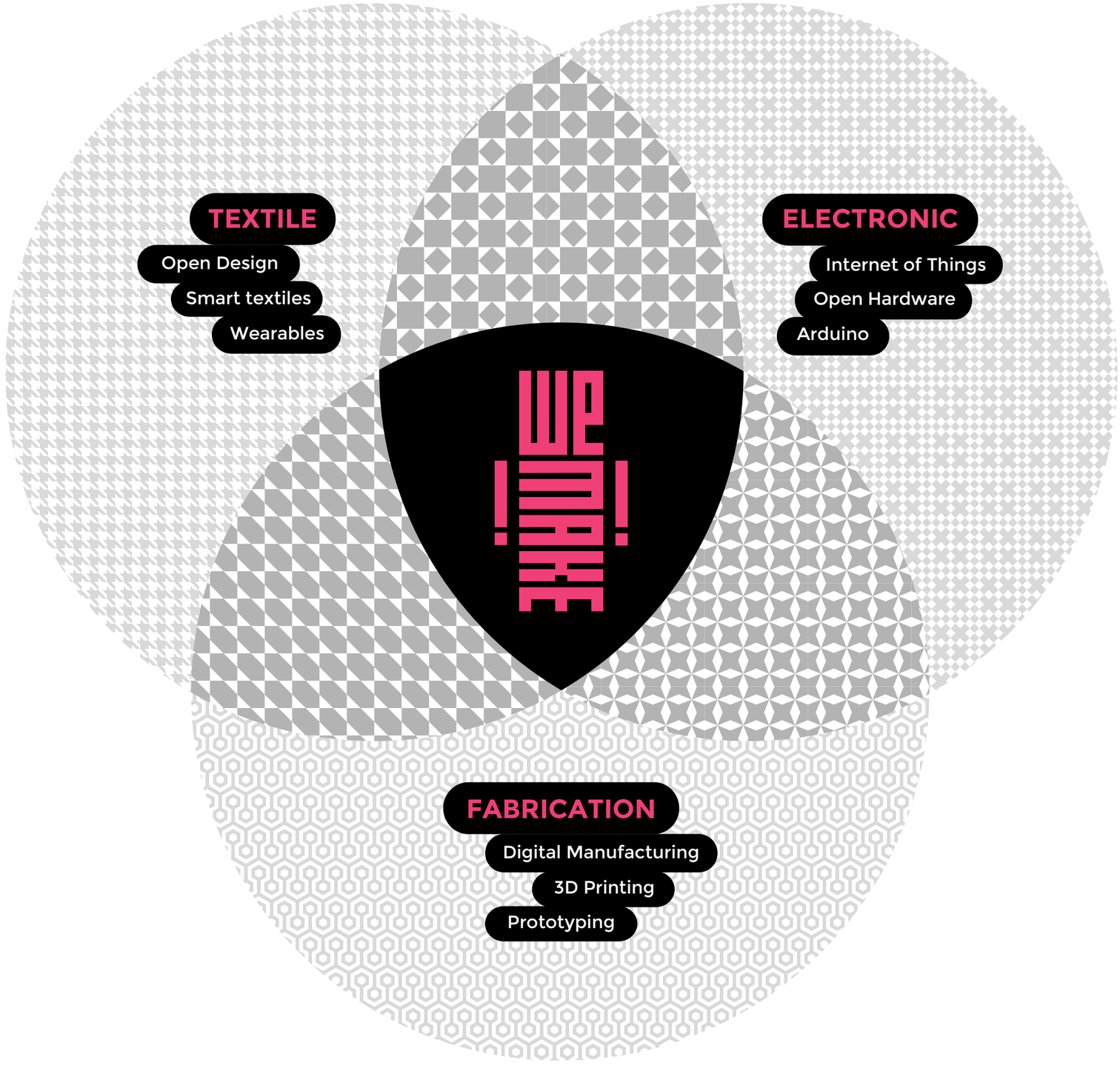
Zoe Romano- Fabricademy

Modular Fashion

wemake.cc
#makerspace
#fablab


TORETTA STYLE
brother


TEXTILE
Open Design
Smart textiles
Wearables
ELECTRONIC
Internet of Things
Open Hardware
Arduino
WE MAKE!
FABRICATION
Digital Manufacturing
3D Printing
Prototyping

