CRAFTSMANSHIP MEETS TECHNOLOGY IN FASHION

FUSING DIGITAL AND PHYSICAL WORLDS IN FASHION AND TEXTILE DESIGN

STATE OF NOW

In recent years, the fashion industry has come under heavy criticism. We are increasingly aware of how our consumption impacts the environment and people, leading us to search for new paths and innovative solutions.

At the same time digitalisation is advancing rapidly across all fields of society, including fashion design. It can improve processes, reduce waste and increase traceability. Additionally 3D garment construction and cloth simulation open an endless playground for creation without the constraints of gravity or material limitations.

Through these developments, digital fashion has emerged as a sector leveraging technology to transform the traditional fashion industry and has become a field of its own extending into the virtual realm. Digital fashion enables novel methods of creation and alters the required skills, challenging long-established norms within the industry.

Digitalization as well as the rise of AI bring fresh possibilities and questions to the forefront. Designers are eager to push boundaries and explore this potential, yet without sacrificing the physical aspects of their profession. There is a need for workflows and interfaces that enhance human-computer interaction, enabling workflows that seamlessly integrate manual techniques with technological advancements.

Old and new methods don't have to compete; instead, they can challenge and enrich each other, leading to a more holistic and dynamic approach to fashion.

Image left @ Johanna Hullar
Artwork center @ Edith Dekyndt

EXPERIMENTAL CRAFTS BEYOND HORIZONS

Real-life knowledge is essential for building something digitally. Understanding how something is built in the physical world is key to achieving authenticity in the digital space. Creating digital fashion challenges us to translate our traditional craftsmanship into a new digital language, enabling us to recreate what we wear in the physical world and to take it further into a realm where gravity or shortage of materials are no limitations.

The exchange of knowledge between physical and digital craftsmanship allows us to enhance our skills in both areas. This creates a dynamic interplay that widens our horizon, enriches our understanding and capabilities.

Venturing into the digital realm can feel overwhelming, as it requires new knowledge and opens up a vast and expansive world. Fashion builds upon a rich heritage which, when put into a different context, can raise relevant questions and provide new perspectives. Our physical skills can serve as guiding rails as we search for novel ways to express our ideas and explore identities.
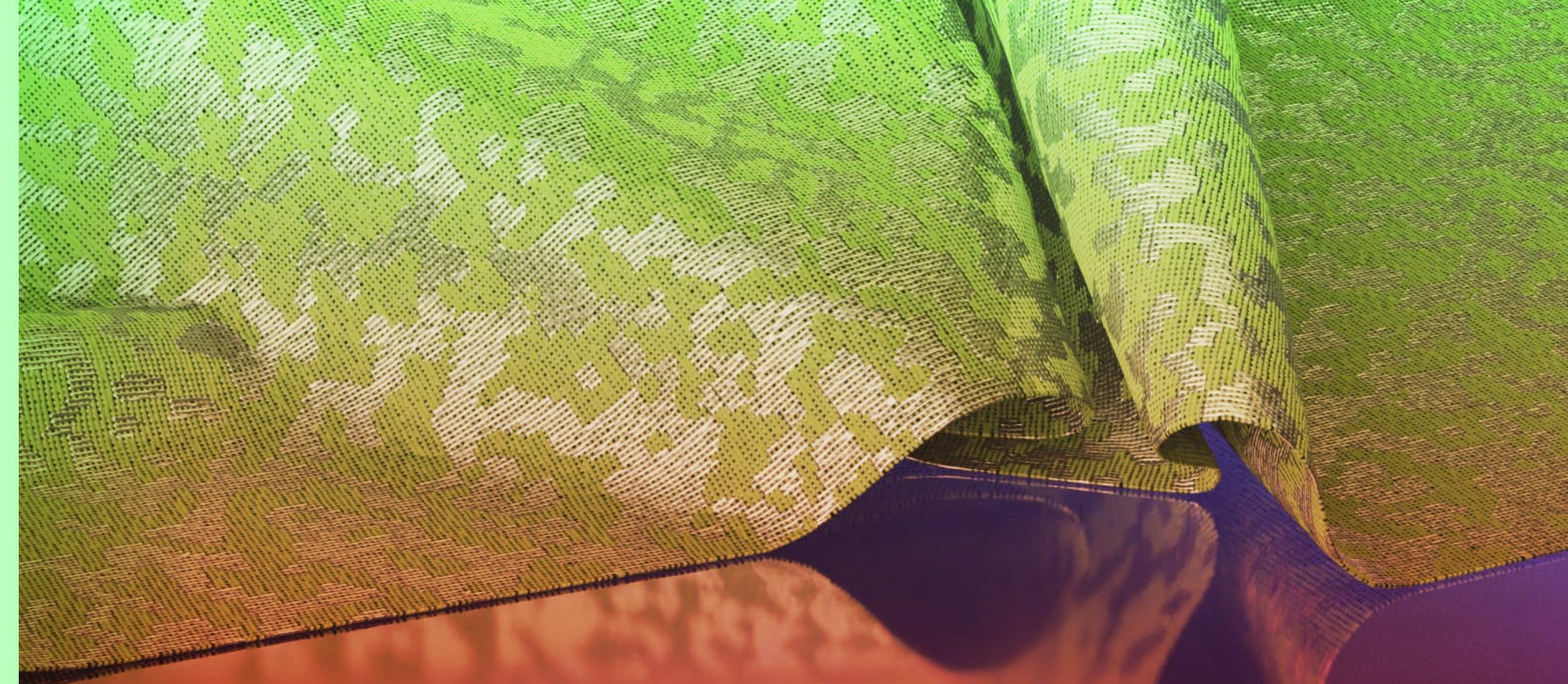
Physical crafts are the technologies of the pre-digital age, while digital tools are becoming the crafts of the future.

