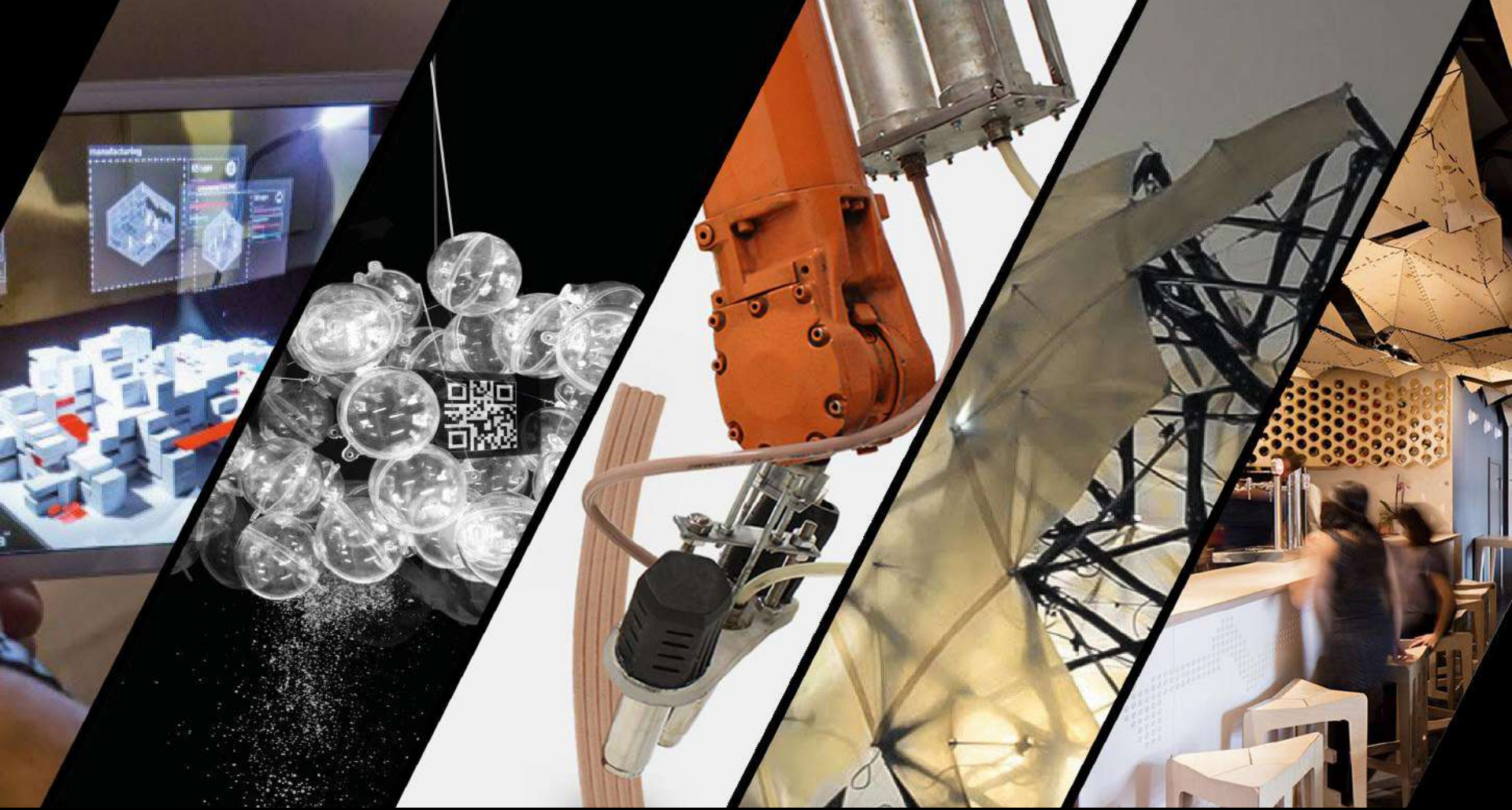
16/07/25

Tectonics & Digital

New design paradigms

Santi Fuentemilla, 2025


From **WTF** to 🤯



Knowledge

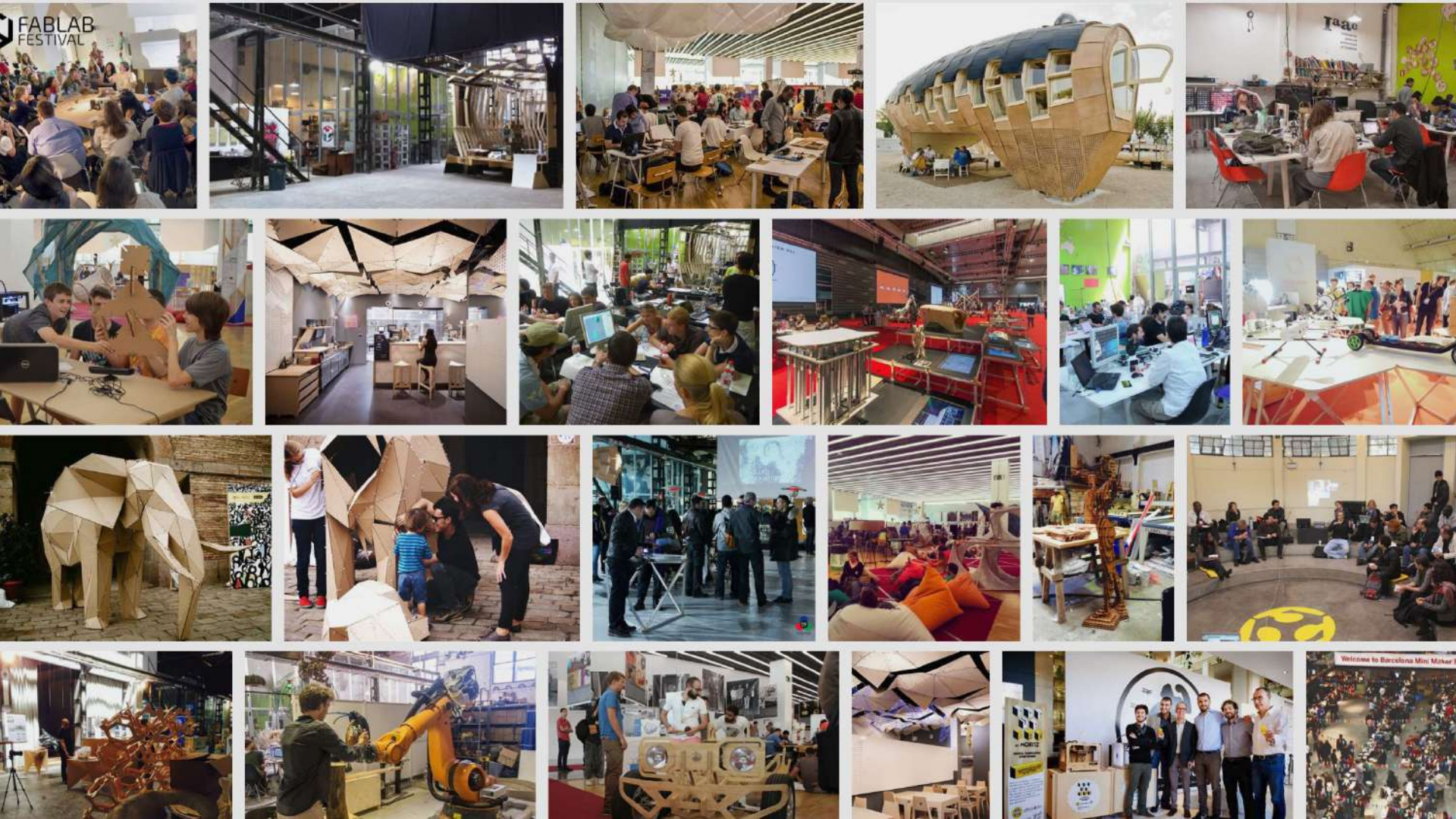
Processes

Attitude

Critical thinking

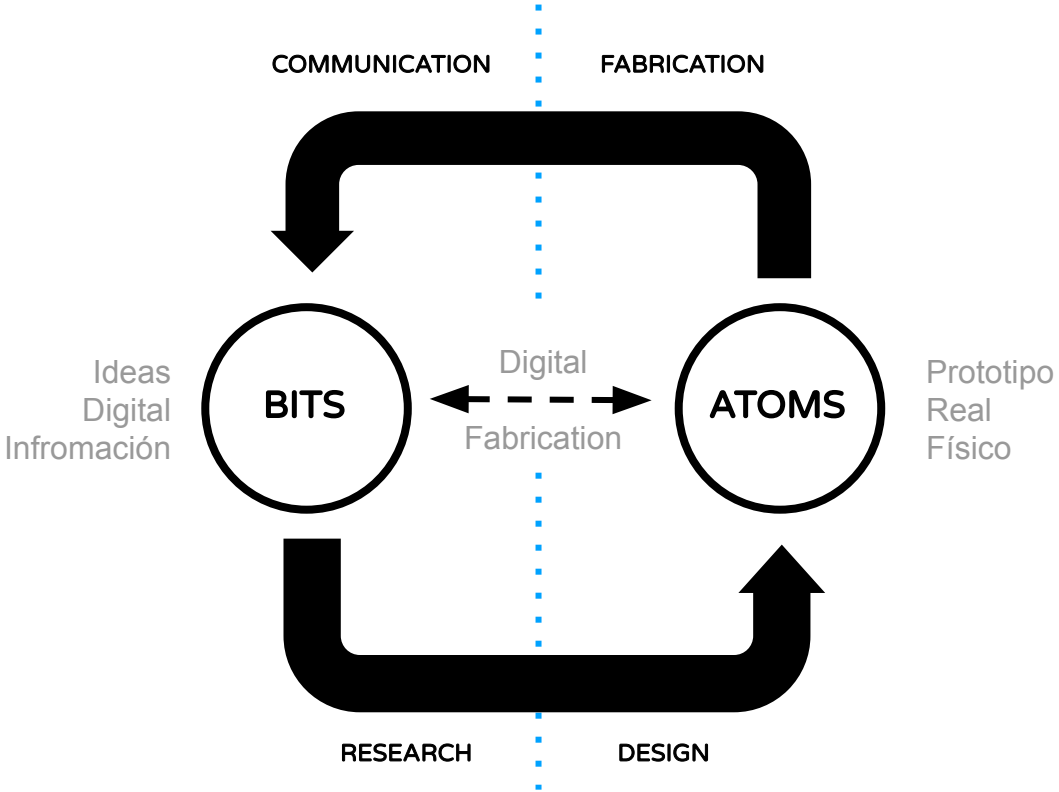
Challenge

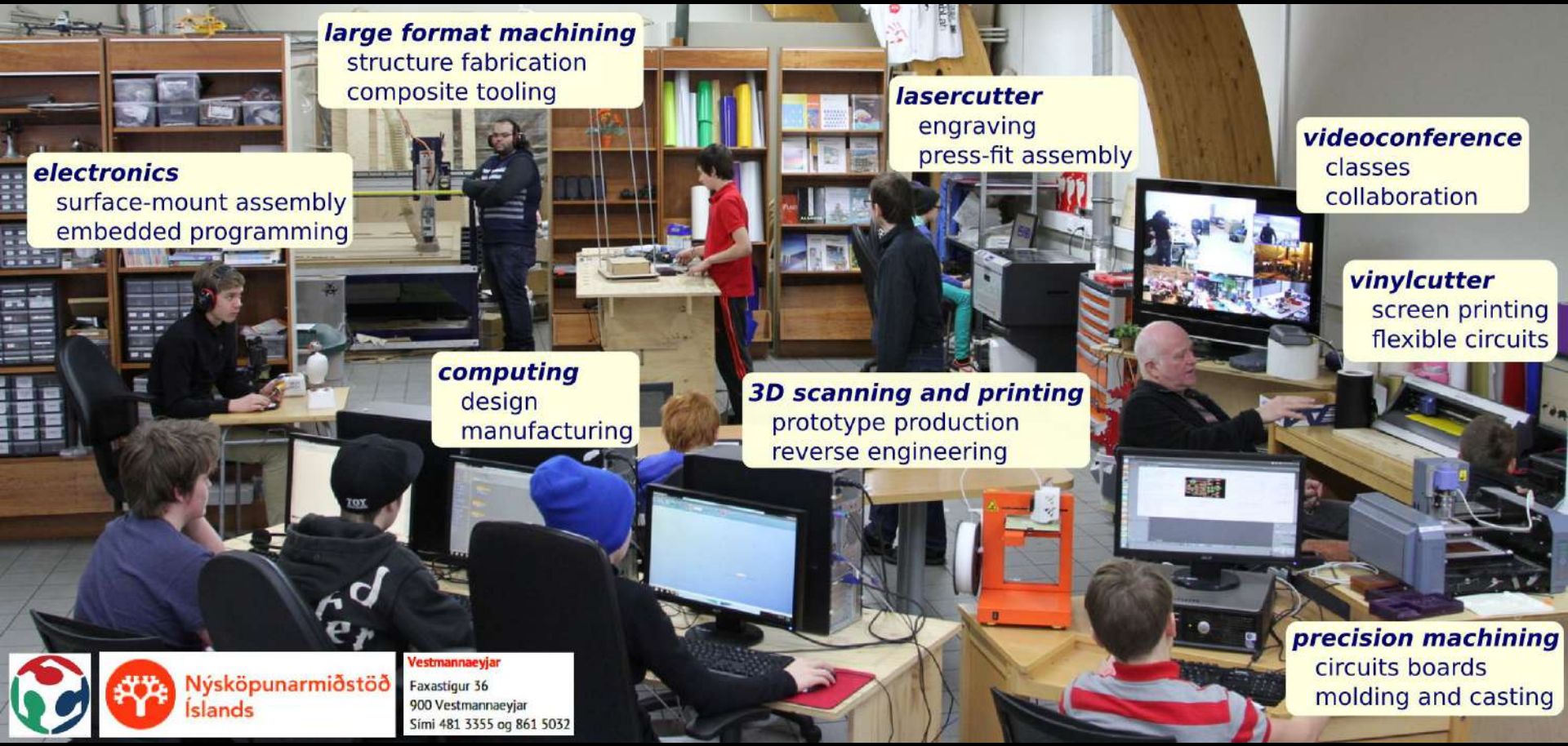
Context


FABLAB
FESTIVAL

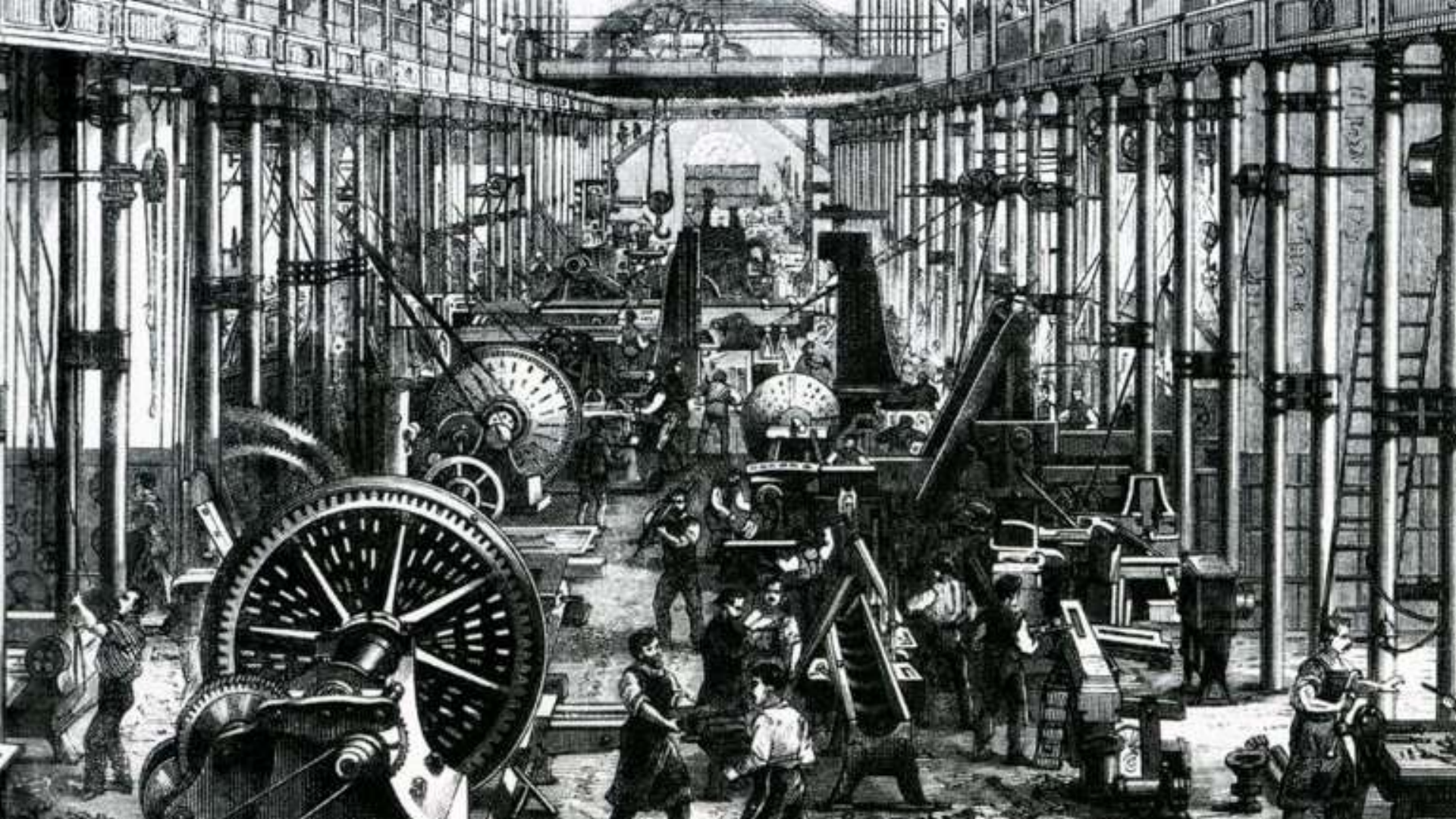
Making Sense of

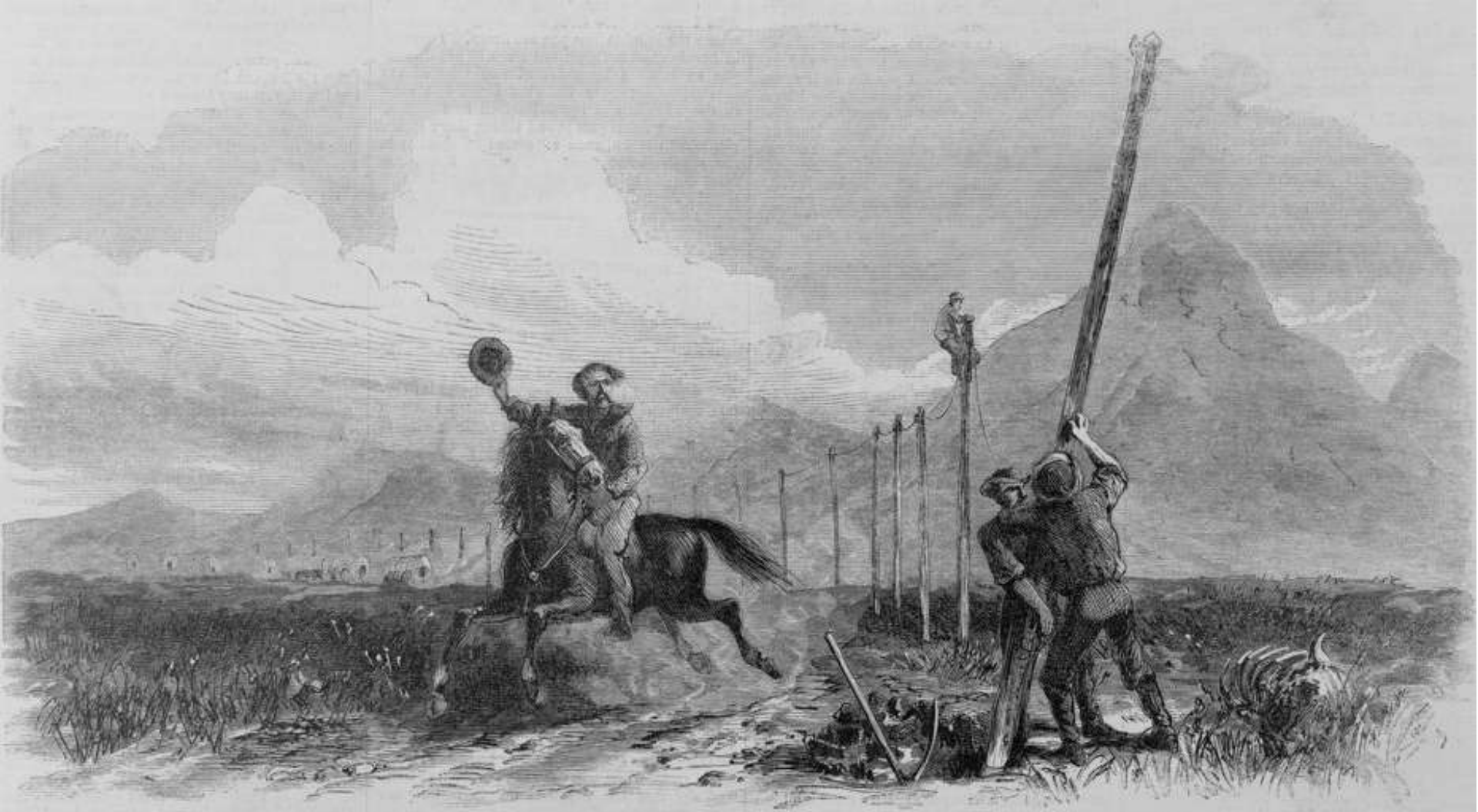
Digital Fabrication


COMMUNICATION
FABRICATION
Ideas
Digital
Infromación
BITS
Digital
Fabrication
ATOMS
Prototipo
Real
Físico
RESEARCH
DESIGN

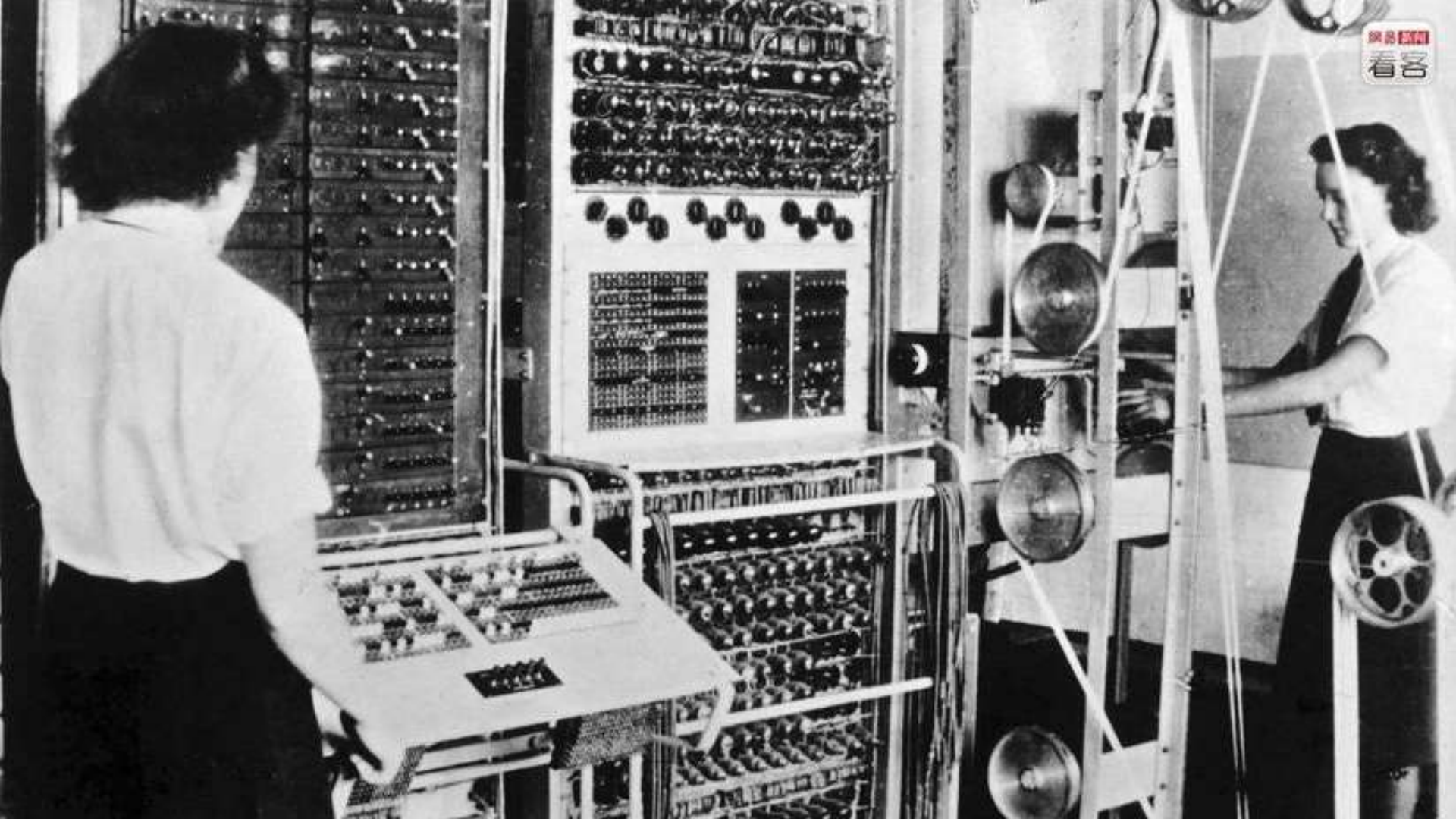

large format machining
structure fabrication
composite tooling
lasercutter
engraving
press-fit assembly
videoconference
classes
collaboration
electronics
surface-mount assembly
embedded programming
vinylcutter
screen printing
flexible circuits
computing
design
manufacturing
3D scanning and printing
prototype production
reverse engineering
precision machining
circuits boards
molding and casting
Nýsköpunarmiðstöð Íslands
Vestmannaeyjar
Faxastígur 36
900 Vestmannaeyjar
Sími 481 3355 og 861 5032

