

DIGITAL ART

Daniel Havel
Miroslav Hájek
Vladyslav Holubenko
Anastasiia Solomiia Hrytsyna



GENERATIVE ART

Miroslav Hájek



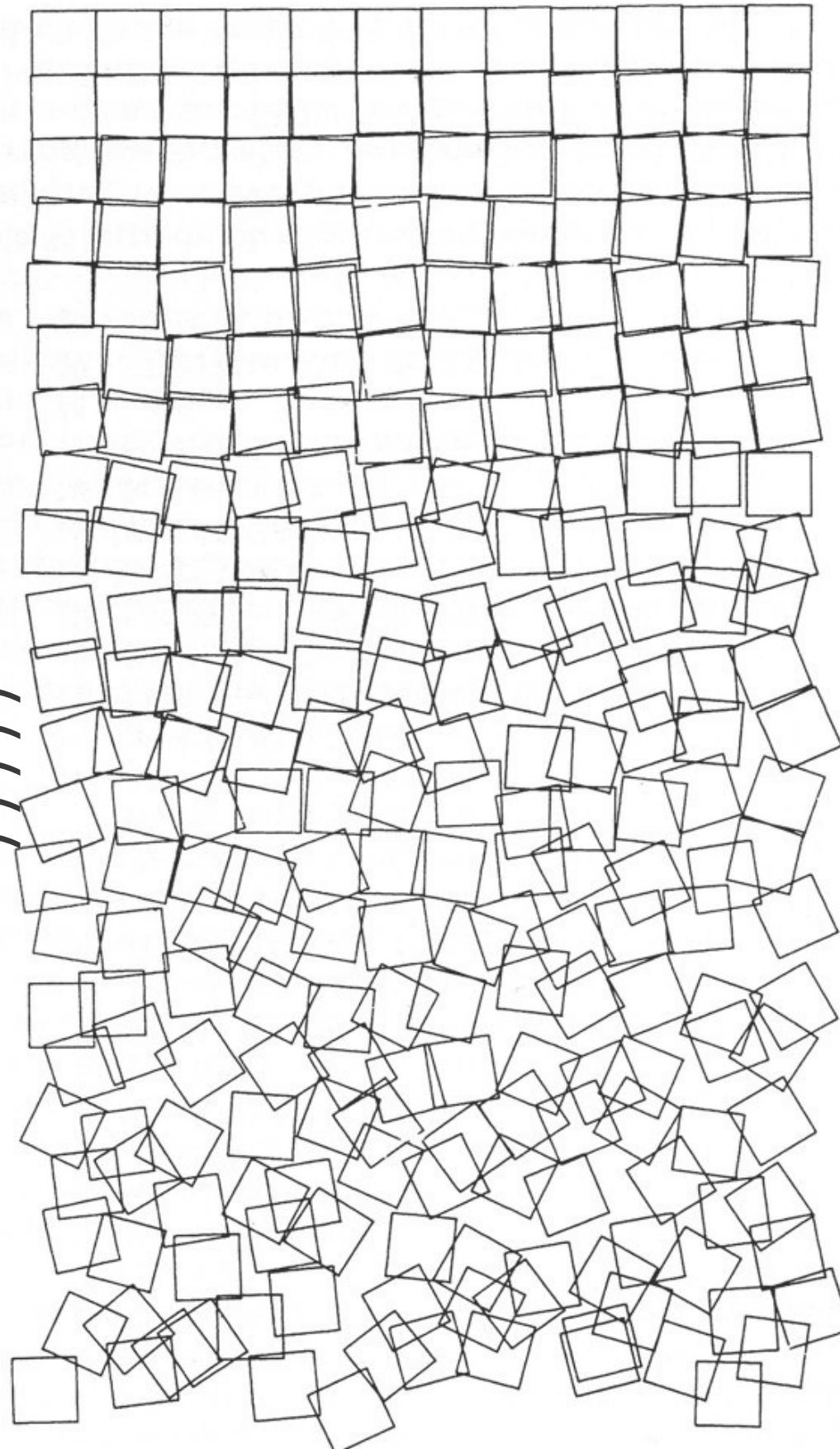
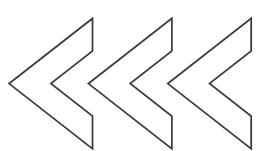
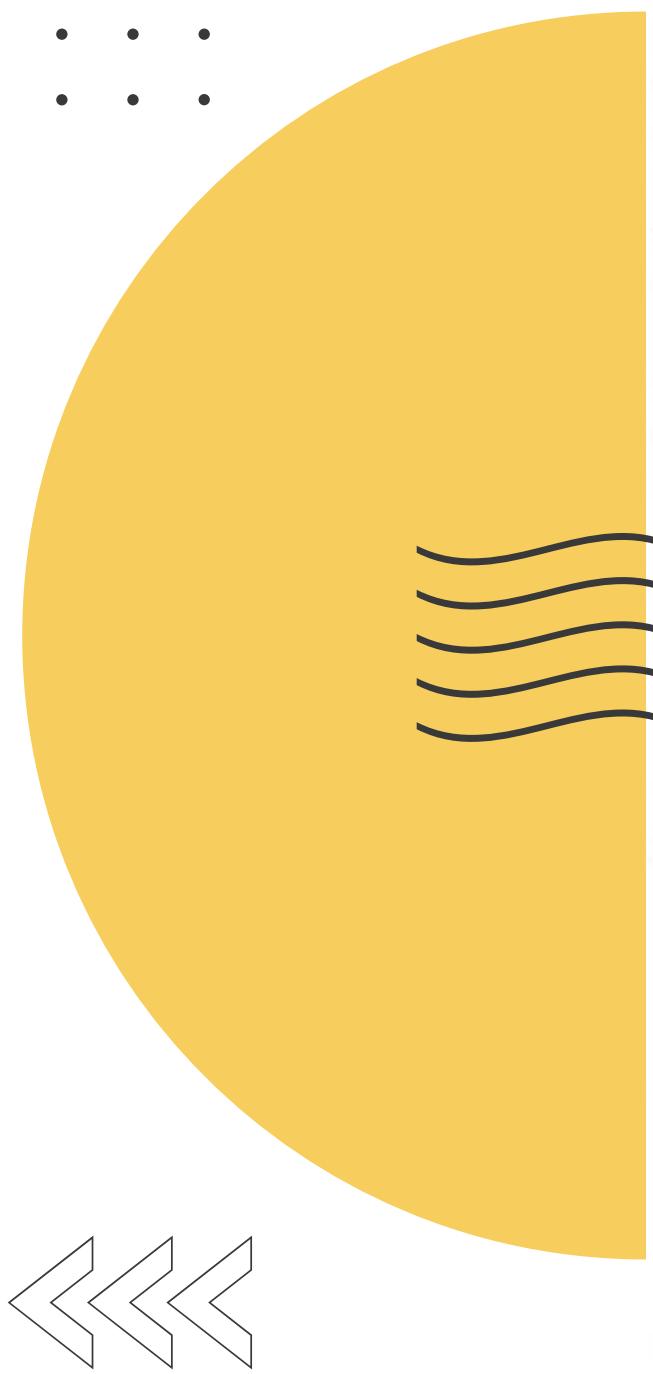
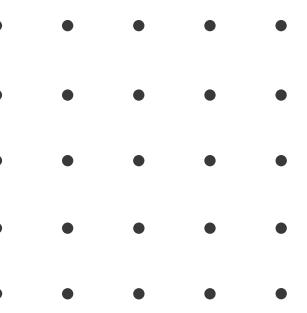
ARTWORK PARADIGM SHIFT



Intersection Aggregate
Jared Tarbell, 2004



Penrose Substitution
Jared Tarbell, 2020



Schotter (Gravel) - Georg Nees ,1968

LINDENMAYER SYSTEMS

Processes

- Generative
- Interpretative

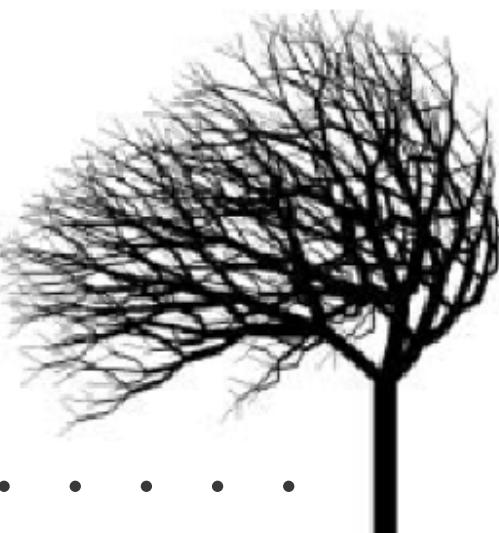
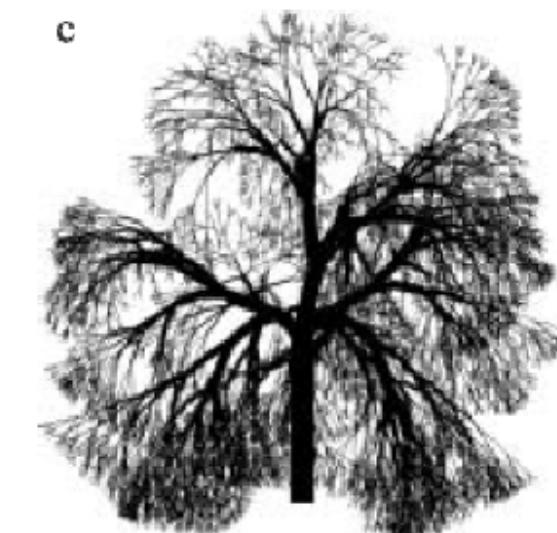
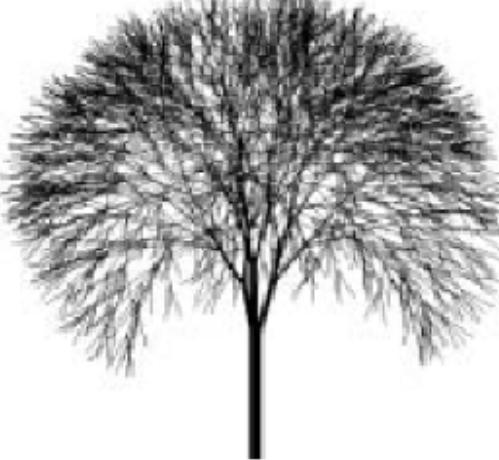
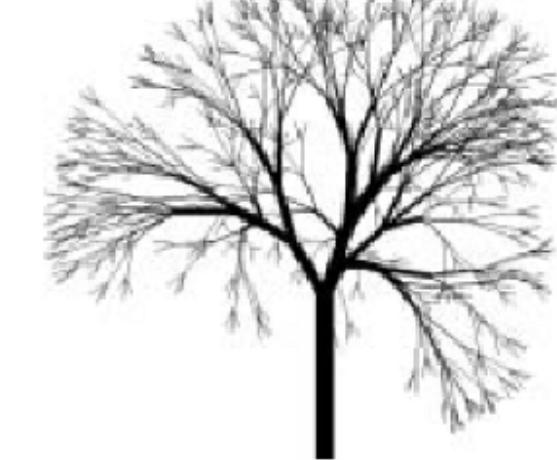
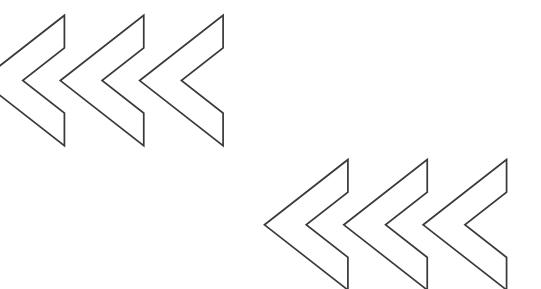
start: a

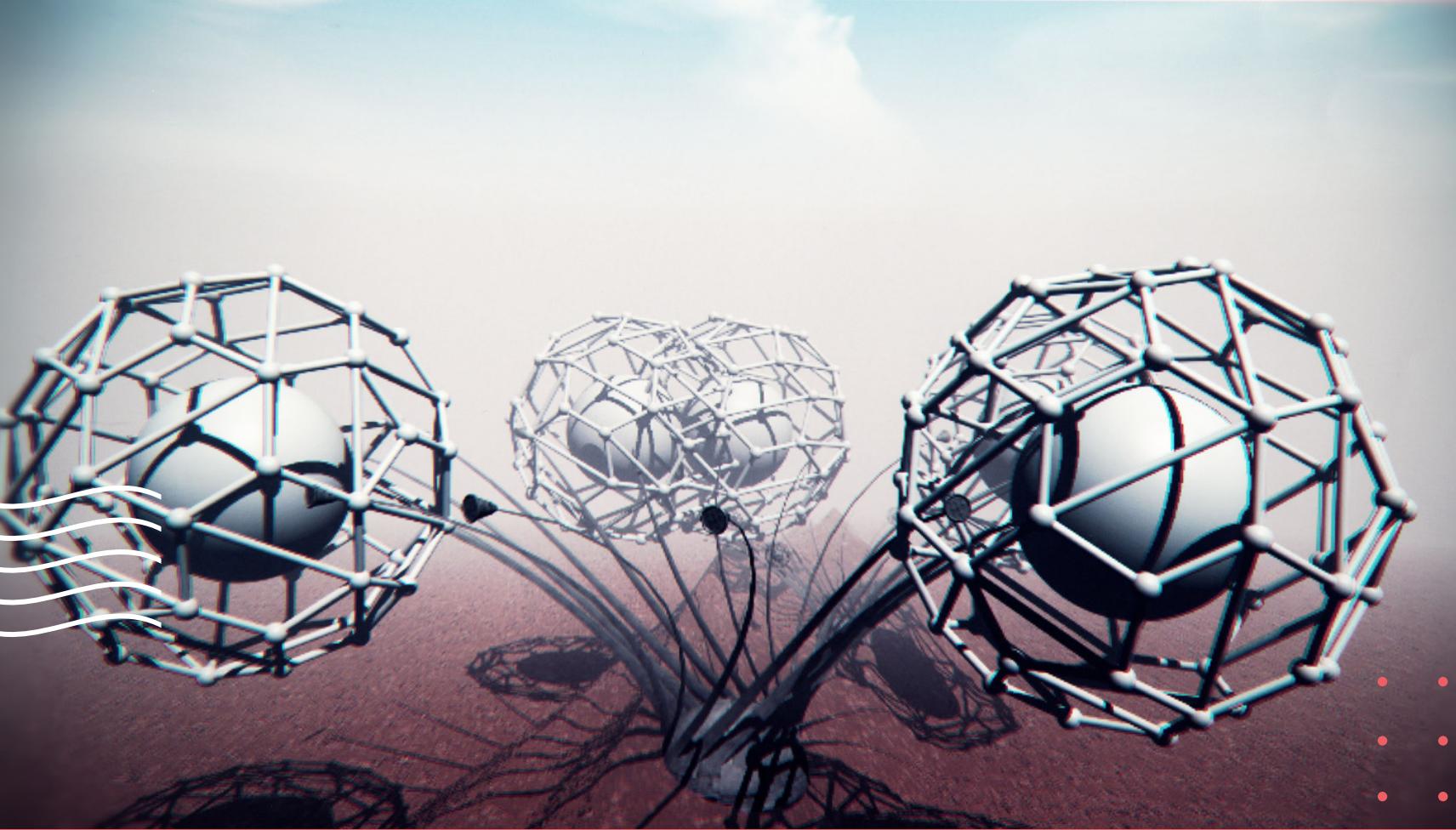
rules:

