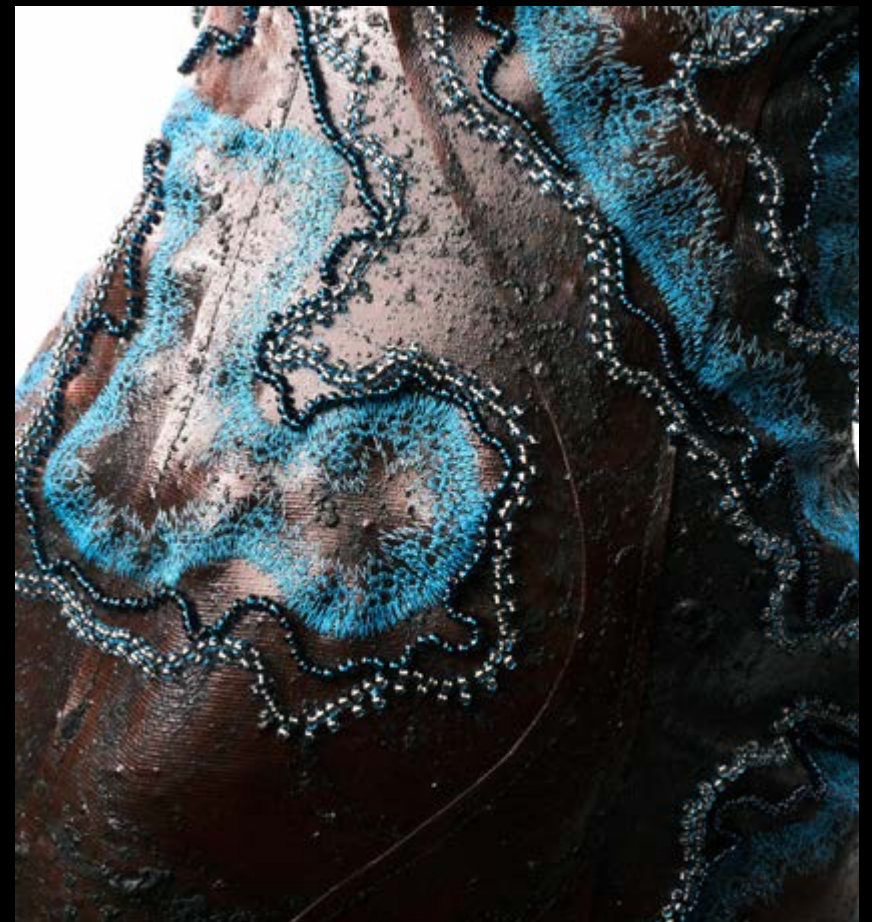




TODAY

CIRCULARITY IN EMBROIDERY--
TAMBOUR BEADING

Collaboration Choj ,Jenny' Mi







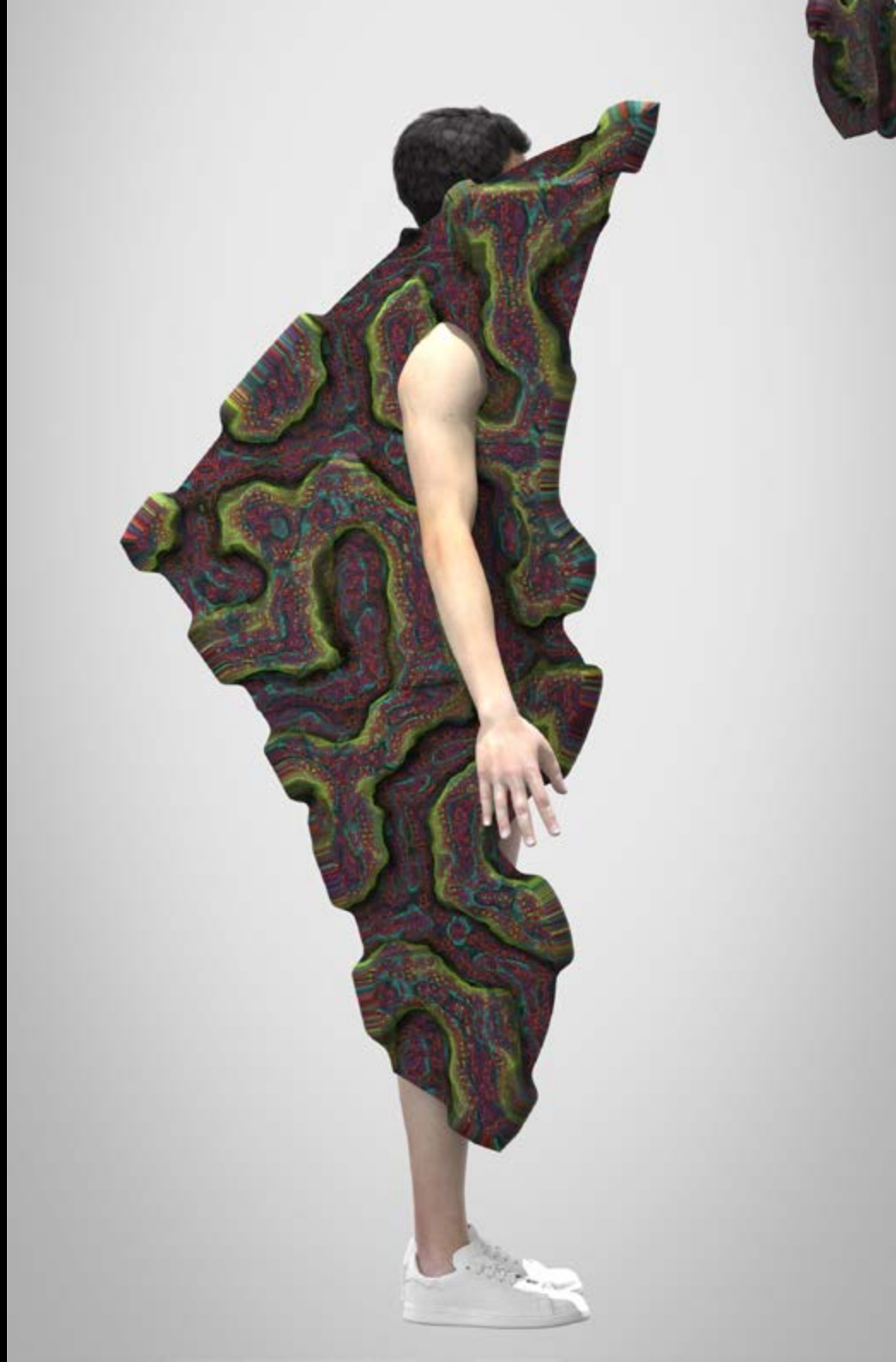
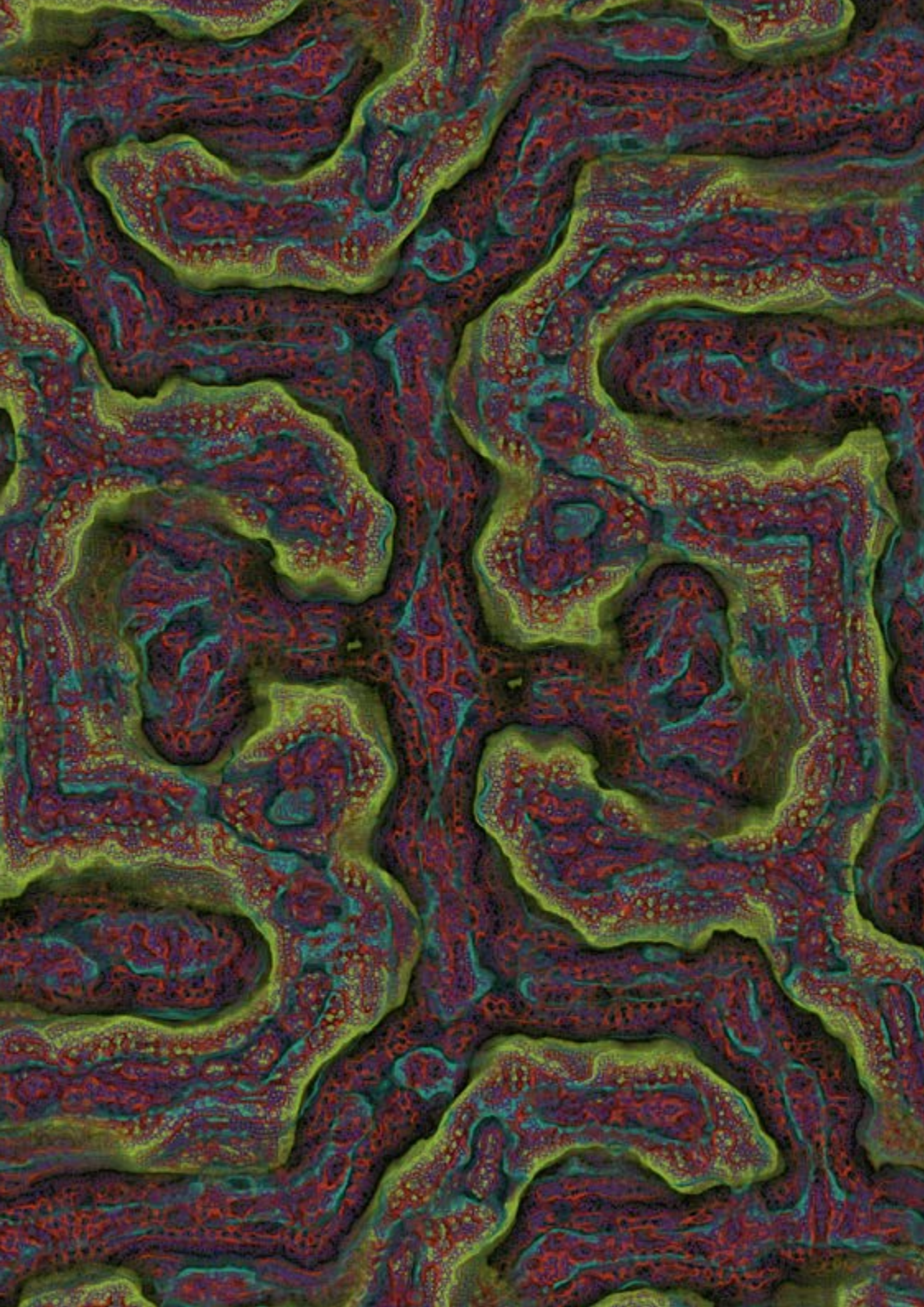
NEAR FUTURE