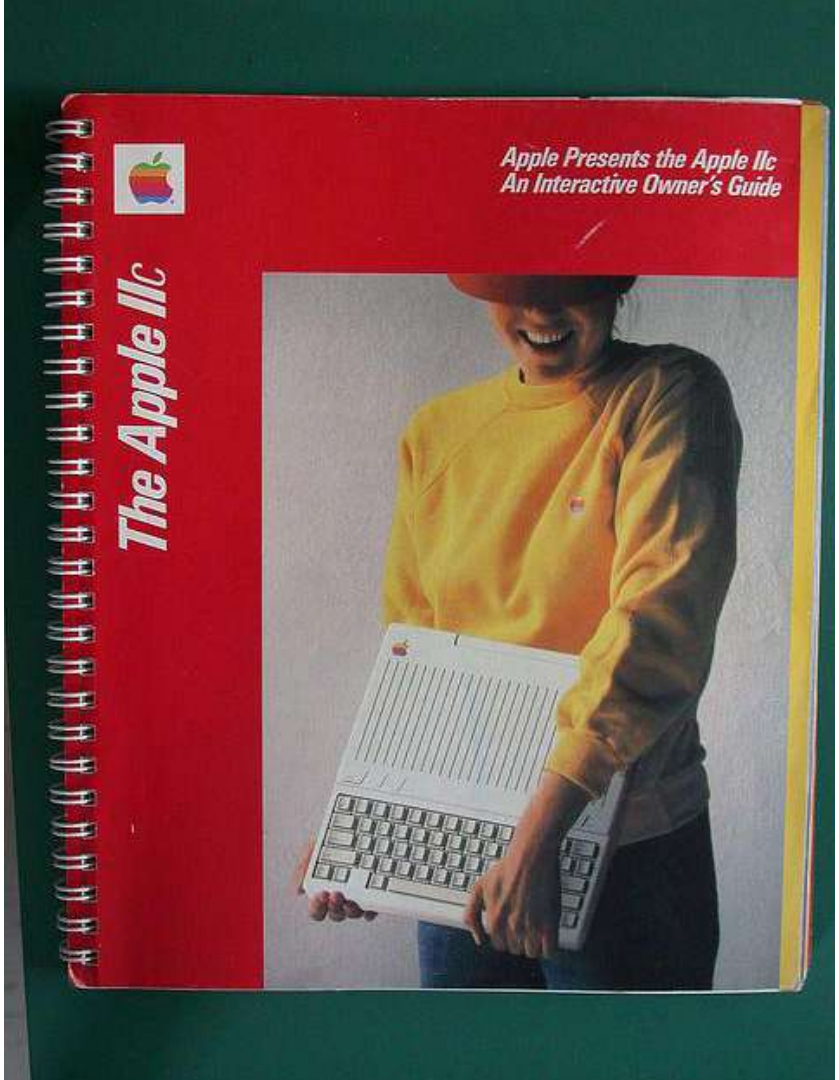

FAB
LAB
BCN

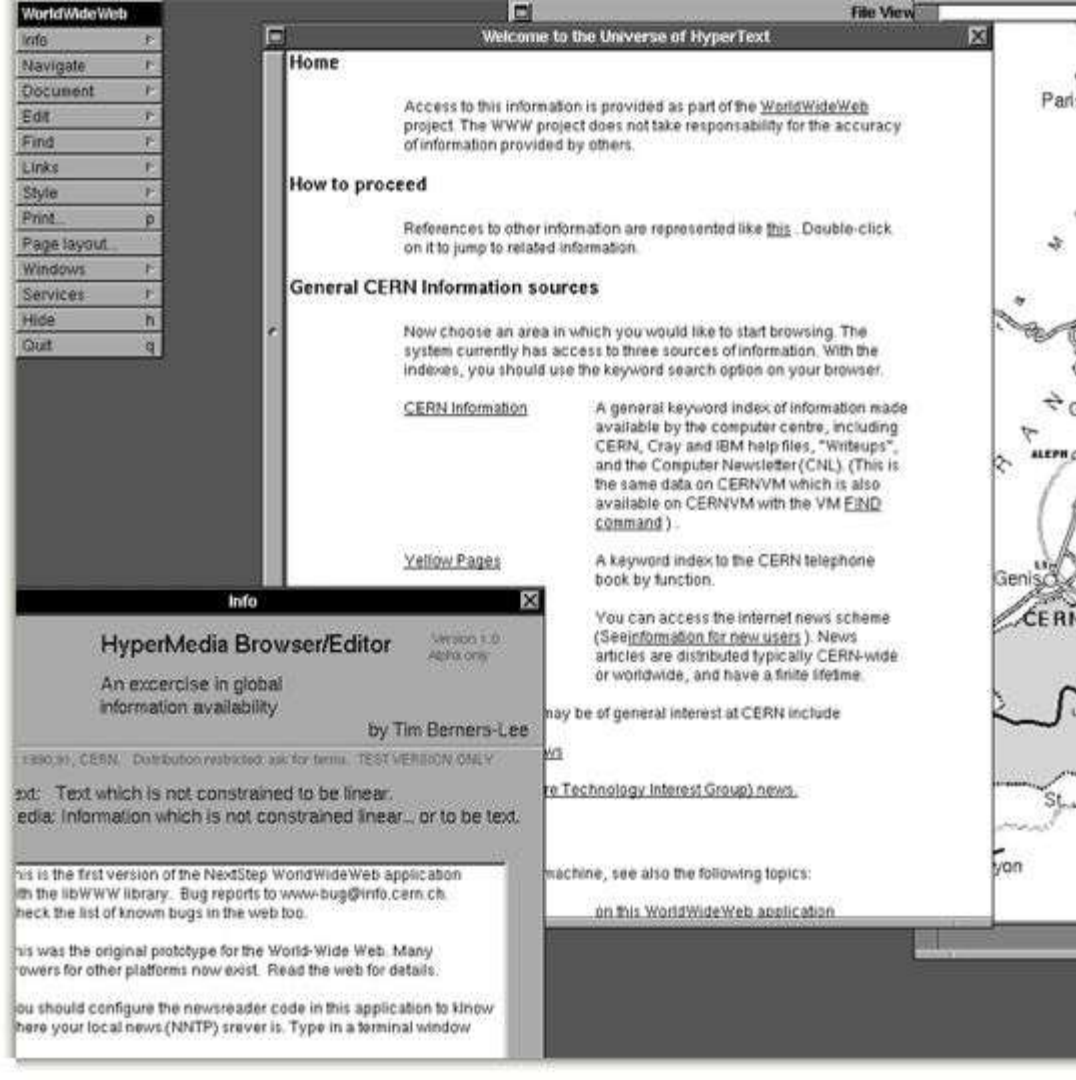




THE OVERLAND PONY EXPRESS.—[Photographed by Savage, Salt Lake City, from a Painting by George M. Ottinger.]




Apple Presents the Apple IIc
An Interactive Owner's Guide
The Apple IIc


WorldWideWeb
Info
Navigate
Document
Edit
Find
Links
Style
Print... p
Page layout...
Windows
Services
Hide h
Quit q
File View
Welcome to the Universe of HyperText
Home
Access to this information is provided as part of the WorldWideWeb project. The WWW project does not take responsability for the accuracy of information provided by others.
How to proceed
References to other information are represented like this . Double-click on it to jump to related information.
General CERN Information sources
Now choose an area in which you would like to start browsing. The system currently has access to three sources of information. With the indexes, you should use the keyword search option on your browser.
CERN Information
A general keyword index of information made available by the computer centre, including CERN, Cray and IBM help files, "Writeups", and the Computer Newsletter (CNL). (This is the same data on CERNVM which is also available on CERNVM with the VM FIND command).
Yellow Pages
A keyword index to the CERN telephone book by function.
You can access the internet news scheme (See information for new users). News articles are distributed typically CERN-wide or worldwide, and have a finite lifetime.
Info
HyperMedia Browser/Editor
Version 1.0 Alpha only
An excercise in global information availability
by Tim Berners-Lee
1990,91, CERN. Distribution restricted: ask for terms. TEST VERSION ONLY
ext: Text which is not constrained to be linear.
edia: Information which is not constrained linear.. or to be text.
his is the first version of the NextStep WorldWideWeb application
ith the libWWW library. Bug reports to www-bug@info.cern.ch.
heck the list of known bugs in the web too.
his was the original prototype for the World-Wide Web. Many
owers for other platforms now exist. Read the web for details.
ou should configure the newsreader code in this application to know
here your local news (NNTP) srever is. Type in a terminal window

Personal Computers

+

Internet

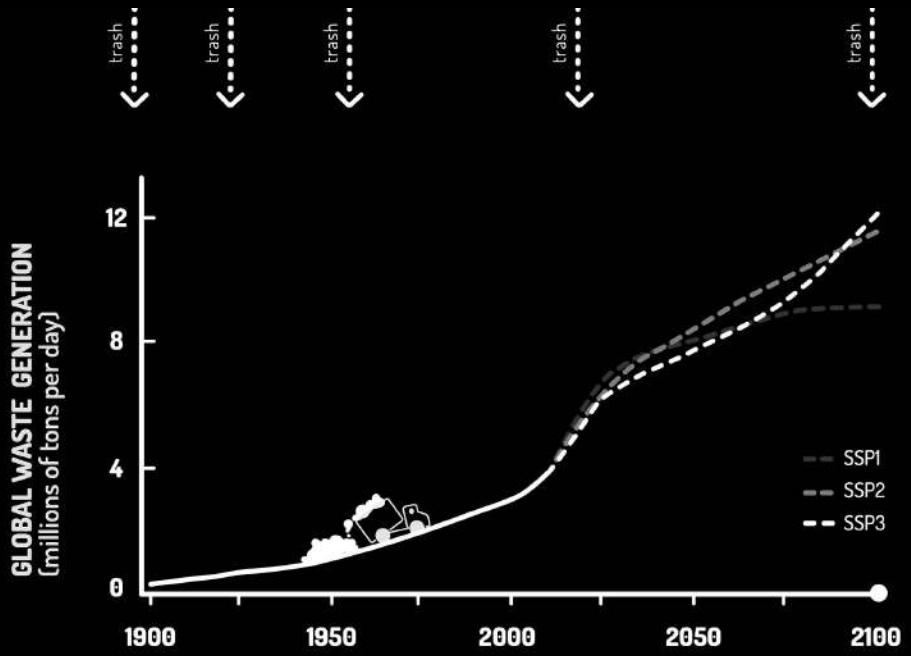
+

Centralized Production


1


2

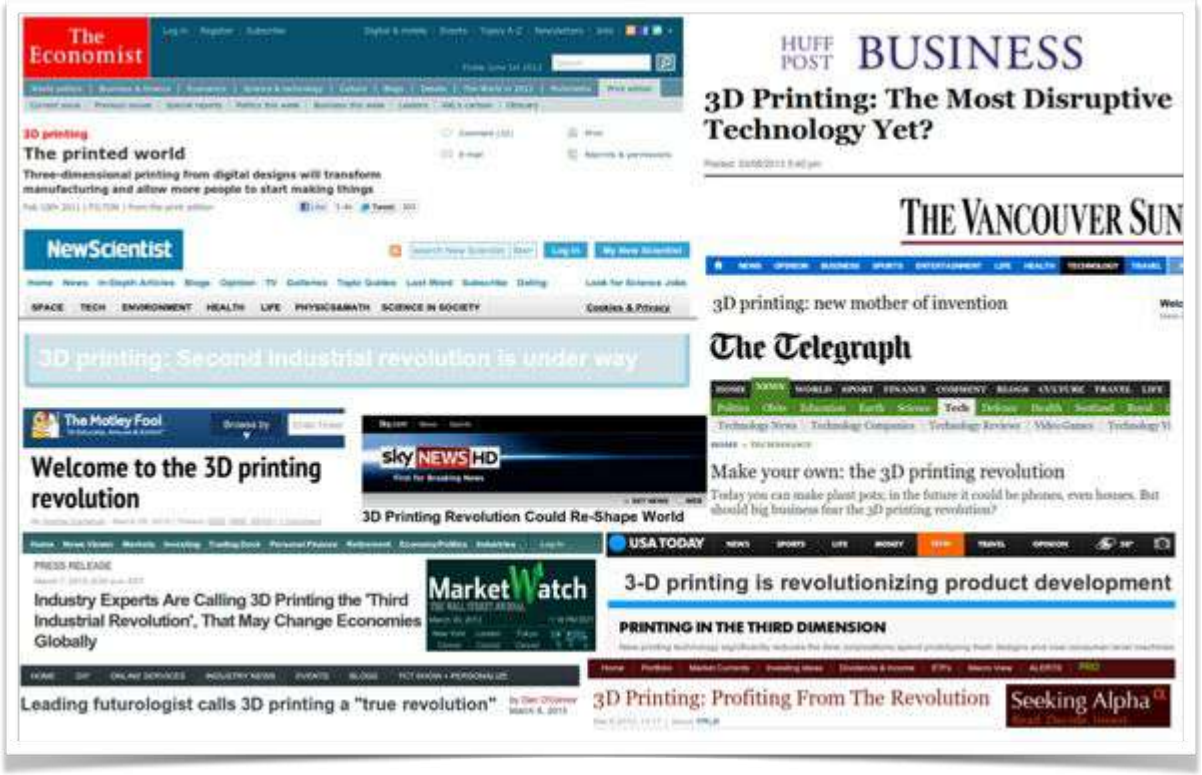

3



"Three projections to 2100 for waste generation spell **very different futures.** In the first Shared Socioeconomic Pathway scenario (SSP1), the 7-billion population is 90% urbanised, development goals are achieved, fossil fuel consumption is reduced and populations are more environmentally conscious. SSP2 is the 'business-as-usual' forecast, with an estimated population of 9.5 million and 80% urbanization. In SSP3, 70% of the world's 13.5 billion live in cities and there are pockets of extreme poverty and moderate wealth, and many countries with rapidly growing populations."


WIRED
THE
NEW INDUSTRIAL
REVOLUTION
BY CHRIS ANDERSON
The factory, the investors, the workers—obsolete. In the age of DIY manufacturing, all you need is a garage and a great idea.


The Economist
Romneyomics explained
The euro crisis: back after its siesta
Argentina's oil grab
The science of guerrilla warfare
America's bagel king
The third industrial revolution
A 14-PAGE SPECIAL REPORT

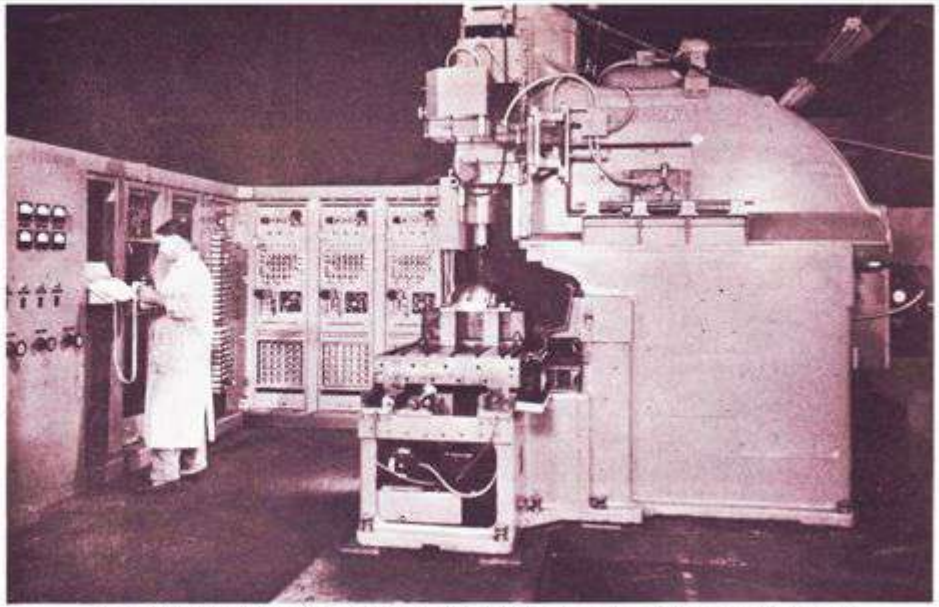

The Economist
3D printing
The printed world
Three-dimensional printing from digital designs will transform manufacturing and allow more people to start making things
HUFF POST BUSINESS
3D Printing: The Most Disruptive Technology Yet?
NewScientist
SPACE TECH ENVIRONMENT HEALTH LIFE PHYSICS&MATH SCIENCE IN SOCIETY
THE VANCOUVER SUN
3D printing: new mother of invention
3D printing: Second Industrial revolution is under way
The Telegraph
The Motley Fool
Welcome to the 3D printing revolution
sky NEWS HD
3D Printing Revolution Could Re-Shape World
Make your own: the 3D printing revolution
Today you can make plant pots; in the future it could be phones, even houses. But should big business fear the 3D printing revolution?
PRESS RELEASE
Industry Experts Are Calling 3D Printing the 'Third Industrial Revolution', That May Change Economies Globally
MarketWatch
USA TODAY
3-D printing is revolutionizing product development
PRINTING IN THE THIRD DIMENSION
Leading futurologist calls 3D printing a "true revolution"
3D Printing: Profiting From The Revolution
Seeking Alpha

Teaching Power Tools to Run Themselves

By Hartley S. Howe

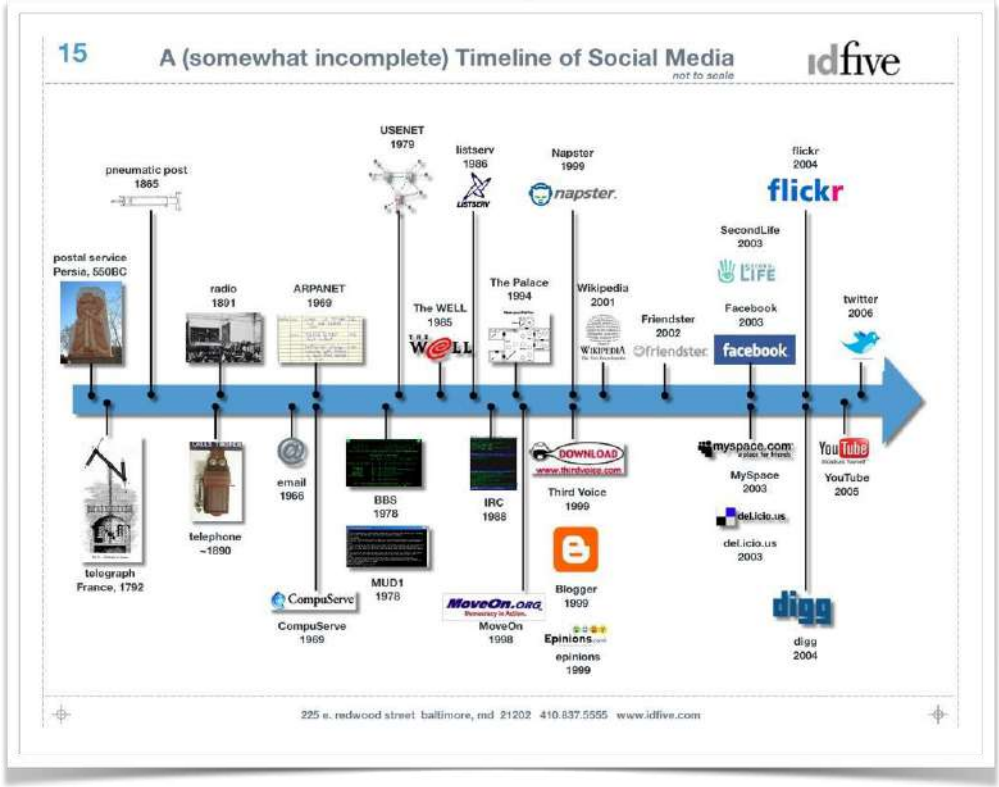
POPULAR SCIENCE Monthly

AUGUST, 1955



Too big yet for home shop, this MIT milling machine is run by computer-control at left.

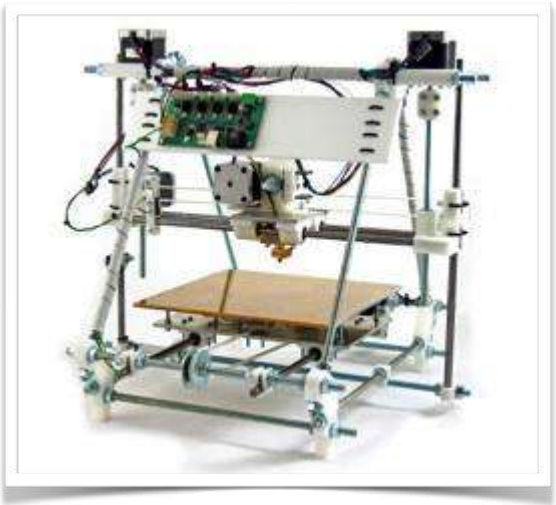

EPSON



"A 3D file is not different than a video file, a camera is not different than a 3D printer”

“I think there is a world market for about five computers.”

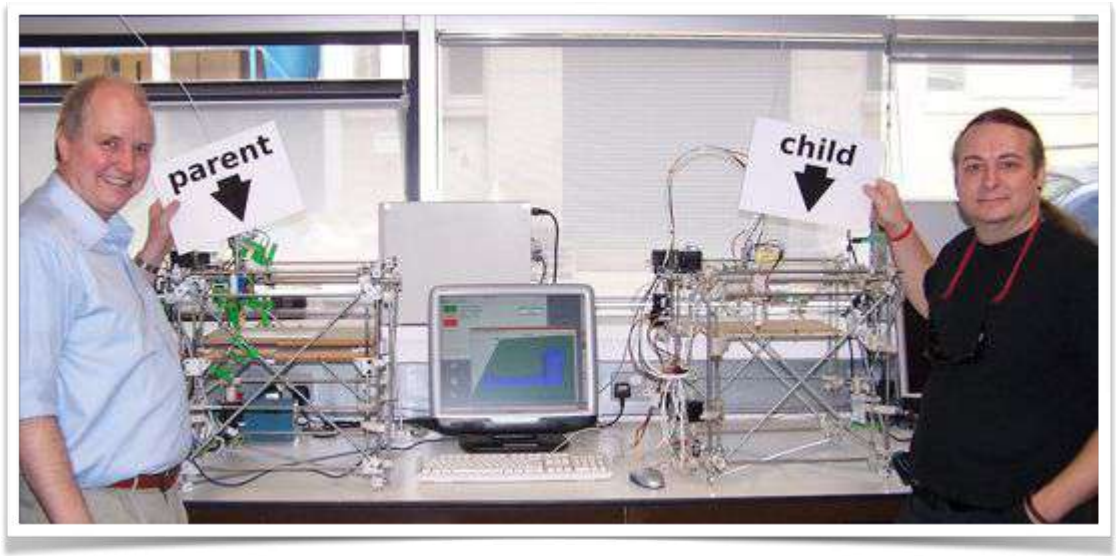
Tom Watson, IBM CEO, 1958



200.000 EUR

500 EUR

“User driven innovation”



The RepRap can replicate itself
more than 50% of its parts.

PERSONAL FABRICATION

- DIY + Fabricación digital

- 2004, Adrian Bowyer, profesor de la Universitat de Bath. REP-RAP project

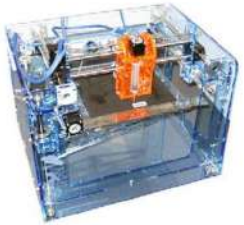
- 2005, MIT, Neil Gershenfeld, How tto Make (almost) anything). FabLabs

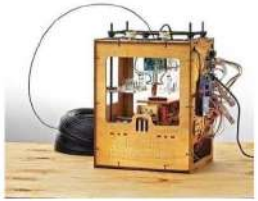
-2006, Evan Malone y Hod Lipson, Fab @ Home 3D personal

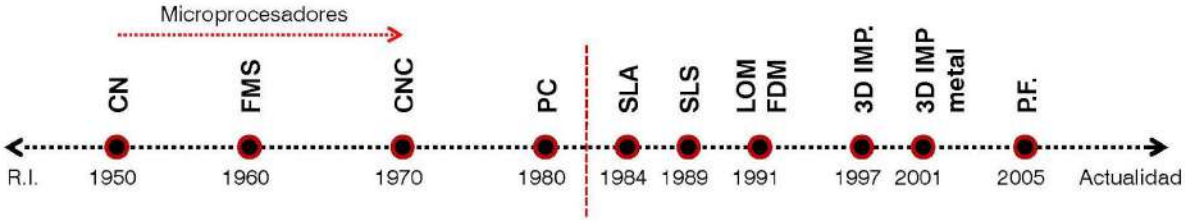
- 2009, Zach Smith, Makerbot

-2009, BitsFromBytes

-2010, Ultimaker

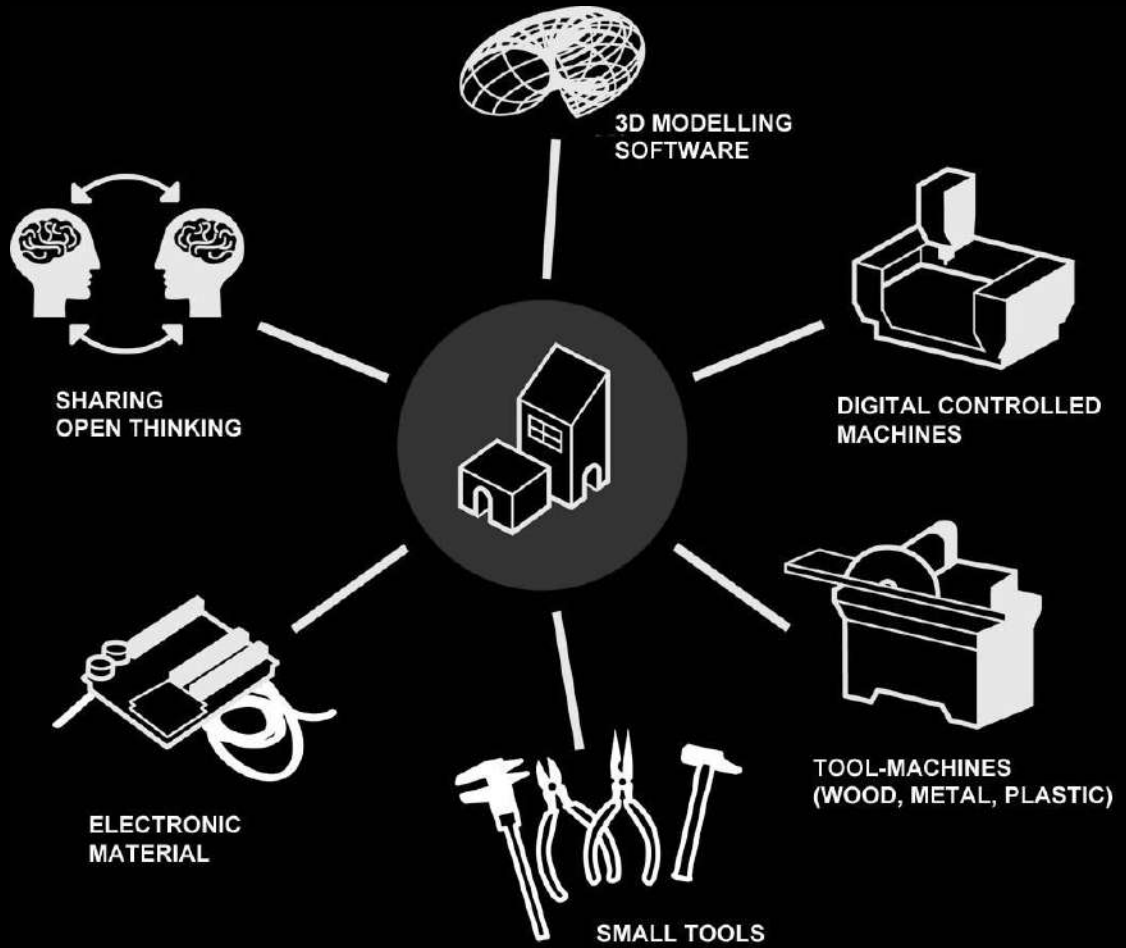






FabLab mission :

Provide access to the tools, the knowledge and the financial means to educate, innovate and invent using technology and digital fabrication to allow anyone to make (almost) anything, and thereby creating opportunities to improve lives and livelihoods around the world.