$$a \rightarrow aba$$

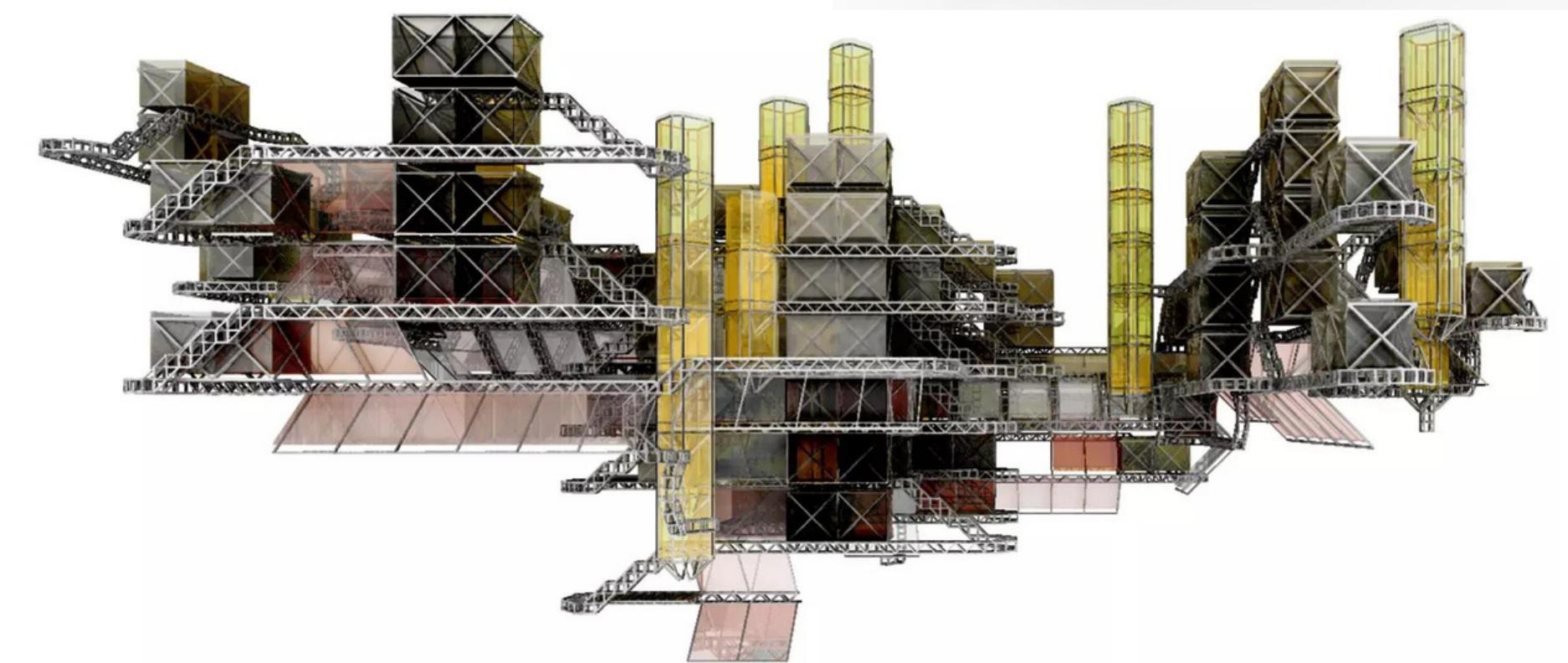
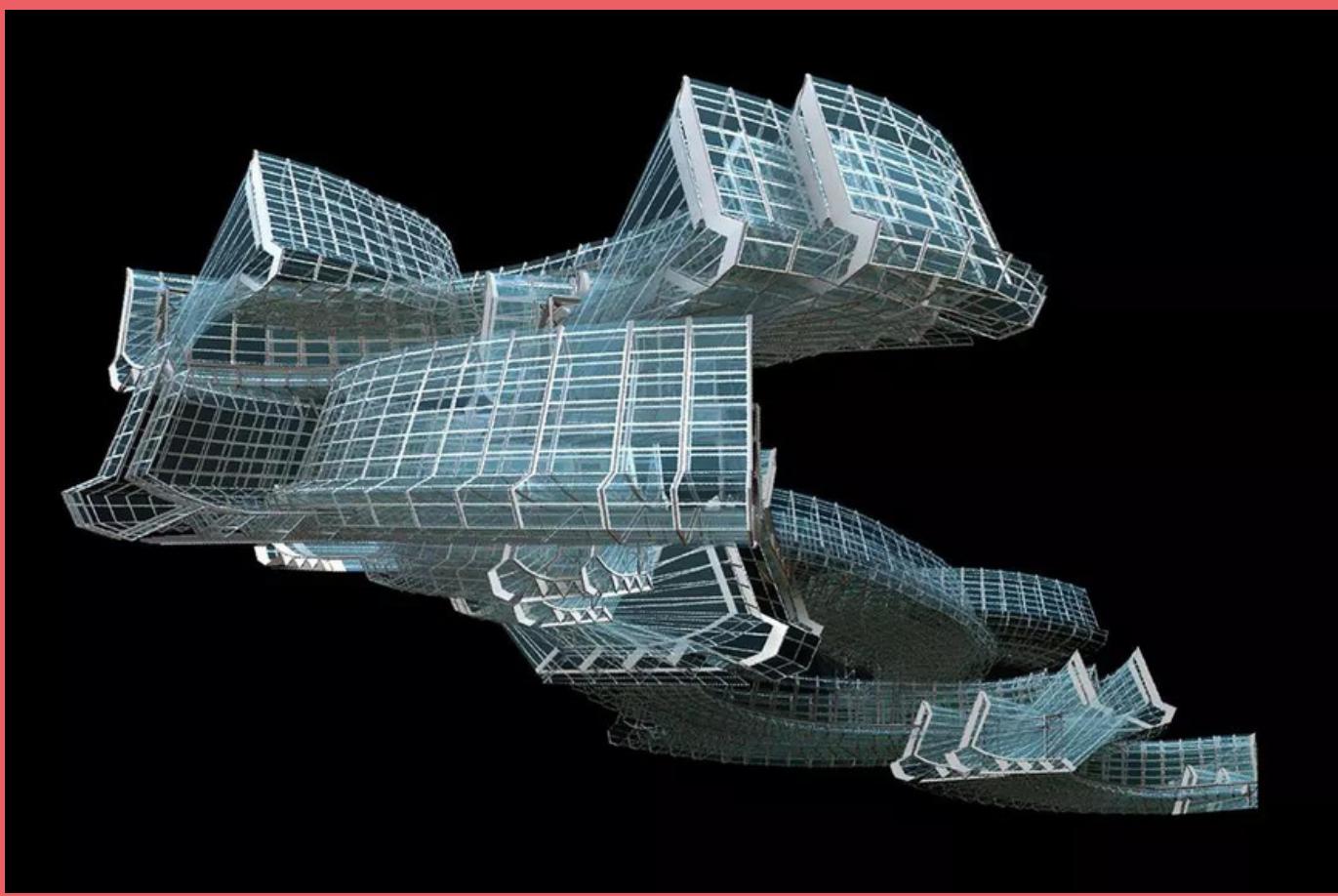
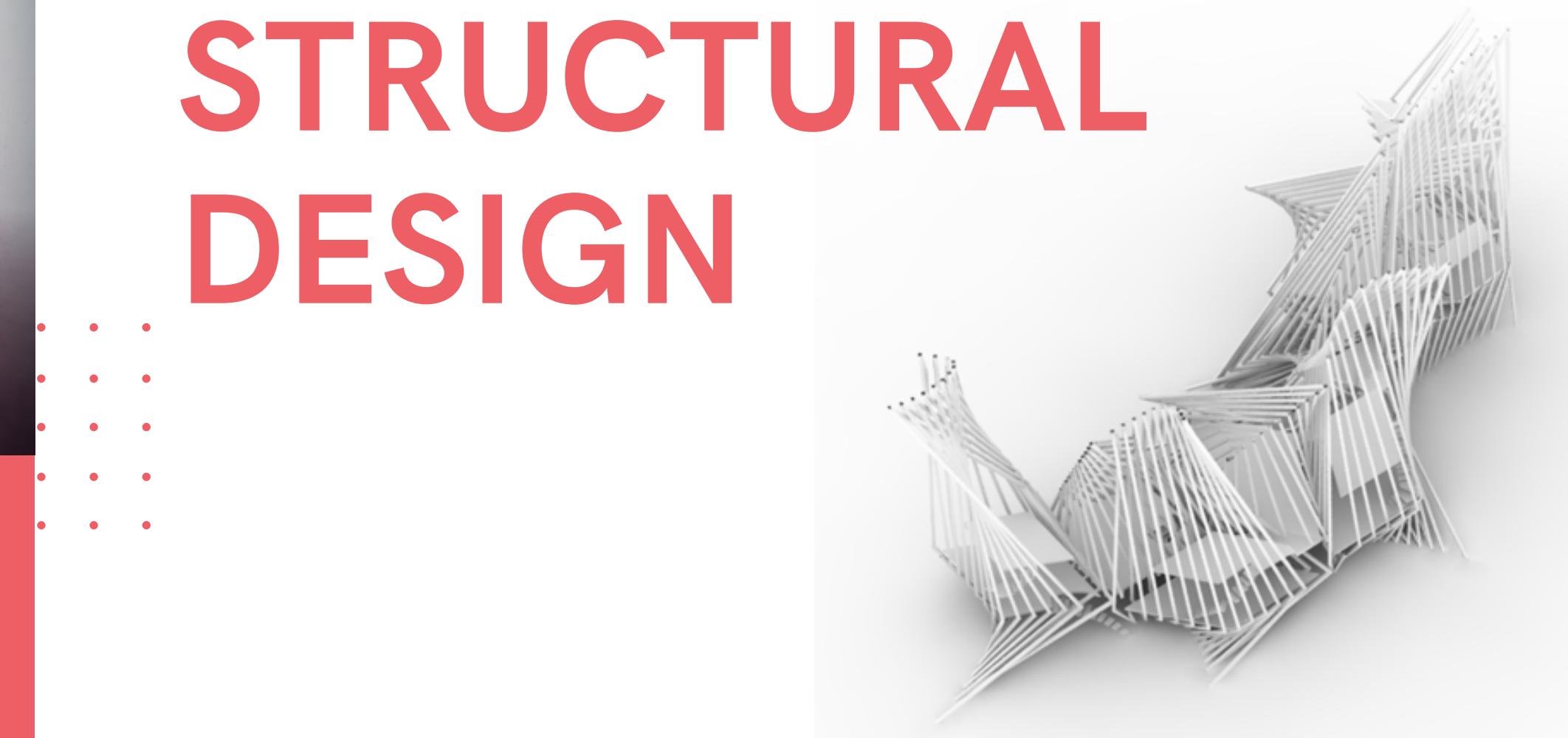
$$b \rightarrow ac$$

steps: 3

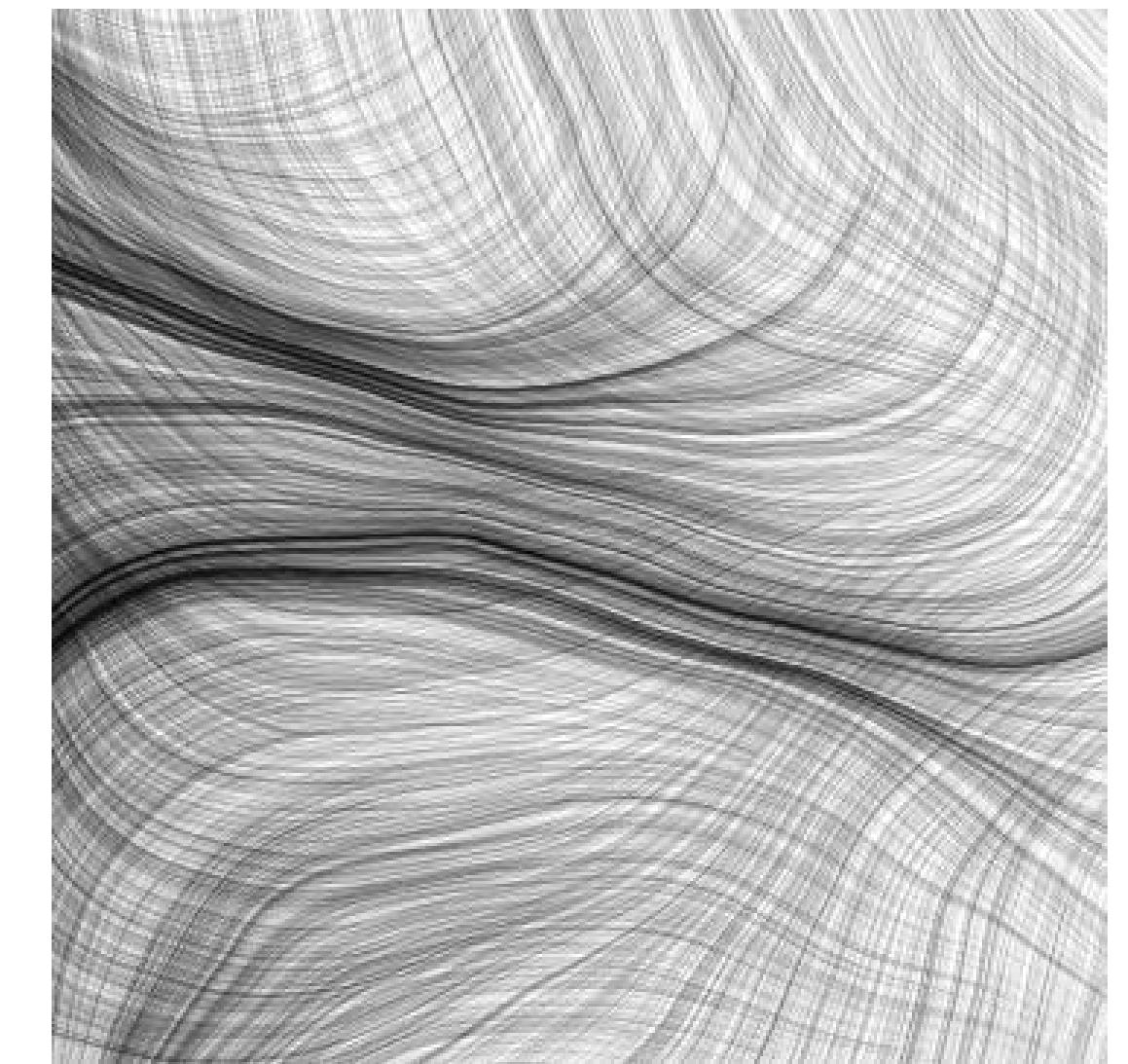
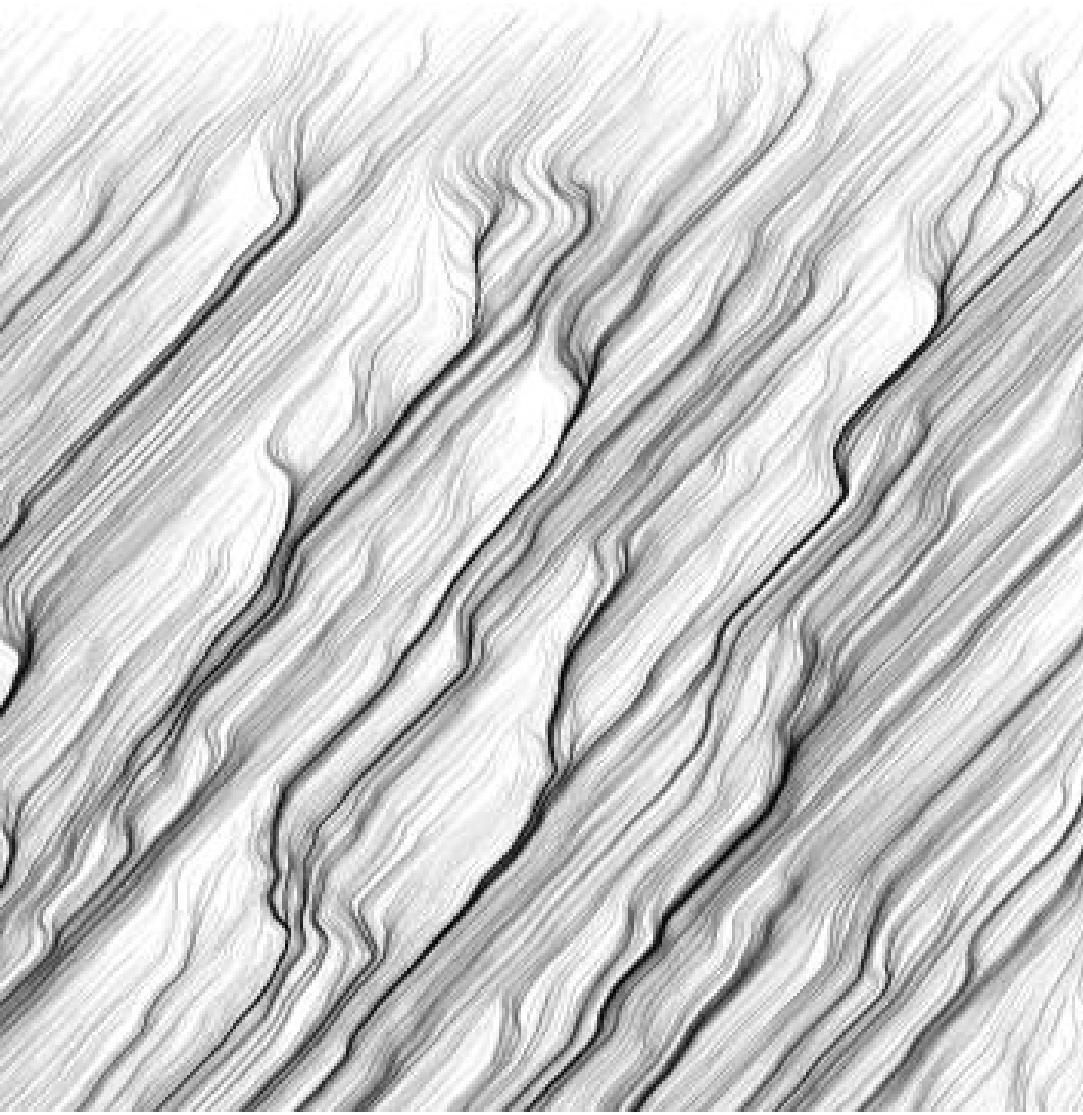
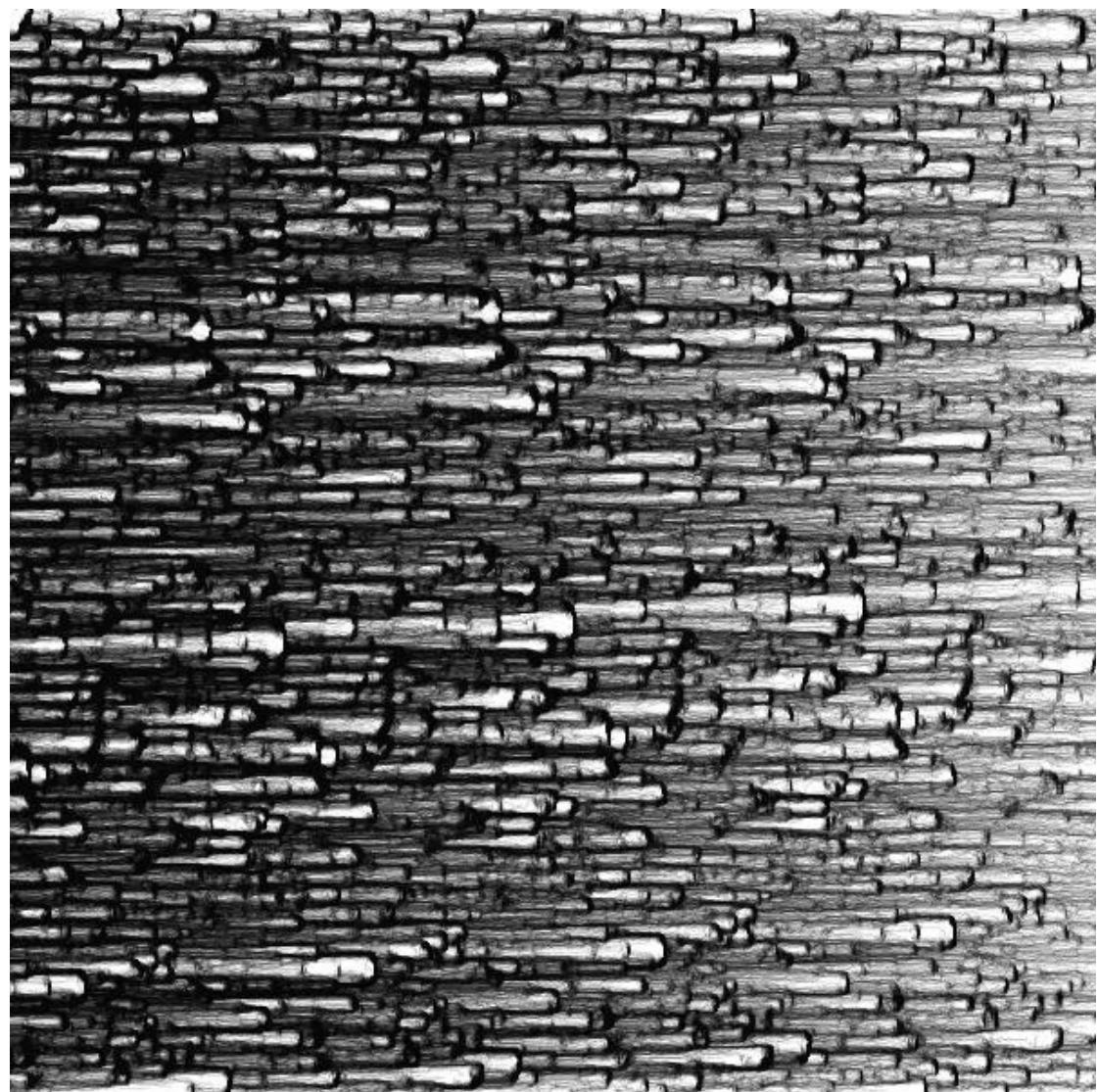
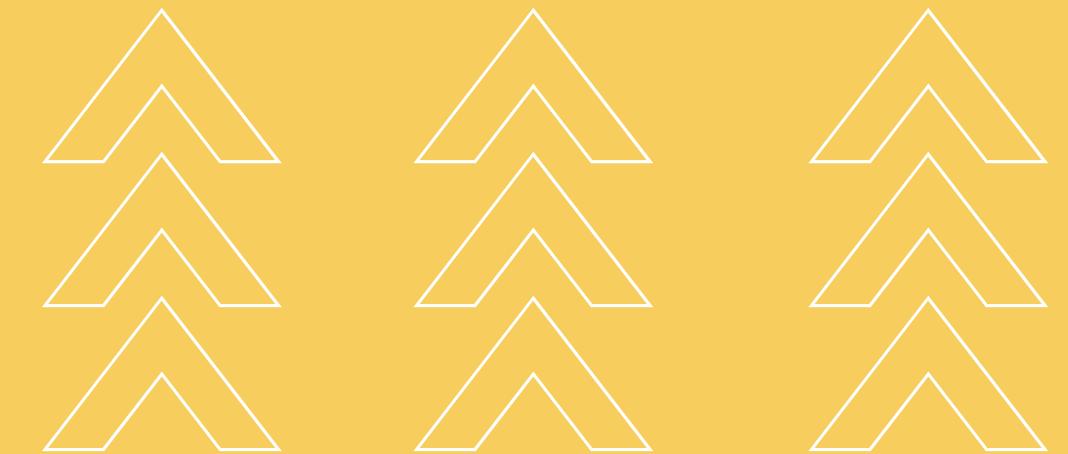