Augmented Weaving

Images © Augmented Weaving

BETWEEN

building bridges

transition from traditional to digital

dissolving the distinction between reality and fantasy

delving into uncharted territory

taking the best out of both worlds

THE PAST

NOW

THE FUTURE

asking questions

questioning the application of a tool

placing craft knowledge in a new dimension

finding solutions

thinking forward

INTERSECTION

the relationship of human and machine is a profound driver for fashion

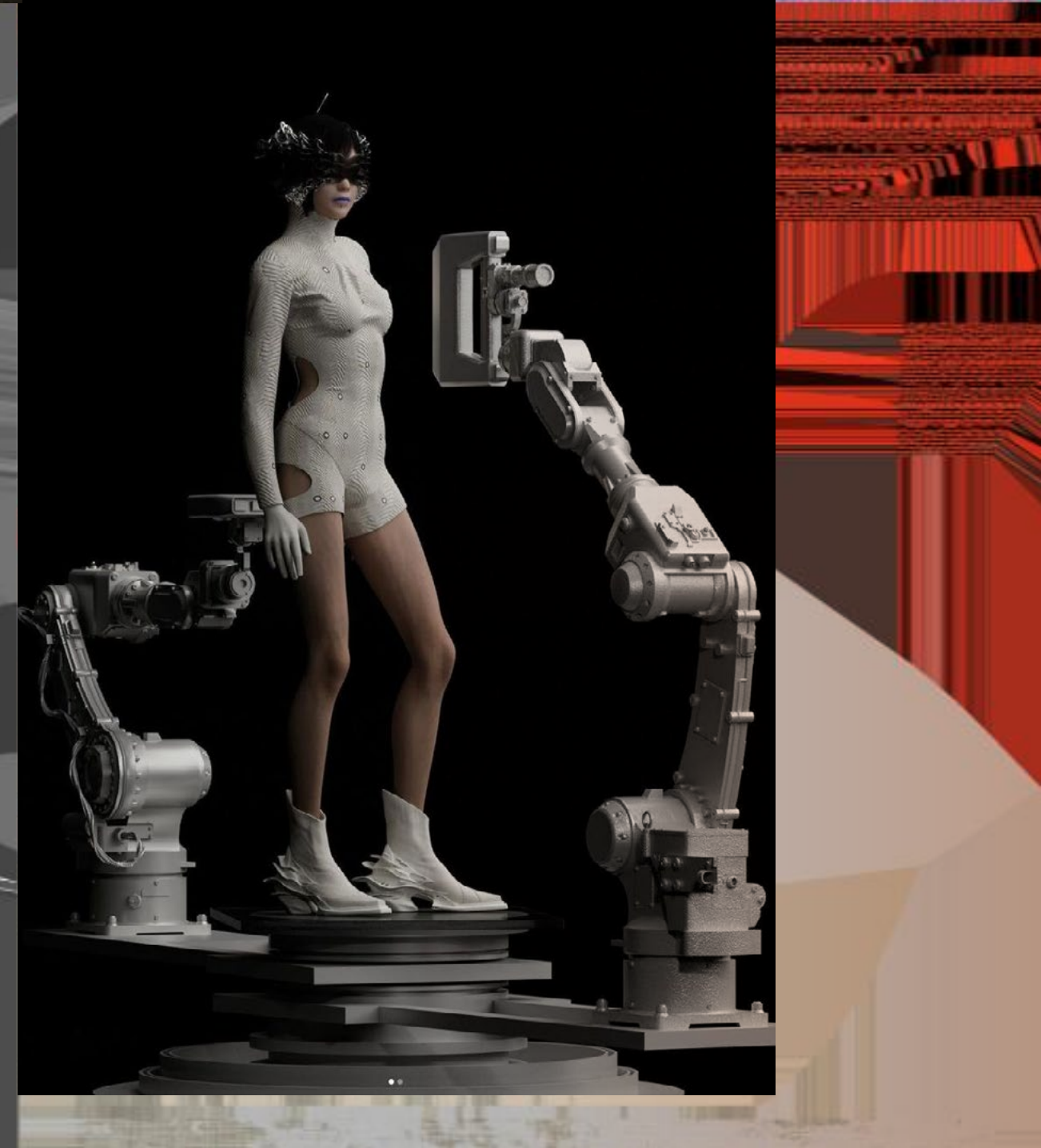Images: @augmentedweaving | @ dollushka
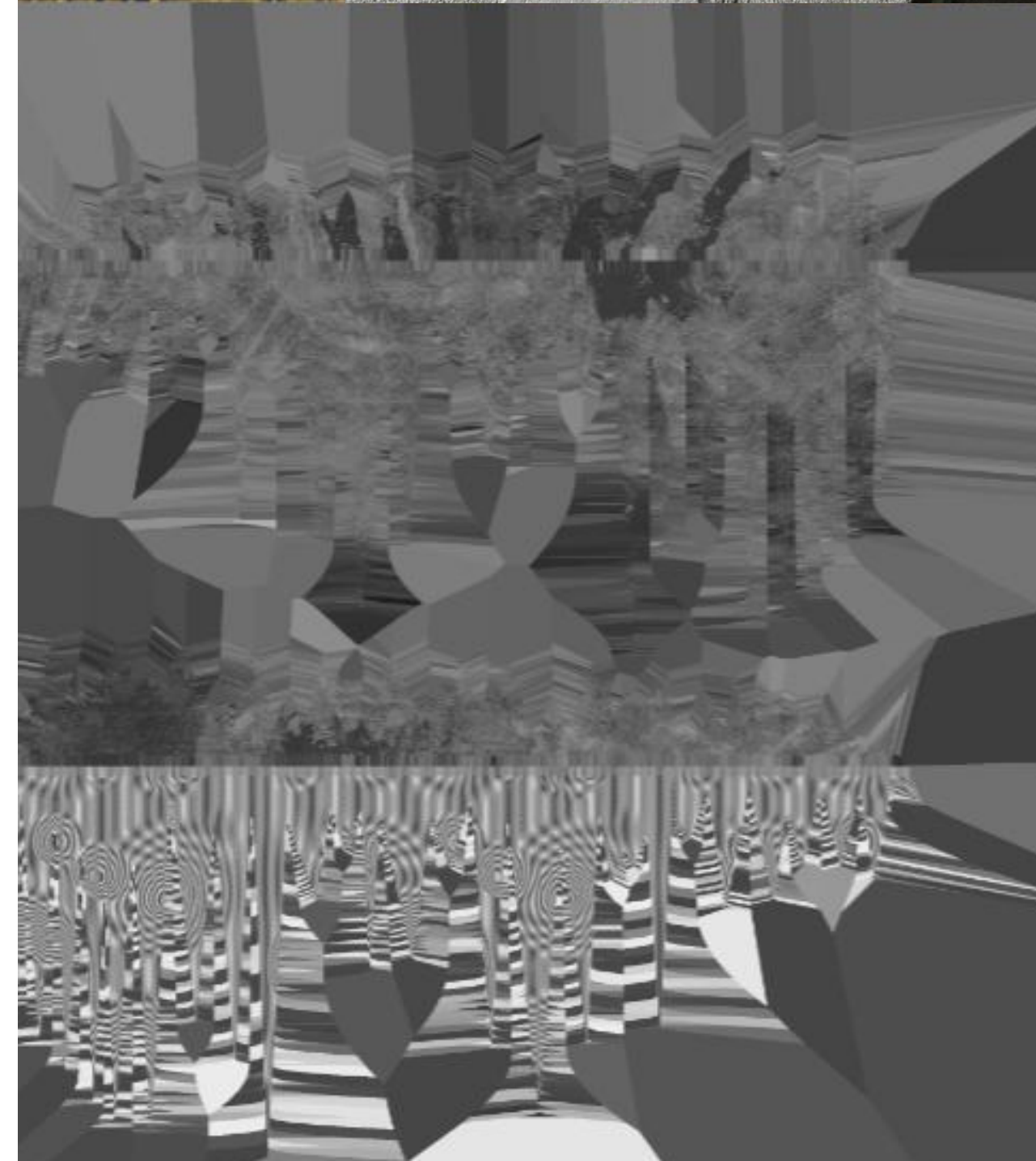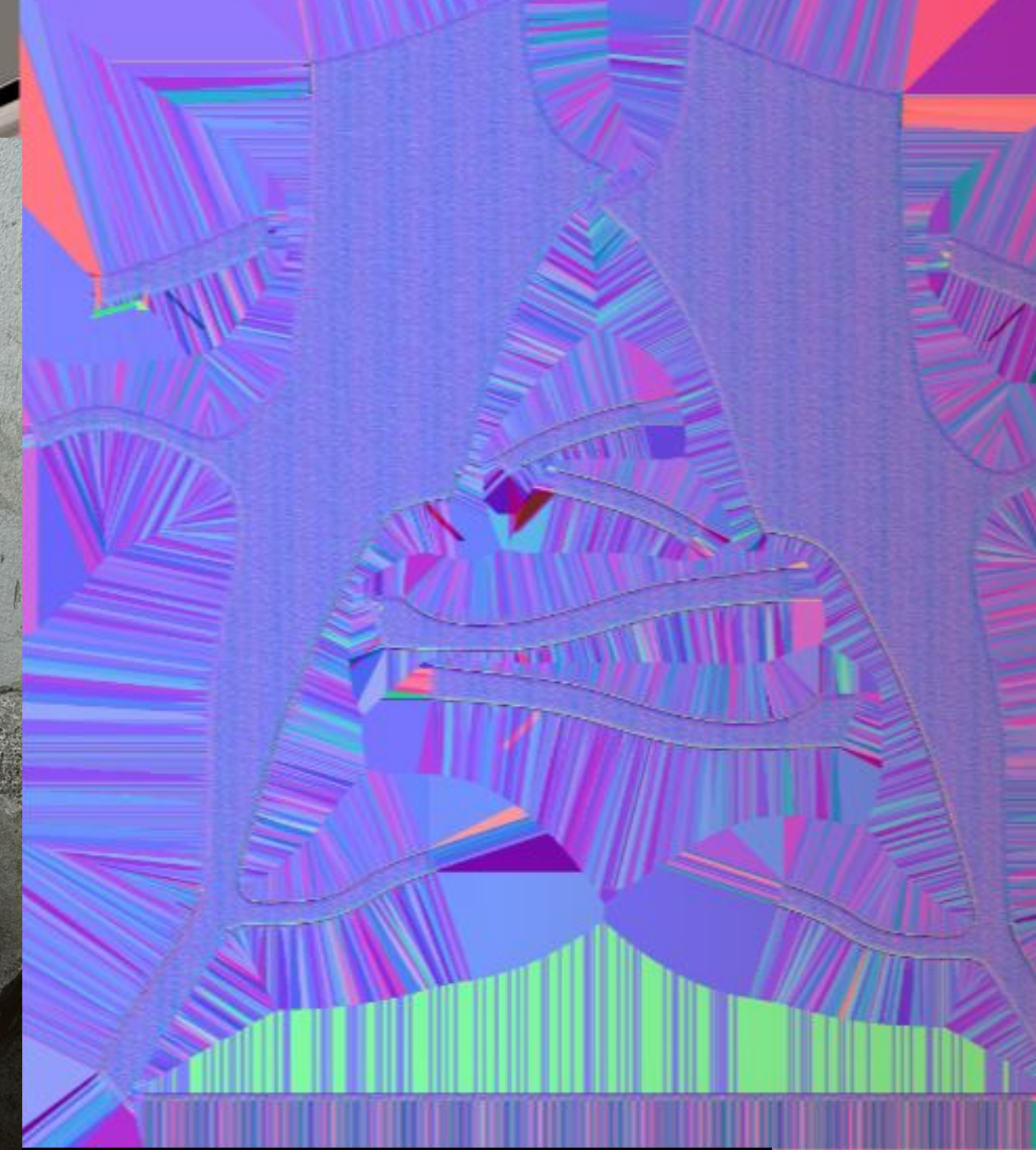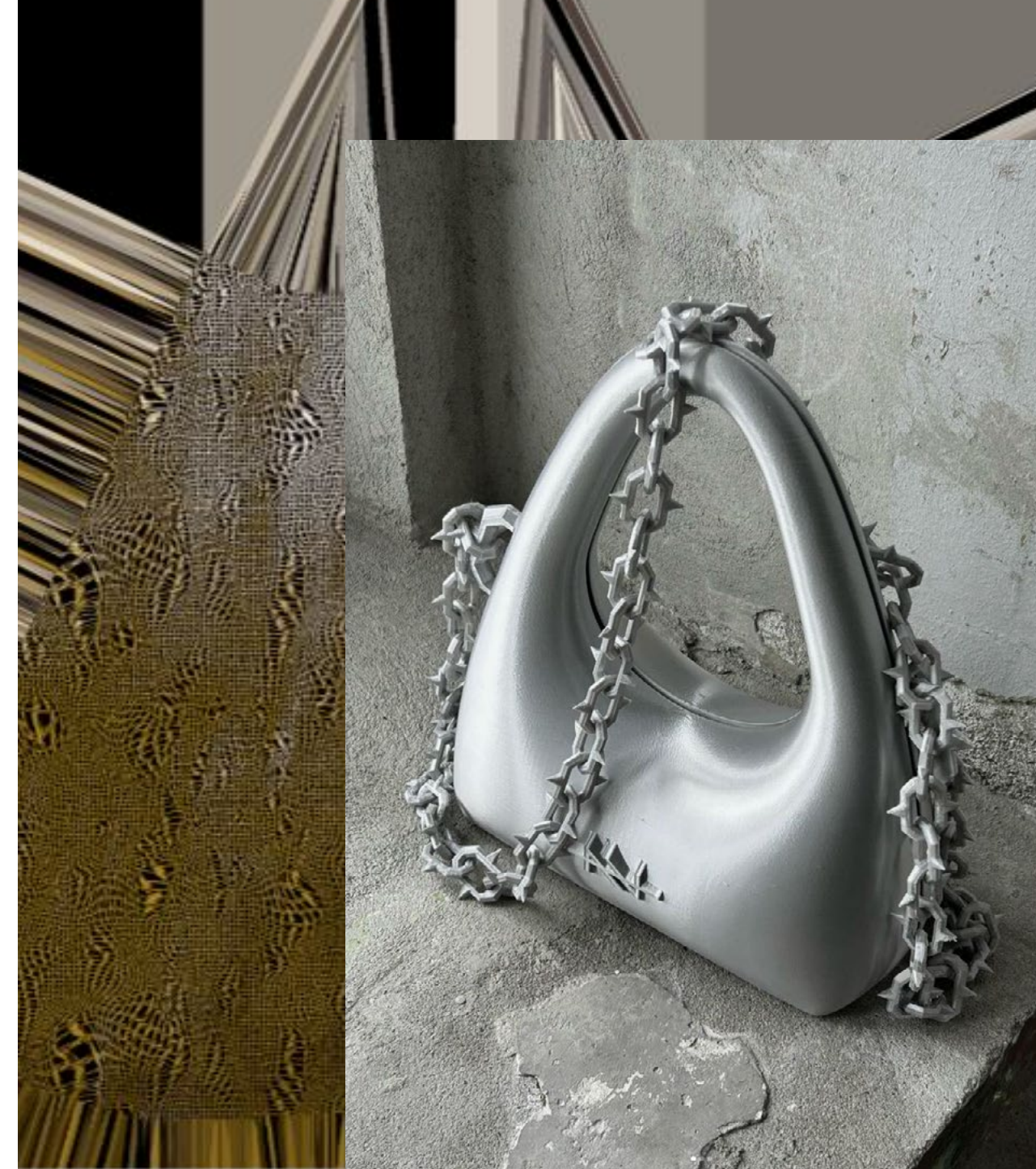
MULTI POTENTIAL