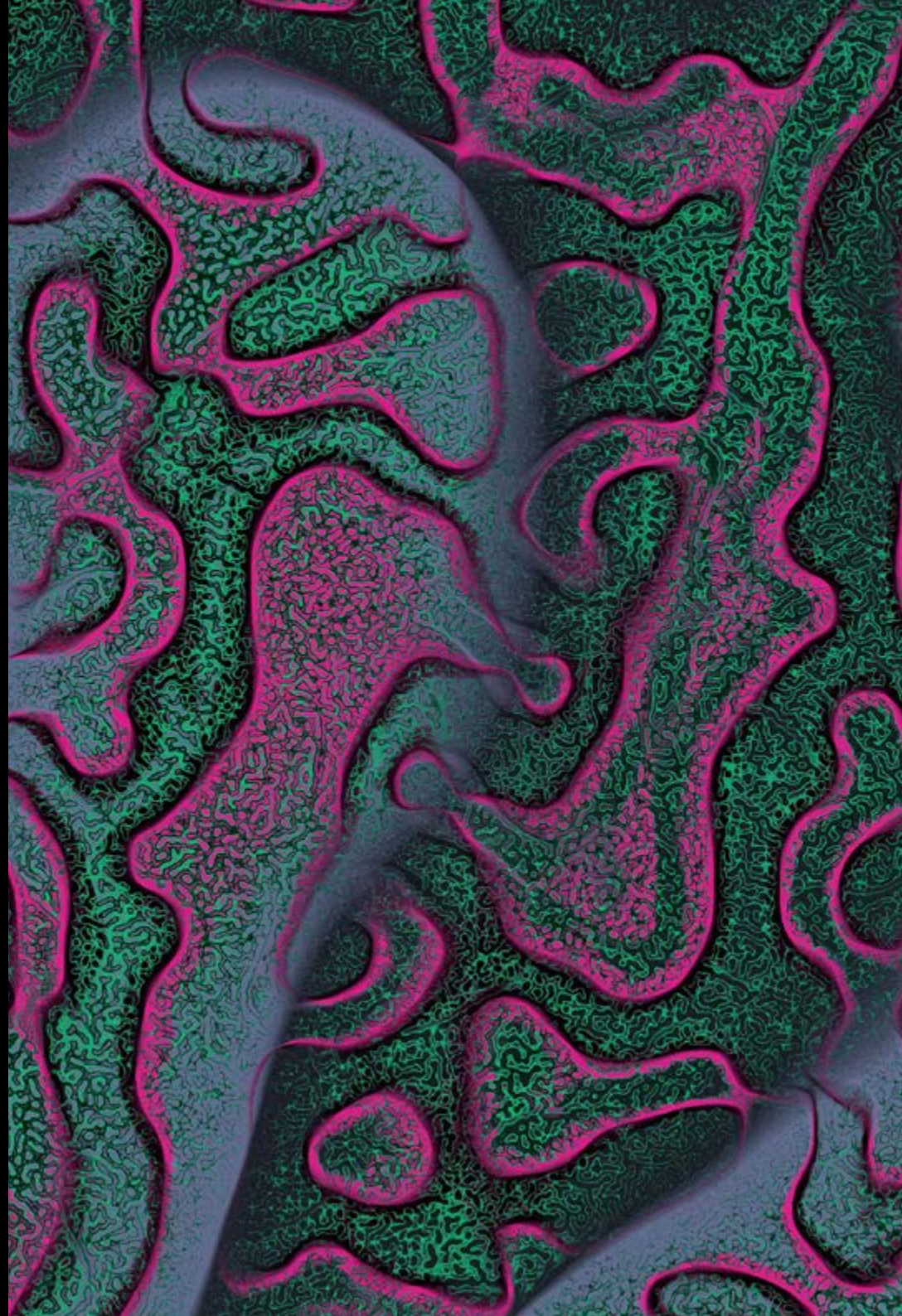
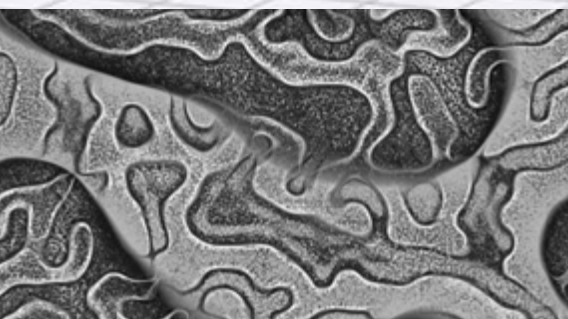
directed by the digital