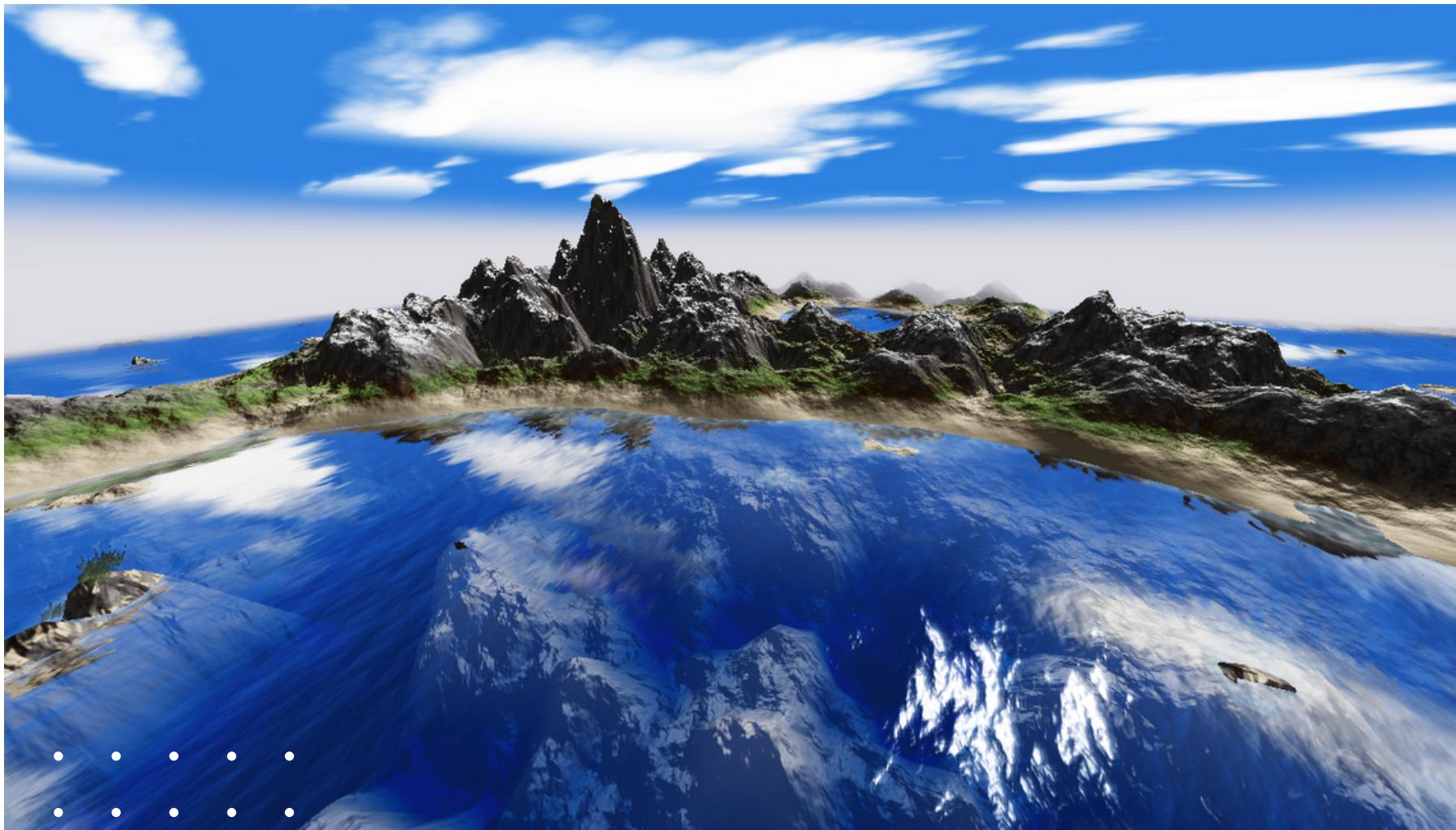


L-SYSTEMS IN STRUCTURAL DESIGN



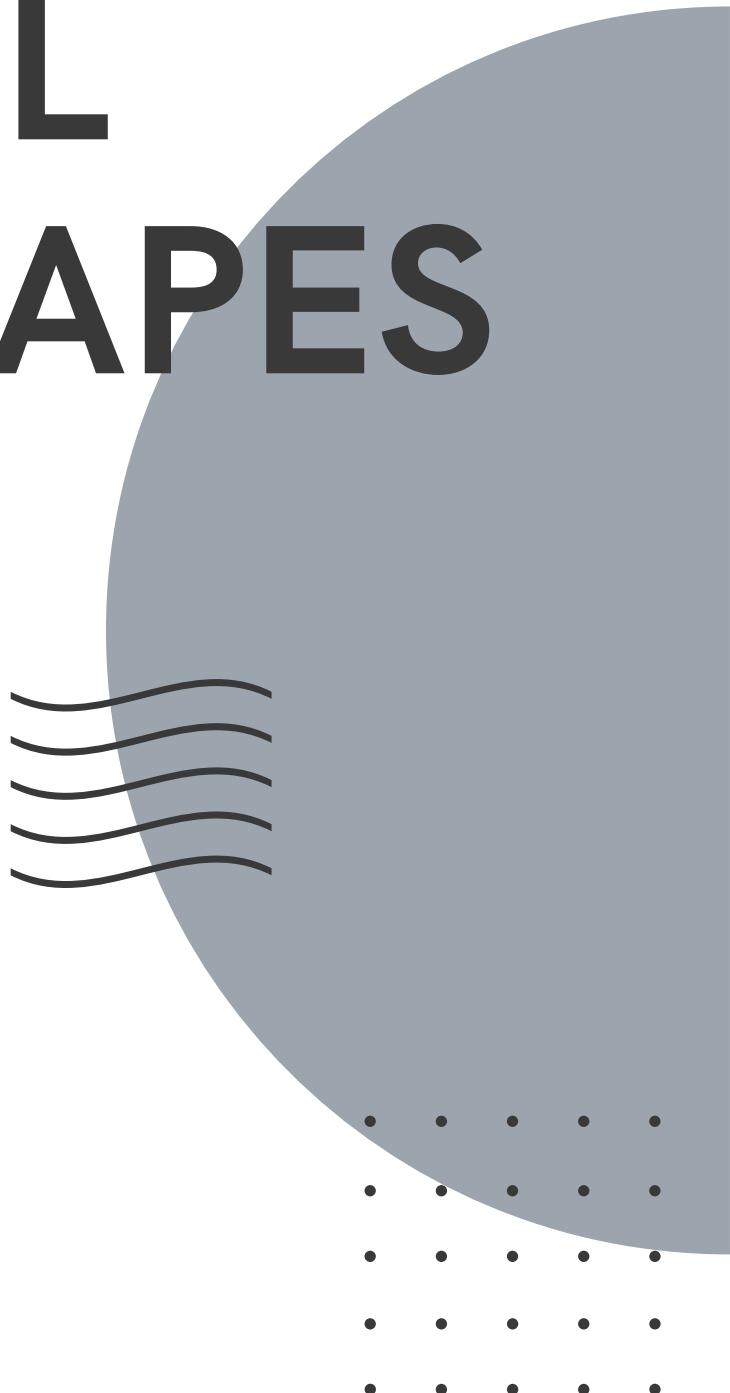
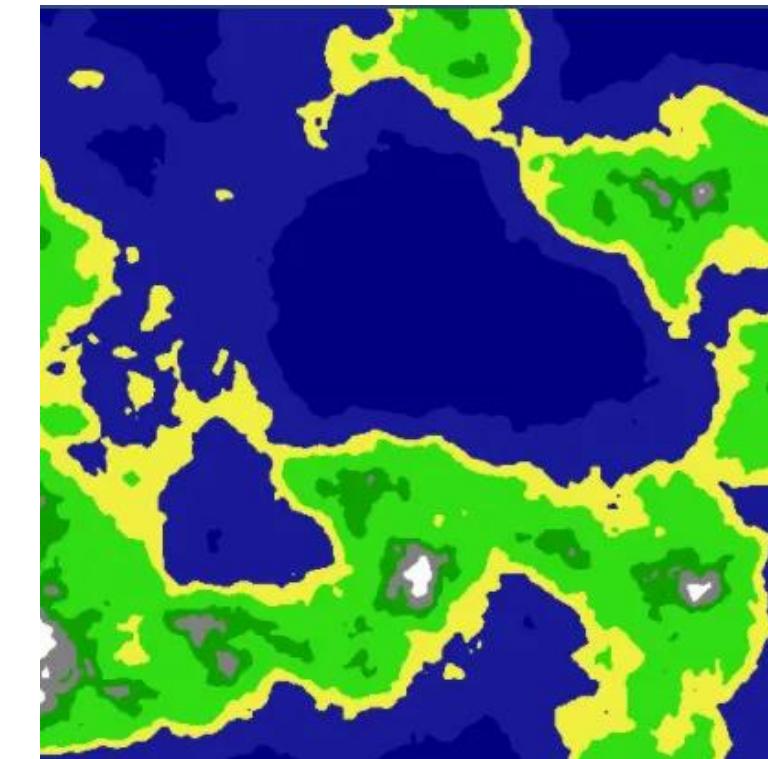
PERLIN & SIMPLEX NOISE