Dare to choose your niche and carve your own path

Digital, virtual and physical tools combined offer previously unseen opportunities for the renewal of processes. The field is wide and possibilities are nearly endless. Therefore it is necessary to focus on a subject to deepen your expertise.

Choose one of the following paths:

- **imaginary visualisation**
  by letting your imagination run wild and telling your story by creating a design within the intersection of digital and physical expression and execution

- **creative experimentation**
  by immersing yourself into physical and digital tools and combining them in new unexpected ways to define new techniques to be used in the design process

- **search of technical solutions**
  in the construction of garments and textiles in 3D and 2D, including customisation for diverse body types

- **exploration of production techniques**
  to improve or reimagine the production of textiles, clothing or accessories with sustainability in mind

Take us with you on your path of discovery. We are looking forward to seeing your take on it!

Image left side top @ Anna Abrosimova
Image right side bottom@ scccccry
Image in background @ Augmented Weaving

CHALLENGE DEFINITION

to explore digital and physical crafts combined
to showcase your skills in new dimensions
to create fashion in the intersection of the digital and physical worlds
to explore the potential of digital expressions in search of identity
to build an emotional relationship with the viewer through storytelling
to search for sustainable alternatives in the creation of fashion and textile design

Tailoring
construction and shape development

Personification
character building and avatar creation

Materialisation
material development and texturing

Ideation
research and concept creation

PLAN OF ACTION
creation and execution

Animation
bringing to life trough movement

Visualisation
composition and rendering

Presentation
exhibition and runway show

Documentation
work in progress

MAKERSPACE

Enhancing your design in an inspiring place

The Makerspace is an exciting two-week program held in Germany and designed to empower selected design and fashion students with cutting-edge digital tools and a place to produce their physical & digital garments for the FashionTex festival.

All participating students at the ATELIER BASIC COURSE will be able to present themselves and their work in the digital FashionTex online campaign leading to the main event, the FashionTex Festival in Chemnitz.

Additionally every participant gets the chance to apply for a spot at the Makerspace and to be highlighted at the FashionTex Festival.

Two students per university will be awarded to take their designs to the next level and to gain valuable skills and support in various technologies, enhancing their creative capabilities. They will be invited to the two weeks Makerspace in Germany and granted a budget for buying materials. The students will get the opportunity to enhance their digital fashion outfit developed during the ATELIER BASIC COURSE and deepen their personal design approach.

Collaboration and Exploration

All students will be granted access to FashionTex Discord channel, where they will be supported on their digital journey by 3D industry experts and can exchange ideas with other international fashion students.
The Makerspace will also encourage collaboration among students. They will exchange ideas, troubleshoot challenges, and explore the intersection of fashion and technology.

How to participate

All students participating in the digital fashion ATELIER BASIC COURSE at their university, will be able to submit their applications.

How to apply

Submission Deadline: end of the ATELIER BASIC COURSE
Format: to be announced

Please find further information on the page DELIVERABLES

MAKERSPACE - EQUIPMENT

Digital and physical technologies that will be offered at the Makerspace:

Clo3D
Expand your Clo3D for realistic garment simulations and design iterations.

• Lighting & Texturing
You will be able to deepen your knowledge about working with light & textures in real and virtual environment, the Makerspace holds a professional photography environment that can be used and explored.