KNITWEAR

when turing patterns create
digital knit





FAR FUTURE THE MATERIAL CREATES ITS OWN SHAPES









MOULDING

WET MOULDING

VACUUM FORMING

3D PRINTING

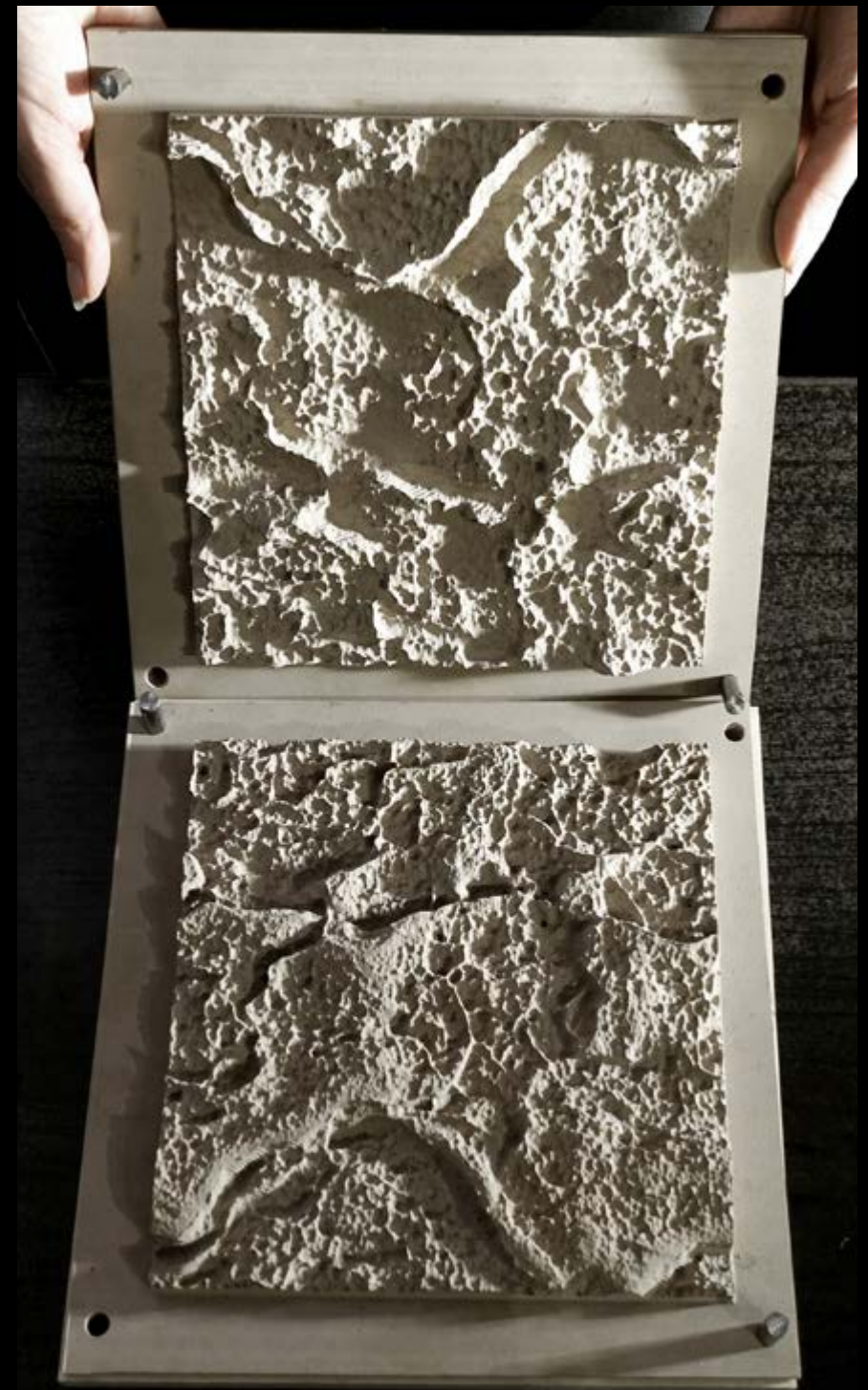