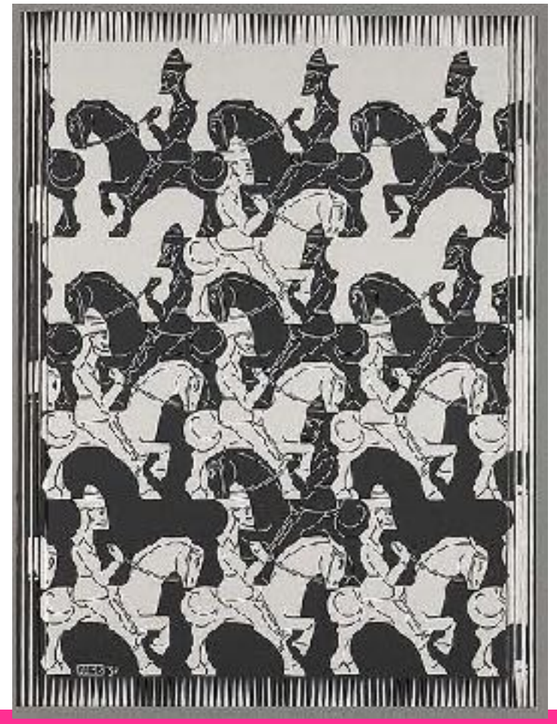
Modular fashion is an approach to the production of accessories and garments using **vector graphic** design of bidimensional **lasercut** modules.
They are then **interlocked** to create complex 3d **seamless** geometries.

What is modular fashion?

In plane geometry, we call **tessellation** the ways of filling a plane with various geometries, infinitely replicated without overlapping or gaps.