BIKE ALARM

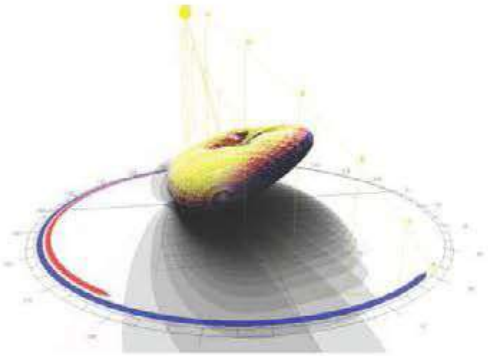
IT WILL AVOID THAT SOMEONE TRY TO STEAL YOUR BICYCLE. A SIMPLE BIKE ALARM WITCH CAN DETECT MOVEMENT, SO IF SOMEONE TRY TO TAKE IT WHEN THE ALARM IS ACTIVATED, A VERY LOUD BUZZER WILL START PLAY AND YOU CAN ONLY DISARM IT KNOCKING YOUR PREDEFINED SEQUENCE IN THE CAPACITIVE TOUCH BUTTON.

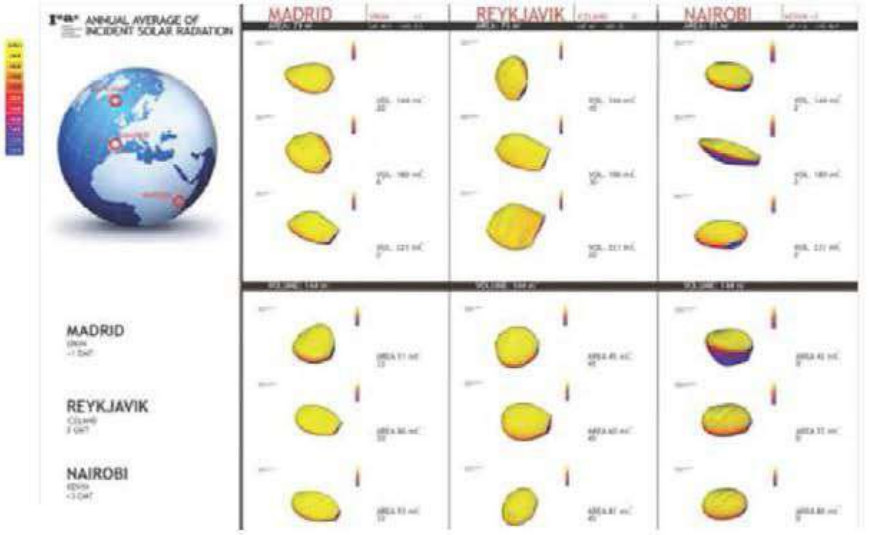
CAPACITIVE TOUCH BUTTON
TURN ON/OFF KNOCKING
A SECRET SEQUENCE

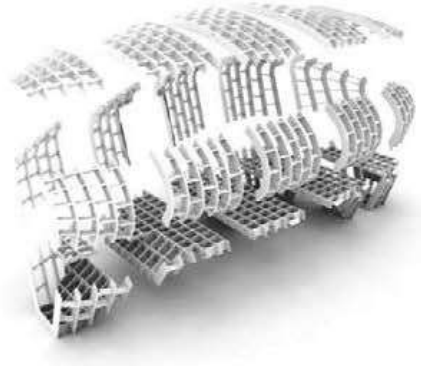
6V BATTERY (2x3V)

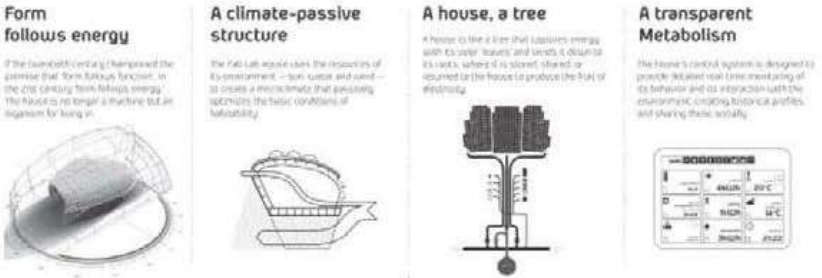
3 AXIS ACCELEROMETER

120DB SPEAKER



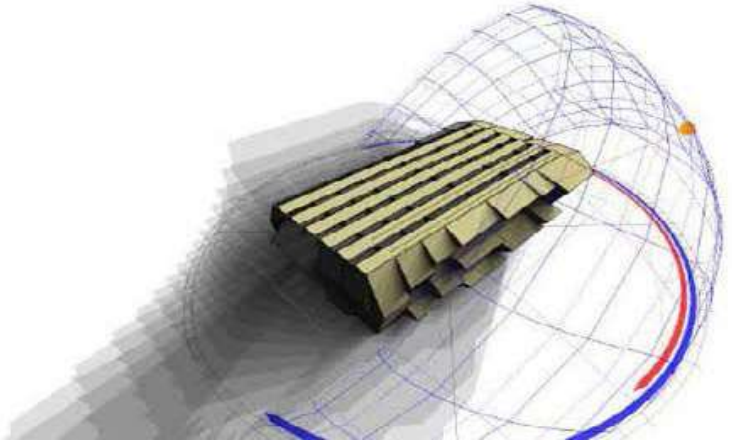






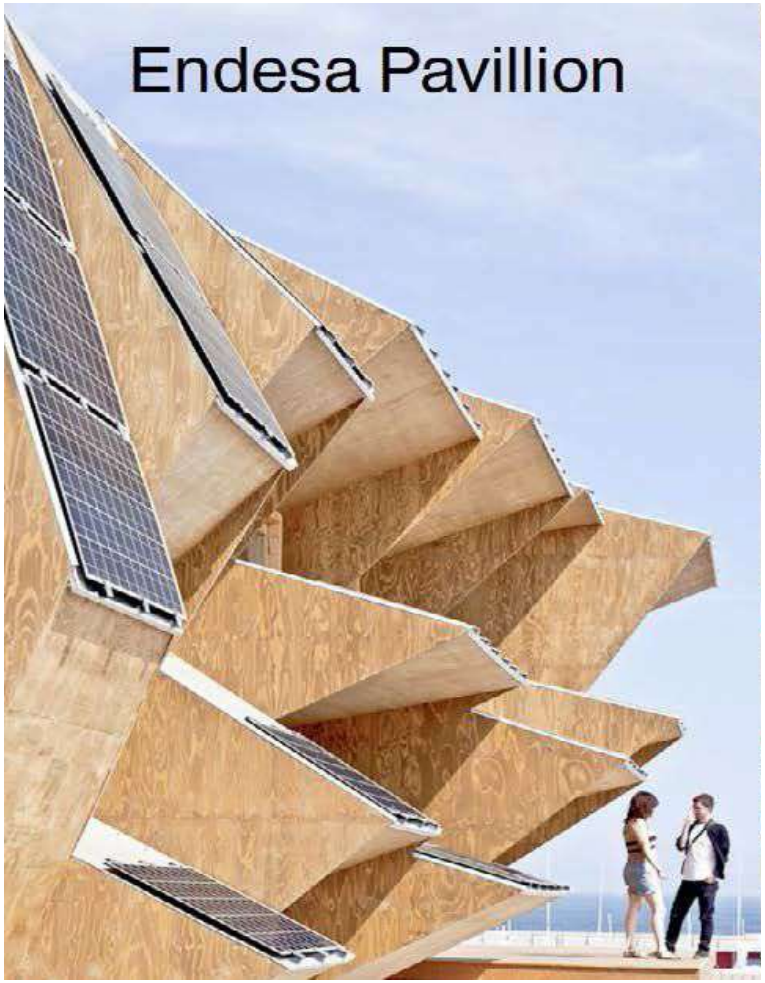
FabLab House, Madrid, 2010

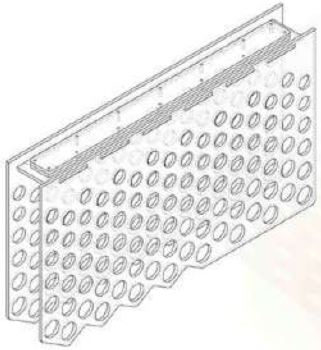
endesa pavilion
BARCELONA SMART CITY EXPO 2011

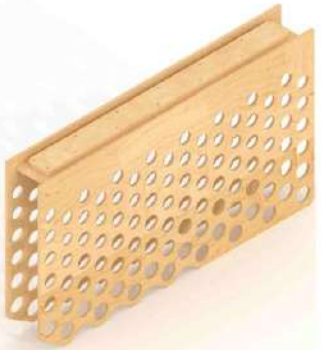


.ion, IAAC

Endesa Pavillion

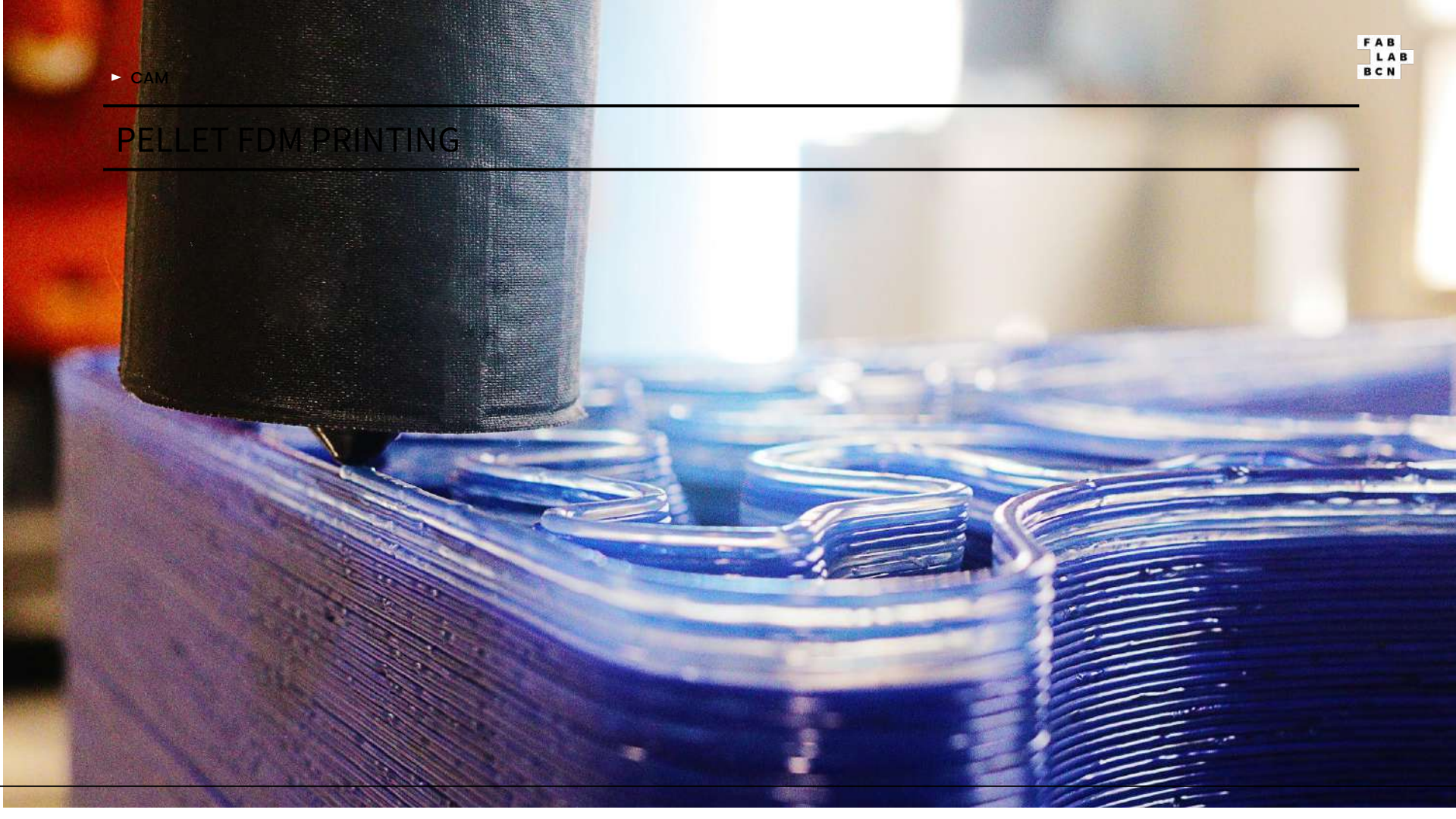






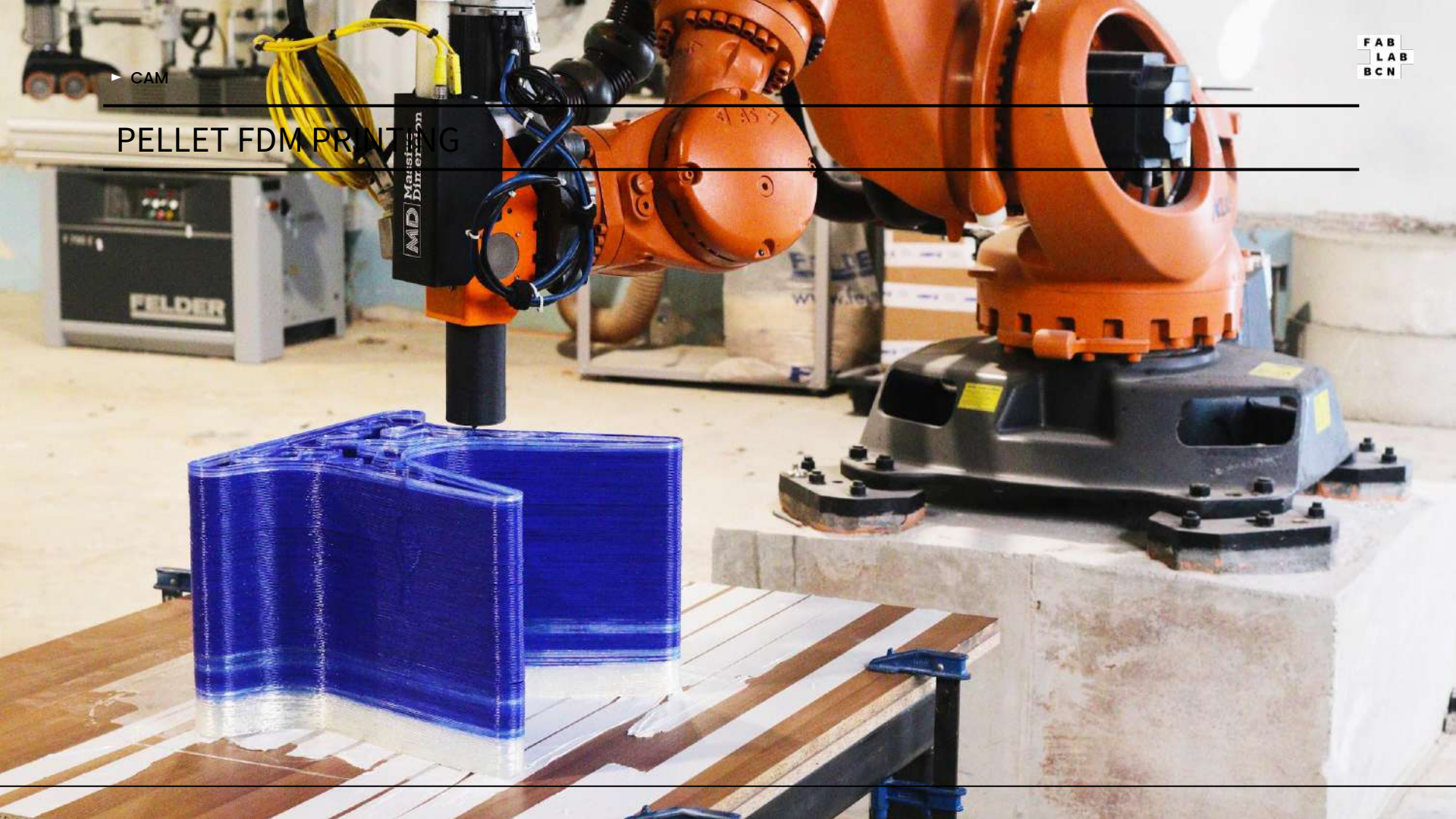
Leka Restaurant, Fab Lab Barcelona 2015

PELLET FDM PRINTING



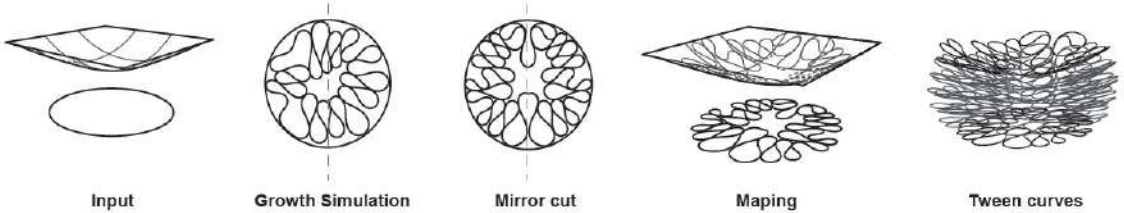
PELLET FDM PRINTING

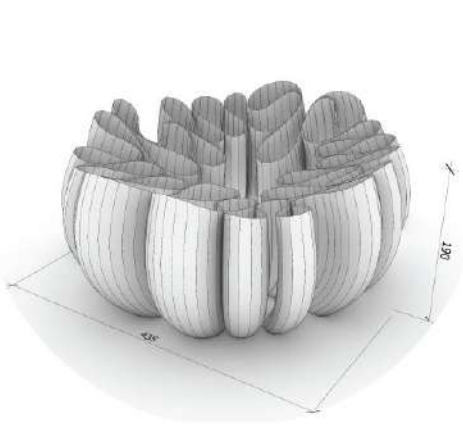
PELLET FDM PRINTING



1st 3d printed bridge in the world - IAAC in Collaboration with Acciona

PRINT WITHOUT MODELLING



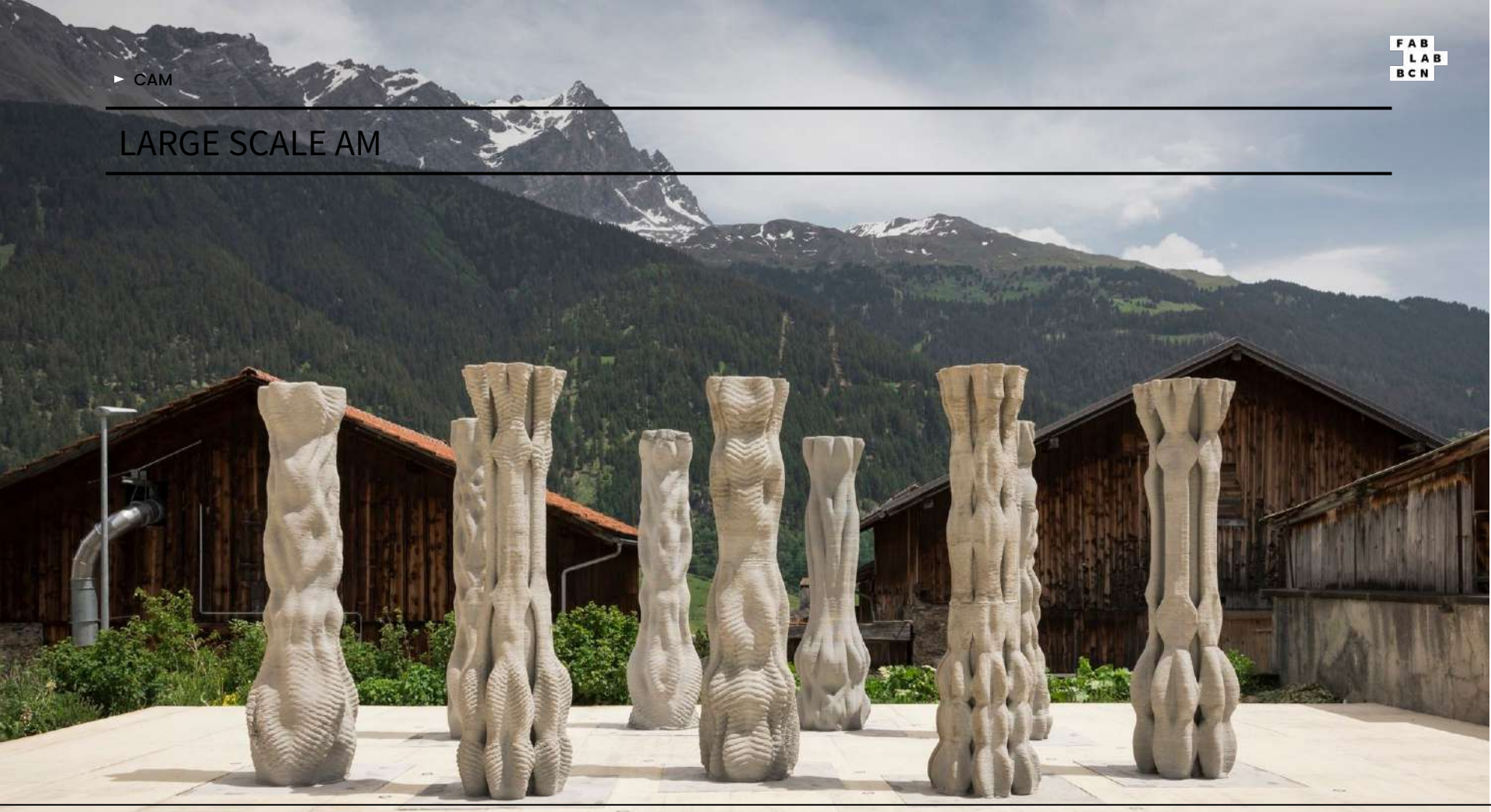


PELLET FDM FURNITURE

RECYCLING

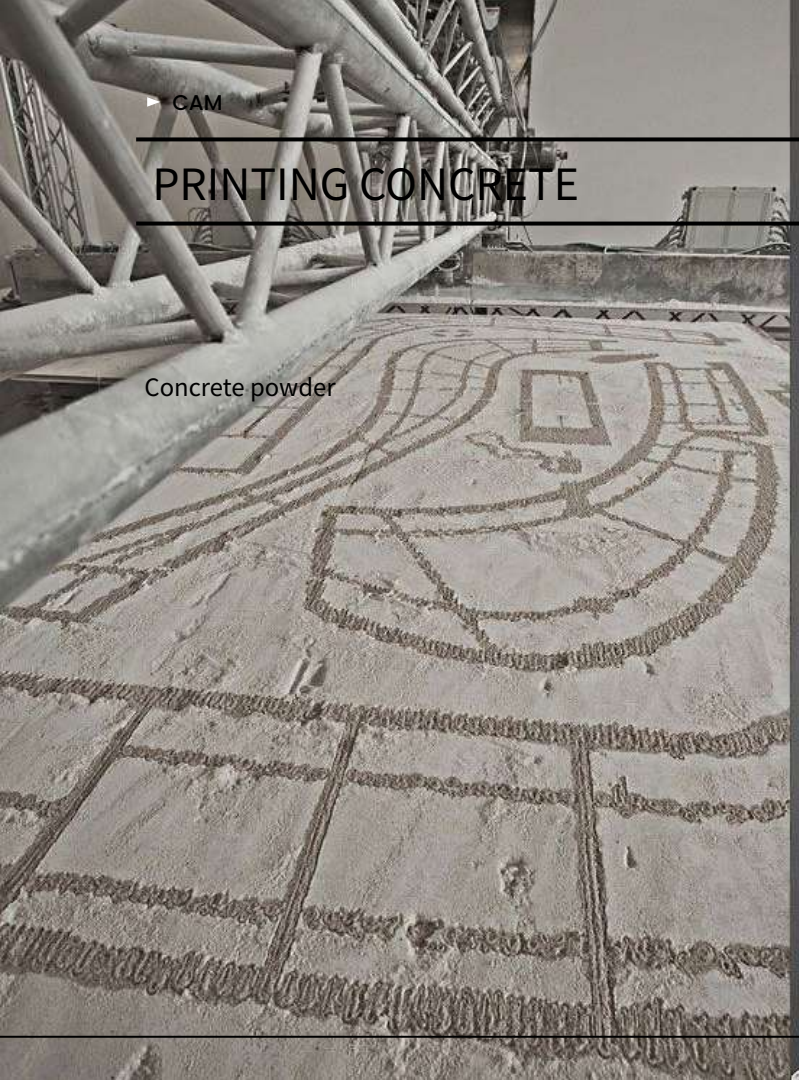
https://thenewraw.org/Work

LARGE SCALE AM

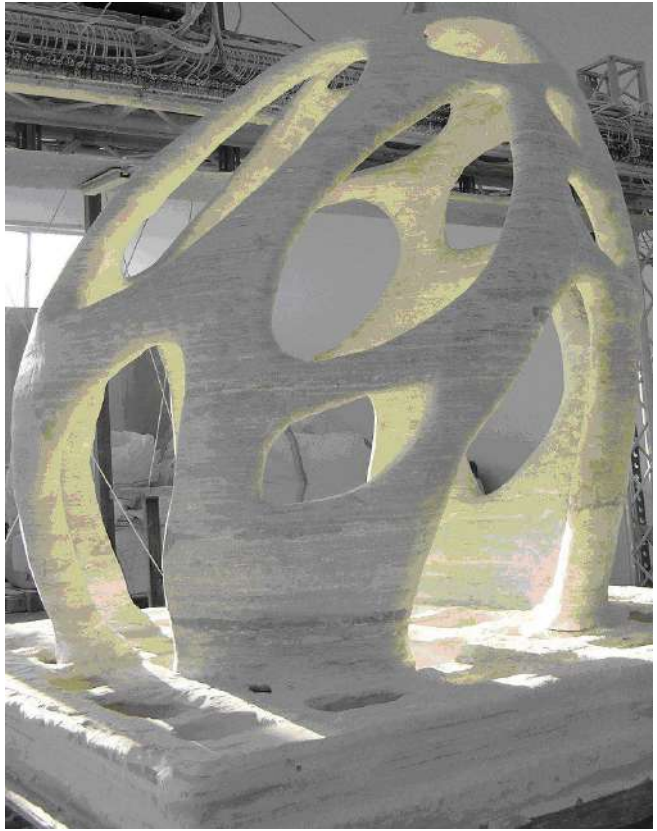


PRINTING CONCRETE

Concrete powder



PRINTING
CONCRETE

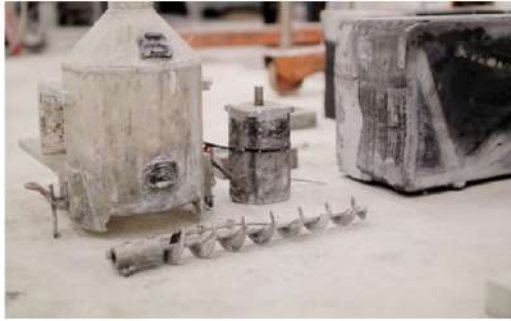


D-Shape and Contour Crafting

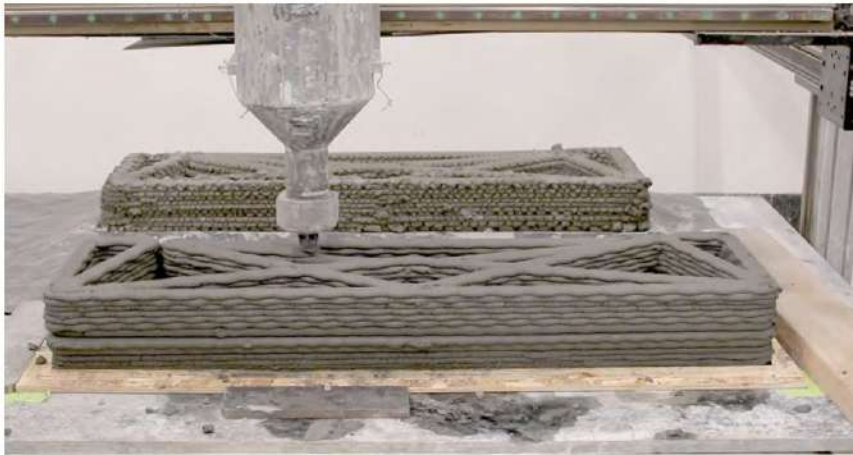
PRINTING
CONCRETE

Apis Corp 3D printed house

CEMENTITIOUS PASTES CONSTRUCTION



Concrete 3D printing is gaining significant attention as a cutting-edge technology with the potential to transform construction practices. This project explores the capabilities to innovate building methods by reducing material waste and enhancing design flexibility on structural design. It focus on optimizing concrete mixtures and developes a printing techniques, leading to more sustainable and efficient construction processes. Pushing the boundaries of architecture and engineering towards sustainability.