NATURAL LANDSCAPES

for virtual worlds

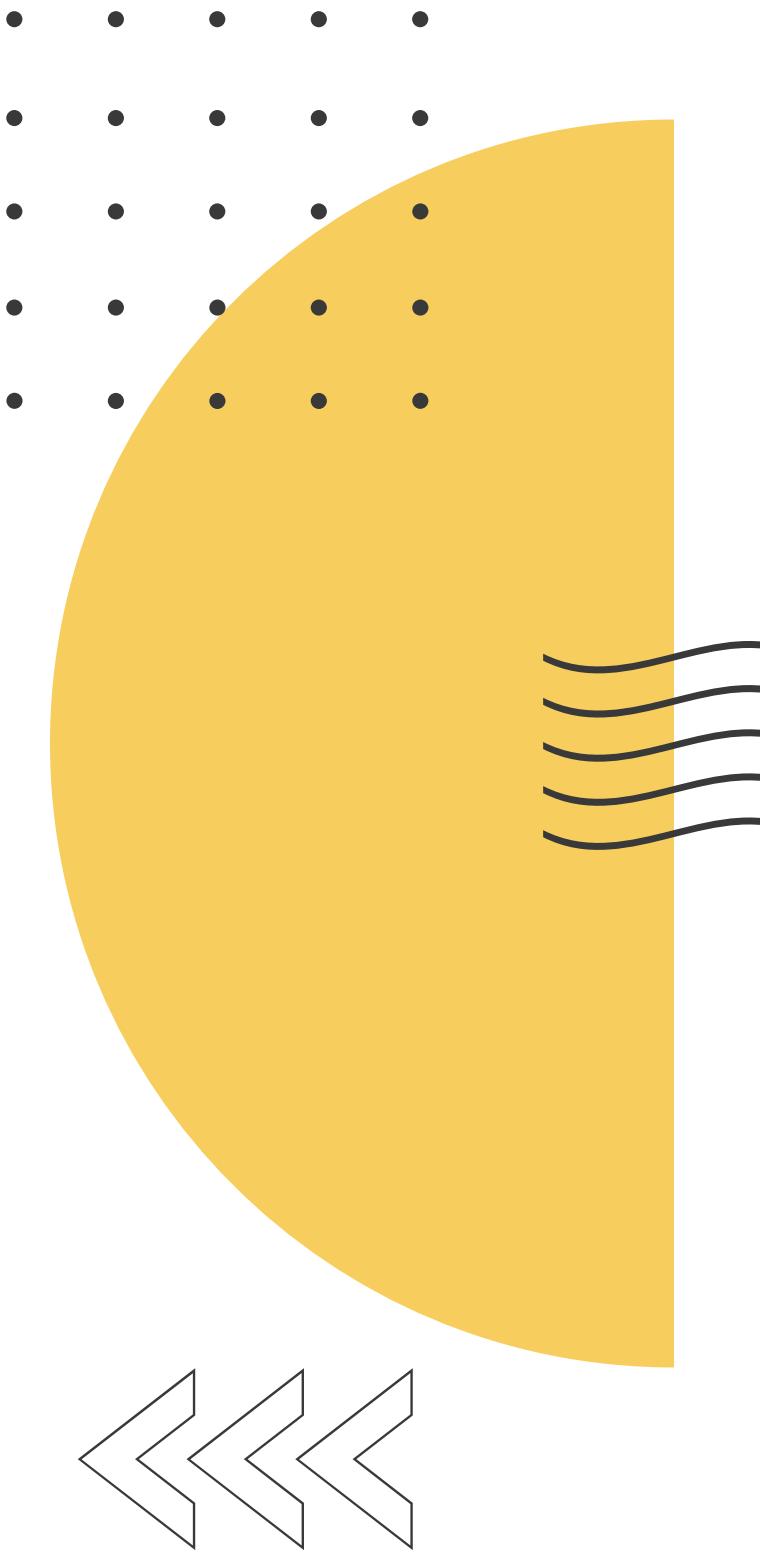


LIVE CODING

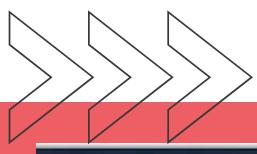
Performance art - visual effects and music in projected code



Sam Aaron concert: <https://www.youtube.com/watch?v=G1m0aX9Lpts>

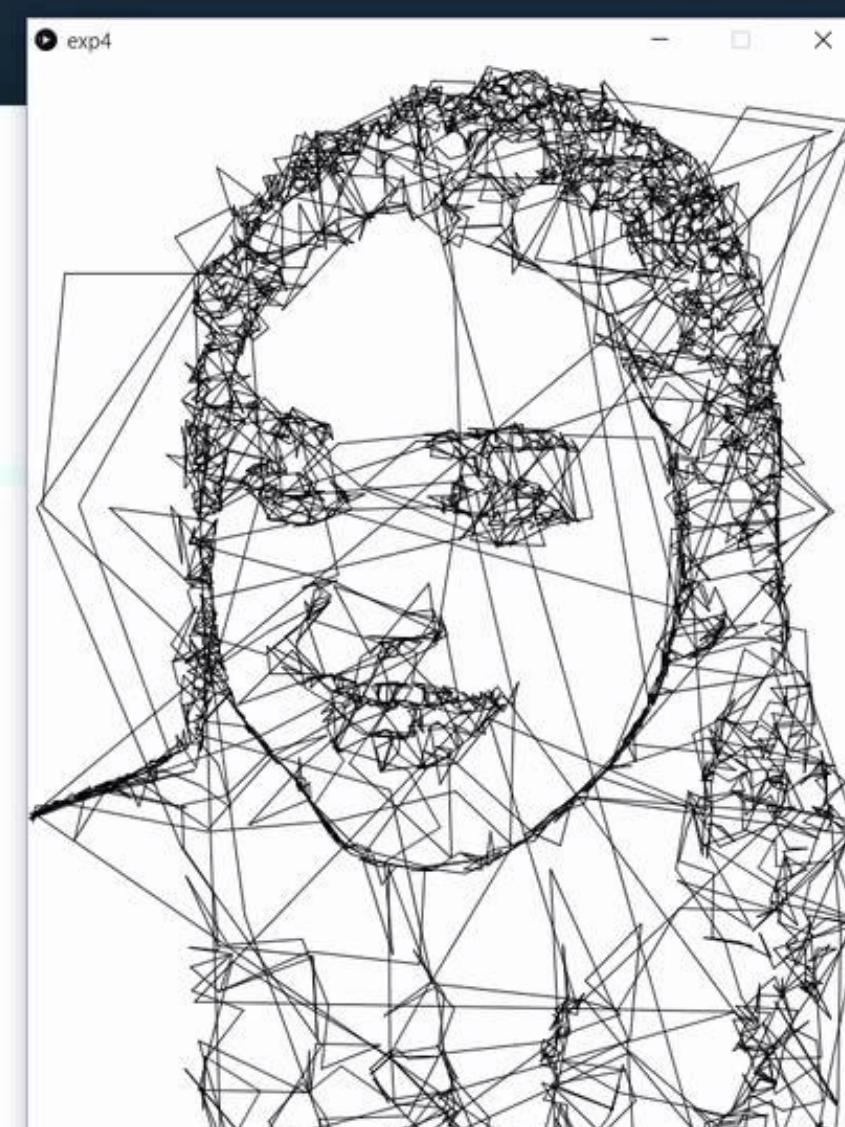


TRY GENERATIVE ART YOURSELF



```
exp4

1 // outline: takes an image (image.jpg) and creates a sketch version
2 // procsilas (procsilas@hotmail.com / http://procsilas.net)
3 //
4
5
6
7 String fName="0000.jpg";
8
9 void setup() {
10   llegeixImatge("./"+fName);
11   size(600, 900);
12 }
13
14 // parameters
15 // NO real control, so be careful
16
17 int NP=5000; // 1000 for line art, 10000 for complex images, O(N^2) so be patient
18 int B=1; // try 2 or 3
19 float THR=28; // range 5-50
20 float MD=6; // range 0-10
21 int NMP=6; // range 1-15
22
23 float[][] punts;
24 color[] cpunts;
25 int [] usat;
26 int [] Nmp=new int[NMP];
27 float [] Ndmp=new float[NMP];
28
29 int inici=0;
30
31 PImage img;
32
33 void llegeixImatge(String s) {
34   img = loadImage(s);
35   img.loadPixels();
36 }
37
38 float fVar(int x, int y) {
39   // neighborhood 2B+1x2B+1 pixels
40   float m=0;
41   for (int k1=-B; k1<=B; k1++) {
42     for (int k2=-B; k2<=B; k2++) {
43       color c=img.pixels[(y+k1)*img.width+(x+k2)];
44       m+=brightness(c);
45     }
46   }
47 }
```



Processing

π))) Sonic Pi

The figure shows a Max/MSP patch interface. On the left, a text editor displays Max/MSP code for a live_loop. The code includes definitions for sample paths (snares, hats, kicks), sample durations (dur), BPM (use_bpm 54), and various live_loops for bass, reds, and kik. It also includes a sync section with a pentatonic scale and a live_loop for kik. The right side of the interface contains several panels: a waveform viewer showing a fluctuating signal, a Log panel displaying file paths for samples used in the current run, and a Cues panel listing various live_loops and cue points.

```
2 snares = "/Users/admin/Music/SAmples/808_drum_kit/snares/"
3 hats = "/Users/admin/Music/SAmples/808_drum_kit/hihats/"
4 kicks = "/Users/admin/Music/SAmples/808_drum_kit/kicks/"
5
6
7 dur = sample_duration bass
8
9 use_bpm 54
10
11 live_loop :basss do
12   cue :tick
13   with_fx :slicer, phase: dur / 32, smooth: 0.22, probability: 0.7, seed: 432 do
14     | sample bass, pitch: 12
15     | sample bass
16     | sample bass, pitch: 24
17     | sleep dur
18   end
19 end
20
21 live_loop :reds do
22   cue :tick
23   use_synth :tb303
24   sleep dur / 4
25   play_chord chord(:f3, :minor), attack: 2, release: 3
26   sleep dur*2 - (dur / 4)
27 end
28
29
30 k = 9
31
32 sync :tick
33 live_loop :ping do
34   use_synth :blade
35   sc = scale(:f3, :minor_pentatonic, num_octave: 3)
36   use_random_seed 300
37   12.times do
38     | play sc.choose
39     | sleep (knit (dur / 16), 2, (dur / 8), 1).tick
40   end
41 end
42
43 live_loop :kik do
44   |
```

Log

"808-HiHats04.wav"

{run: 3, time: 71.279}

- sample "~/Downloads/Analog Tape Synths From Mars - Sa "MicroMoog Nasty Sub-F1.wav", {pitch: 12}
- sample "~/Downloads/Analog Tape Synths From Mars - Sa "MicroMoog Nasty Sub-F1.wav"
- sample "~/Downloads/Analog Tape Synths From Mars - Sa "MicroMoog Nasty Sub-F1.wav", {pitch: 24}

{run: 3, time: 71.279}

- synth :blade, {note: 60.0, release: 1.1111}

Cues

- /live_loop/reds
- /live_loop/kik
- /cue/tick
- /live_loop/snair
- /live_loop/ping
- /cue/tick
- /live_loop/hat
- /live_loop/snair
- /live_loop/ping
- /live_loop/basss
- /live_loop/kik
- /cue/tick
- /live_loop/hat
- /live_loop/snair

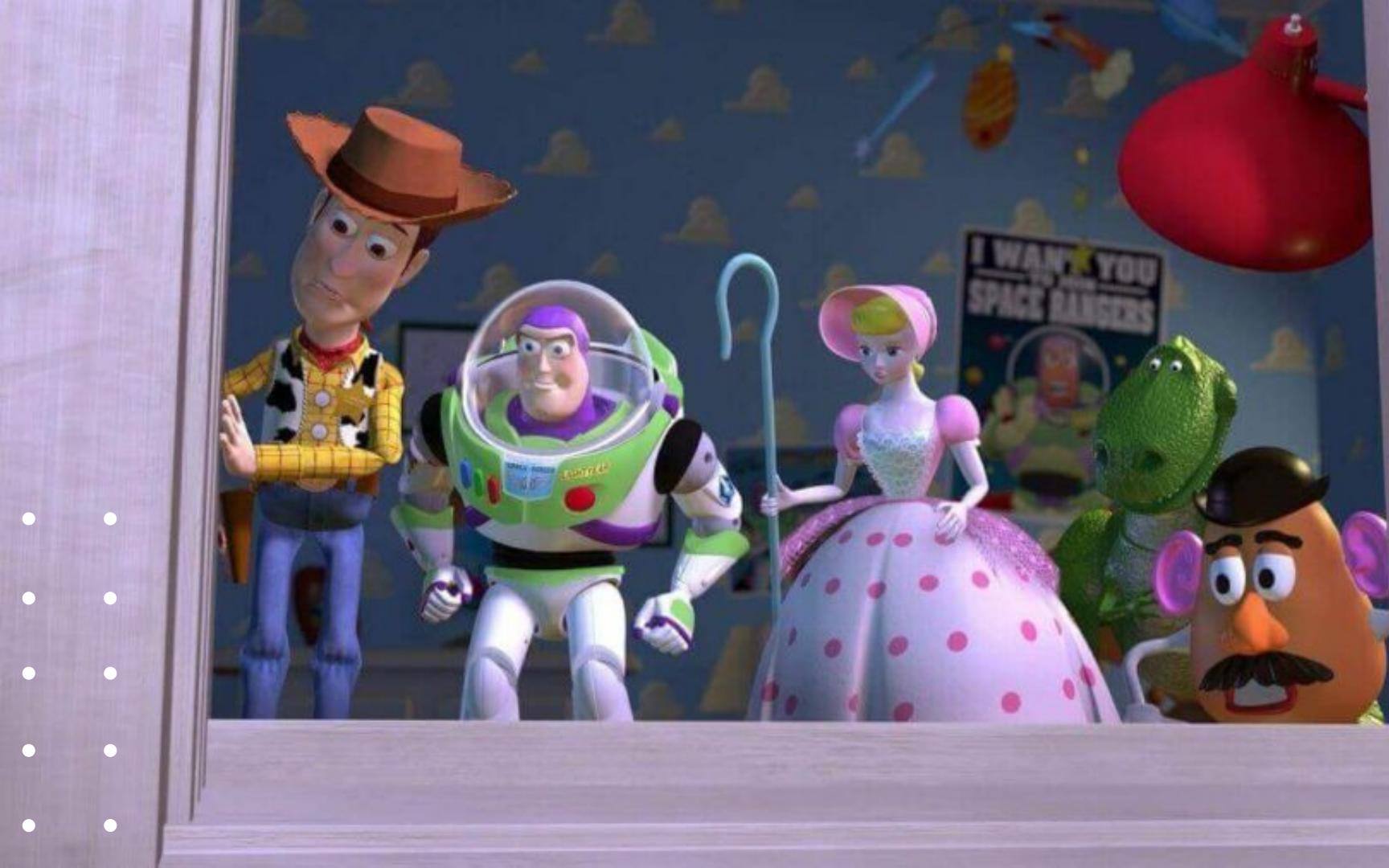
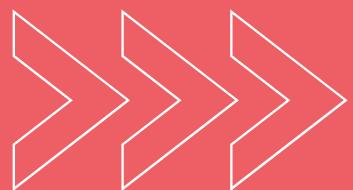


CGI

Vladyslav Holubenko



WHAT IS CGI?