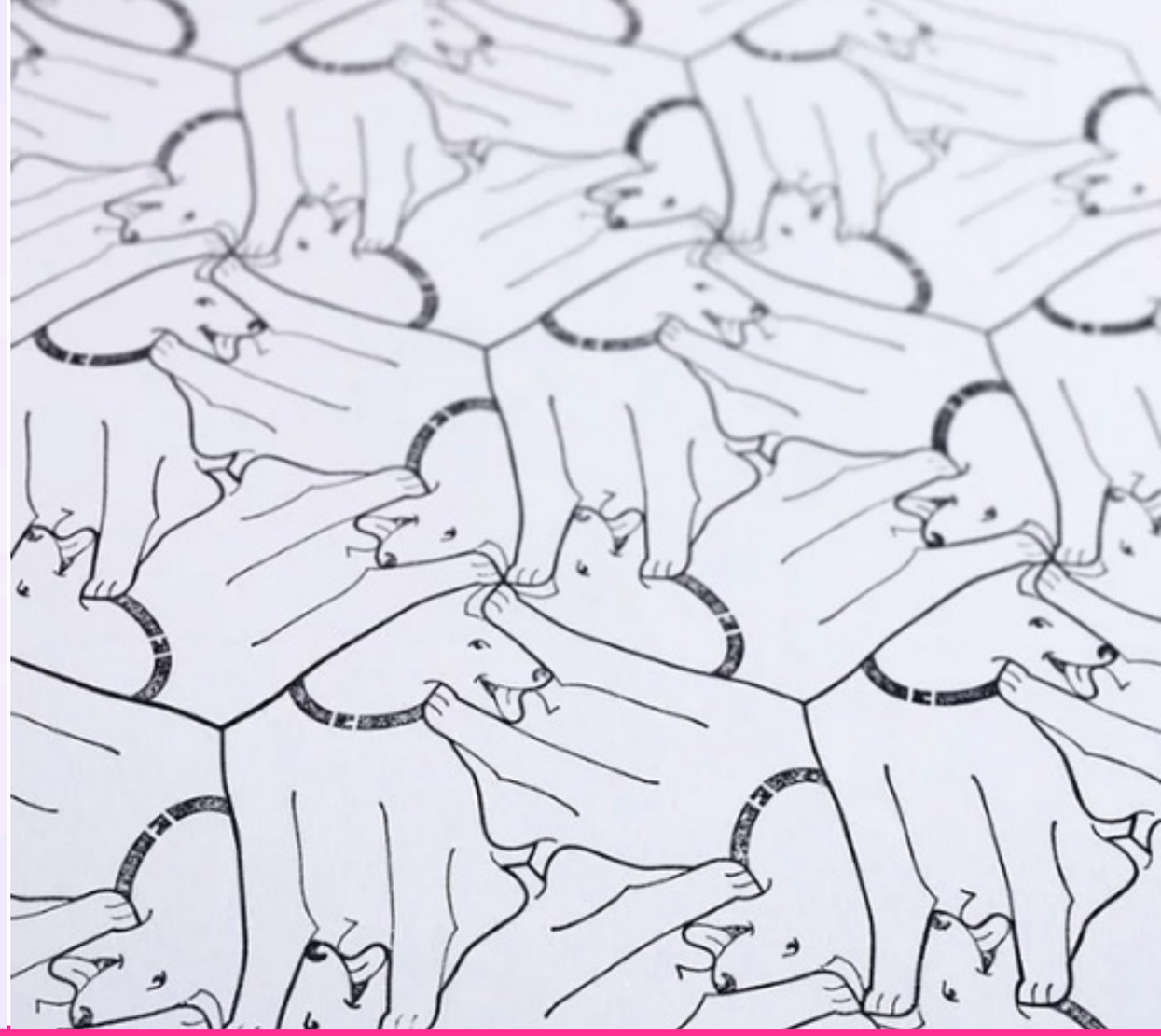
Nature

Art/Illustration

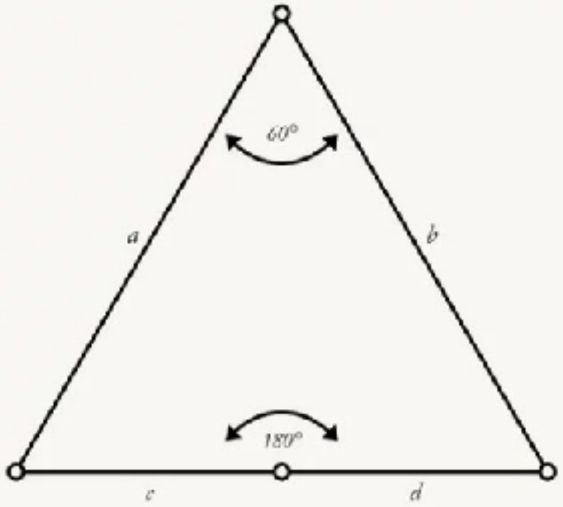


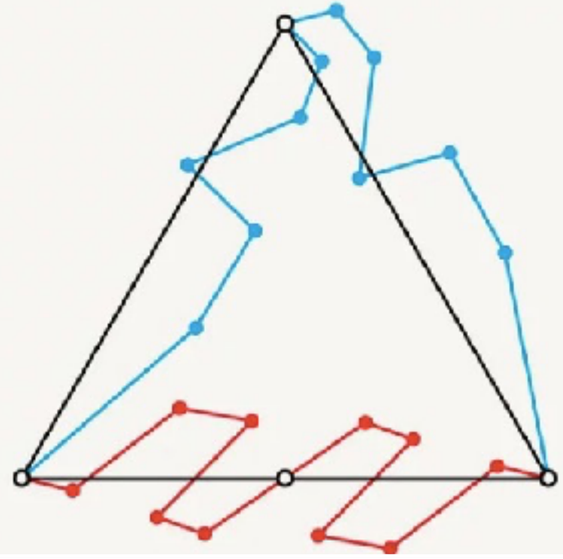
Architecture

Tessellation and geometry



Tessellation and geometry