• Unreal Engine 5
There is the possibility to delve into this 3D software, learning how to bring their Clo3D designs to life in a virtual environment.

Motion Capturing
You will explore motion capture techniques, enabling them to animate avatars and understand movement dynamics.

We will explore AI-driven tools for generating 3D-Animations with available and low-cost hardware.

3D Scanning
Participants will discover the world of 3D scanning, allowing them to capture physical objects and convert them into digital models with the us of AI-driven tools to create 3D objects, fostering creativity and efficiency.
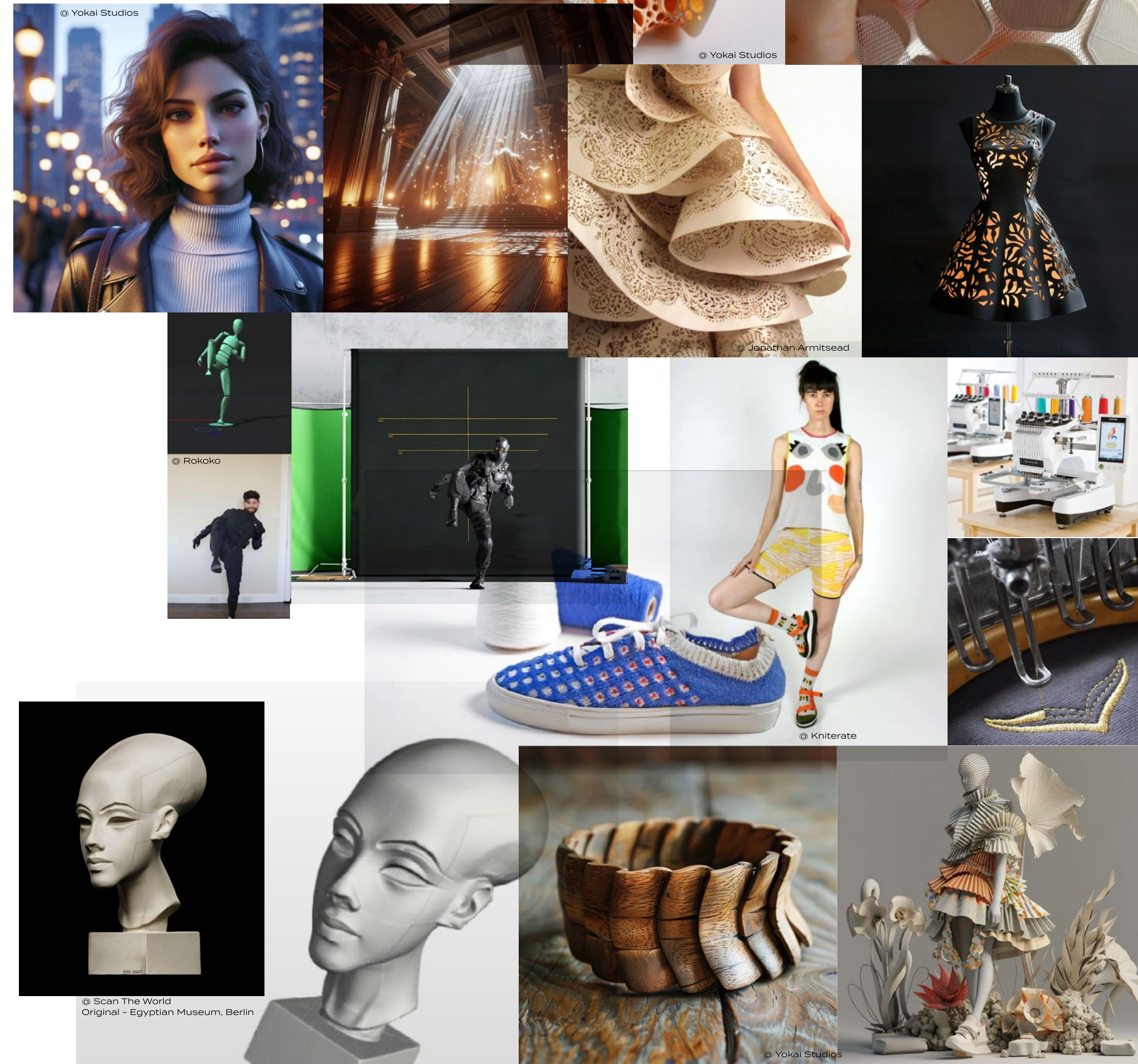
3D Printing
You will be able to use the Makerspace 3D-printeres with FDM and SLA methods to create accessory or parts of your designs.

Laser & water cutting
You get the chance to explore and work with water and laser cutting machines available at the Makerspace. A variety of materials will be cuttable.

Kniterate
An industrial knitting machine will be ready to be used in the Makerspace
Besides creating complex patterns, full-garment knitting will also be possible.

Digital Embroidery
Get your graphic design right onto your materials. These motifs are rendered in thread and are composed of different kinds of stitches.

Further Techniques
Other technologies that are available in the Makerspace to be explored and used:
• woodcraft
• VR/AR
• AI tools

FESTIVAL

die fabrik
chemnitz

All narrative threads will be pulled together into one festival held in Chemnitz, the European Capital of Culture 2025.