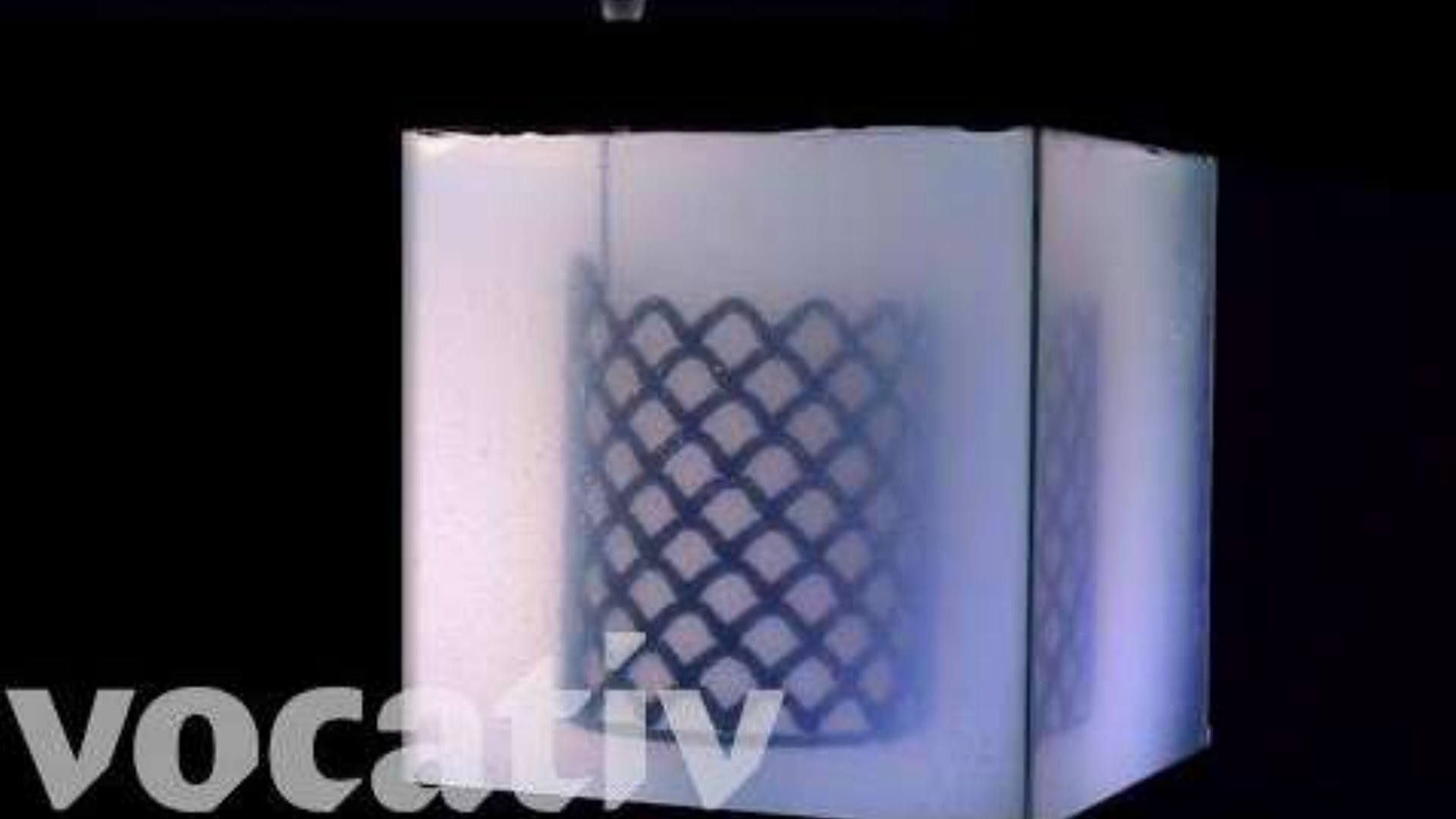


Project Year : 2023
Client : Research
Location : Australia

Series of 3D printed prototypes created using bespoke cementitious mixtures and room-size 3D printing equipment. The research project was developed in the context of the PhD thesis of Nikol Kirova, and I assisted in the manufacturing of the prototypes as a digital fabrication specialist focused on 3D printing technologies.

IN GEL PRINTING

A POOL OF MATERIAL AS SUPPORT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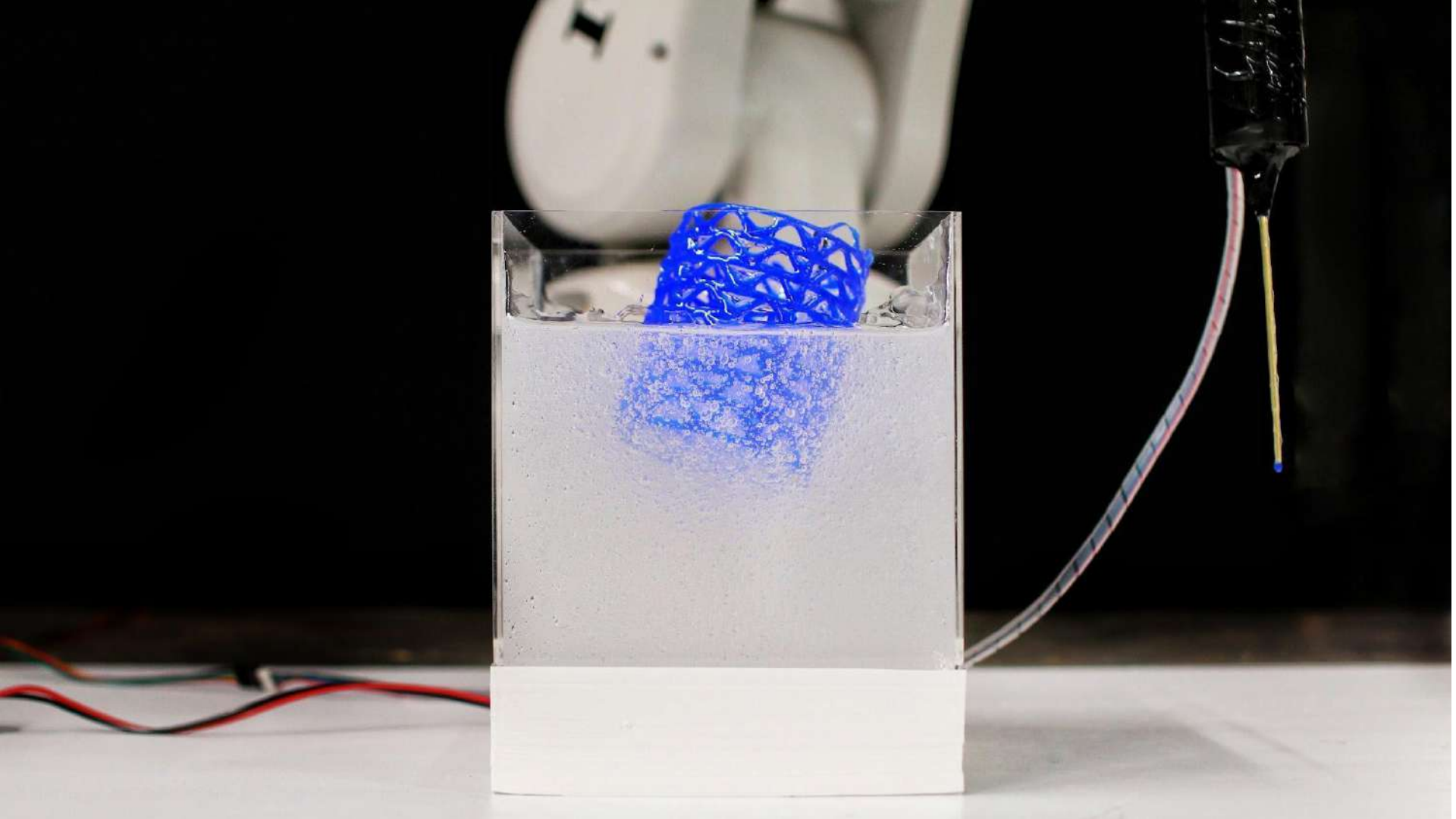
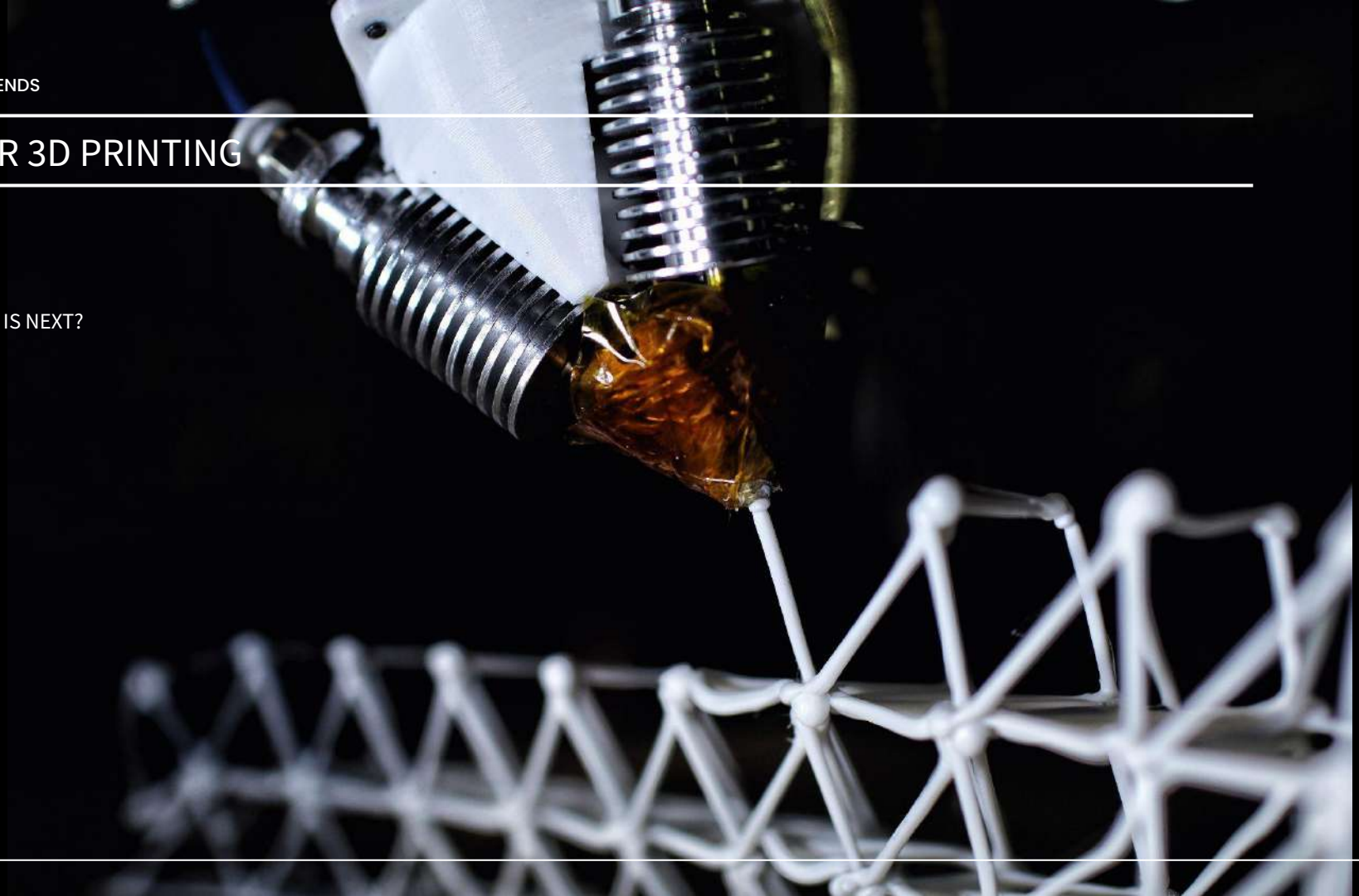
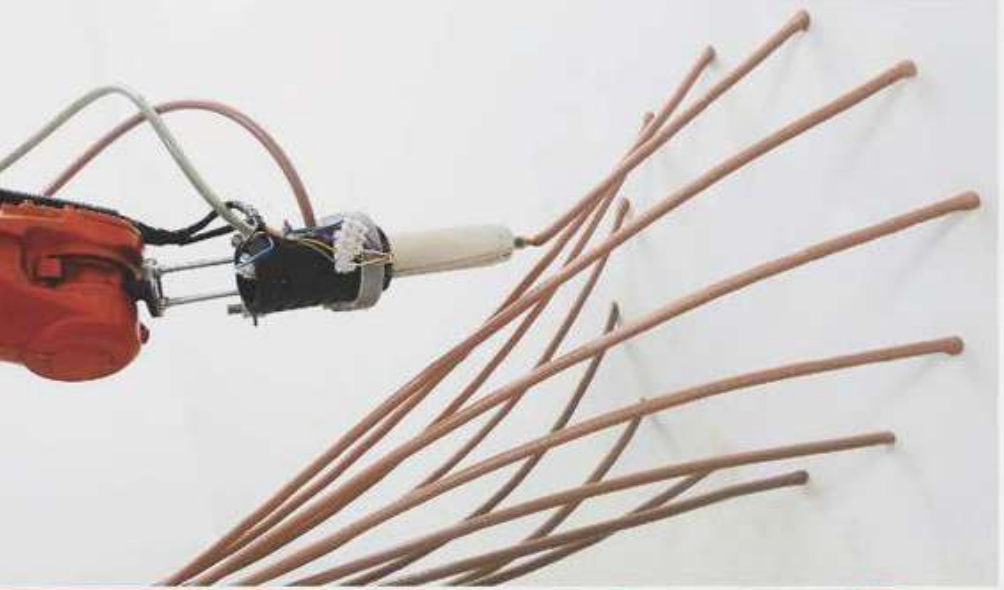
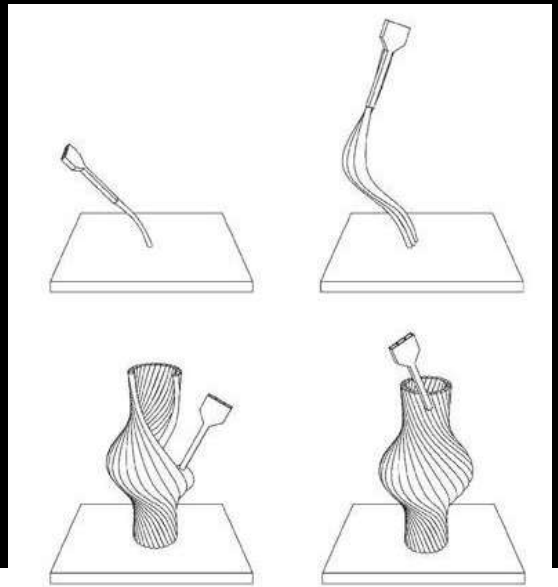


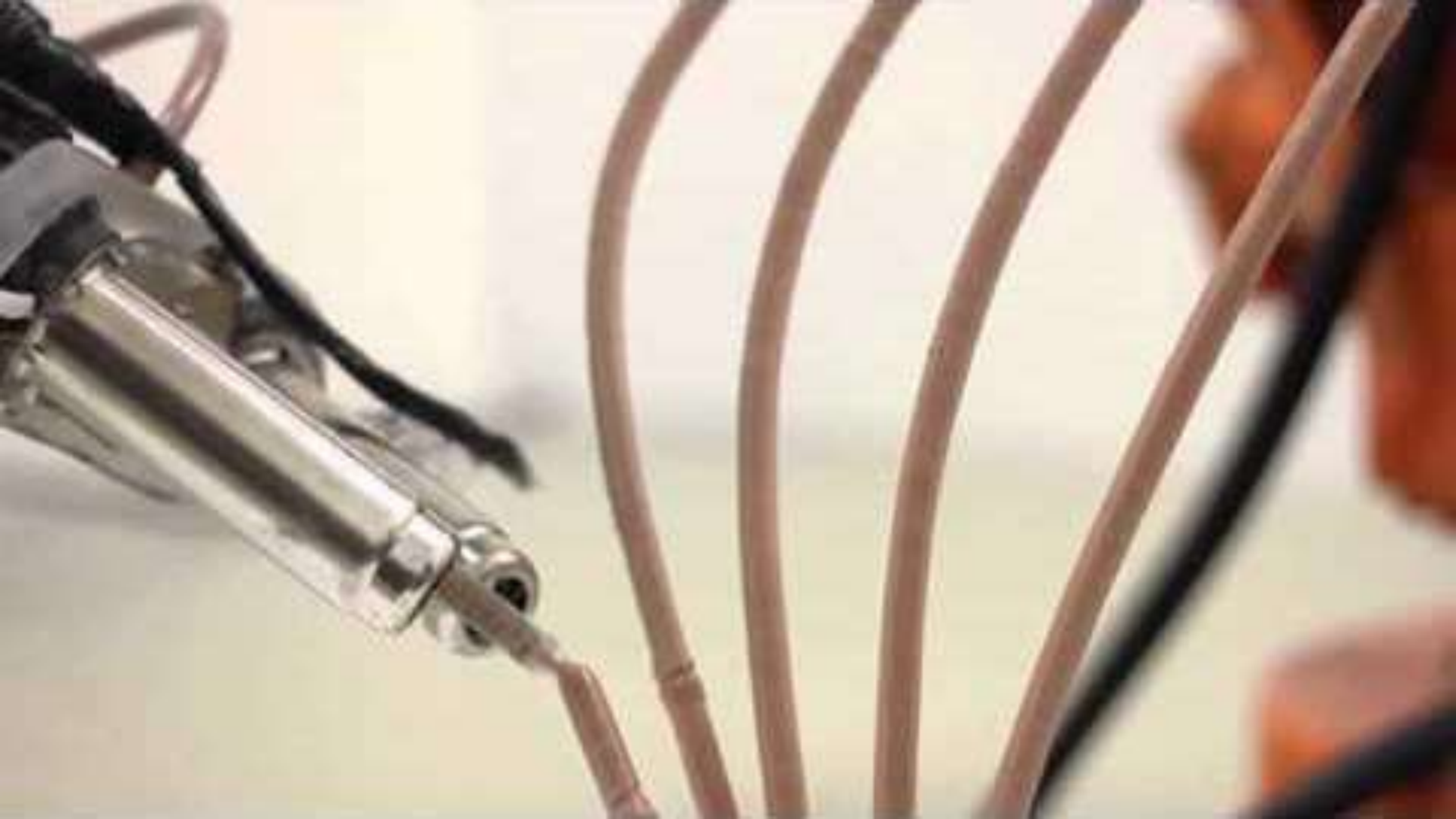
MID AIR 3D PRINTING

SO… WHAT IS NEXT?









SPATIAL PRINTING

Light and strong

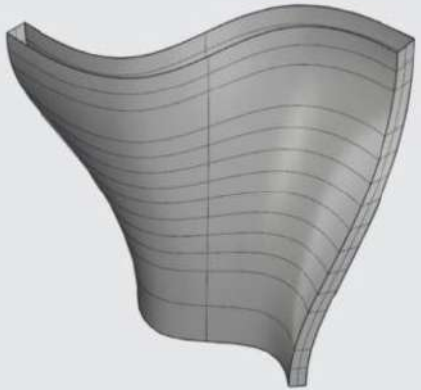
Initial Form Creation

Below is an example of how an initial form may appear without any customisation (fig. 8.09). To create this, 2 lines were drawn, lofted together to create a surface, then extruded to create the 3D form below.

A.P. 2017.
Initial Form Creation. 8.09.

Form Customisation

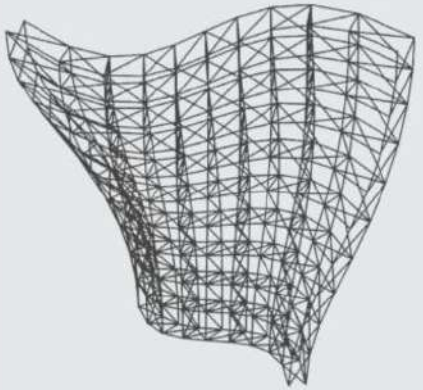
There are a number of customisation options in Rhino: twist, taper, stretch, scale, extrude. All of which can be used in a number of different combinations to create any desired form (fig. 8.10)



A.P. 2017.
Form Customisation. 8.10.

Toolpath Creation

Once a form is concluded, the toolpath can then be generated. The computational logic that I've created will adapt the printing toolpath to any 3D form that is produced (fig 8.11).



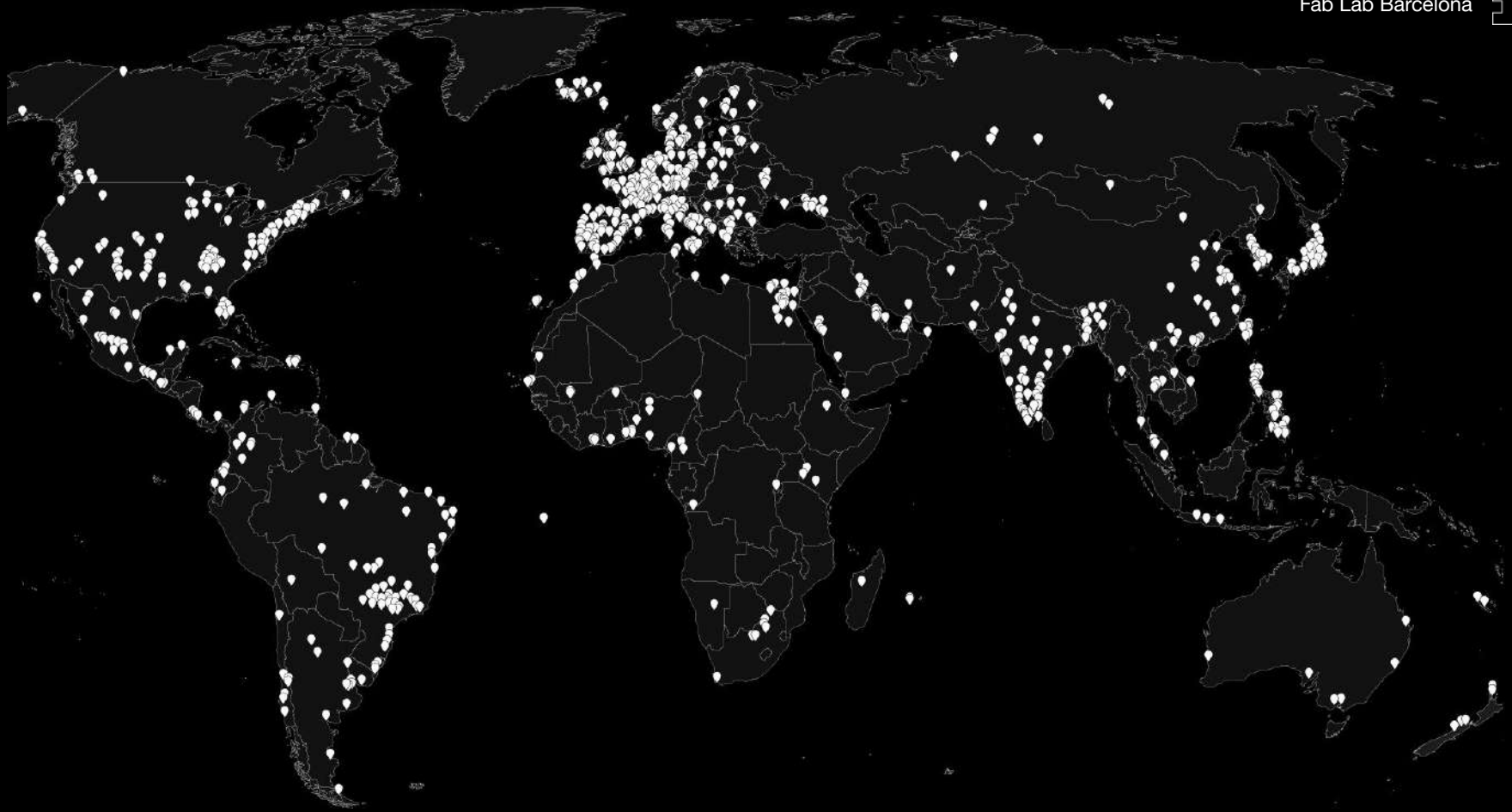
A.P. 2017.
Toolpath Creation. 8.11.