Computer-generated imagery

static or animated visual content
created using computer software

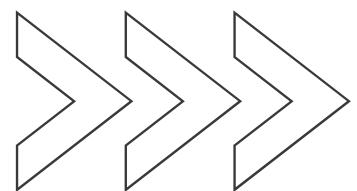
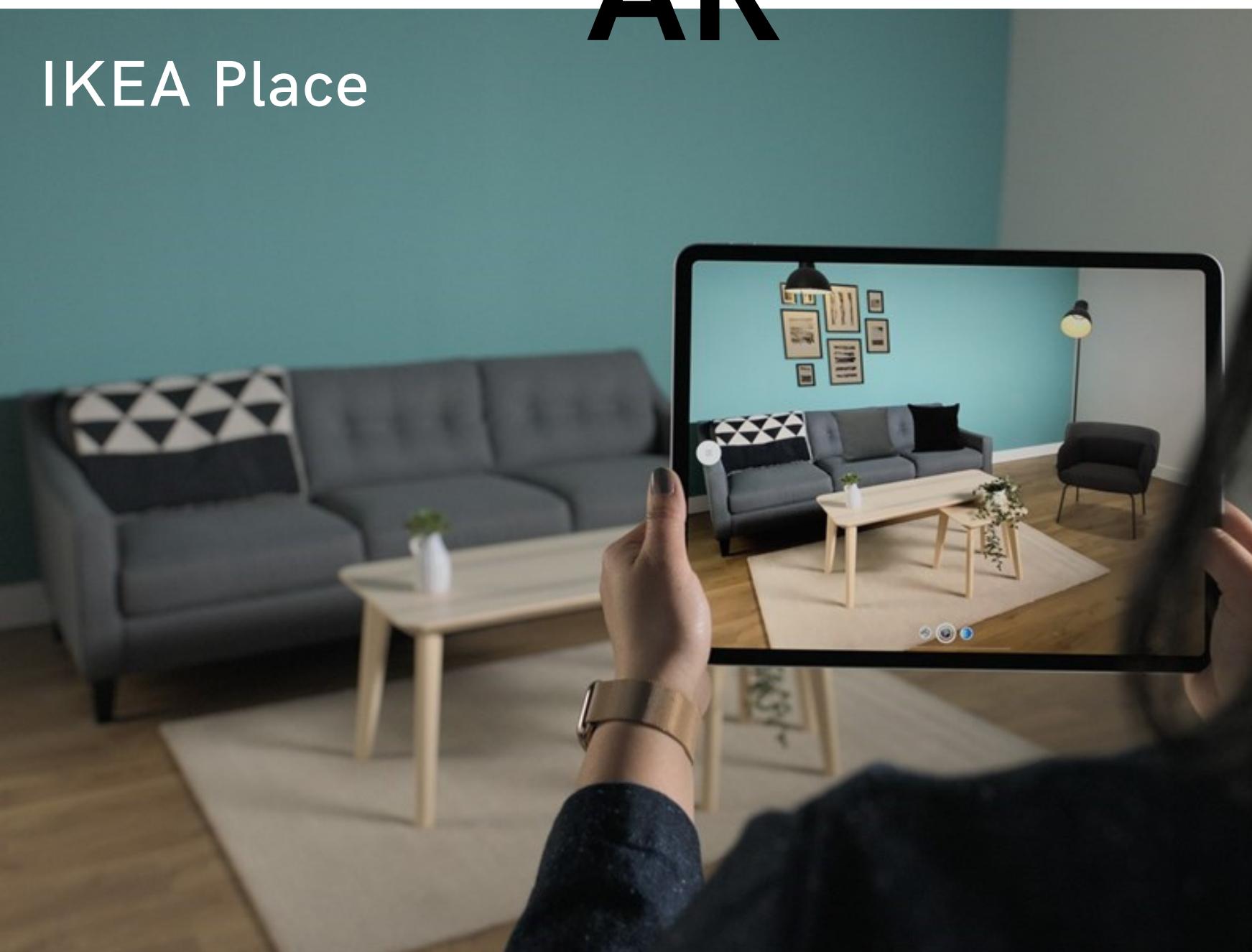
ARCHITECTURAL SCENES



SIMULATIONS

IKEA Place

AR



VR

Half-Life: Alyx (2019)



Meta

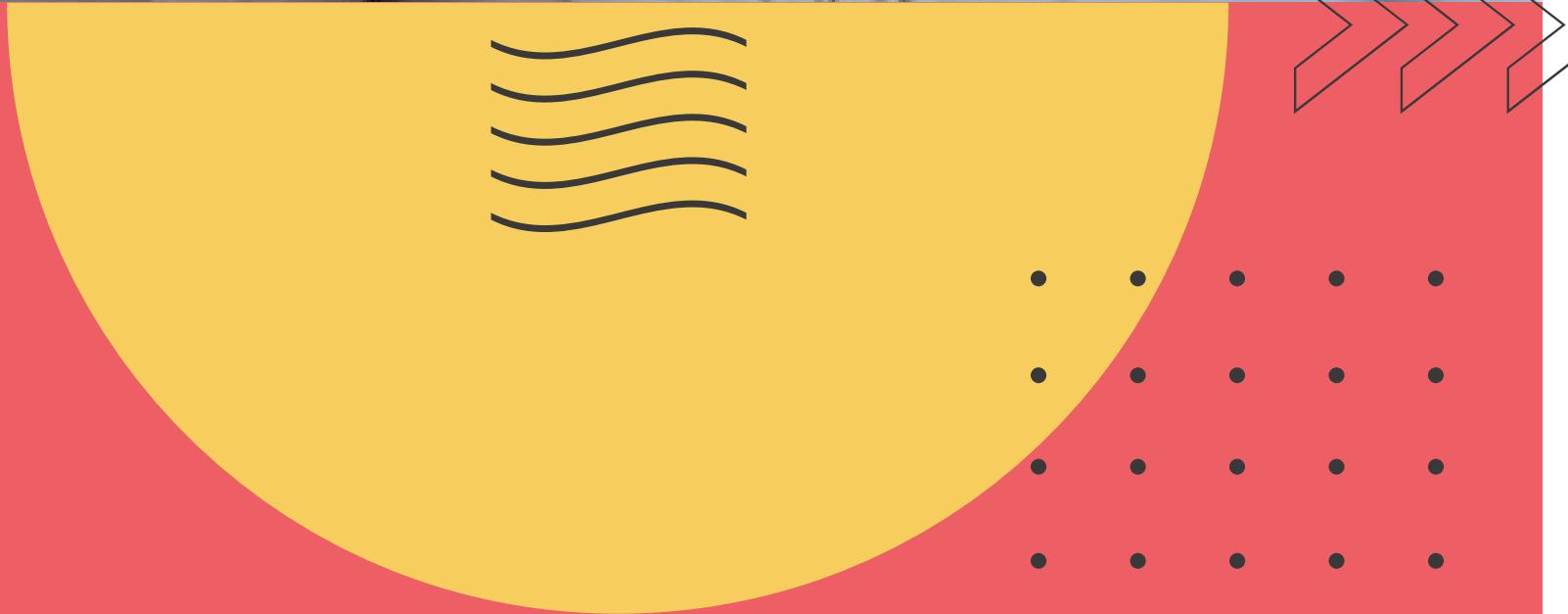
FILMS AND VIDEO GAMES



MOTION CAPTURE



The Lord of the Rings:
The Two Towers (2002)

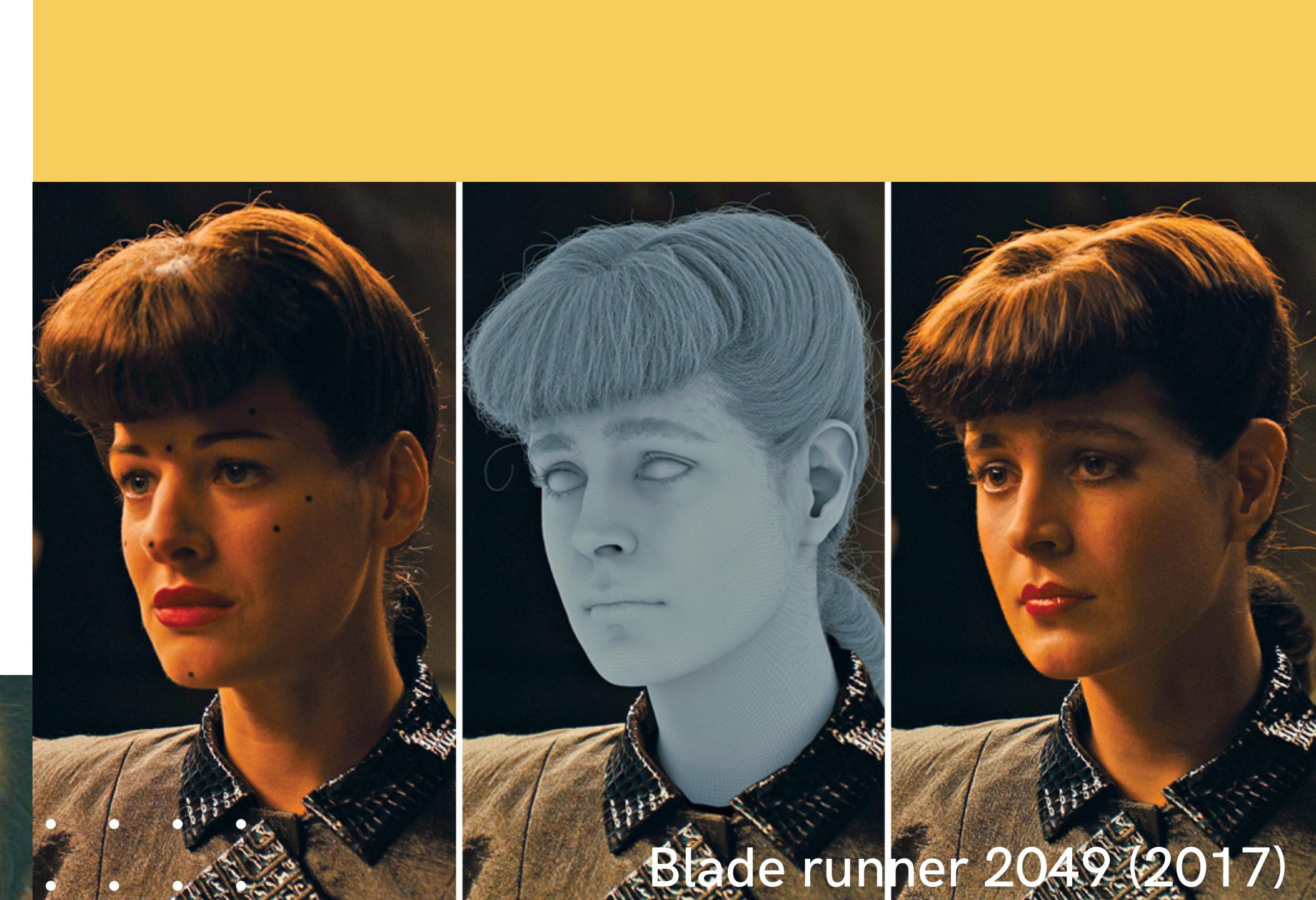


Dawn of the Planet of the Apes (2014)

FACIAL MOTION CAPTURE



The Irishman (2019)

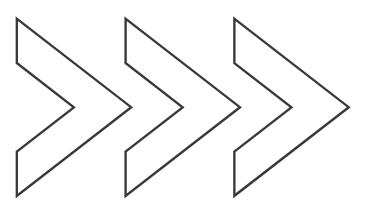




DIGITAL FASHION

The latest in fashion is not made with threads and textiles, but with pixels and programs.

Anastasiia Solomiia Hrytsyna



HISTORY

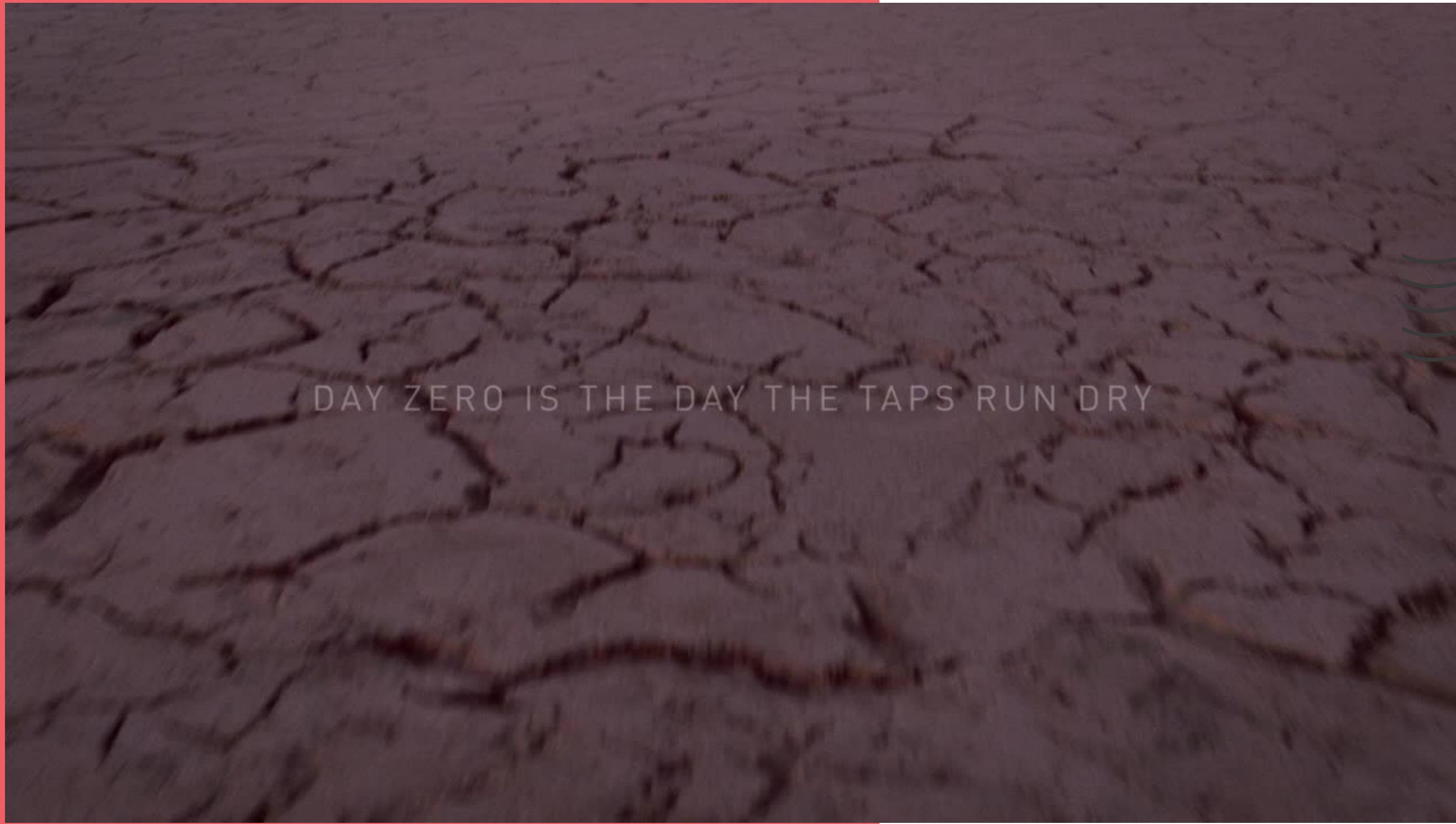


<https://www.forbes.com/sites/unicefusa/2022/04/11/lessons-from-covid-19-strengthening-health-systems-to-prevent-the-next-global-health-crisis/?sh=49f575d71b11>



<https://vs-lb.com/digitalization-fashion-industry-virtual-fashion/>

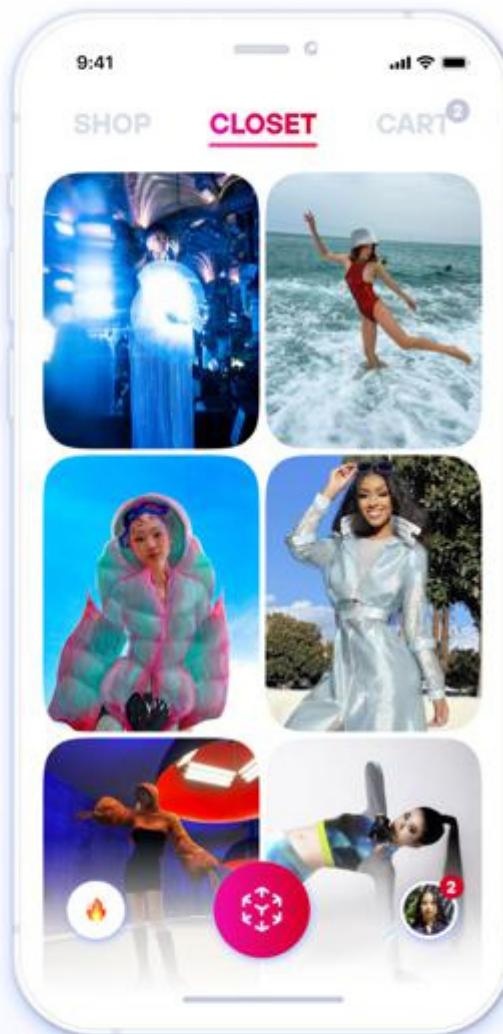
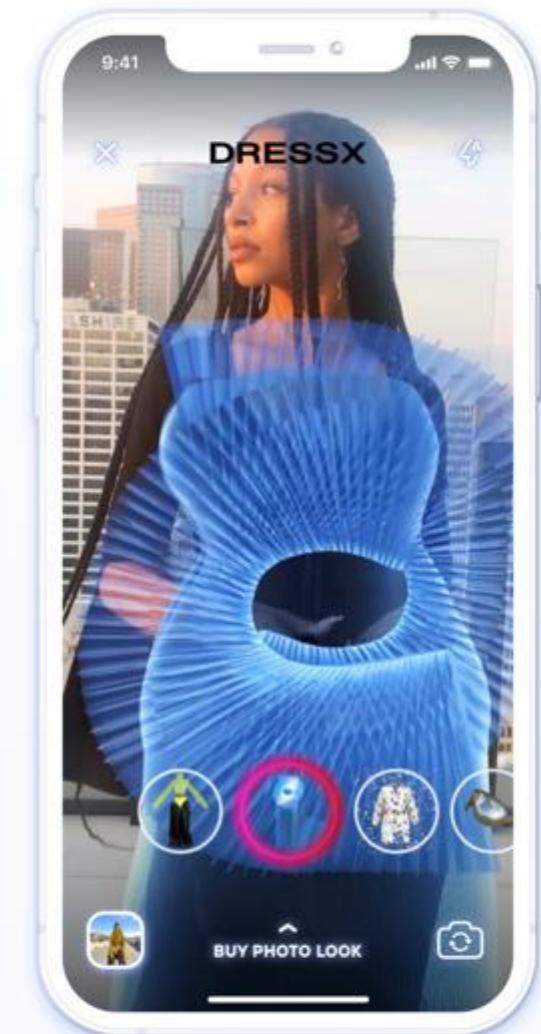
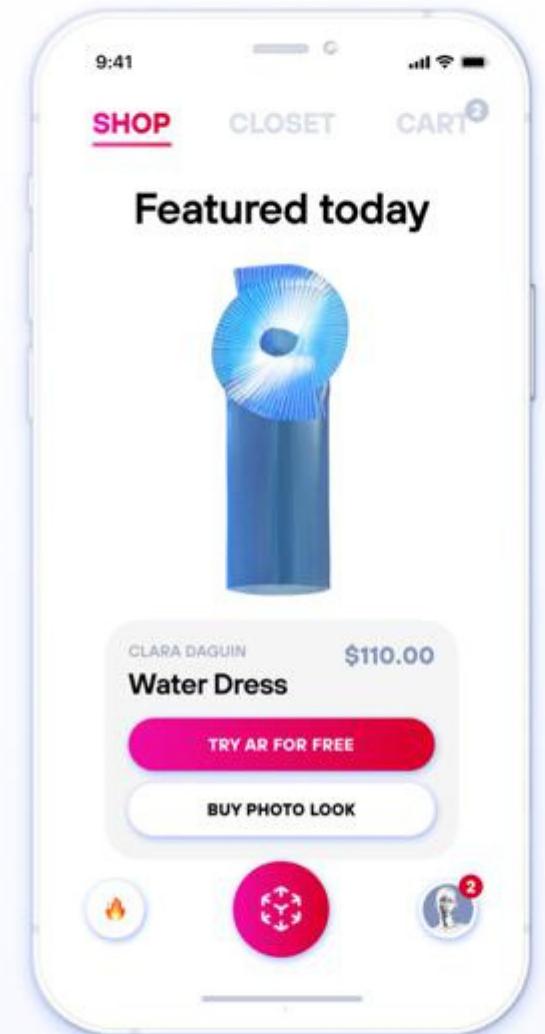
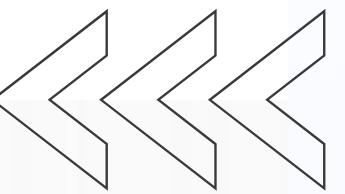
THE FABRICANT