During two days the digital and physical work of selected students will be exhibited in the halls of a former tulle factory. As well as showcased on a digital runway where the creations are presented in motion. The audience gets the chance to experience live fashion in a virtual environment.

Being at the forefront where fashion and technology meet, sharing the process behind each design plays a vital role, as it guides visitors to immerse themselves into this new world. The exhibition will show a snapshot through each student's creation process and the final designs – physical and digital.

THE 3 STAGES

Exhibition

Digital Fashion Show

Satellite Events

© Die Fabrik Chemnitz

MAKERSPACE APPLICATION

SELECTION

Each university is selecting two students to participate in the Makerspace.

SUBMISSION

DIGITAL

Create a finished 3D design in Clo3D for a humanoid avatar:
- cutting pattern
- outfit stitched together in simulation
- basic texturing
- no animation required

This will serve as the foundation at the Makerspace for further evolving the design to be shown at the FashionTex Festival.

DESCRIPTION

A brief description of your submitted work on the digital avatar.
Either an explanation of whether the 3D design is to be realized physically.
if the physical part is to become a work of art, then an idea or thesis of the planned physical piece for the fashion show must be submitted.
The description should not exceed 1-2 pages.

PROCESS

Documentation of the development of ideas, including pictures of the creation process.
Screenshots of the 3D design.

FESTIVAL 2025 DELIVERABLES

DIGITAL & PHYSICAL EXHIBITION

DIGITAL

Final Clo3D file (textured)

Avatar

Visualised 3D outfit designed in Clo3D incl. avatar (at least 3 renderings)
- still images or looped animations (e.g. turntable)

PHYSICAL

Finished outfit linked to the digital one

Outfit needs to be ready for the exhibition including accessories

PROCESS

Documentation of the process sharing the path and motivation

TEXT

1000 characters

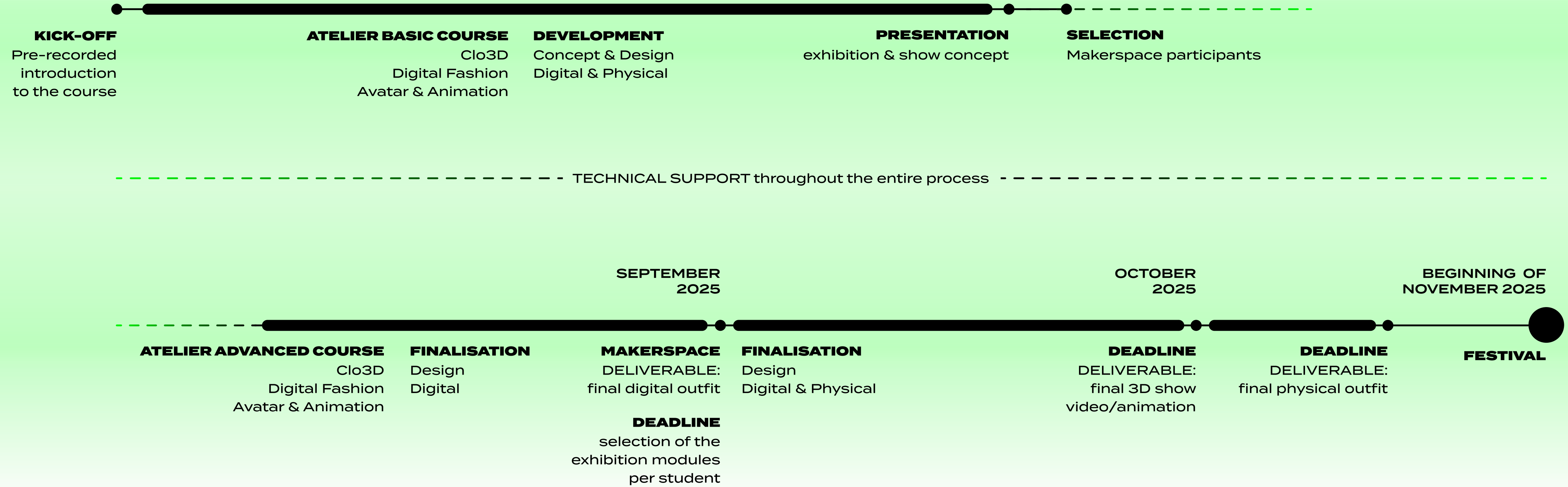Short description and introduction to your work

DIGITAL SHOW

DIGITAL

Show-ready avatar

Animated avatar with finished outfit
(walking, etc >>> tbd by show producers)

Video file based on template to be projected or shown on a LED wall
(Size, resolution and length >>> tbd by show producers)