Topology triangulation

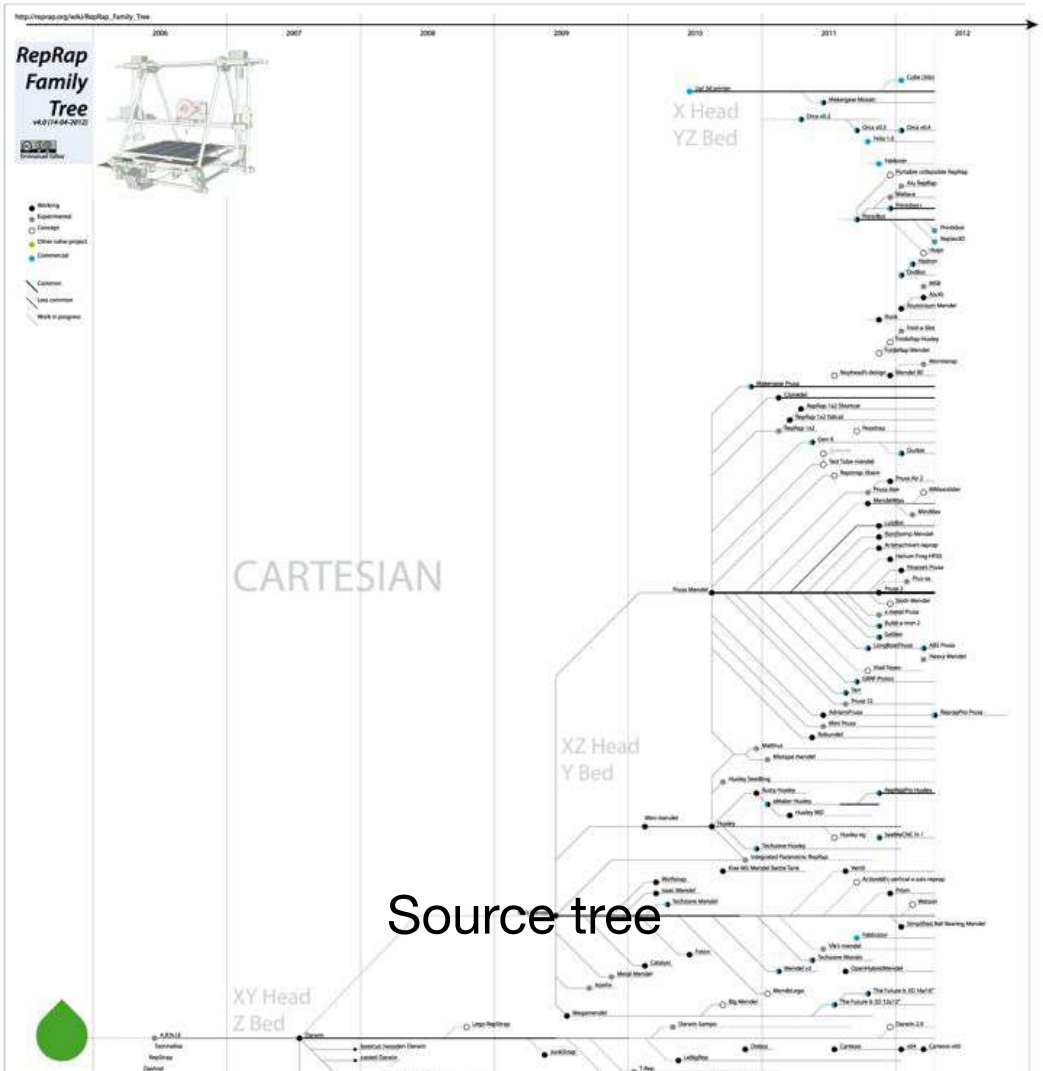

VERTICAL (5X)

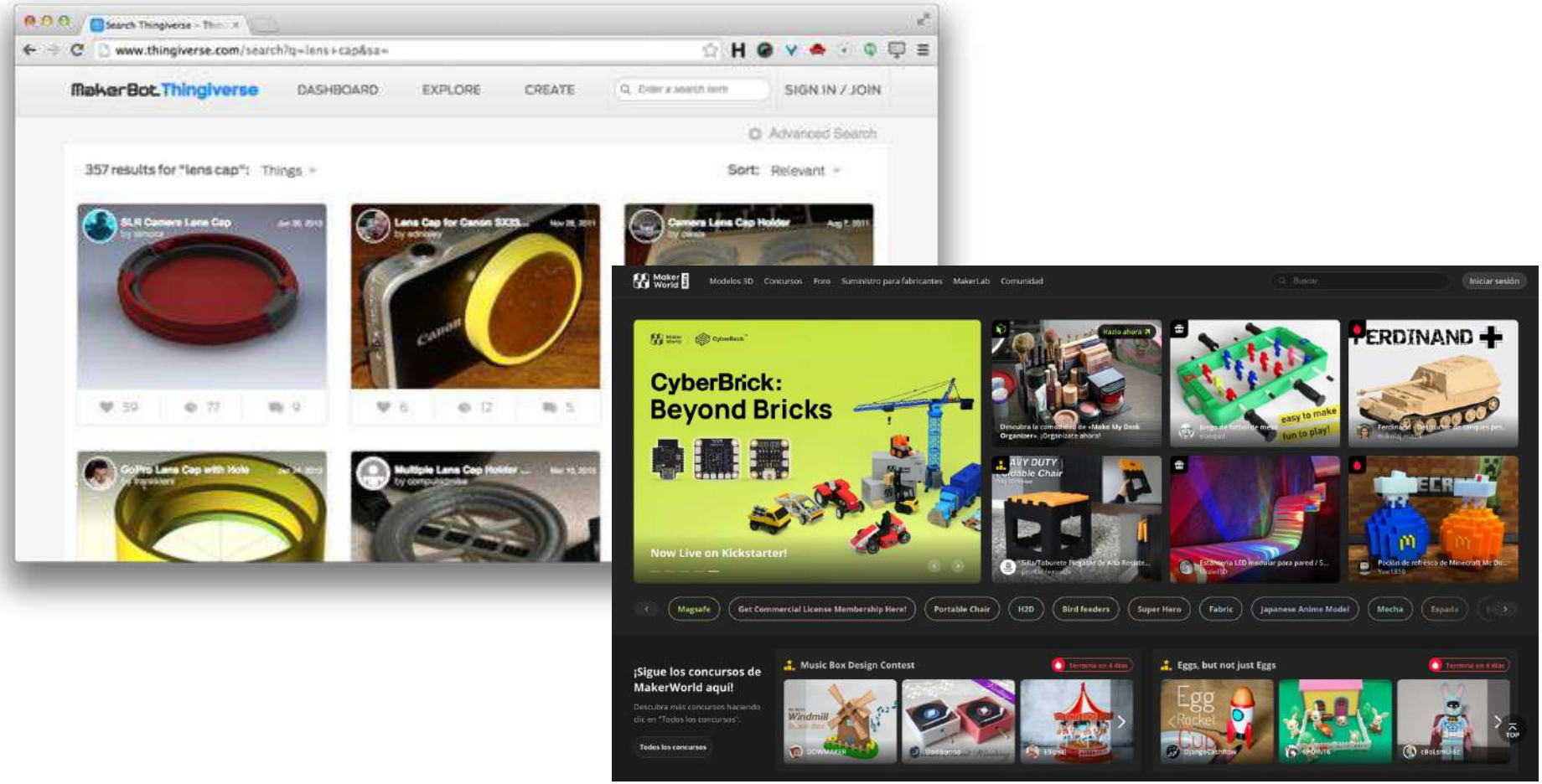
Open collaboration

Diy to diwo



Learn more at fablabs.io

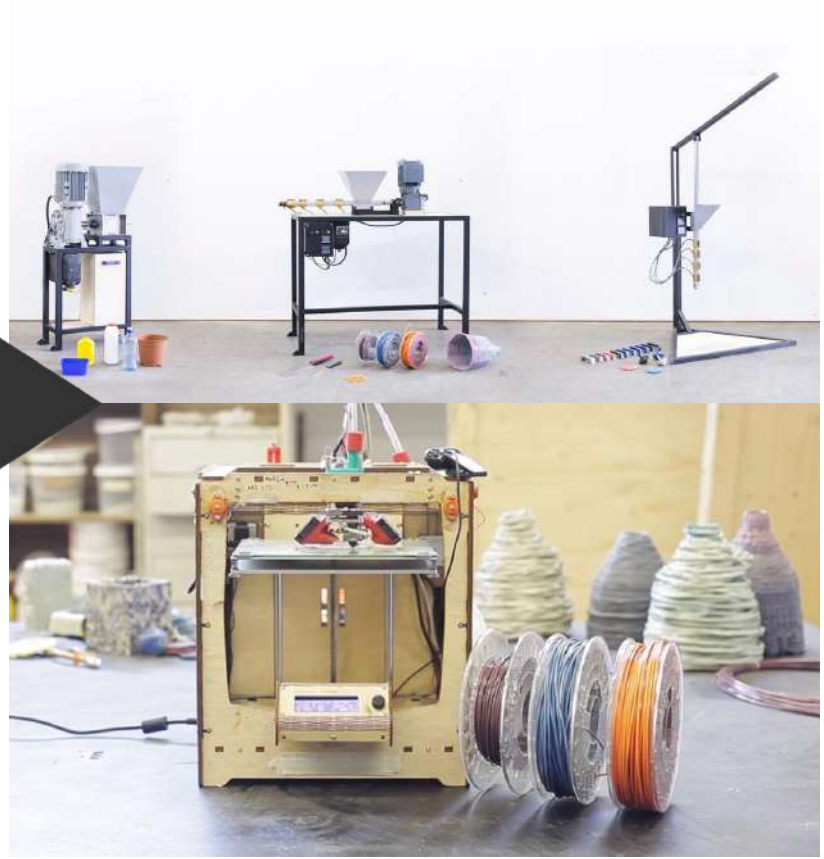

RepRap Family Tree
v4.0 (14-04-2012)
2006
2007
2008
2009
2010
2011
2012
X Head
YZ Bed
CARTESIAN
XZ Head
Y Bed
XY Head
Z Bed
Source tree


www.thingiverse.com/search?q=lens+cap&sa=
MakerBot Thingiverse
DASHBOARD
EXPLORE
CREATE
SIGN IN / JOIN
Advanced Search
357 results for "lens cap":
Things
Sort:
Relevant
SLR Camera Lens Cap
Lens Cap for Canon
Camera Lens Cap Holder
GoPro Lens Cap with Hole
Multiple Lens Cap Holder
MakerWorld
Modelos 3D
Concursos
Foro
Suministro para fabricantes
MakerLab
Comunidad
Iniciar sesión
CyberBrick:
Beyond Bricks
Now Live on Kickstarter!
easy to make
fun to play!
FERDINAND
Magsafe
Get Commercial License Membership Here!
Portable Chair
H2D
Bird Feeders
Super Hero
Fabric
Japanese Anime Model
Mecha
¡Sigue los concursos de MakerWorld aquí!
Descubra más concursos haciendo clic en "Todos los concursos".
Todos los concursos
Music Box Design Contest
Eggs, but not just Eggs
Egg
Rocket
TOP

Japanese man jailed for two years for creating 3D printed guns

Yoshitomo Imura was first arrested in May after designing a 3D printed six-shot revolver named the Zig Zag and posting videos of the firearm online

Anyone can make...



Precious plastic + 3D printing

Carolina Fernandez Del Dago

Emily Eickhoff

Hala Alzawaydeh

Chaihuo Makerspace

Crail Lyu

Matthew Yu

Chenxin Yang

Jiawei Liang

Runyu Ma

Dion Tsang

Charlotte Latin

Ryan Zhou

Angelina Yang

Connor Cruz

Collin Kanofsky

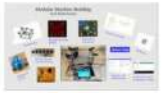
David Vaughn

Richard Shan

Landon Broadwell

Alana Duffy

Evan Park



Zack Budzichowski

Merritt Backerman

Fabacademy

Furniture designed for inspiring workplaces

All Desks Seating Storage Tables

Lean Desk

Large 4 seat workstation

Studio Desk

Compact single person desk

Linnea Bookshelf

Elegant shelving by 57st. Design

Bundle Desk

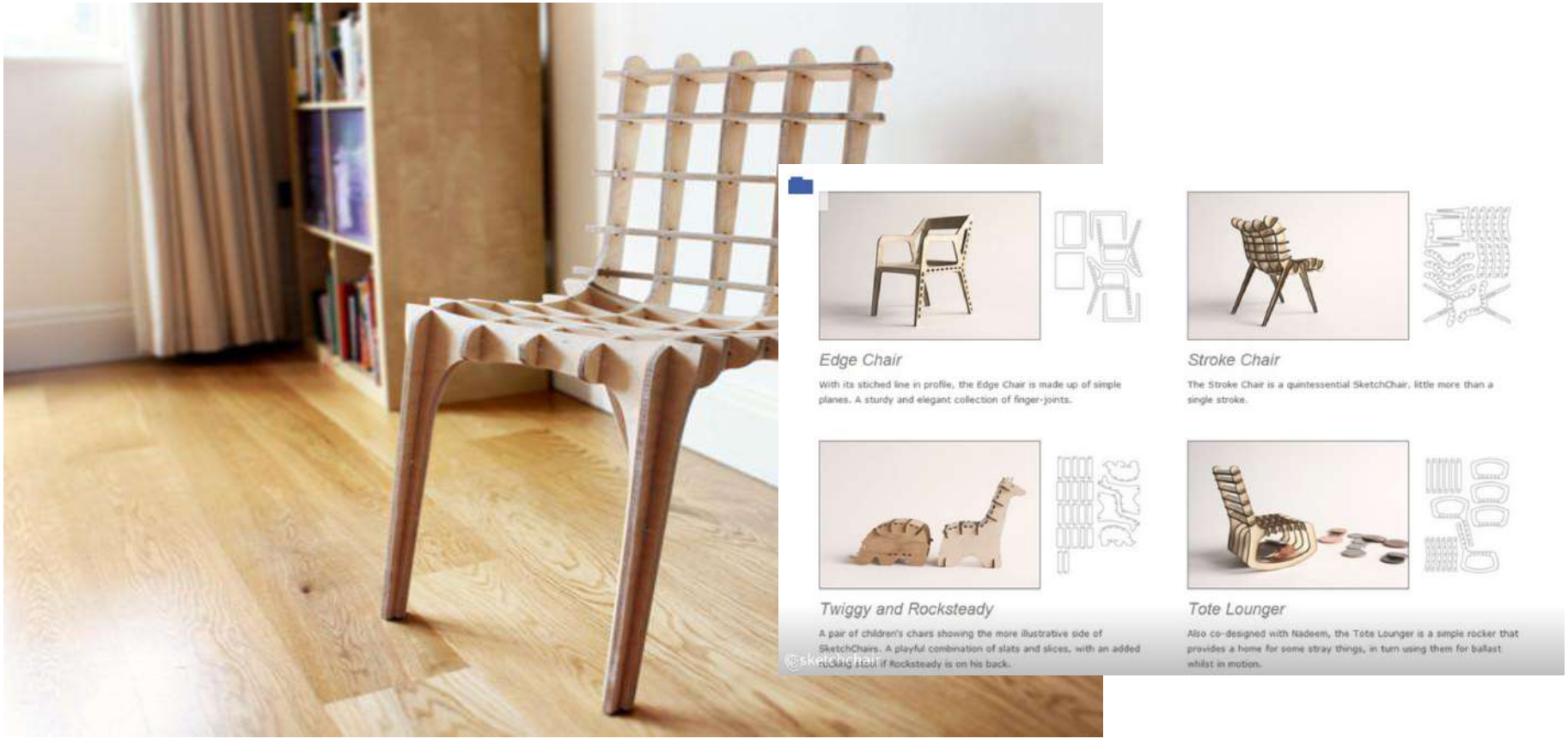
The portable trestle table

Divide

Multifunctional space divides

Johann Stool

Versatile meeting/ canteen stool



https://www.archdaily.cl/cl/02-107619/sketch-chair-un-programa-para-disenar-y-construir-tus-propios-muebles

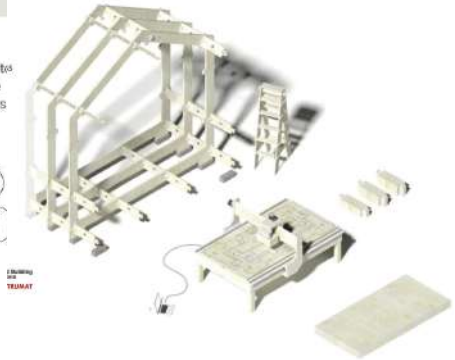
WikiHouse

About Projects Library Get involved Your project

WikiHouse is a modular system for creating beautiful, high-performance, zero-carbon buildings.

Advanced building technology, for everyone. WikiHouse uses digital fabrication to create timber building components that can be assembled in hours, to millimetre precision. We have a growing network of engineers, manufacturers and installers can help you build your project better, faster.

For myself → | For housing providers → | For businesses →
For community orgs → | For architects → | For contractors →



01
FALSEWORK / Space10 / OskarForm

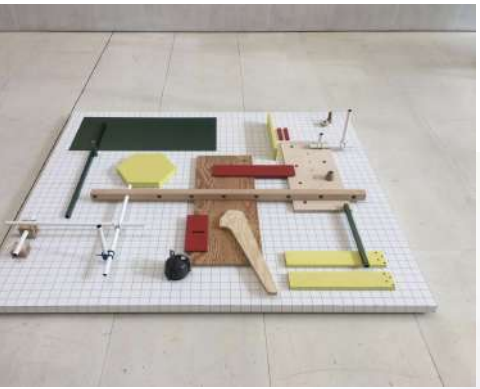
Design for disassembly

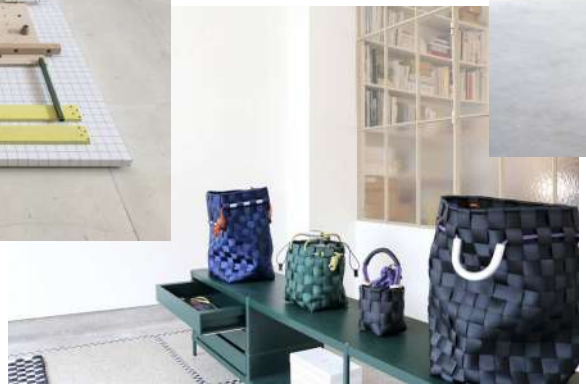
01 Open Structures

OpenStructures Designs People Projects Shop

OpenStructures is an exploration on open modular[1] construction where anyone[2] designs for everyone on the basis of one shared grid[3].