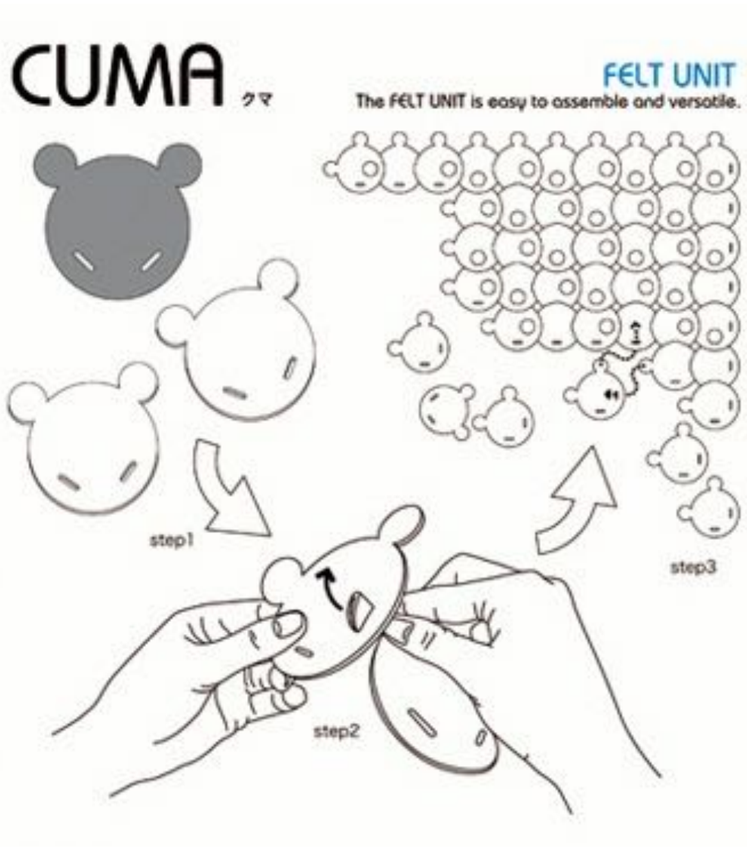
Samuel Kerr

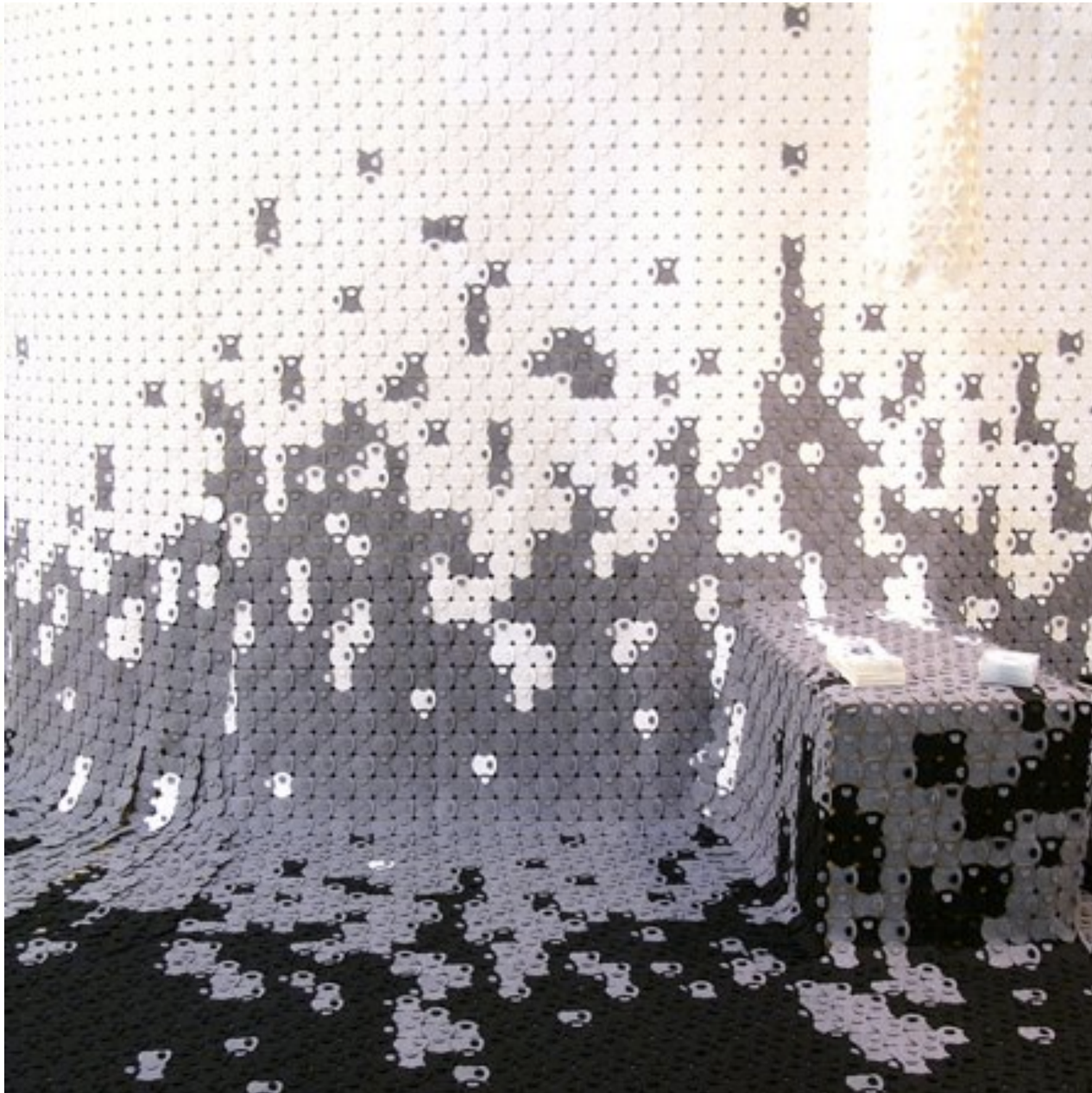
Tessellation and geometry

Any alterations made to the left side are copied and rotated 60° to the right side, so that each side is a perfect fit for each other. The bottom side is divided in half with any edits made to one half copied and rotated 180° to the other, again making them perfect fits. These applied rules are ultimately what will allow the tile to repeat infinitely.