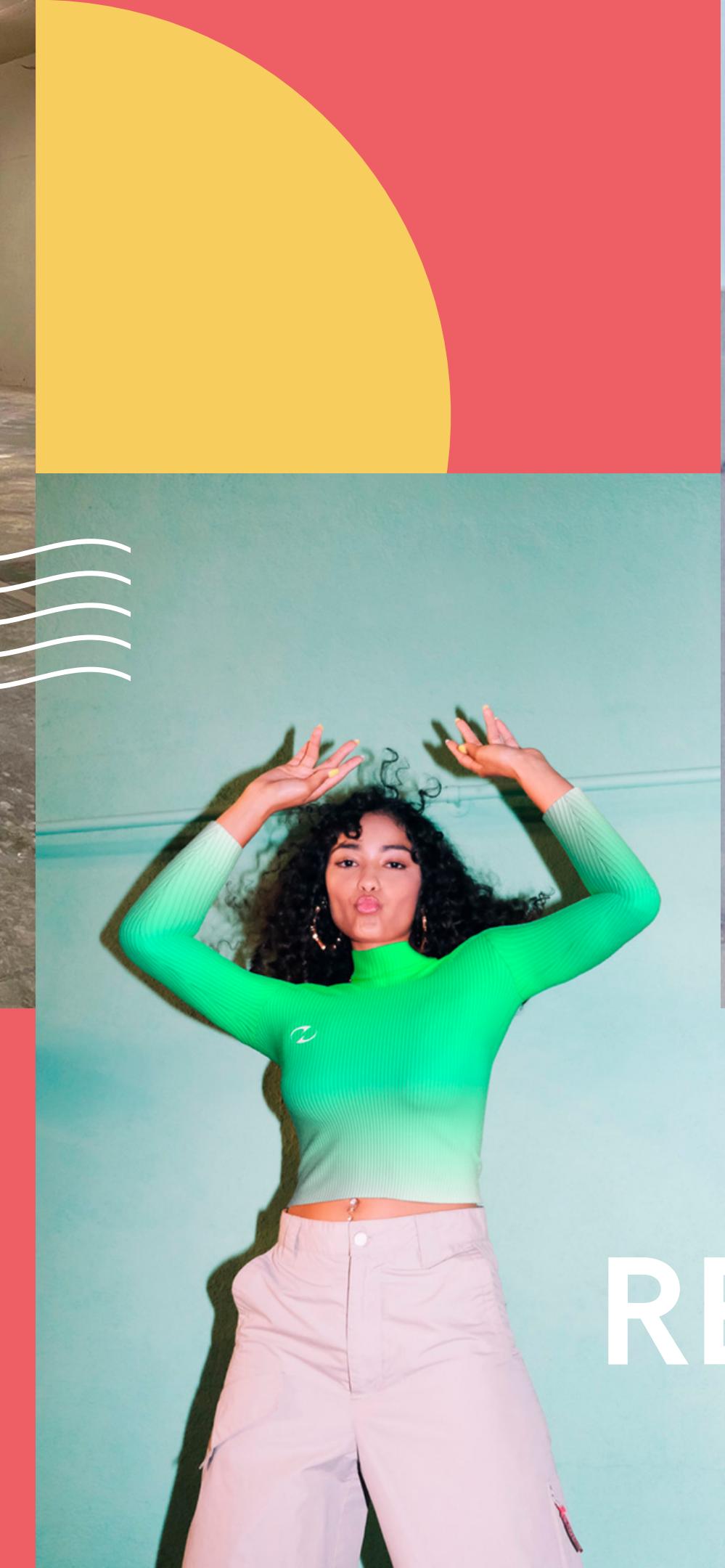
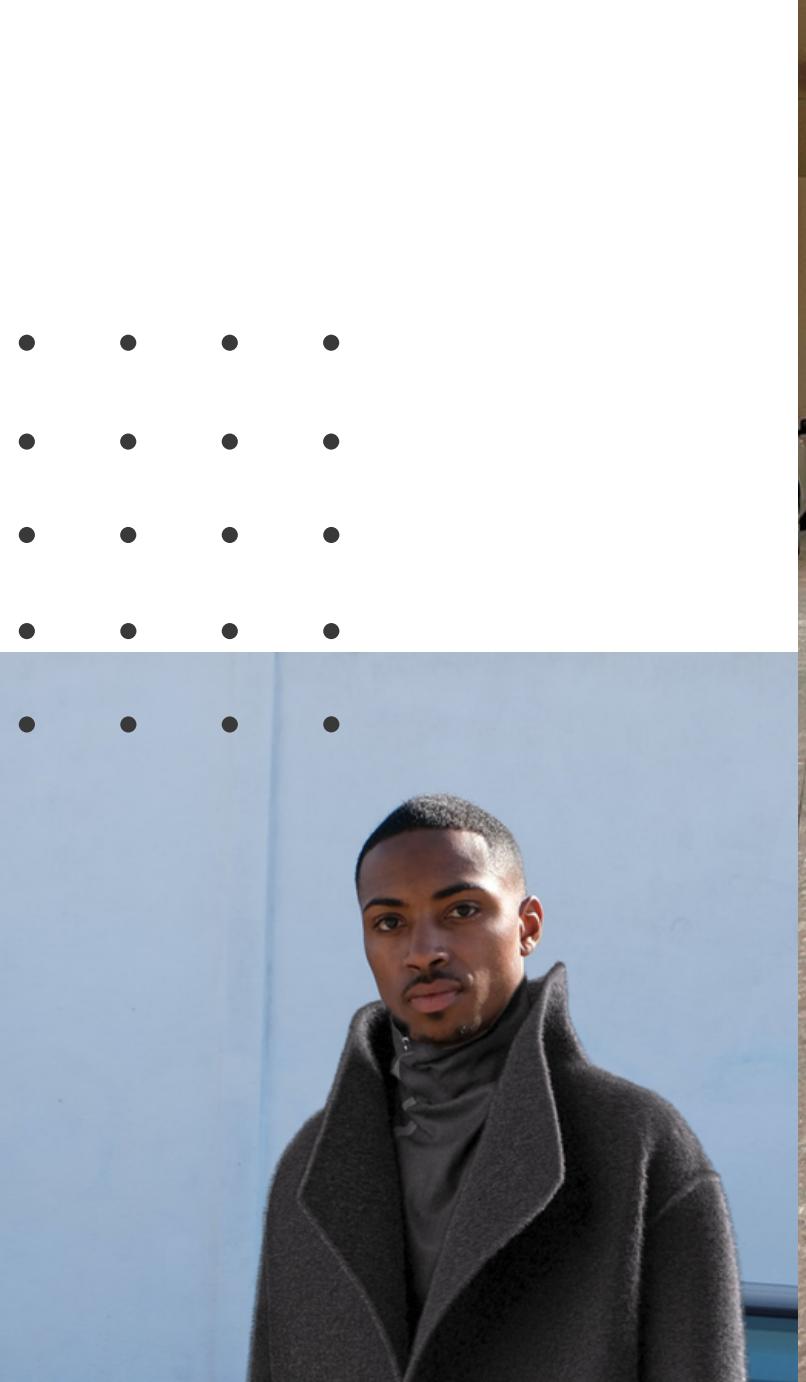


DAY ZERO IS THE DAY THE TAPS RUN DRY



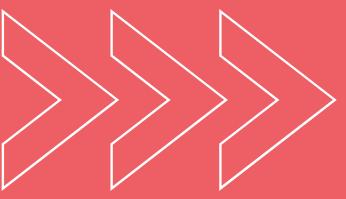
DRESSX

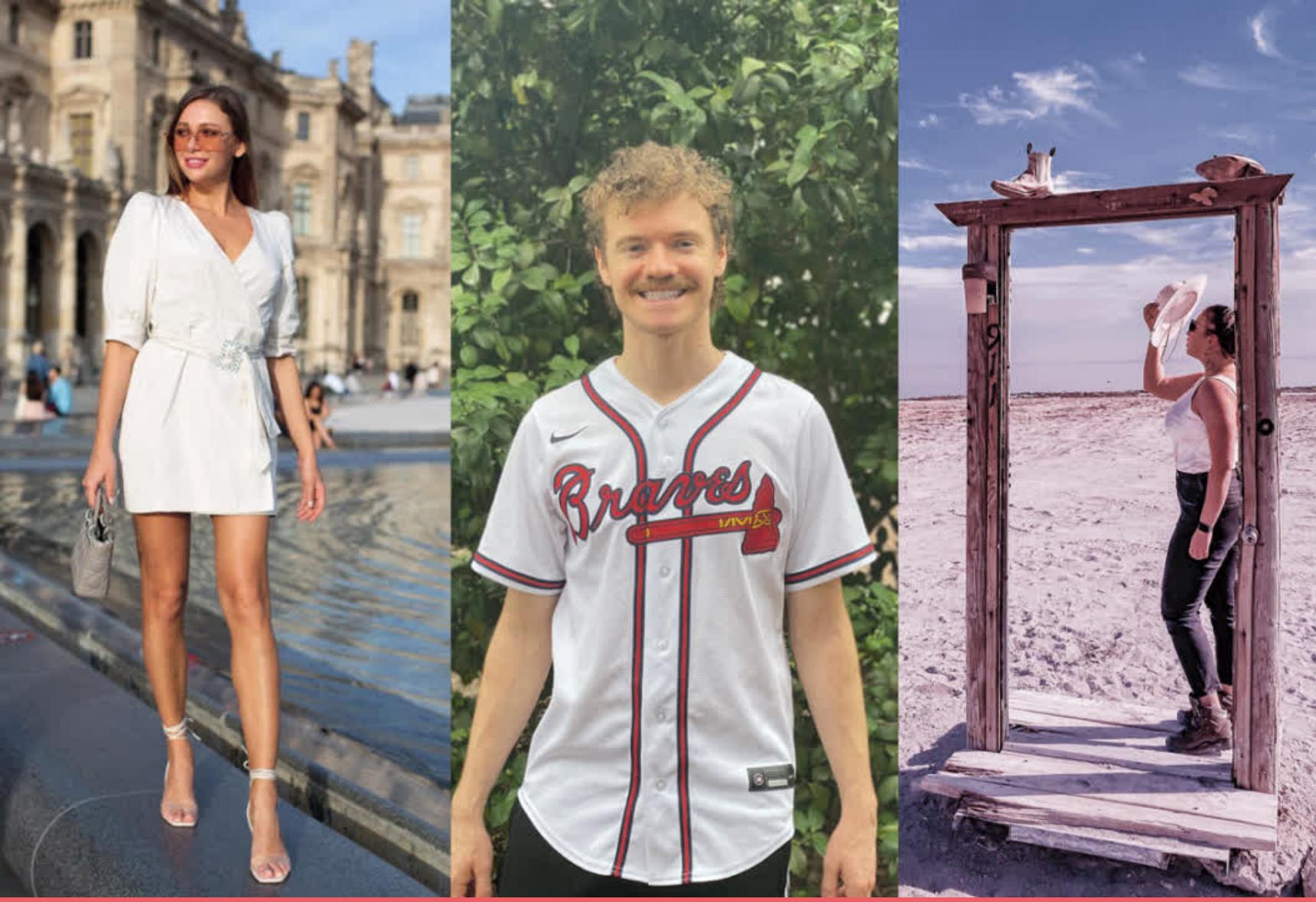




REPLICANT

<https://en.replicant.fashion/>



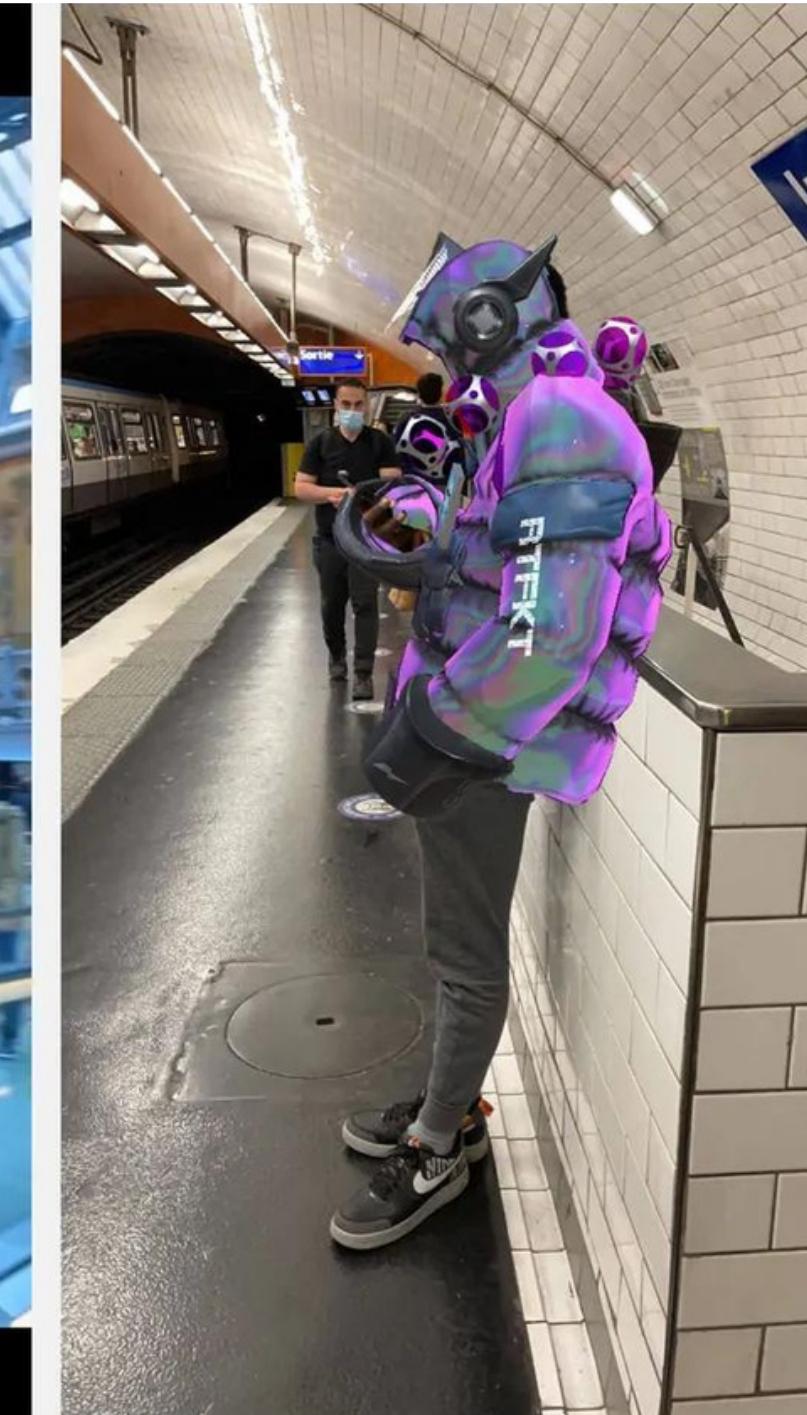


The substitute of fast-fashion
Reduce clothing waste
Less harm to the environment
No industrial water pollution
Luxury items are more affordable
All sizes inclusive