Design for disassembly





02 Mo de Movimiento
Lucas Muñoz Muñoz

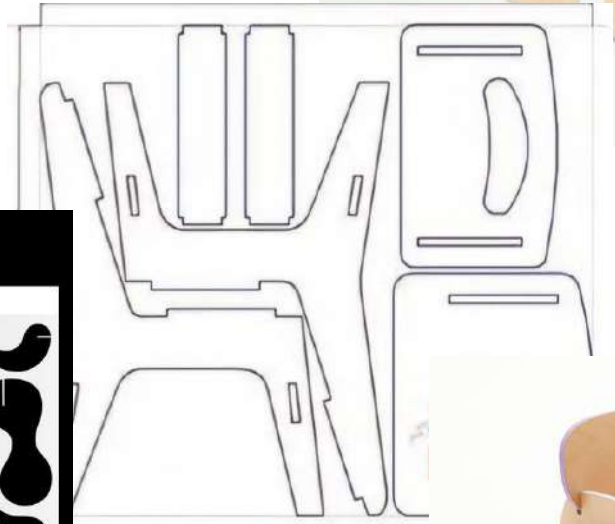
Less is More

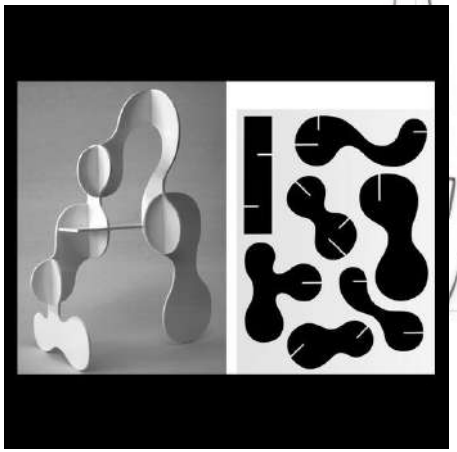
02 Low-Tech Magazine
Domingo Club

Less is More

03

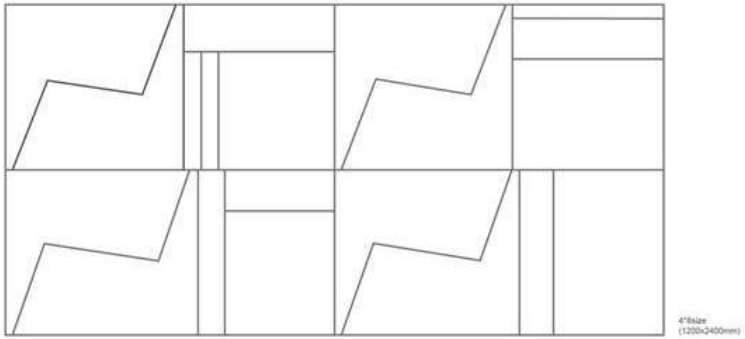
Round is not Circular





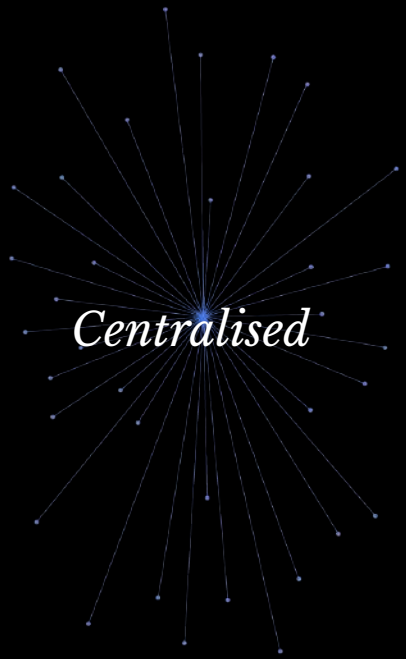
03 Four Brothers
Seungij Mun

Round is not Circular



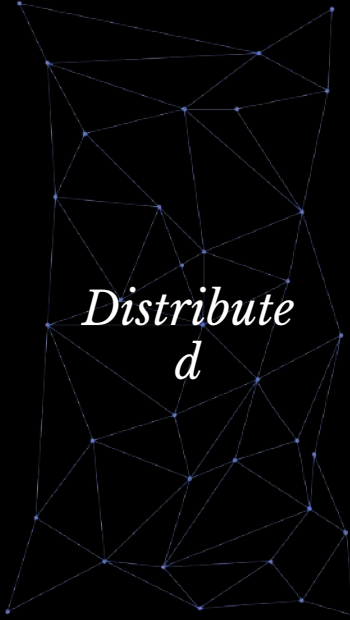
Ecosystemic

Is not about 3D printing is about distributed design



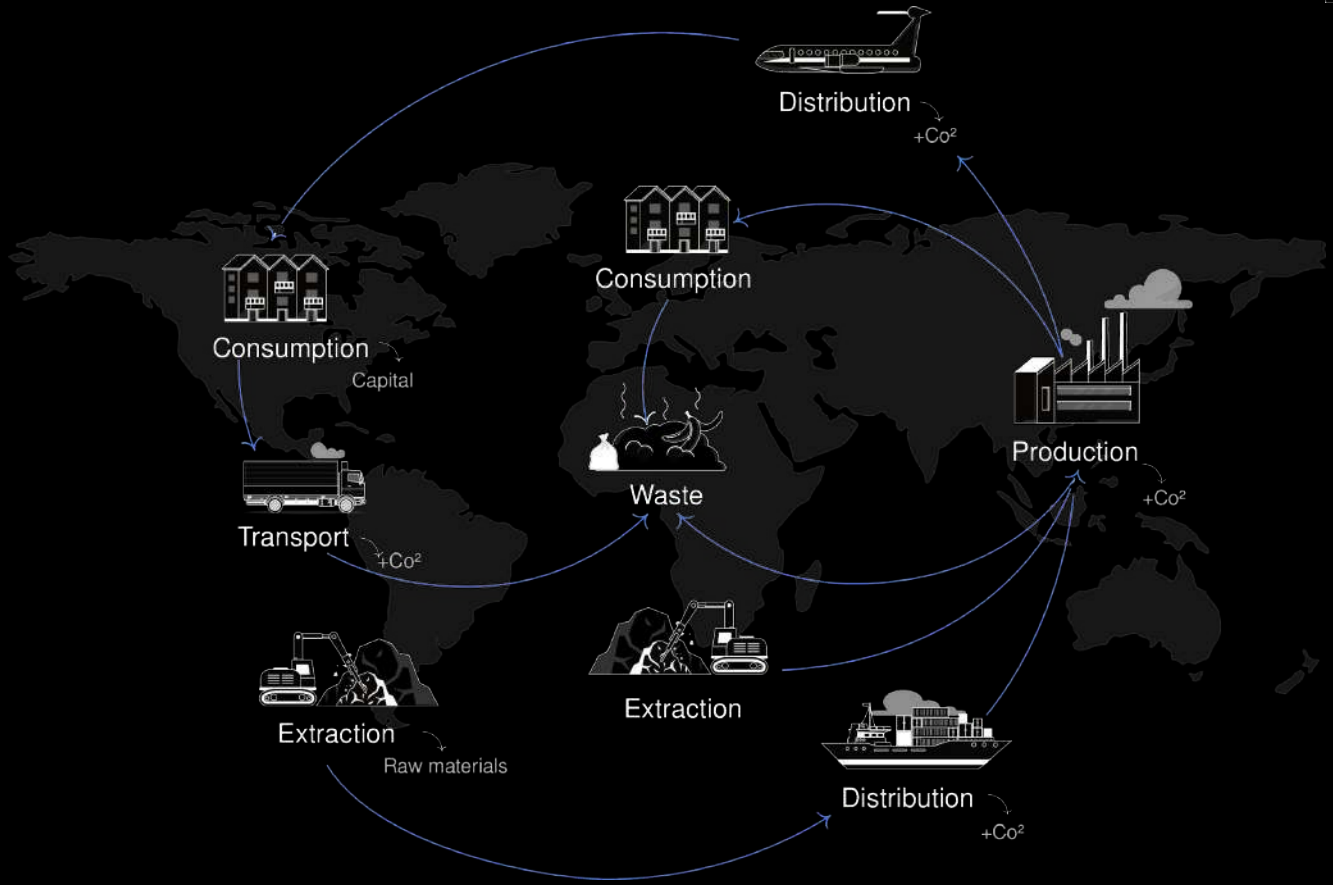
Centralised

Decentralised



Distributed

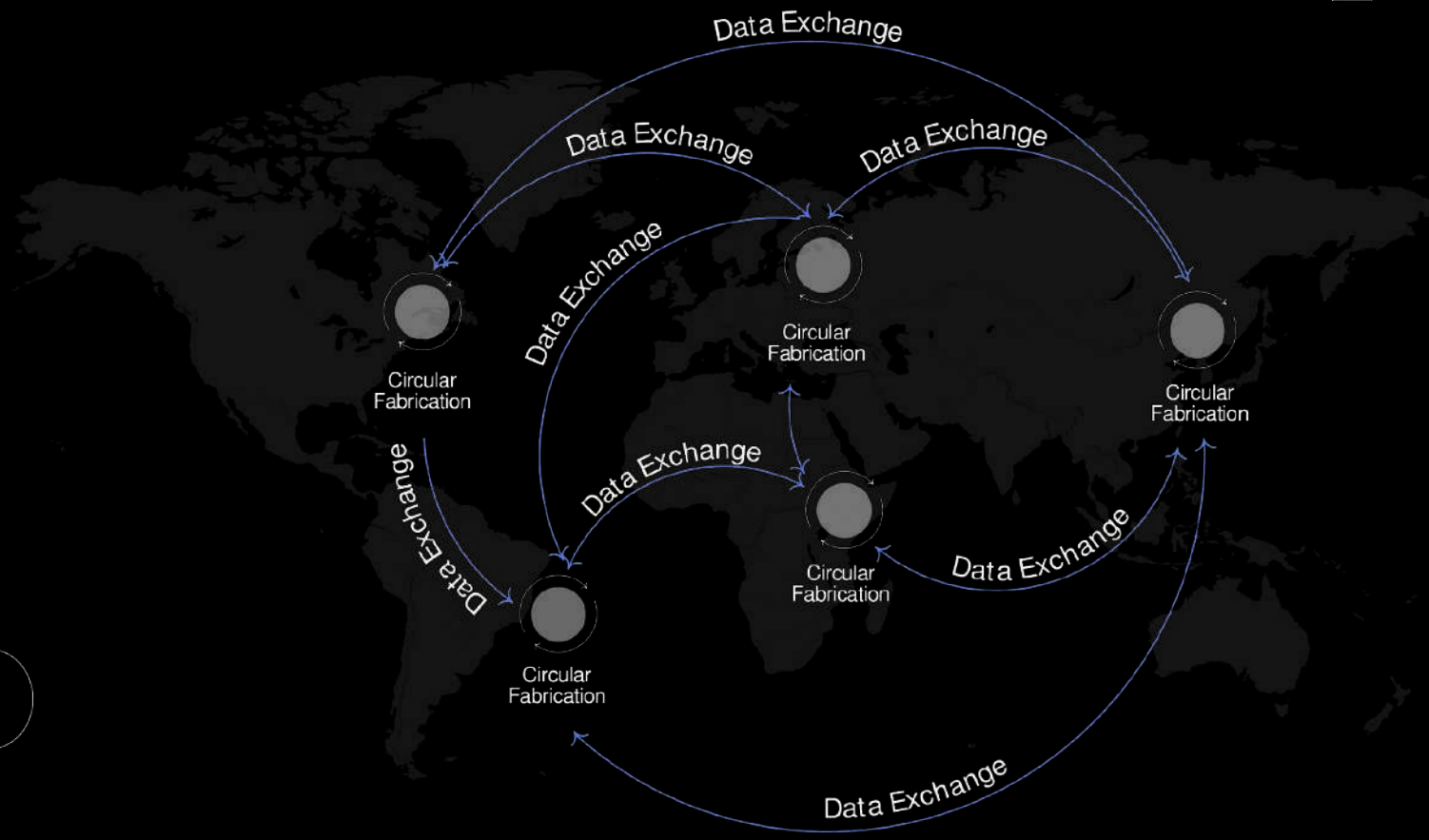
Product In Trash Out



Model: PITO
Product in / Trash out

Industrial Revolution
After 200 years

Data In
Data Out



Model: DIDO
Data In / Data Out

From Linear to Spiral
Production ecosystem

THE FAB CITY PROTOTYPE

Poblenou Neighbourhood, Barcelona

A Fab City is a new urban model for locally productive and globally connected self sufficient cities that shifts how cities source and use materials by bringing back production to distributed and smaller scales. More production occurs inside the city, neighbourhoods and citizens' homes, along with recycling materials and meeting local needs through local inventiveness. In Barcelona's Poblenou district, this model is being constructed through an evergrowing web of leaders, makerspaces and citizens.

2017 - 2018
Poblenou neighbourhood as a Fab City Prototype

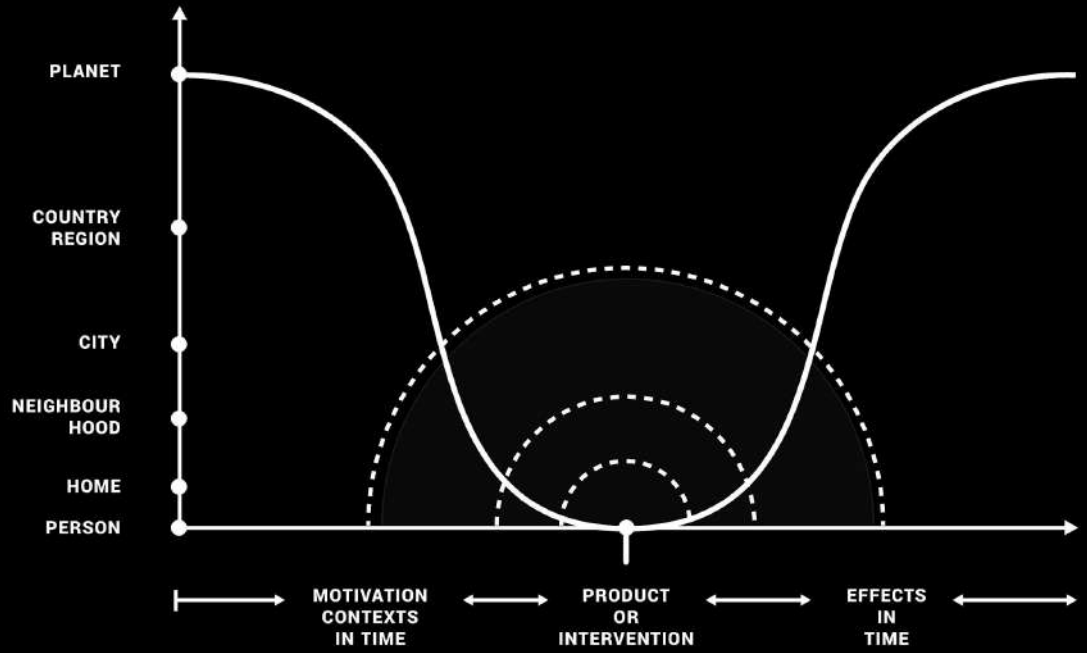
2015
A public network o fab labs started within the strategic framework of Barcelona City Council 2012-2015

FAB CITY BARCELONA

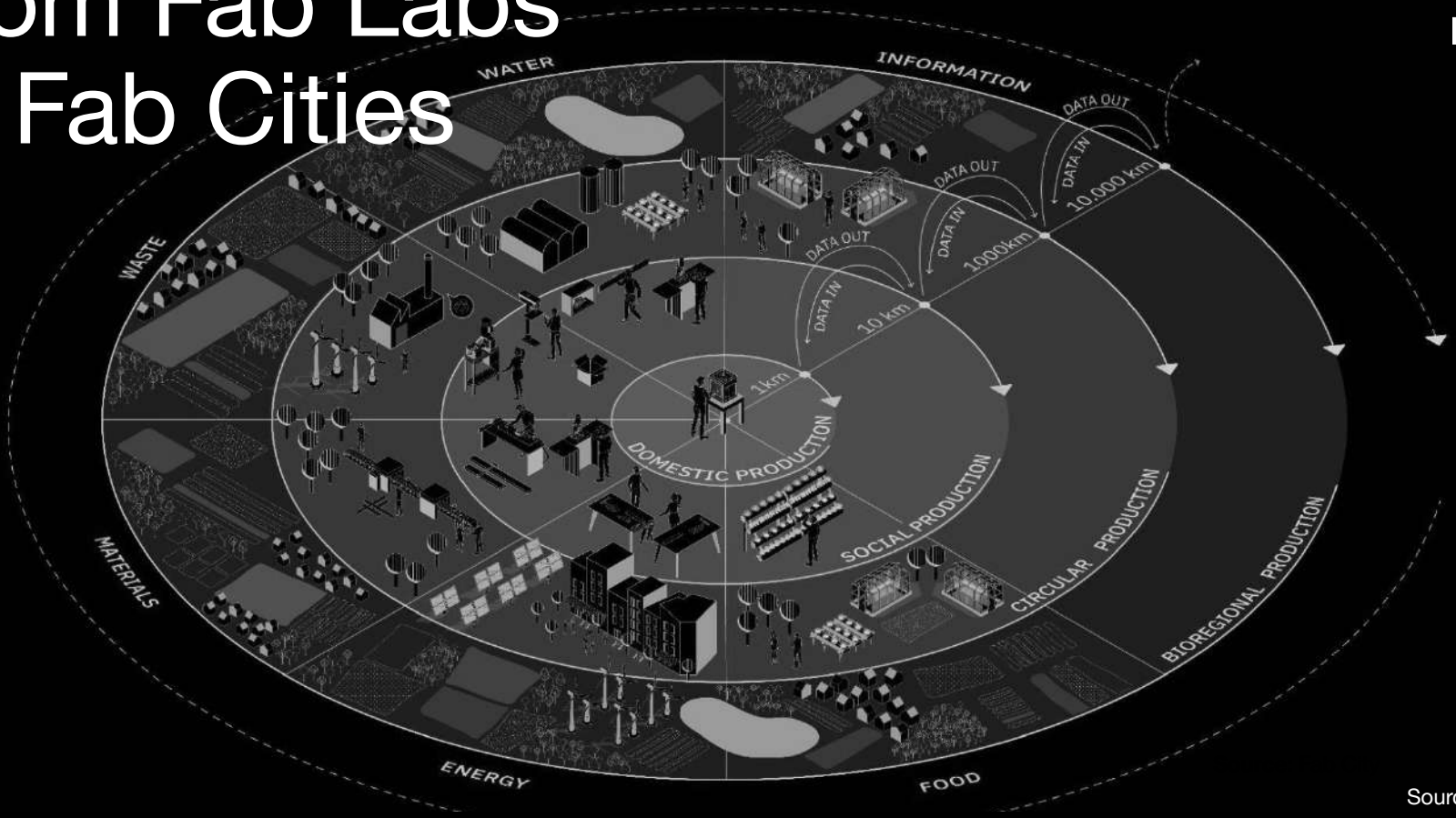
Adapt

FAB LAB BCN

MULTISCALAR DESIGN STRATEGY



From Fab Labs to Fab Cities

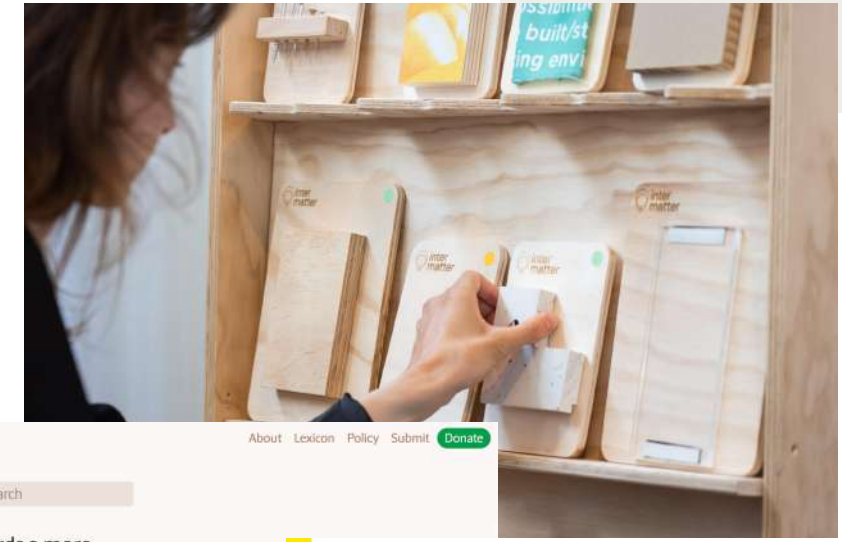


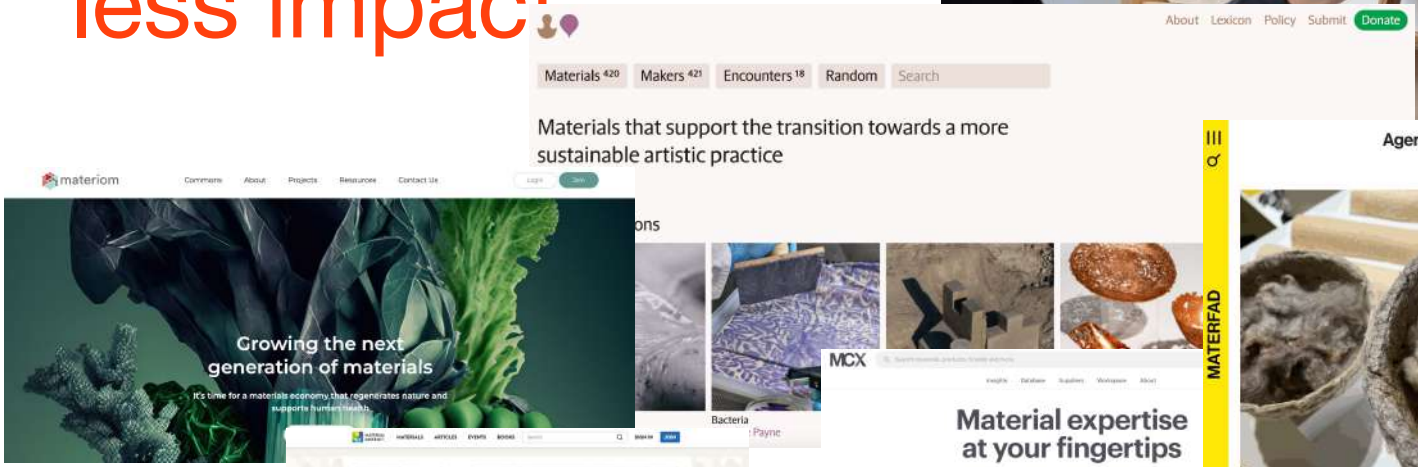
Source: **fab.city**

Fab Lab Barcelona

04 Librerías de Materiales Sostenibles

Materials with less impact.





Open-Source Organic Waste Tutorials

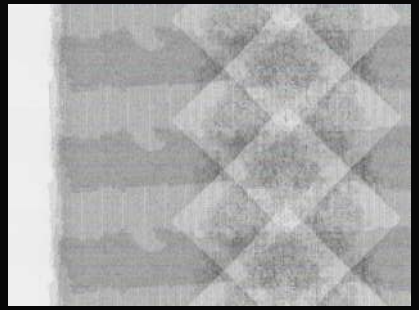




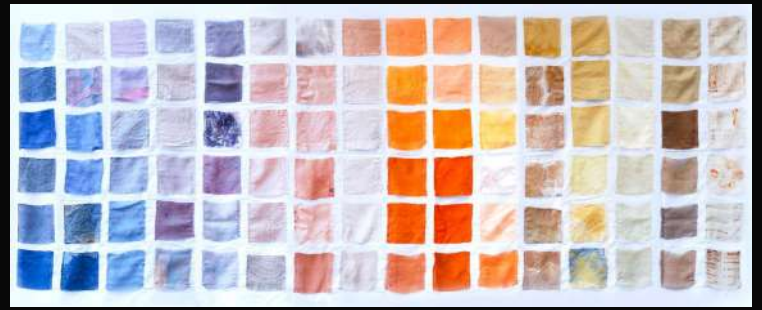

Fab Lab Barcelona. Siscode (Research project). Remix Workshops, 2020-2021







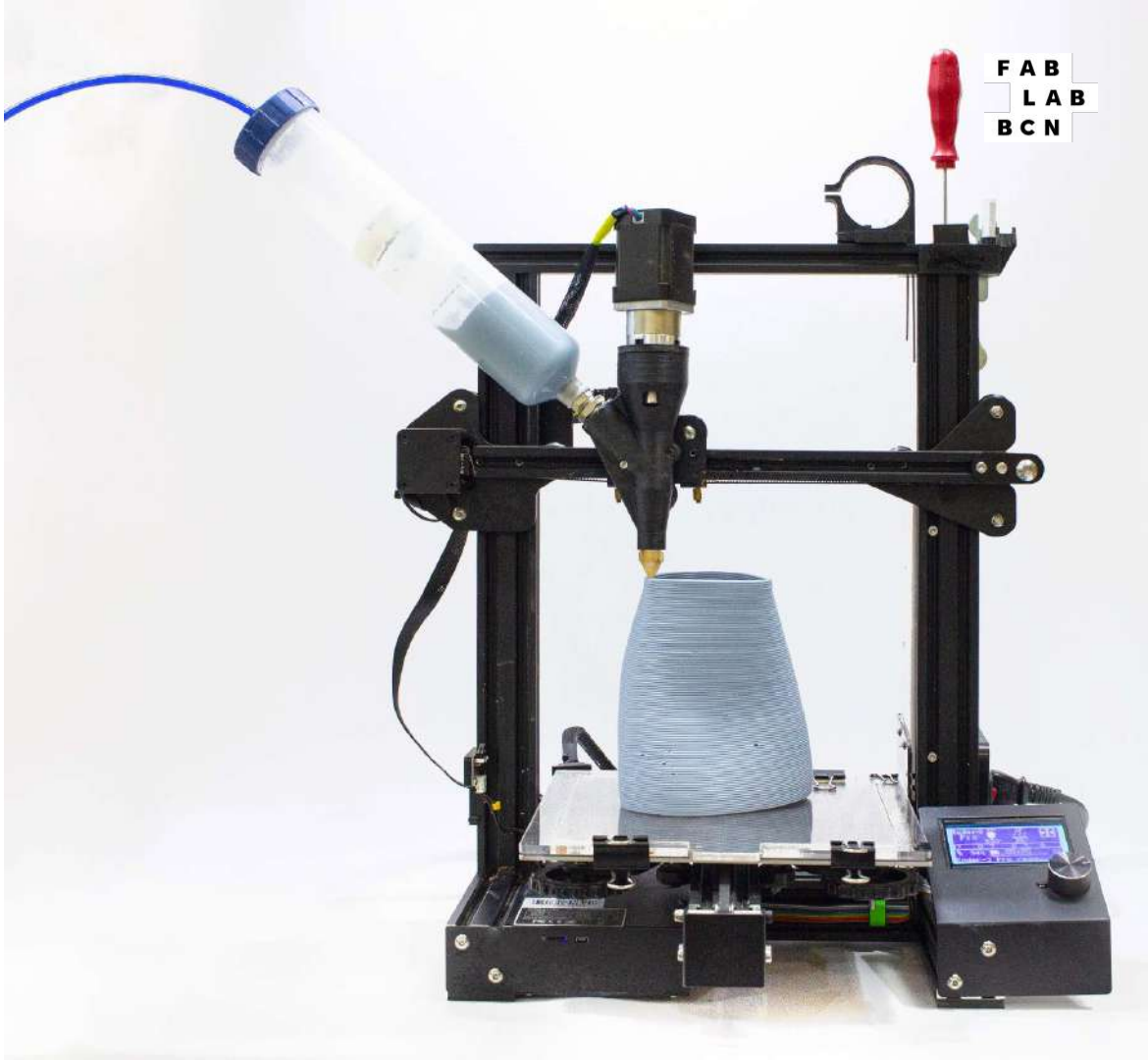





FAB LAB BCN


MANGO
DIVING INTO CIRCULARITY
https://naifactorylab.com/project/mango/

Pavilion grown from mycelium

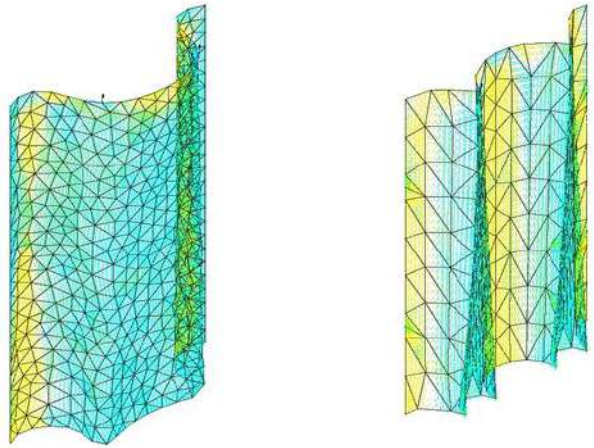

FAB
LAB
BCN

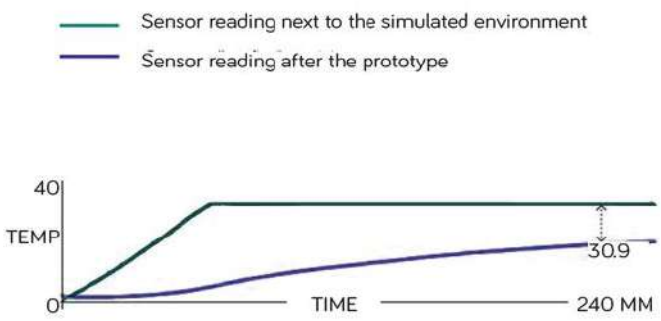
Construmat Installation - IAAC AAG, 2017

IAAC / TOVA

EARTH CONSTRUCTION

SO… WHAT IS NEXT?

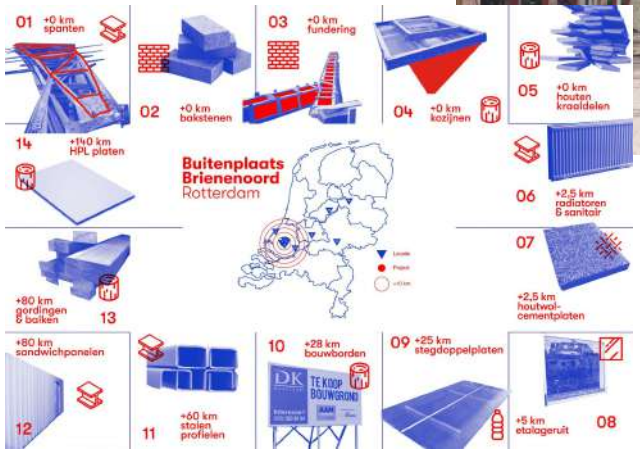


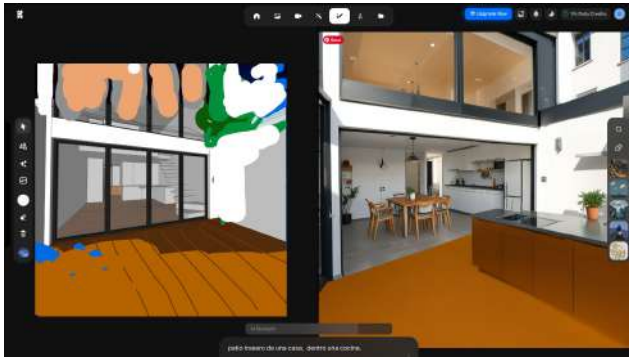

Sensor reading next to the simulated environment
Sensor reading after the prototype
40
TEMP
0
30.9
TIME
240 MM

Digital Adobe, OTP 2018

05 Buitenplaats Brienenoord
Superuse Studio, Rotterdam

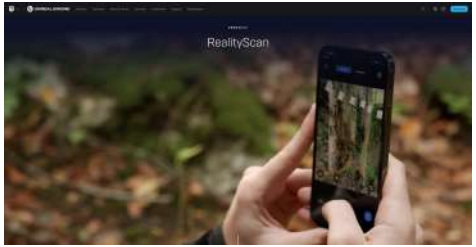
Systemic think





https://www.krea.ai/realtime

https://yanus.ai/



https://www.unrealengine.com/en-US/realityscan

https://poly.cam/

https://lumalabs.ai/

Feedback

ONE THING YOU LIKED

OH!

ANYTHING YOU MISSED

AGG!

A NEW IDEA FOR THE FUTURE

ALGORITHMIC THINKING

Warm-up

PARAMETRIZE THIS CROISSANT

Set the rules or parametric constraints that could allow you to represent this croissant in a digital medium.

COMO ACOTAR UN CROISSANT / *HOW TO LAY OUT A CROISSANT*

El equilibrio horizontal / ***Horizontal equilibrium***

Con Eva Prats

A. *Definición:*

Una superficie se envuelve sobre sí misma, y aparece un interior que se forma al sobreponerse al exterior...

Luego los extremos se cierran sobre sí mismos y forman la envoltura sobre la que se agrupan los pliegues.

Reconoceremos esta forma en el interior de la bóveda bucal...