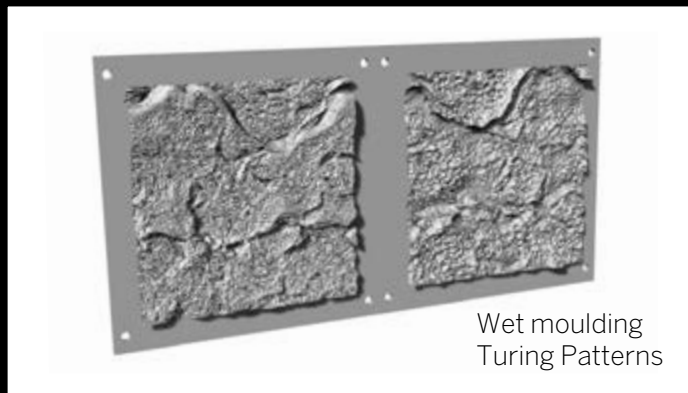
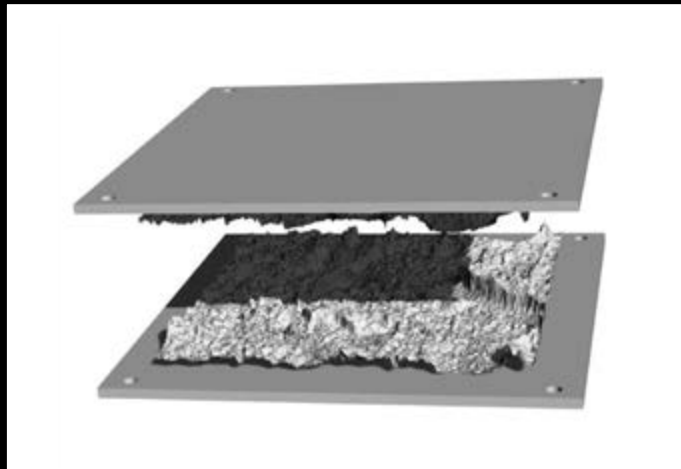
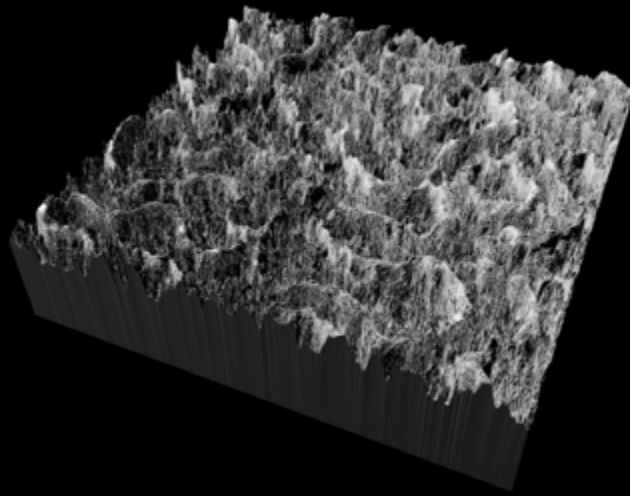
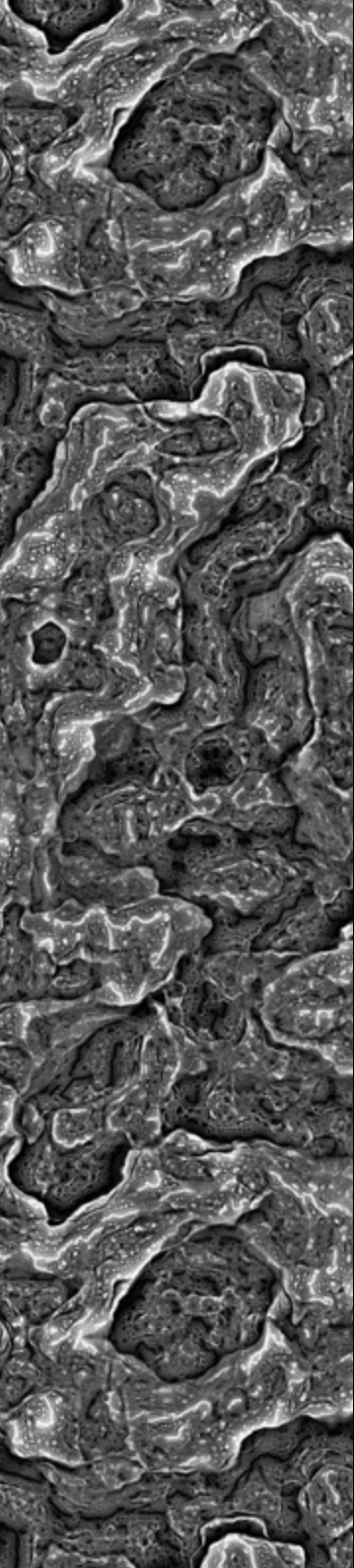
CNC