A FEW ADVANTAGES OF DIGITAL FASHION

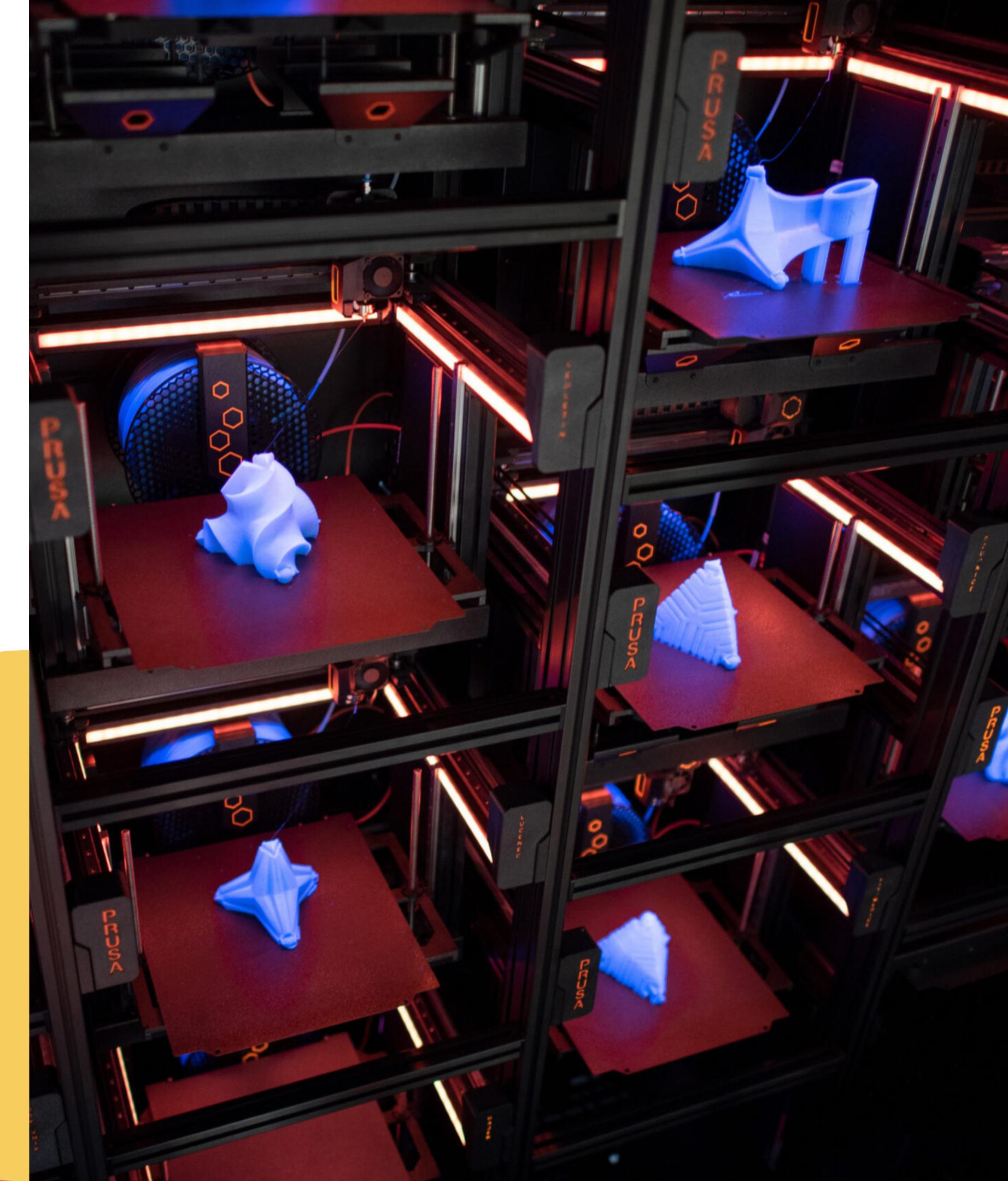
FUTURE

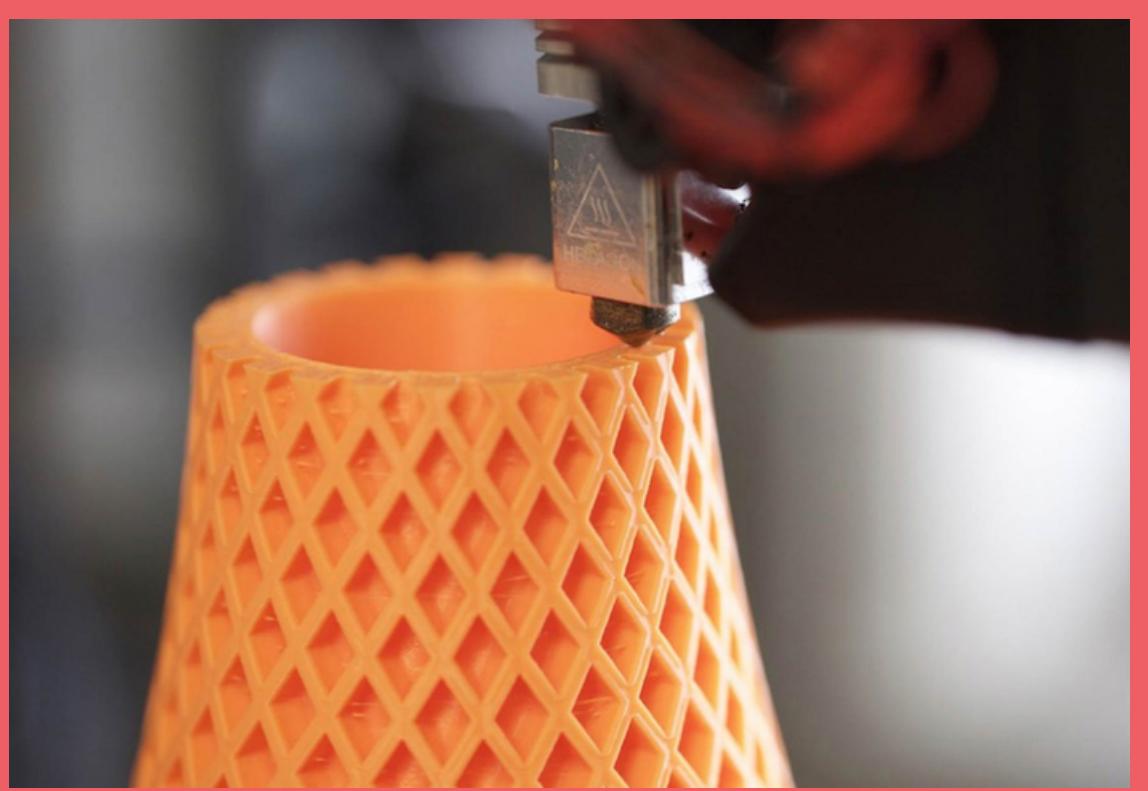


<https://blog.loomly.com/digital-clothing/#:~:text=Digital%20clothing%20isn't%20made,an%20order%20something%20you%20like.>

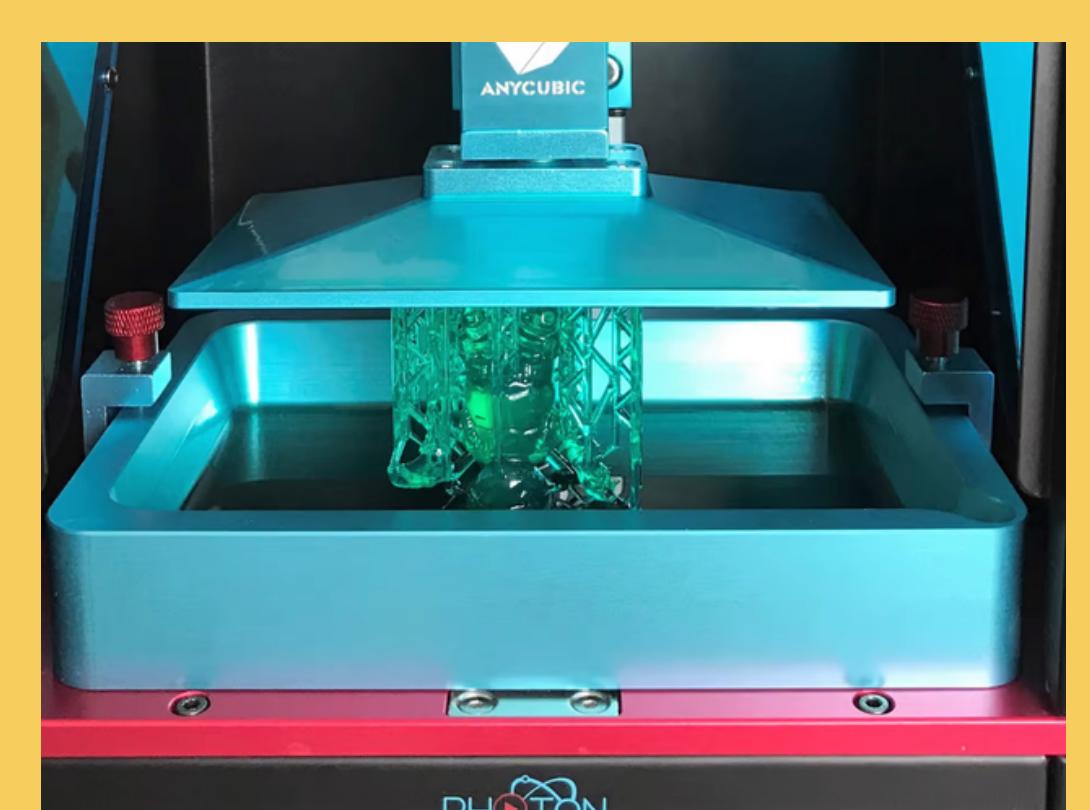
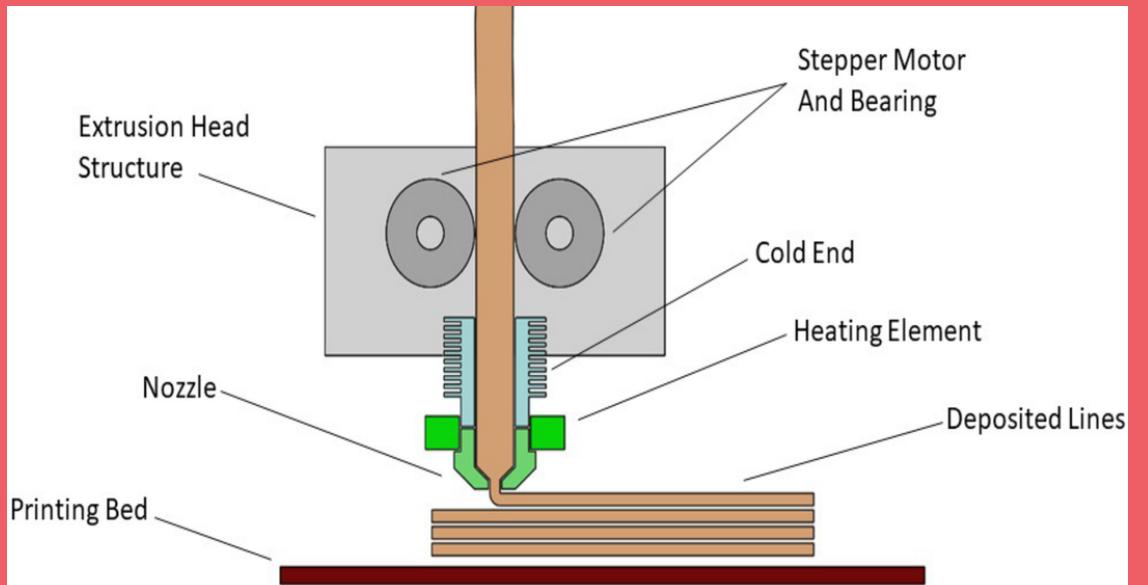
3D PRINTING

Daniel Havel

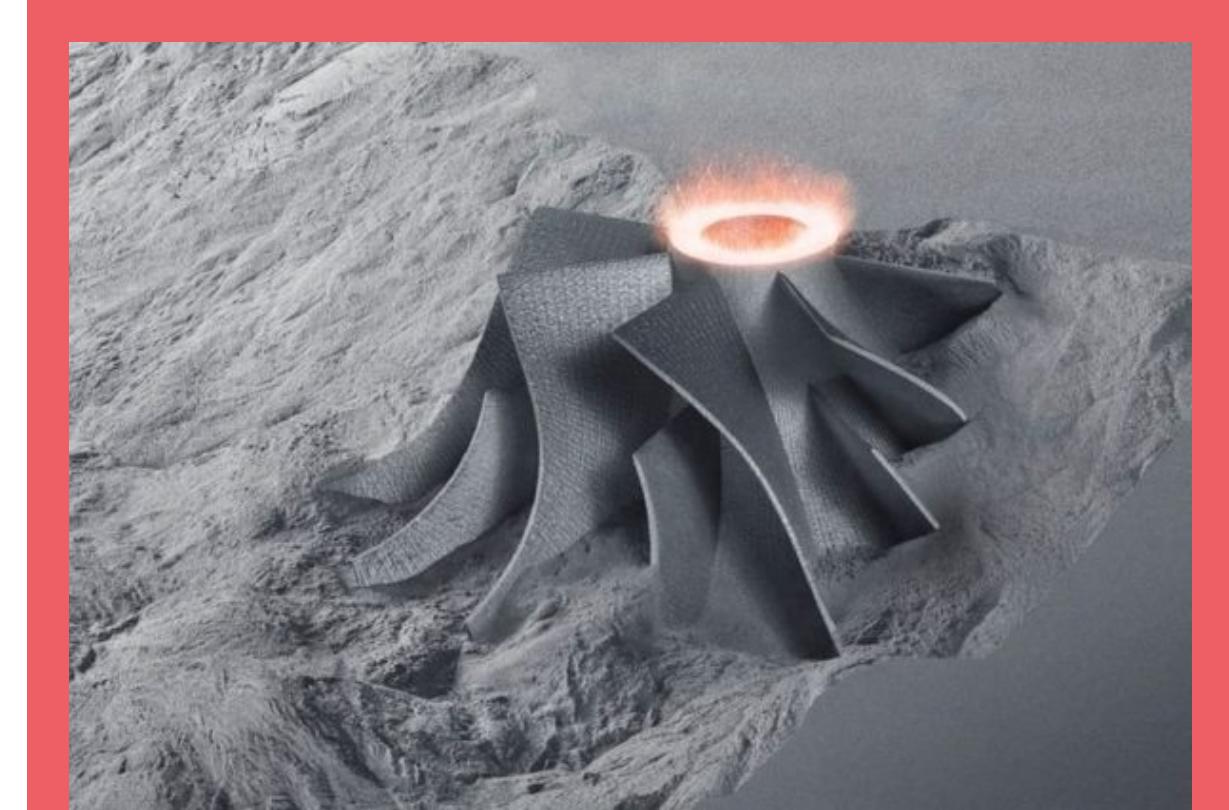
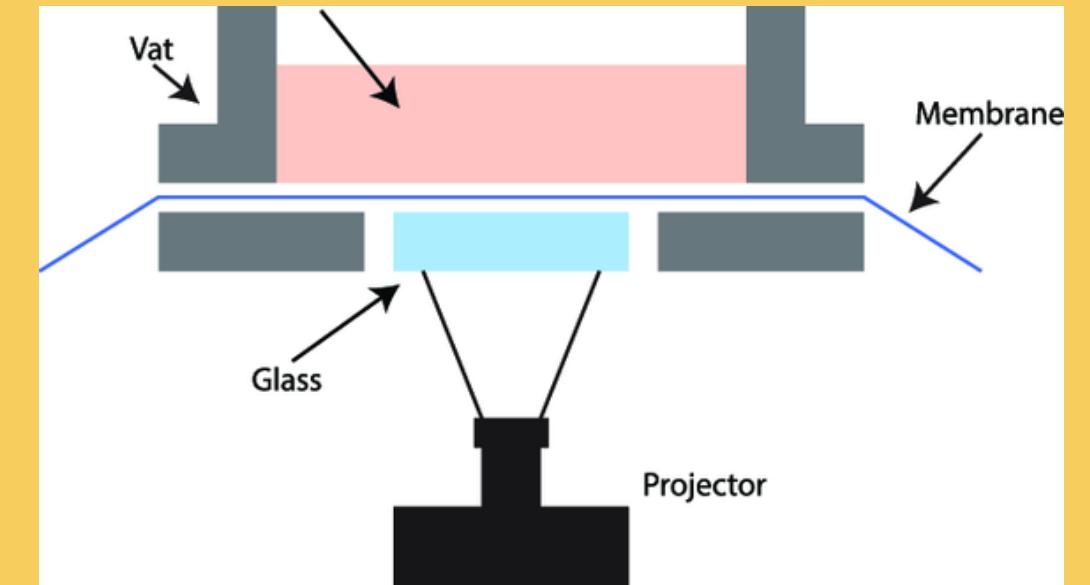