(es un misterio parecido al del cuchillo que se rompe al introducirlo en un vaso de agua)

Al medirlo, las curas devuelven la transparencia a esta forma, con todas sus cualidades negativas *: incolora, inodora, y sin sabor.

Y un croissant, la media luna en Argentina, es para ser comido.

B. *Desarrollo del ejercicio de acotar un croissant:*

1.1. Seguir la traza del croissant dejada sobre la fotocopia.

1.2. Rehacer el perfil valorando al máximo las tangentes. Siempre dándole más importancia —figuradamente— a los segmentos rectilíneos que a los de circunferencia...

Dejar que aparezca la constelación de centros, sin formar ninguna relación entre ellos, sólo la regla de las sucesivas tangentes en un punto.

Damos el perfil de su superficie de apoyo en el horno. Y secciones transversales que se sitúan:

2.1. A ambos lados del grueso de pasta.

2.2. A mitad del nivel.

Acotar la base:

Tres triángulos respecto a los cuales definimos los puntos característicos del perímetro. Son triángulos cuyos vértices quedan situados sobre estos puntos.

Subdividir cada lado del triángulo según los puntos que nos interesa fijar del perímetro en partes iguales.

La dirección de cada lado del triángulo y su perpendicular actúan como ejes.

Dar las coordenadas de los centros utilizados para dibujar la silueta.

Por último, mostrar la relación entre los triángulos utilizados.

3. Escala —no tamaño— libre.

* *F. Ponge, Le Gran Recueil.*

A. Definition:

A surface wraps over itself and an inside appears, formed by superimposing itself over its outside...

Then the ends close over themselves, forming the wrapping over which the folds are arranged.

We recognize this form in the roof of the mouth... (a mystery comparableto that of the knife which breaks when introduced into a glass of water)

When measuring it, numbers return transparency to the form, with all its negative qualities: the lack of color, smell and taste. Because a croissant, or half moon in Argentina, is meant to be eaten.*

B. Exercise to lay out a croissant, step by step

1.1. Follow the outline of the croissant left on the photocopy.

1.2. Redo the plan emphasizing the tangents. Always give slightly more importance to straight segments than to curved...

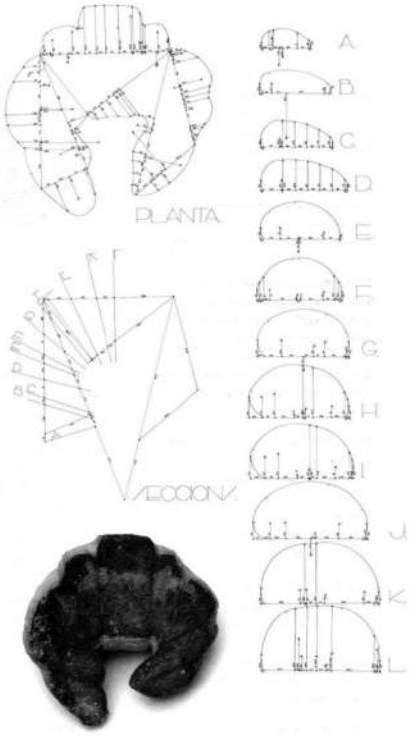
Let the constellations of centerpoints appear without forming any relation between them, except the ordering of succeeding tangents at a common point.

We give the plan of its surface of support in the oven.

And cross-sections located:

2.1. On both sides of the thickest part of the dough.

2.2. At the mid-point.



Dimension the base:

With three triangles we define the key points of the perimeter, triangles whose vertices are located over these points.

Divide each leg of the triangle, according to the points of the perimeter we wish to fix, in equal parts.

Each leg of a triangle and its perpendicular become axes.

Determine the coordinates of the centerpoints used to develop the outline plan.

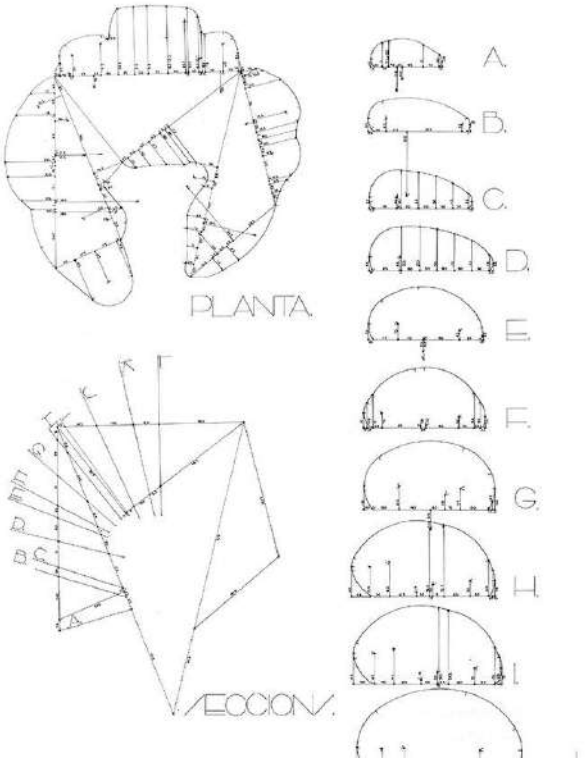
Finally, note the relation between the triangles used.

3. Scale —not size— is free.

* F. Ponge, Le Gran Recueil.

Croissant (1990, El Croquis) Miralles

Drawing logic



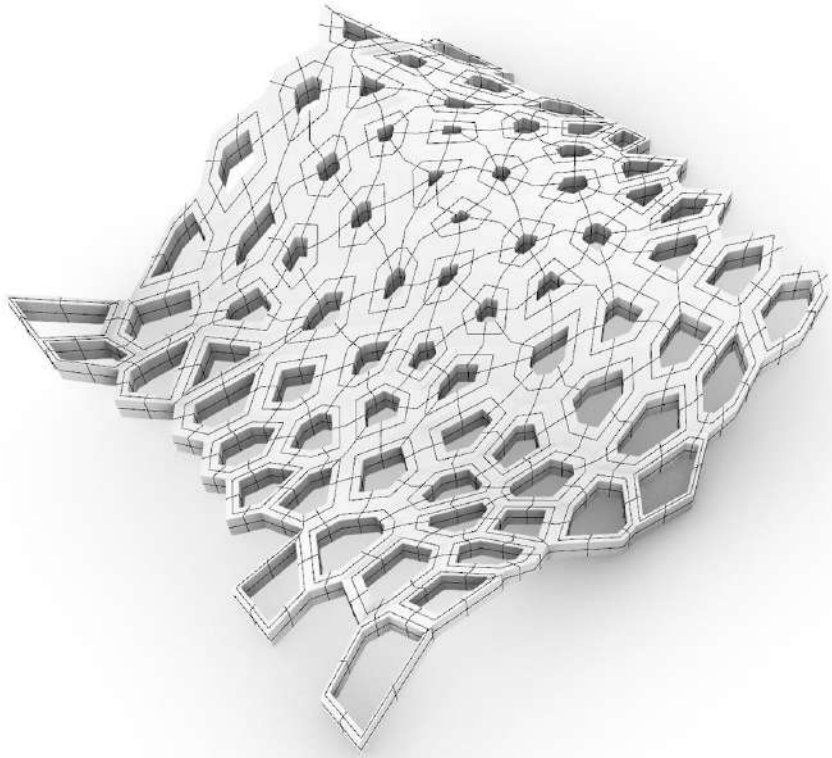
[Croissant (1990, El Croquis) Miralles]

COMPUTATIONAL DESIGN

How can we **inform** the design process?

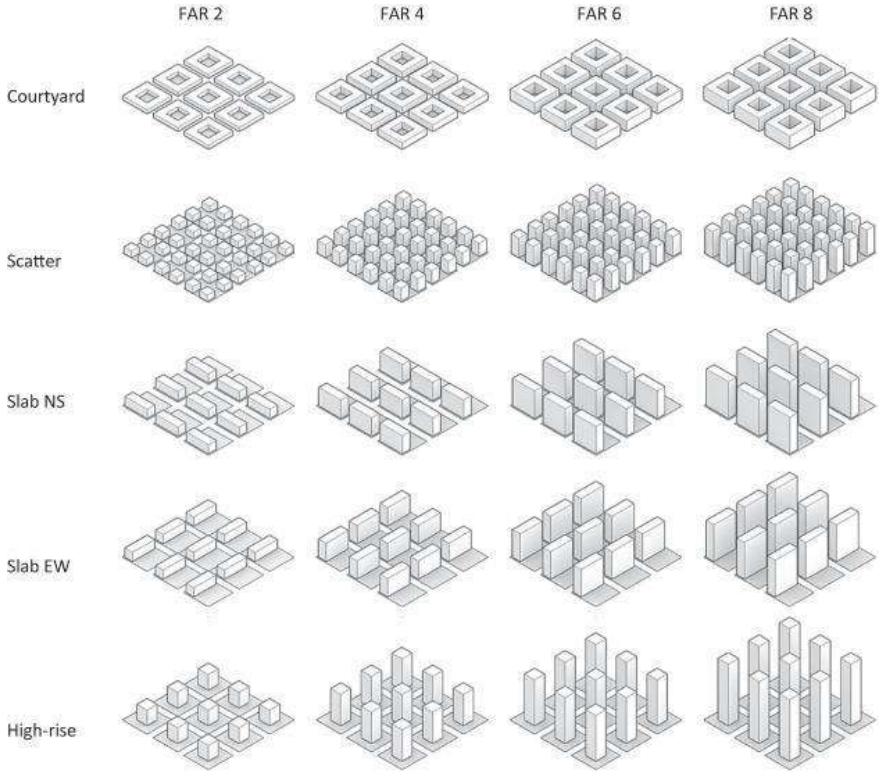
PARAMETRIC DESIGN

LOCALIZED VARIATIONS



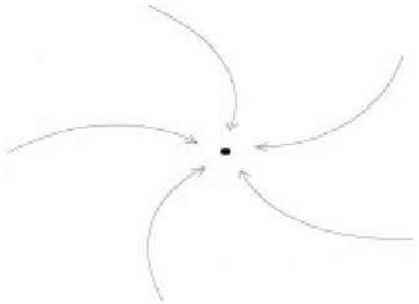
PARAMETRIC DESIGN

QUICK COMPARISON

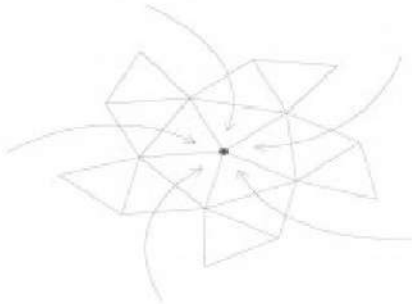


PARAMETRIC DESIGN

PROCESS



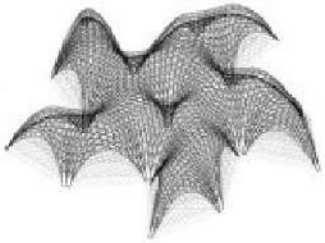
01: CONCEPT
Create a vortex that draws people in towards the center and sends them out in a new direction



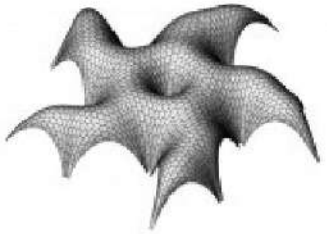
02: BASE MESH
Create a simple, low-resolution mesh that responds to the vectors of movement.

03: SUB-D MESH
Increase the mesh resolution by subdividing each face of the base mesh by a factor of two.

04: HEX CELL CURVES
Convert the triangular mesh into mostly hexagonal closed curves



05: HANGING MESH SIMULATION
Apply mass to each mesh node and convert each mesh edge into a spring and simulate physical interactions until system comes to rest.

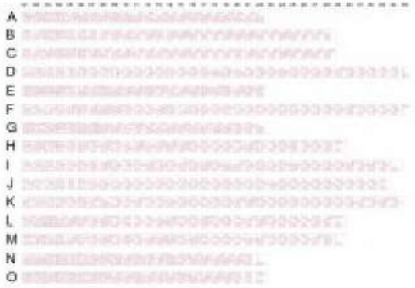


06: OPTIMIZE PLANARITY OF CELLS
In order to reduce the number of seams when unfolded, find a point near the center of each cell whose angle summation with its vertices is 360 degrees.

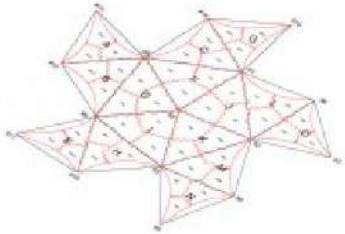
PARAMETRIC DESIGN

PROCESS

10: CELL ORIENTATION
Analyze the principle curvature of each cell and rotate the unfolded cell such that the direction of curvature runs parallel with the flutes in the material.

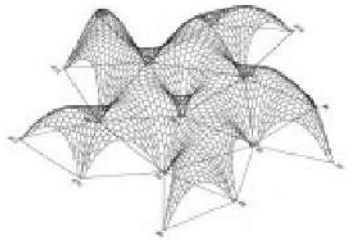


11: NEST CELLS
Nest all cells in groups according to the original base-mesh (step 2).



12: ORGANIZE ASSEMBLY LOGISTICS
Organize cells into sub-groups and groups of prefabricated panels that will be assembled off-site.

13. LOCATE ANCHOR POINTS
Using simple triangulation, set out the initial support points on the site ground. Drill anchor holes into site ground at all 16 support points.

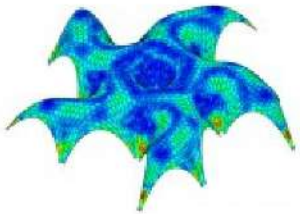


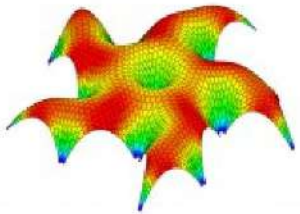
14. ATTACH PRE-FABRICATED PANELS
Attached footings to the anchor bolts. Add each of the 15 pre-fabricated panels to the footings.

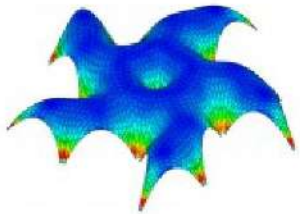
15: ADD EDGE REINFORCEMENT
Add reinforcing arches along edges of mesh.

PARAMETRIC DESIGN

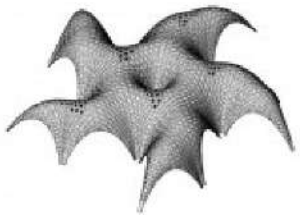
PROCESS

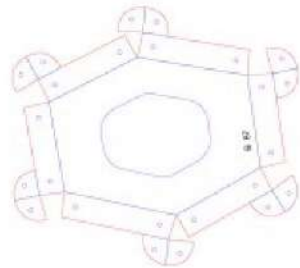


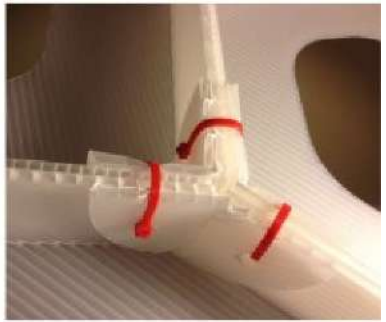




07: STRUCTURAL ANALYSIS
Rebuild a new mesh from the optimized surfaces. Analyze the resulting mesh to verify that it is performing like a shell structure and to find the critical areas of stress. Change initial geometry as needed in regards to bending moment (left), deflection (center), and in-plane stress (right) and repeat analysis until satisfied with the results.



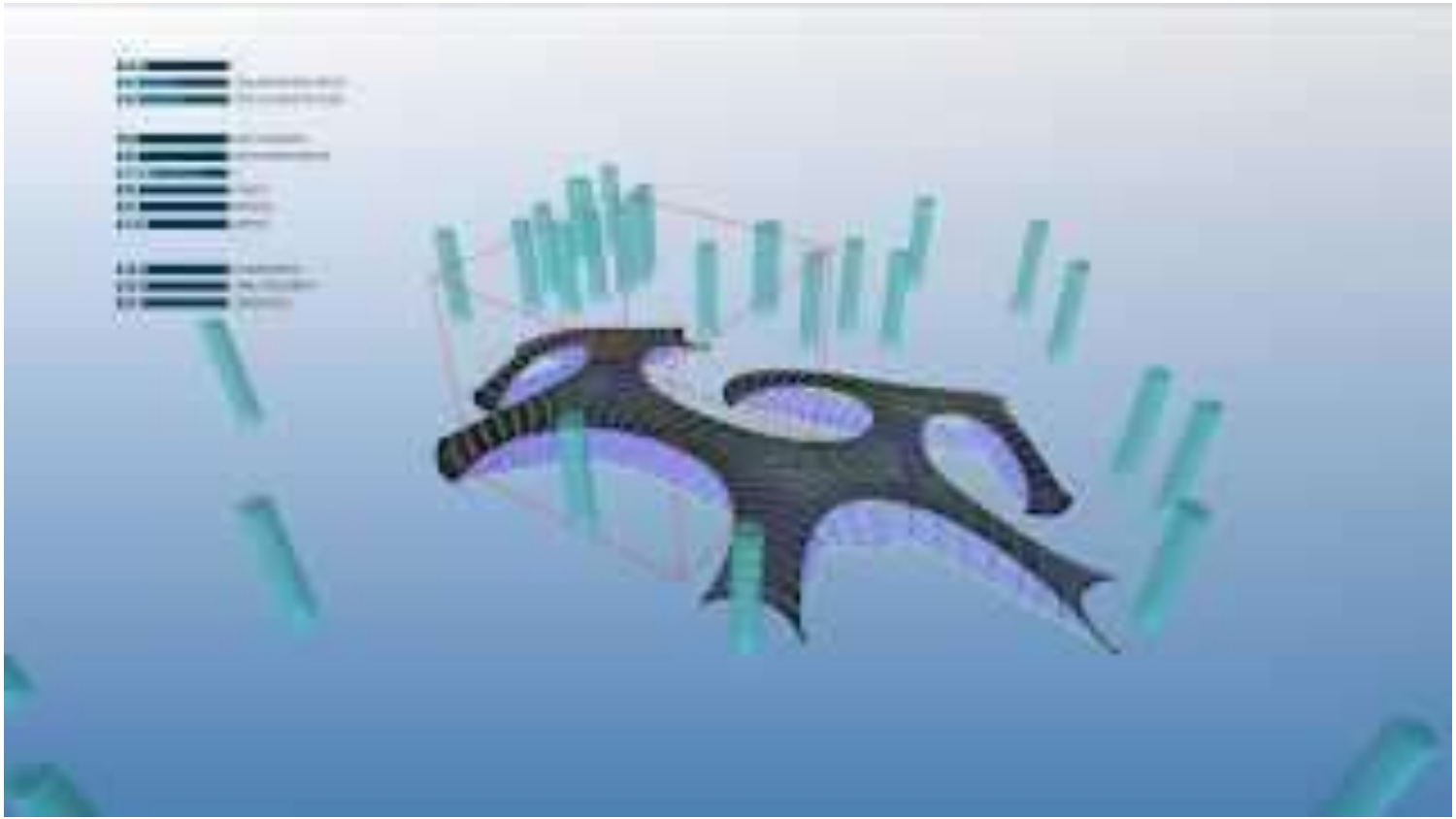




08: POPULATE CELLS WITH OPENING
In order to reduce wind load, add openings to each cell. Make the size of the opening proportional to the height of the cell so the lower cells remain solid.

09: UNFOLD CELLS
Unfold each cell so that it is flat on the XY plane. Offset the cell to take into account material thickness. Add primary and secondary tabs, labels, and holes.

https://www.matsys.design/shellstar-pavilion



https://theverymany.com/project-gallery

THE ORB

MOUNTAIN VIEW, CA

PILLARS OF DREAMS

CHARLOTTE, NC

UNDER MAGNITUDE

ORLANDO, FL

MINIMA | MAXIMA

WORLD EXPO ASTANA

https://theverymany.com/project-gallery

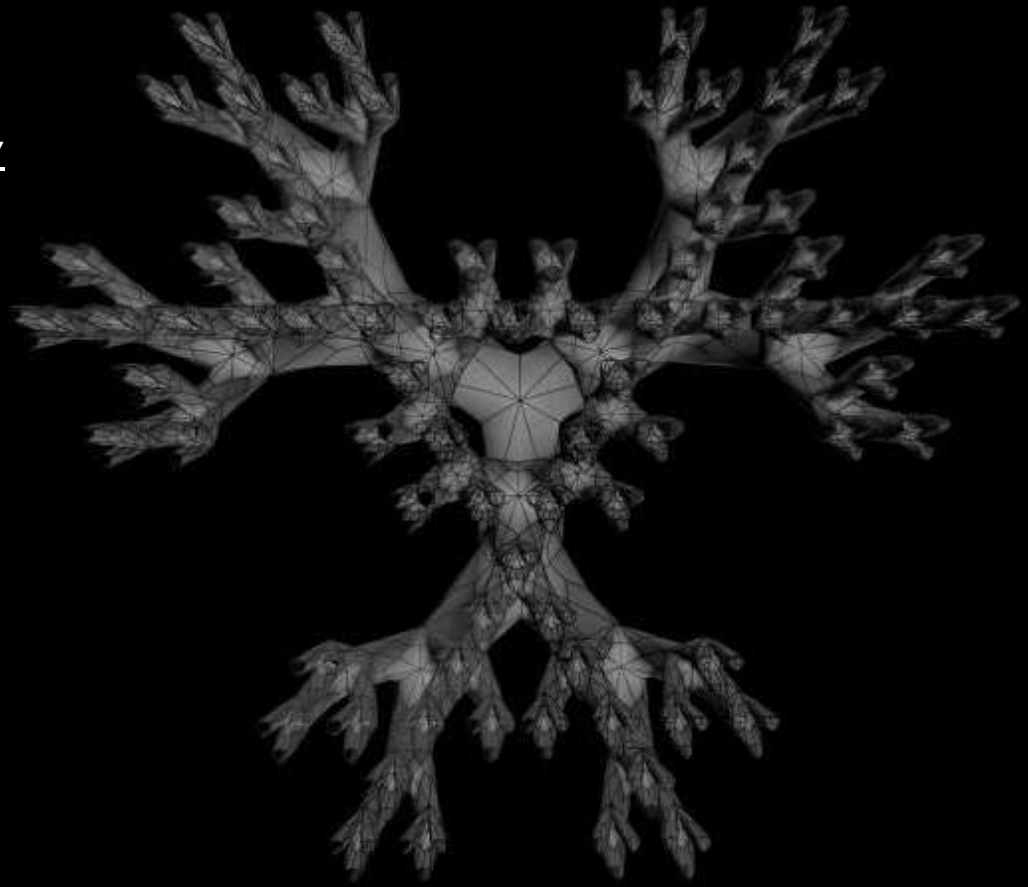
https://theverymany.com/project-gallery

COMPUTATIONAL DESIGN STRATEGIES

How can we **inform** the design process?