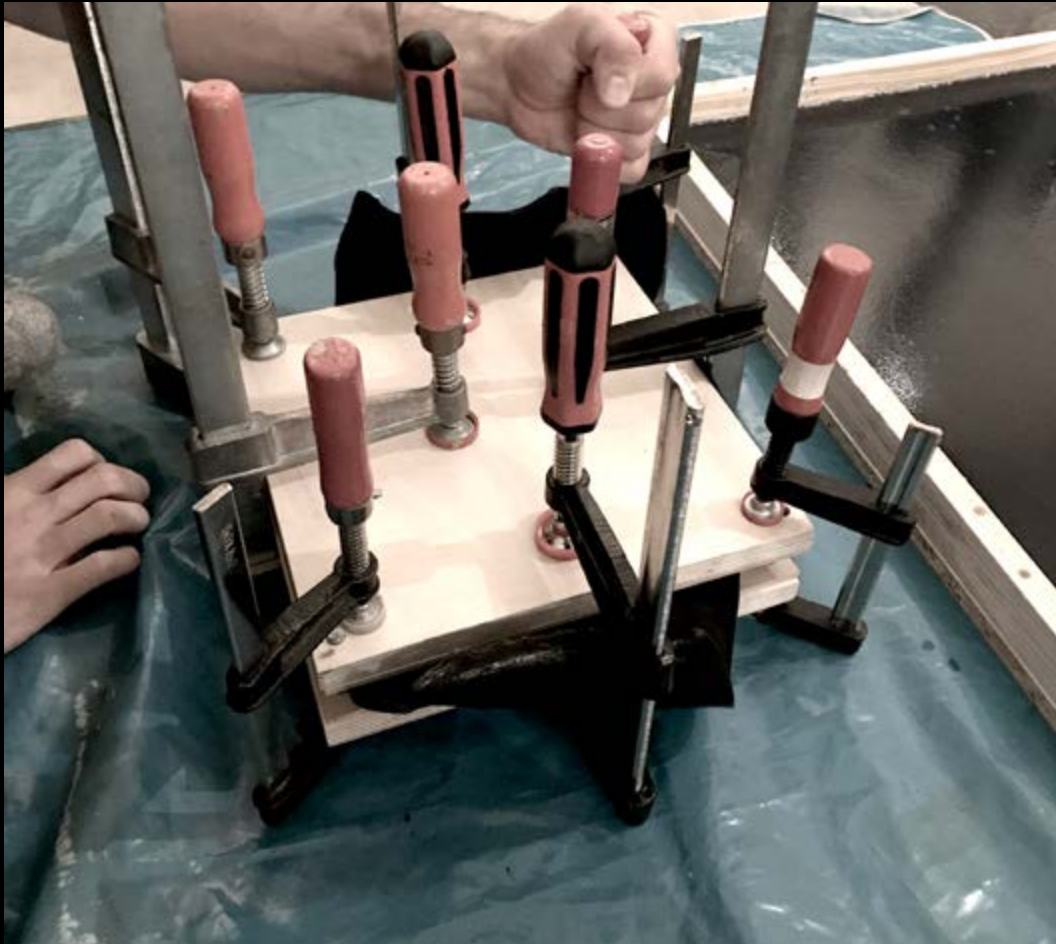
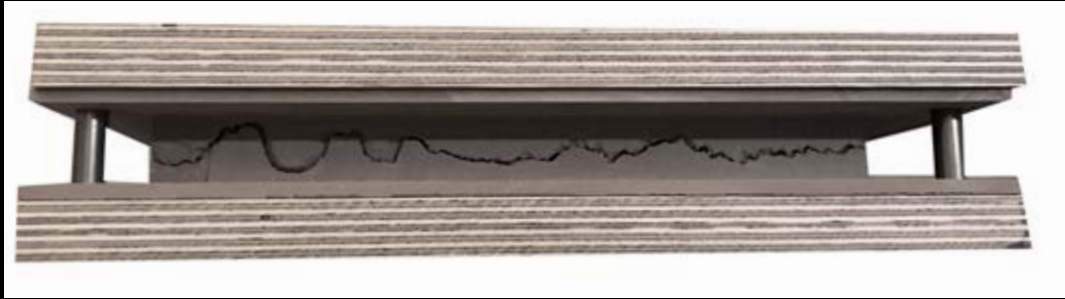