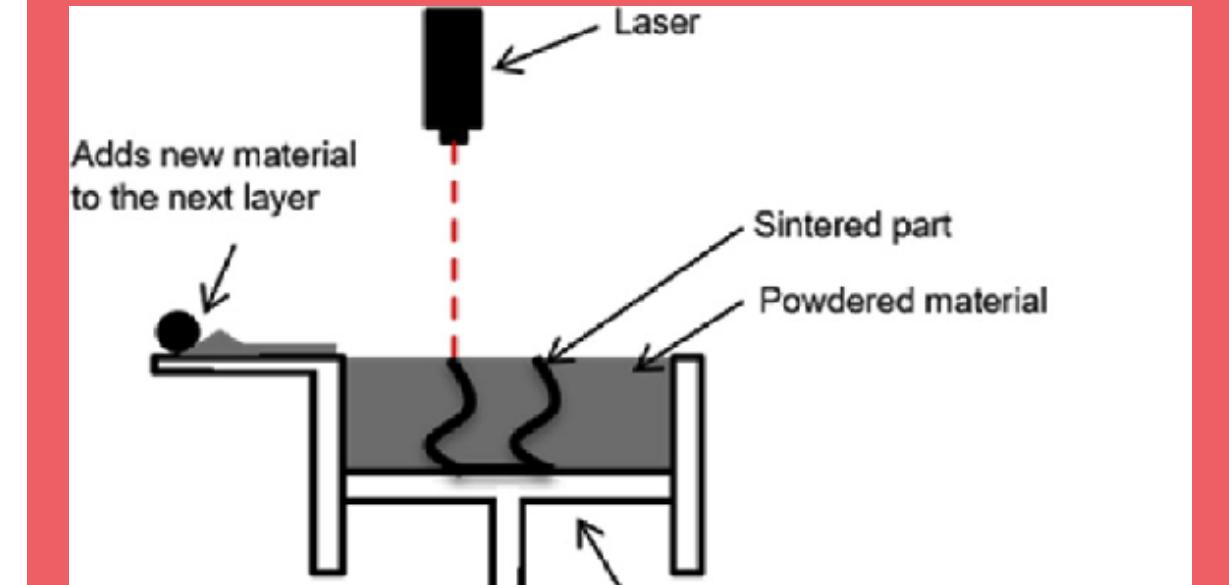
FDM



SLA

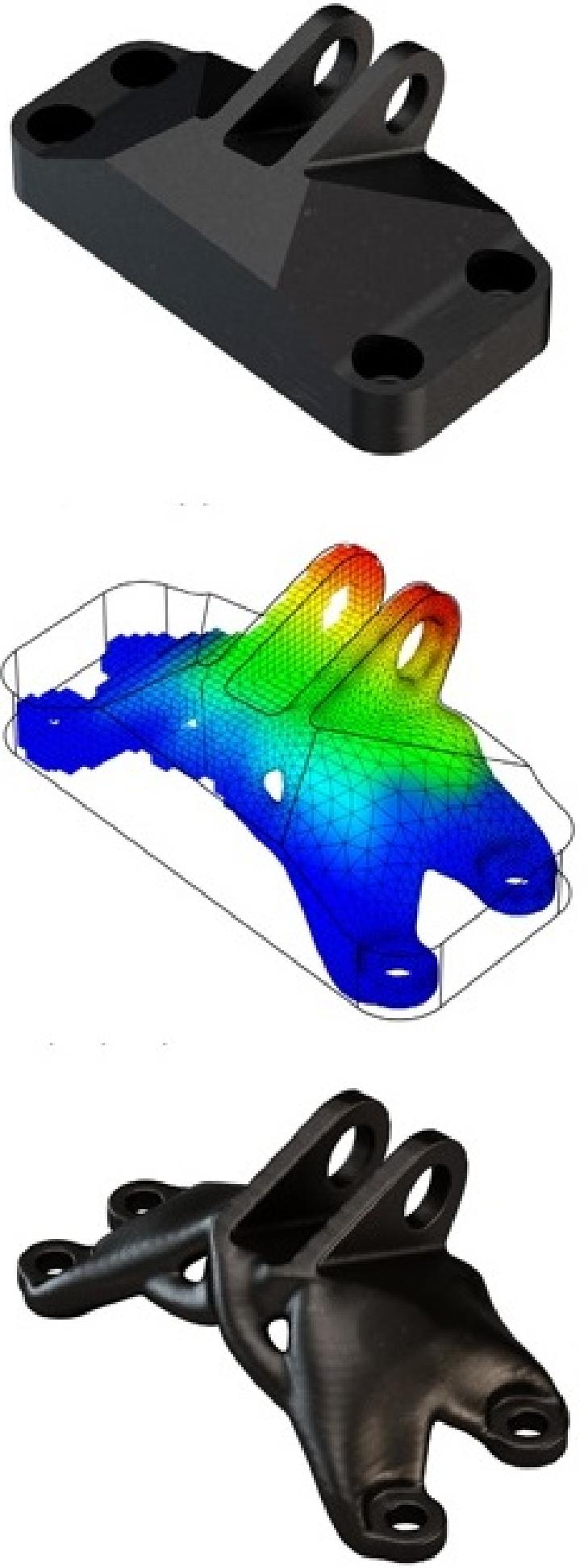
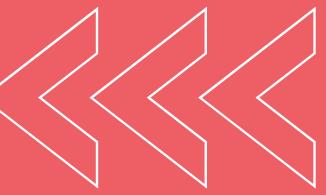
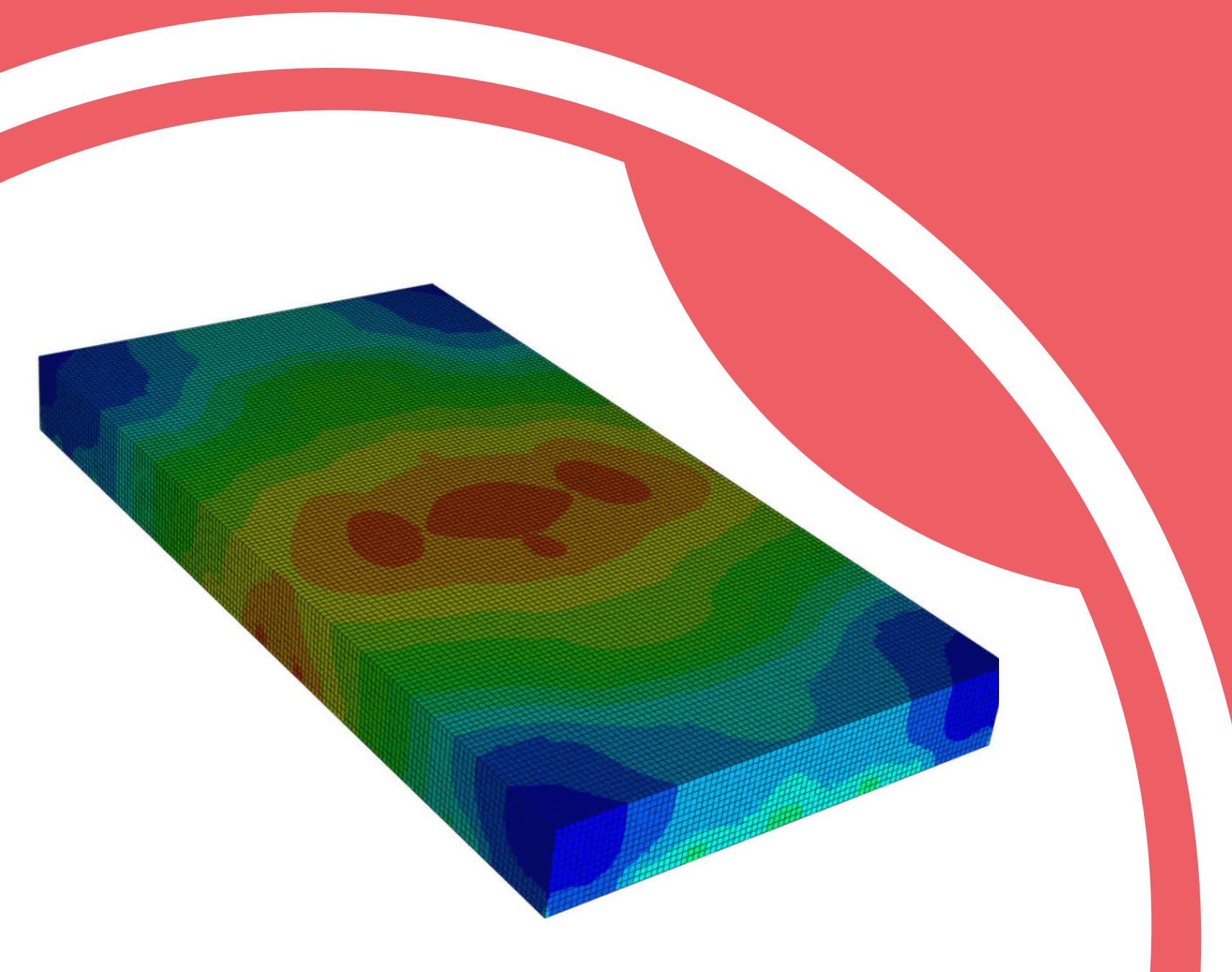


SLS

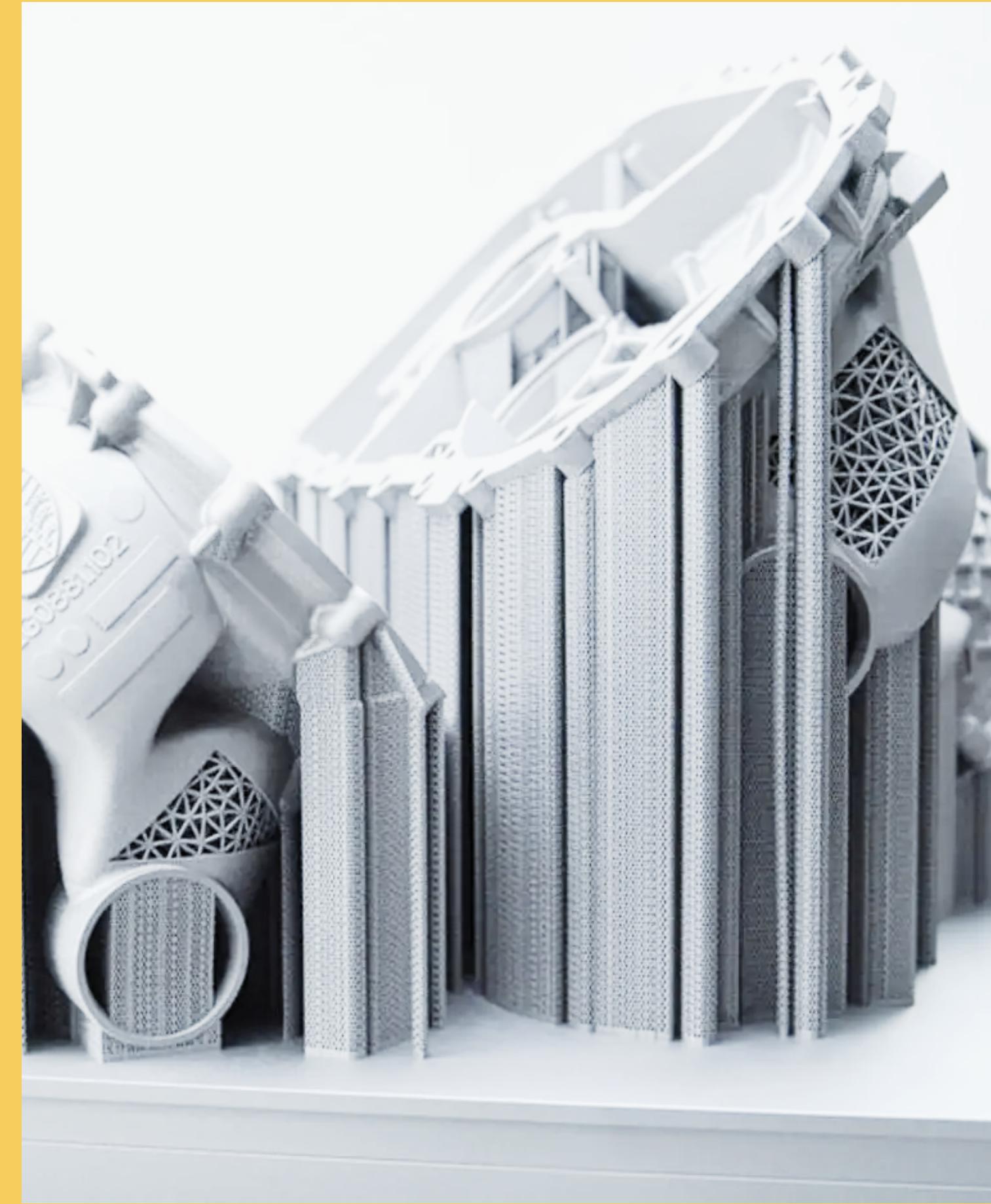




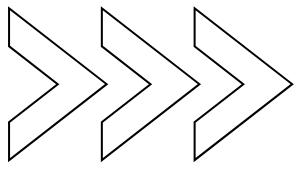
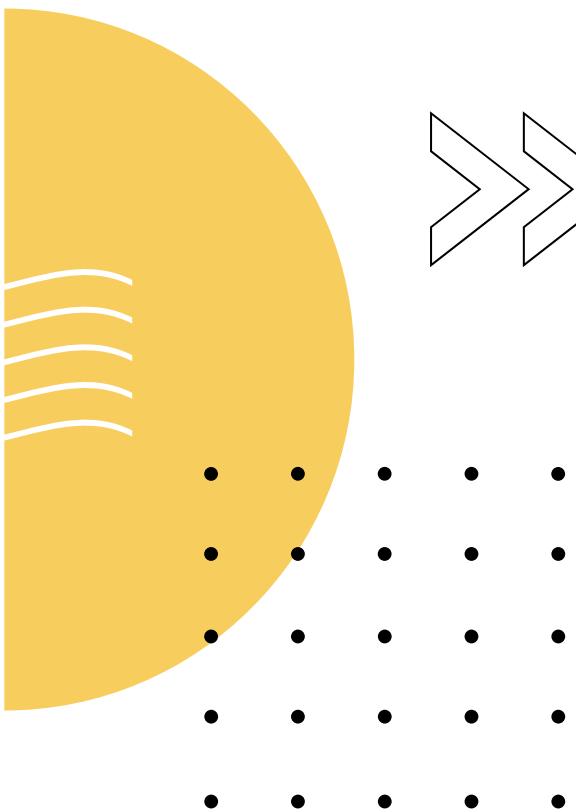
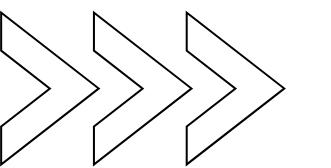
TOPOLOGY OPTIMIZATION



CAR INDUSTRY



ARCHITECTURE



DISCUSSION