DESIGN STRATEGIES

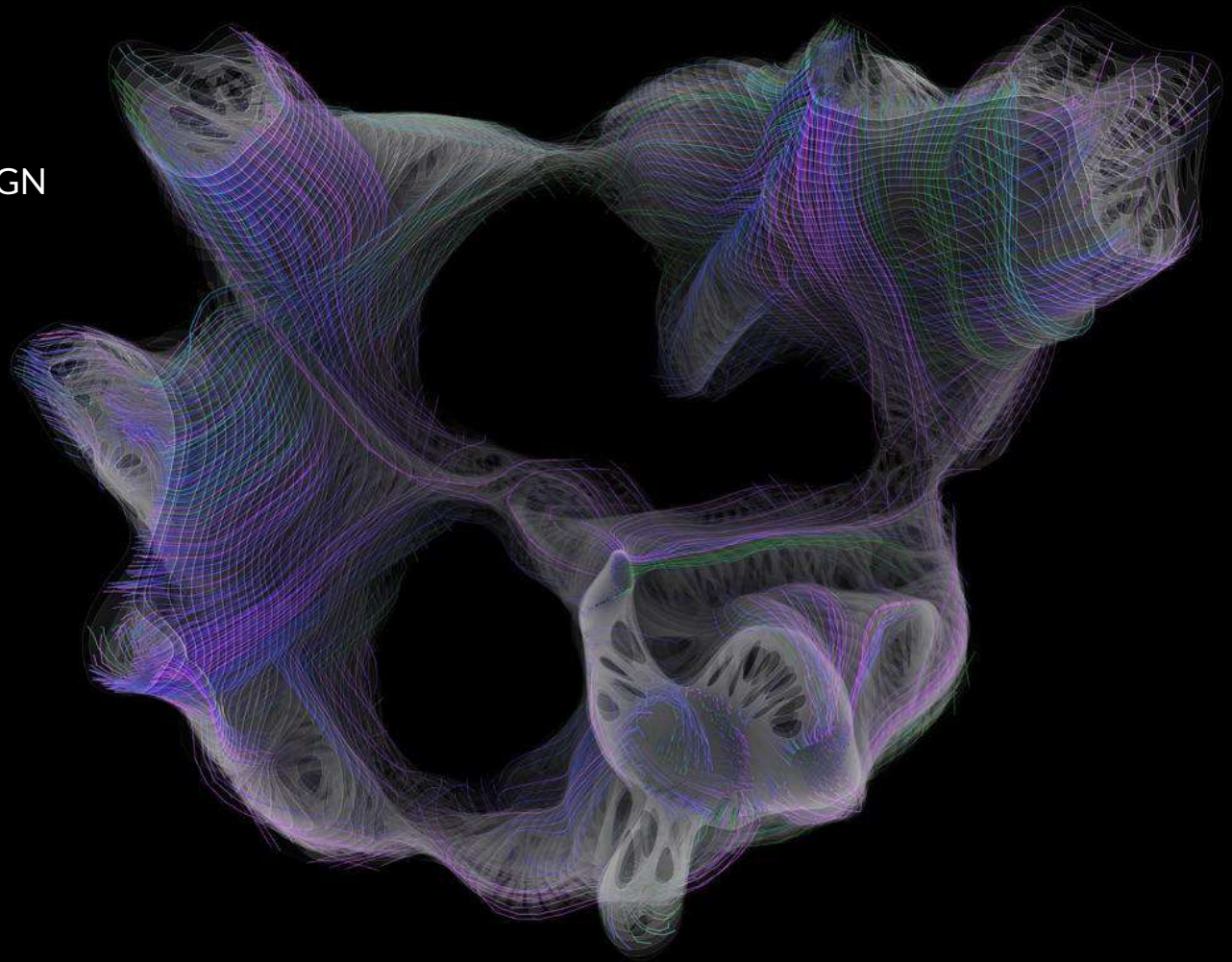
LOOPS & RECURSIVITY



Noumena - Recursions

DESIGN STRATEGIES

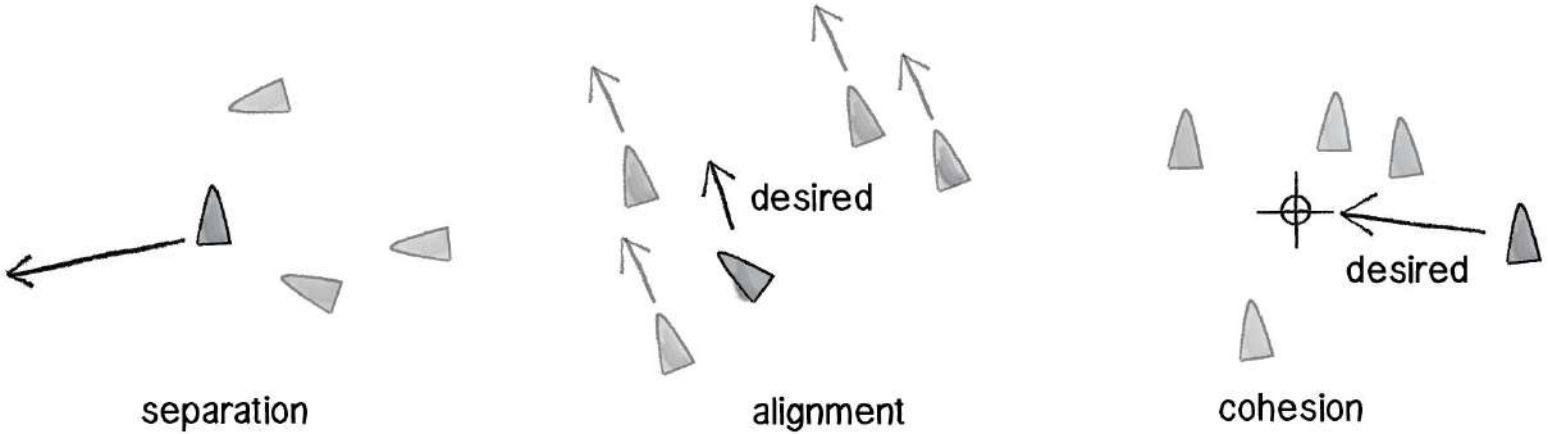
AGENT BASED DESIGN



Satoru Sugihara

DESIGN STRATEGIES

AGENT BASED DESIGN

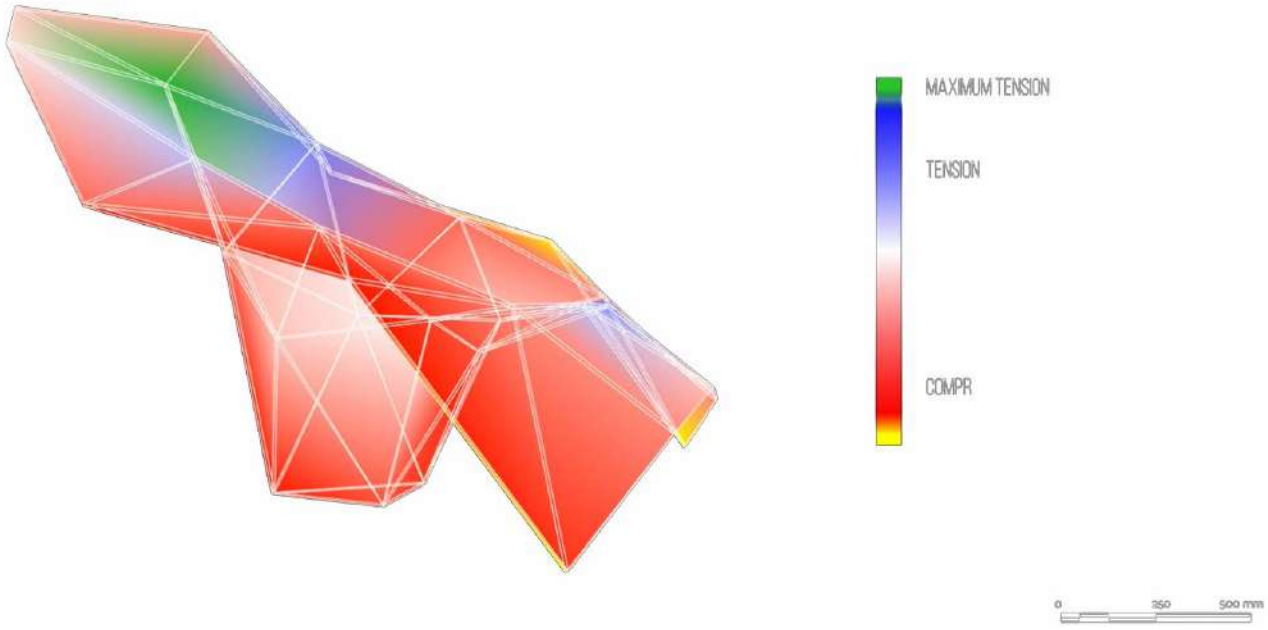


https://natureofcode.com/book/chapter-6-autonomous-agents/

https://www.youtube.com/watch?v=eE646_6NfqQ

DESIGN STRATEGIES

STRUCTURAL ANALYSIS



DESIGN STRATEGIES

TOPOLOGY OPTIMIZATION

Human Weight :

80 Kg

Material :

RGD | Polyjet

Tensile Strength:

50 -55 MPa

Modulus of Elasticity:

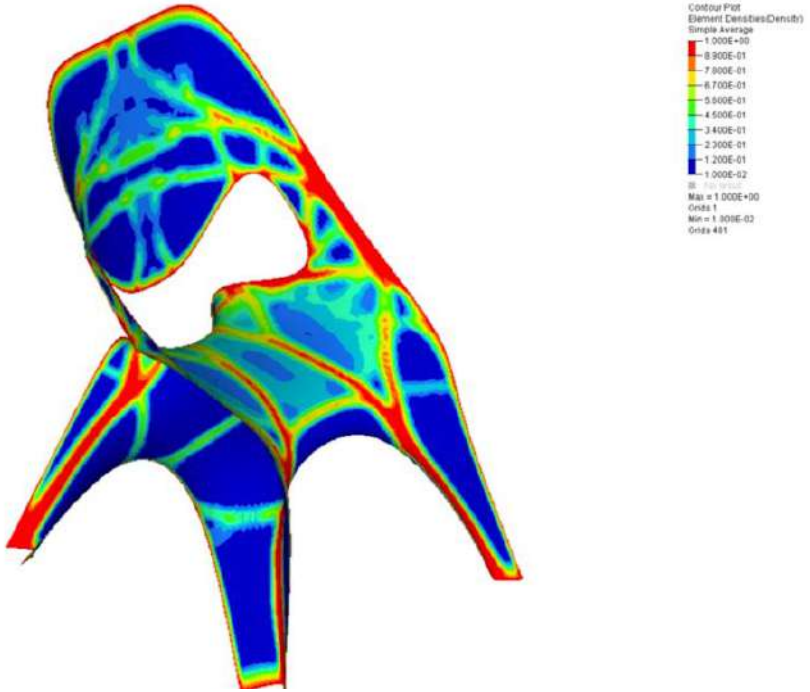
2000 - 3000 MPa

Flexural modulus:

2200 - 3200 MPa

Poisson's Ratio :

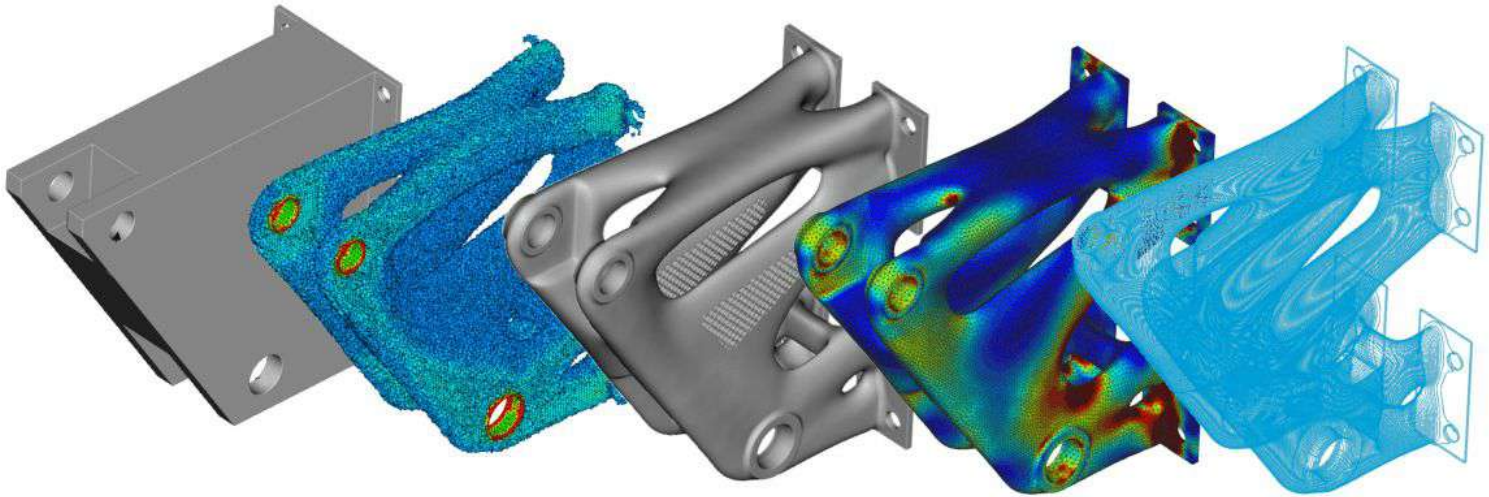
0.35

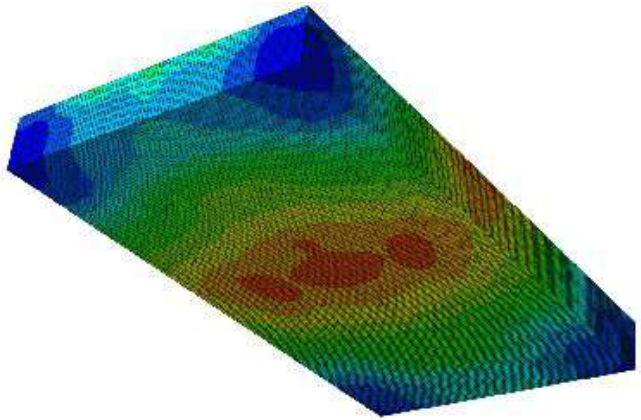


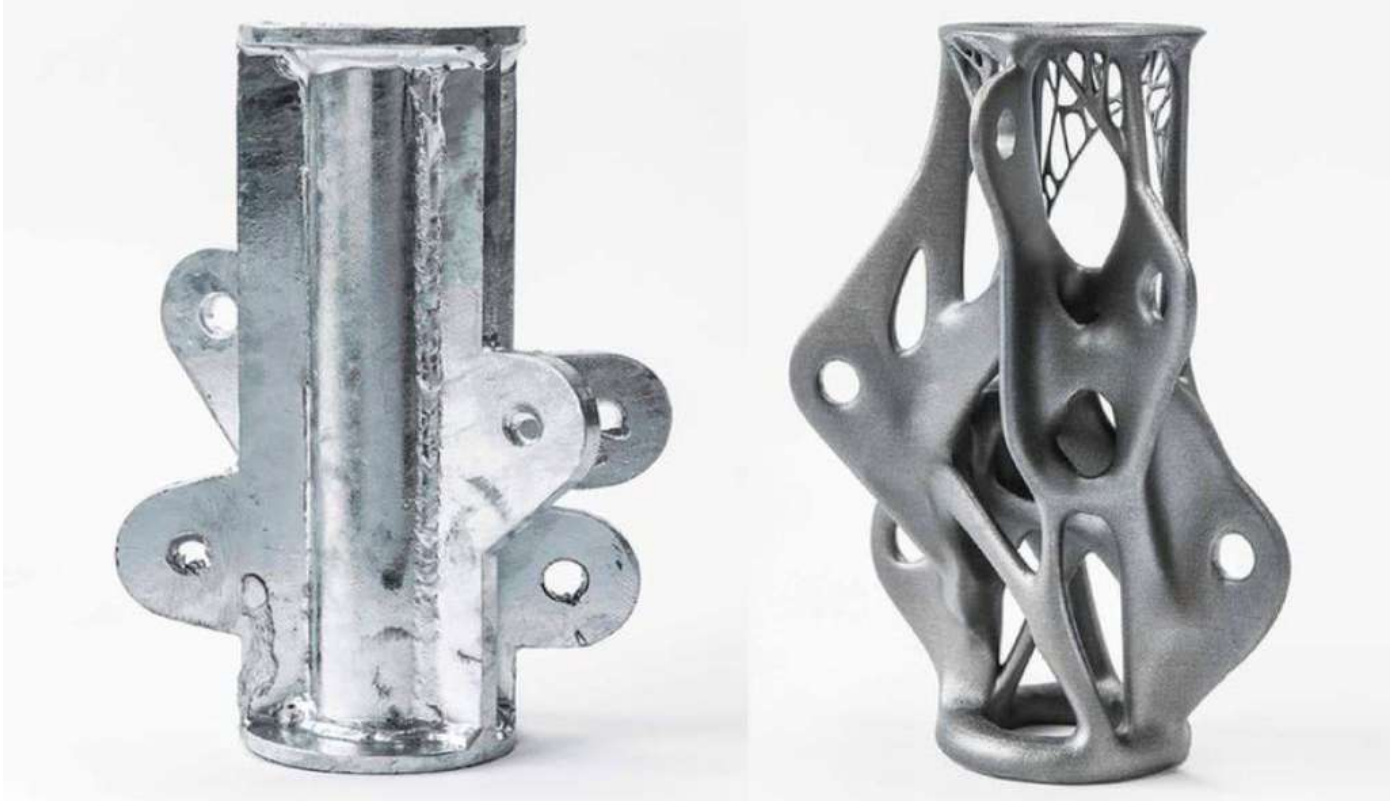
Topology optimization (TO) is a mathematical method that optimizes material layout within a given design space, for a given set of loads, boundary conditions and constraints with the goal of maximizing the performance of the system. Topology optimization is different from shape optimization and sizing optimization in the sense that the design can attain any shape within the design space, instead of dealing with predefined configurations.

DESIGN STRATEGIES

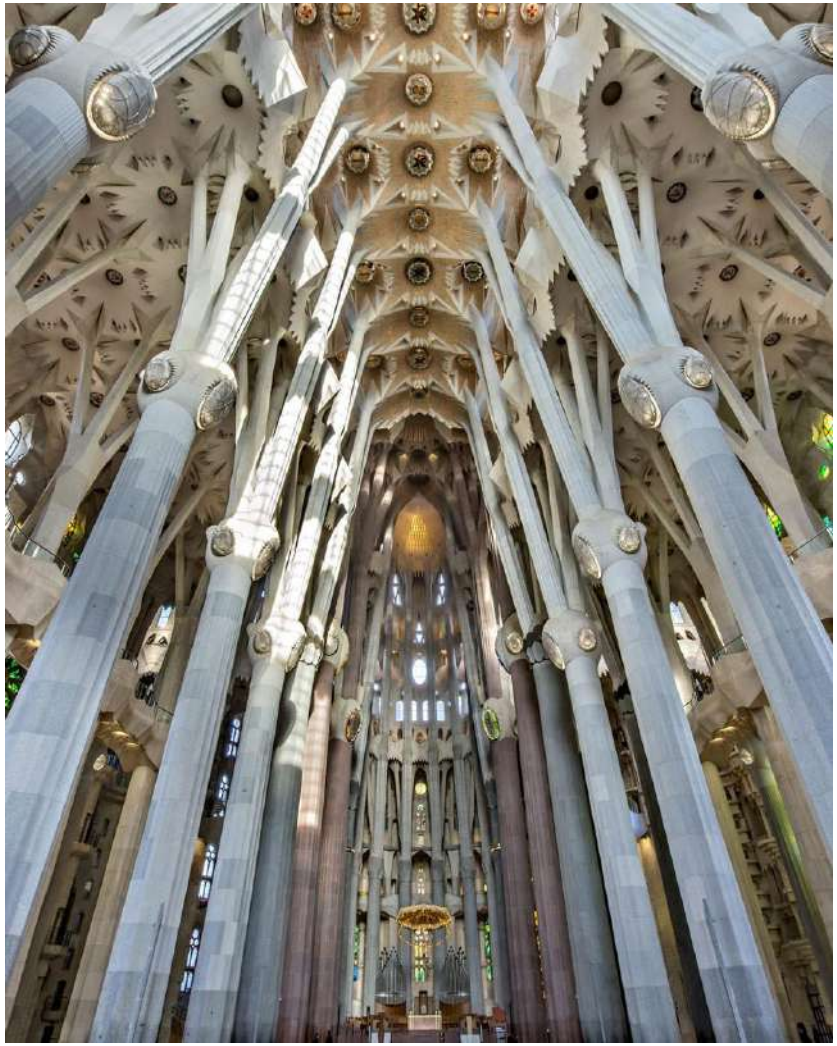
TOPOLOGY OPTIMIZATION





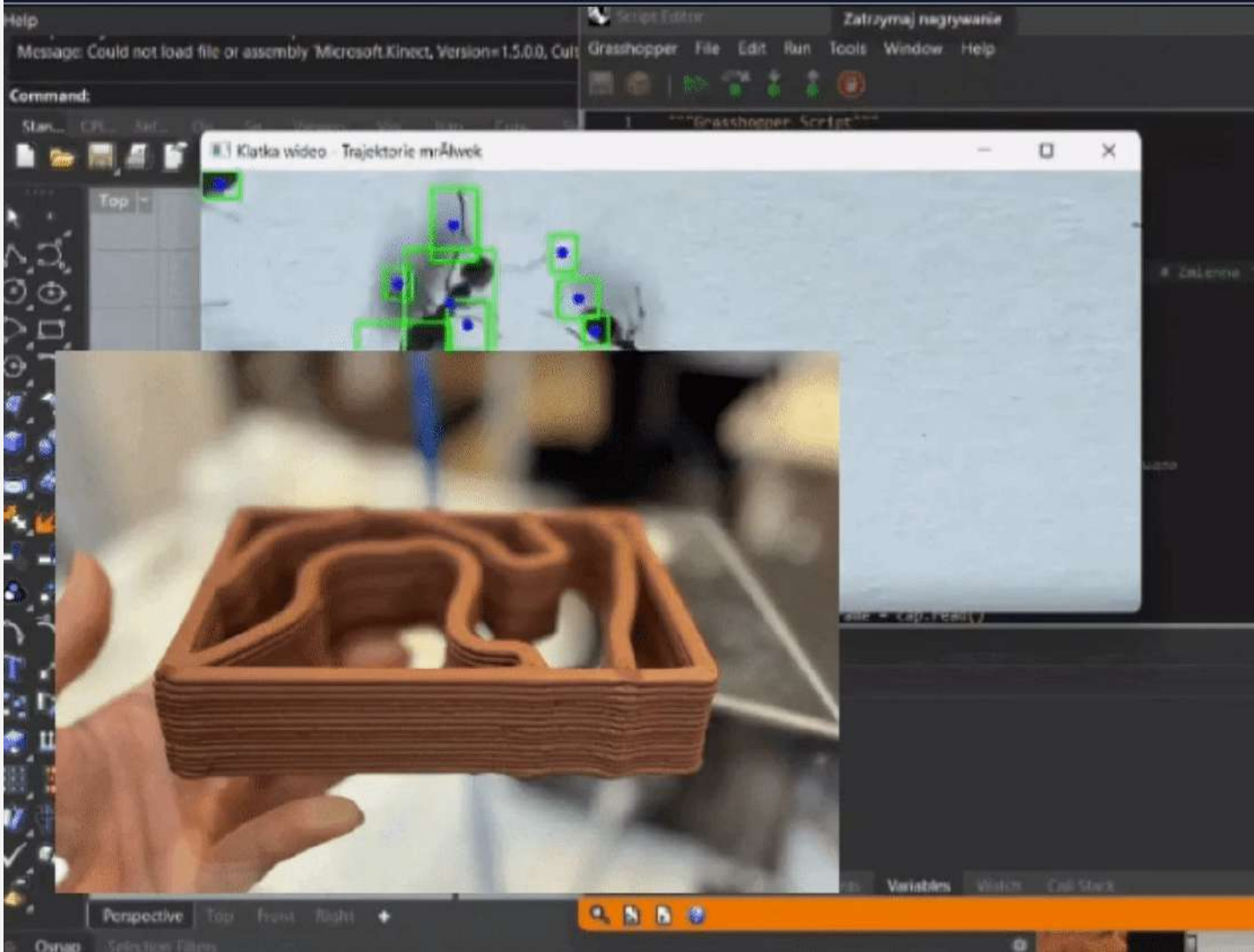



APWORKS
400



Bio brake

Practice



Form Follows Life

https://www.hackster.io/group-2/form-follows-life-b5a7a0

Real-time Object Tracking

Trajectory Point Size:

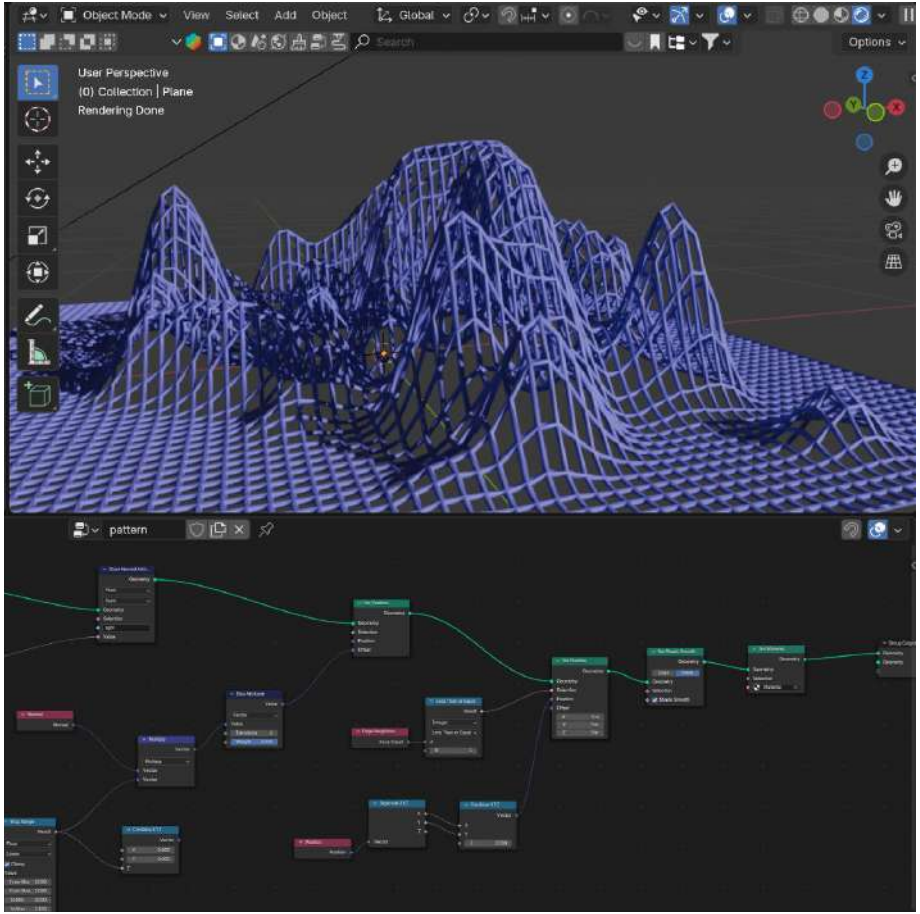
20

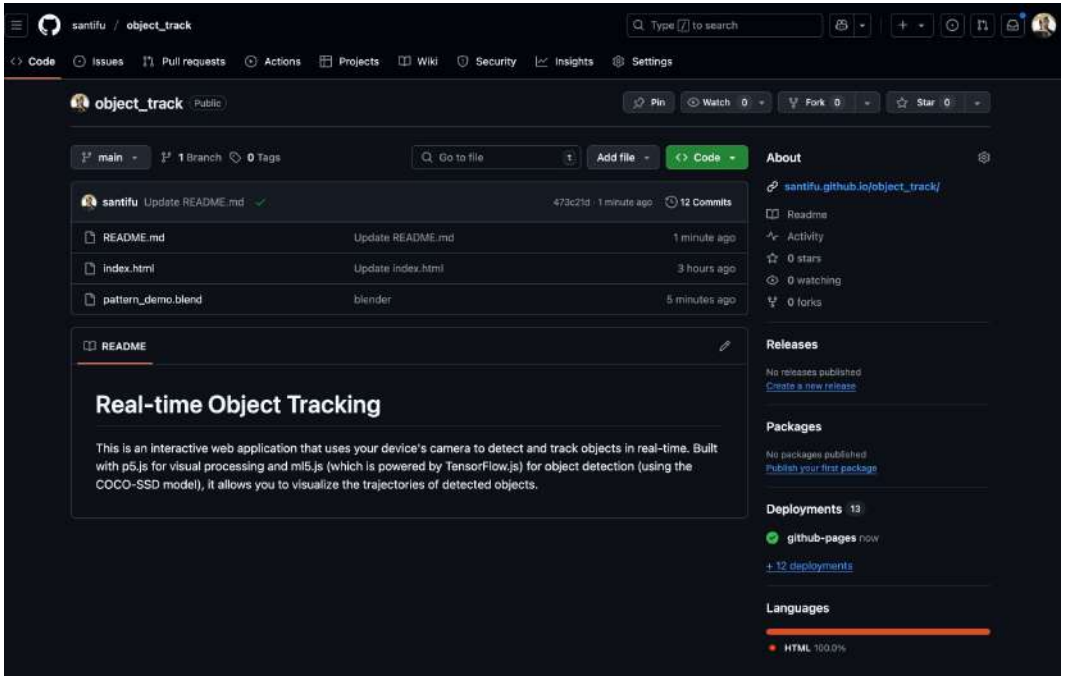
Select objects to track:

person umbrella remote book couch microwave bed

Save Trajectory (PNG)

Clear Trajectory





https://github.com/santifu/object_track

¡Thanks!

Santi Fuentemilla
santi.fuentemilla@proton.me