TIMELINE 2024-2025

Exact dates to be announced by each university

KICK-OFF
Pre-recorded
introduction
to the course

ATELIER BASIC COURSE
Clo3D
Digital Fashion
Avatar & Animation

DEVELOPMENT
Concept & Design
Digital & Physical

PRESENTATION
exhibition & show concept

SELECTION
Makerspace participants

TECHNICAL SUPPORT throughout the entire process

SEPTEMBER
2025

OCTOBER
2025

BEGINNING OF
NOVEMBER 2025

ATELIER ADVANCED COURSE
Clo3D
Digital Fashion
Avatar & Animation

FINALISATION
Design
Digital

MAKERSPACE
DELIVERABLE:
final digital outfit

DEADLINE
selection of the
exhibition modules
per student

FINALISATION
Design
Digital & Physical

DEADLINE
DELIVERABLE:
final 3D show
video/animation

DEADLINE
DELIVERABLE:
final physical outfit

FESTIVAL

ABOUT FASHIONTEX

Project Summary

FashionTEX is a 3-year project aiming to create expertise and educate students in digital fashion at fashion universities. It will enhance the curricula to future-oriented and more sustainable content. The fashion industry relies on digital fashion in all areas of the value cycle, from design to sales and the technologies used develop rapidly. Our needs analysis shows that education at fashion schools in Europe is often behind what the industry already implemented. Also, schools are at very different stages with their education: some are teaching at advanced level, others are still at the beginning of training digital fashion. FashionTEX closes these gaps. The implementation of digital fashion will be realized with different project modules: Atelier courses at each partnering fashion school, joint Makerspaces and public Fashion Shows. By meetings, conferences and workshops, online and onsite, the partners cooperate closely and develop education modules that raise the quality of apprenticeship at the participating universities and beyond to a new level of knowledge and sharing of expertise. The results will be implemented and passed on to lecturers and students in the future, based on a high-quality common curriculum allowing European student exchange programs. The professional opportunities and competitive potential of graduates on the job market will rise sharply due to expertise in digital fashion and experience in international collaboration.

Program Duration

2024-2026

Participating Universities

• EKA Estonian Academy of Arts, EE
• FAUL Lisbon School of Architecture, PT
• KOEFIA Academy Rome, IT
• KNUTD Kyiv National University of Technologies and Design, UA
• Art Academy of Latvia, LV
• Lodz University of Technology, PL
• University of Zagreb Faculty of Textile Technology, HR
• The Amsterdam Fashion Academy, NL
• Vilnius Academy of Arts, LT
• Academy of Arts Architecture & Design Prague, CZ
• WHZ University of Applied Sciences Zwickau, DE

Brief Development

• Creative Direction | Augmented Weaving | contact@augmentedweaving.com
• Makerspace | Viktor Weichselbaumer | viktor@yokai-studios.com

created in exchange and the help of Anke Ott, Susanne Schmidt, Dorette Bardos, Adele Parker, Cristiano Carciani, Antonio Lo Presti, Audronė Drungilaitė, Dainius Bendikas, Janis Gailitits & Bernhard Reeder

REFERENCES

Digital designers with a background in physical fashion

- Taskin Goec   https://www.maisontaskin.de/
- Nina Doll   https://forward-festival.com/speaker/nina-doll
- Suza Vos   https://www.suzavos.com/
- Augmented Weaving   https://www.augmentedweaving.com/

Physical fashion using digital tools
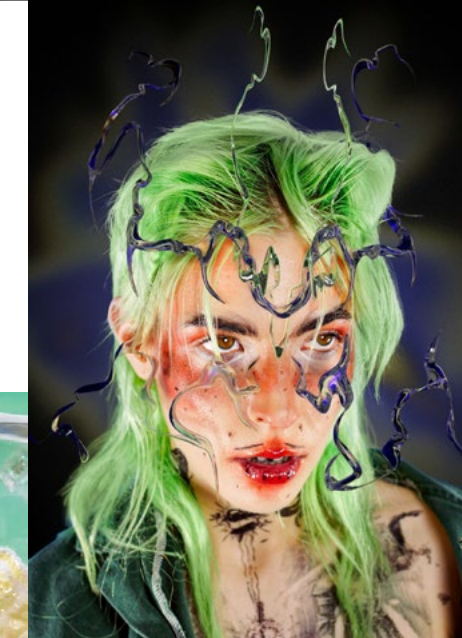
- Sarah Bounab   https://sarahbounab.com/

Fashion presentations

- Future Front Row   https://red-eye.world/c/from-catwalks-to-holograms-the-dazzling-digital-revolution-of-fashion-shows
- Maisie Wilen   https://www.dezeen.com/2022/02/25/maisie-wilen-holograms-yahoo-news/

Photography

- Johanna Hullar   https://johannahullar.ch/

Art

- Audrey Large   https://www.instagram.com/audreylrg/
- Kevin Bray   https://www.instagram.com/bray_kevin/
- Ruud van Empel   https://ruudvanempel.nl/media/video/

Festivals / Fairs

- Forward Festival   https://forward-festival.com/

@ Ruud van Empel

@ Bricks Magazine, CGI:
Steffen Bewer & Nina Doll

@ Taskim Goec

@ Johanna Hullar

@ Future Front Row / Digital Fashion Collection by Polygone Dressing

@ Filip Custic

@ Sarah Bounab ©Edgar Hernandez