ALGAE LEATHER MOULDING



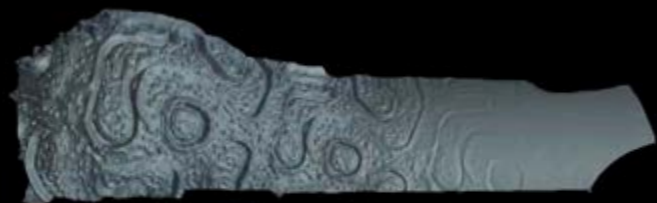
In 1951 Alan Turing mathematically explained the emergence of patterns and shapes in nature. Via an algorithm, we can use his model to create Multi-Scale Turing patterns. Anyone can design unique clothes using these patterns and make their own clothes out of algae leather via a moulding technique using CNC and Vacuum Forming or 3D printing. In this way the consumer is involved in the design process.



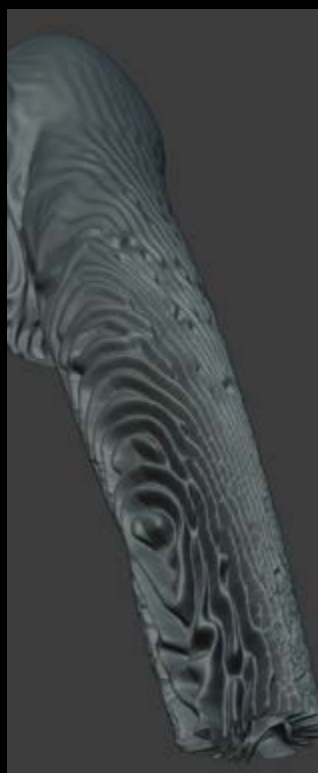




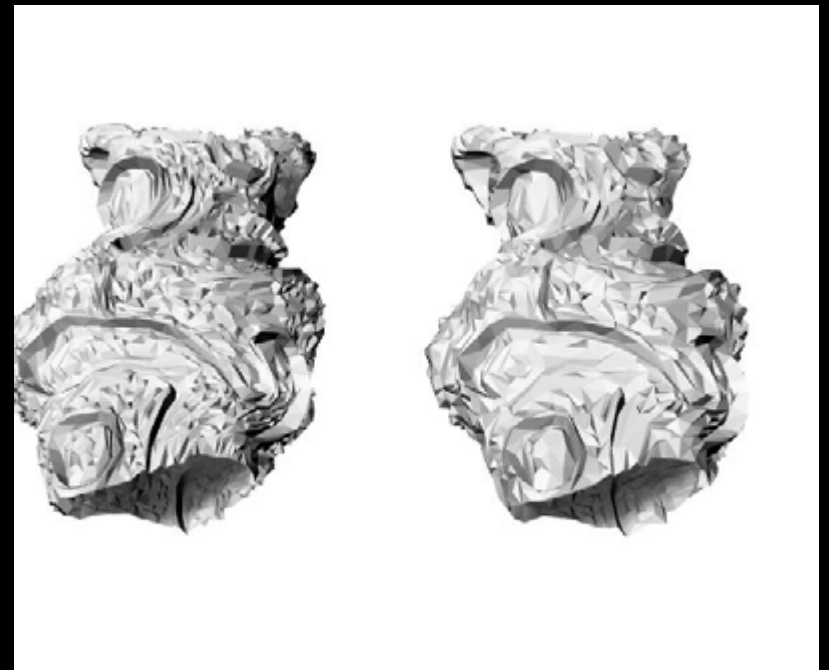
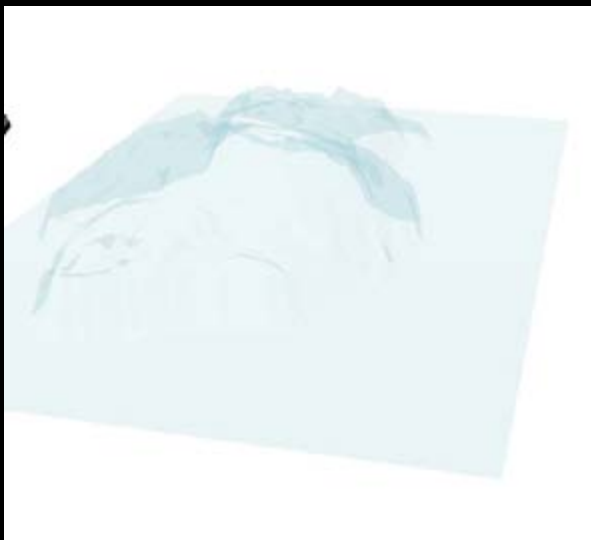
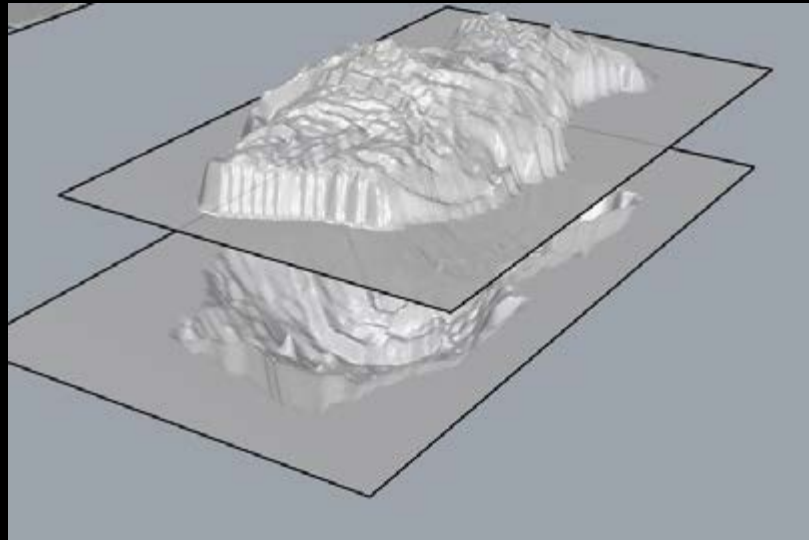
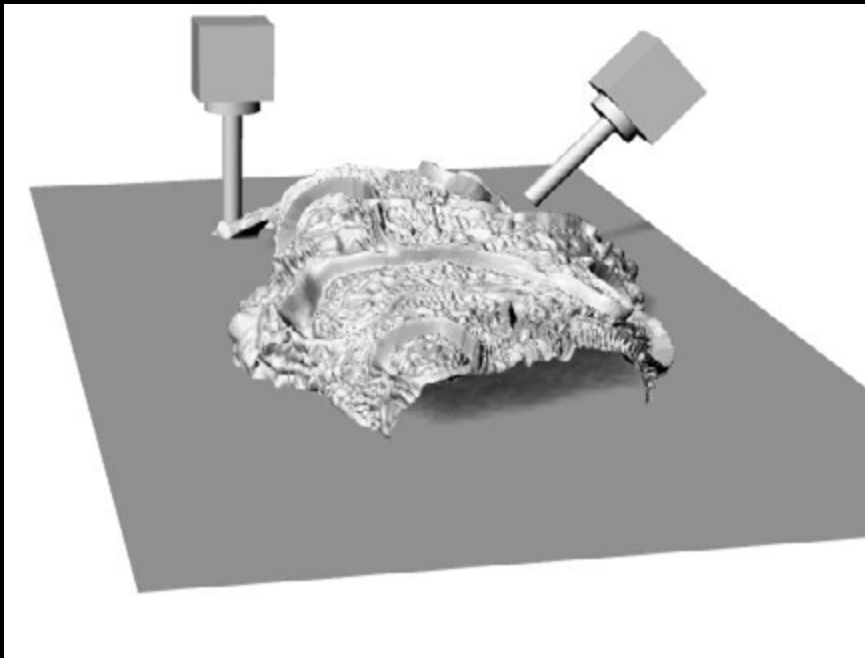












The digital is in conflict with the physical







[please click here to
watch video](#)