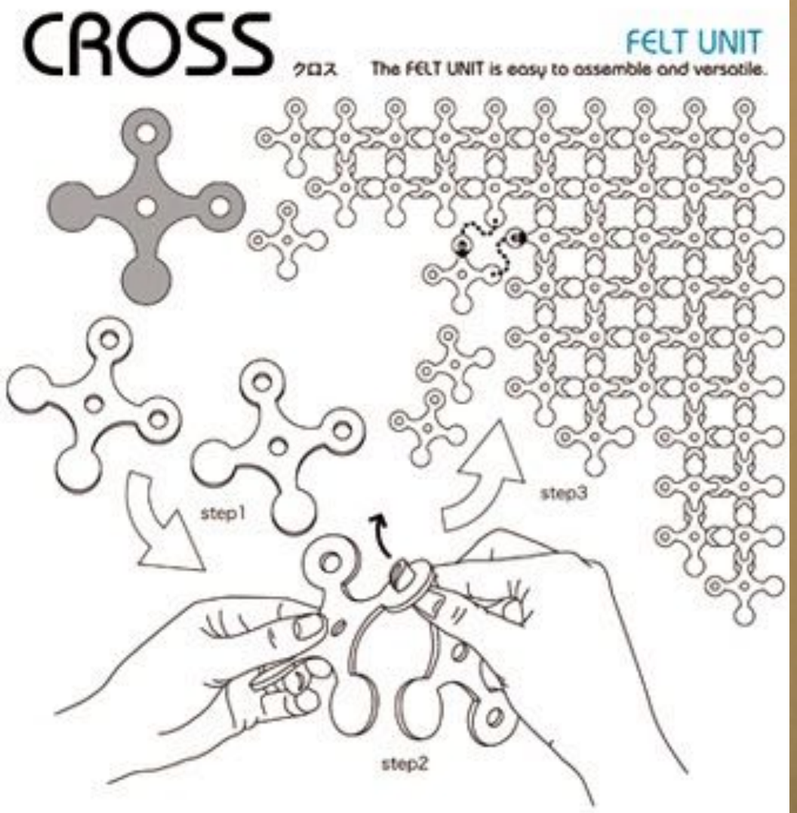
Moda modulare - Examples

TAKEHIRO ANDO

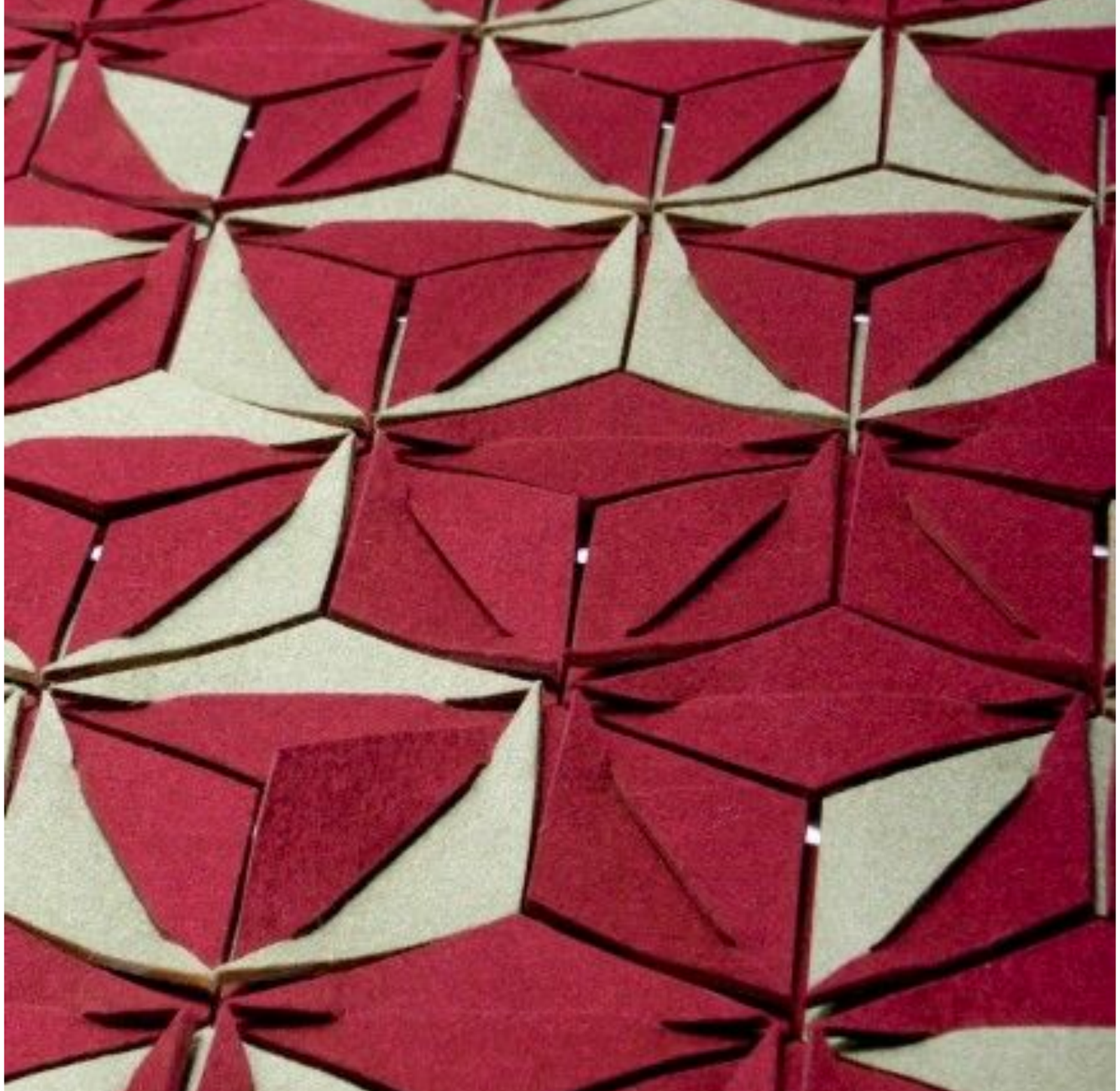




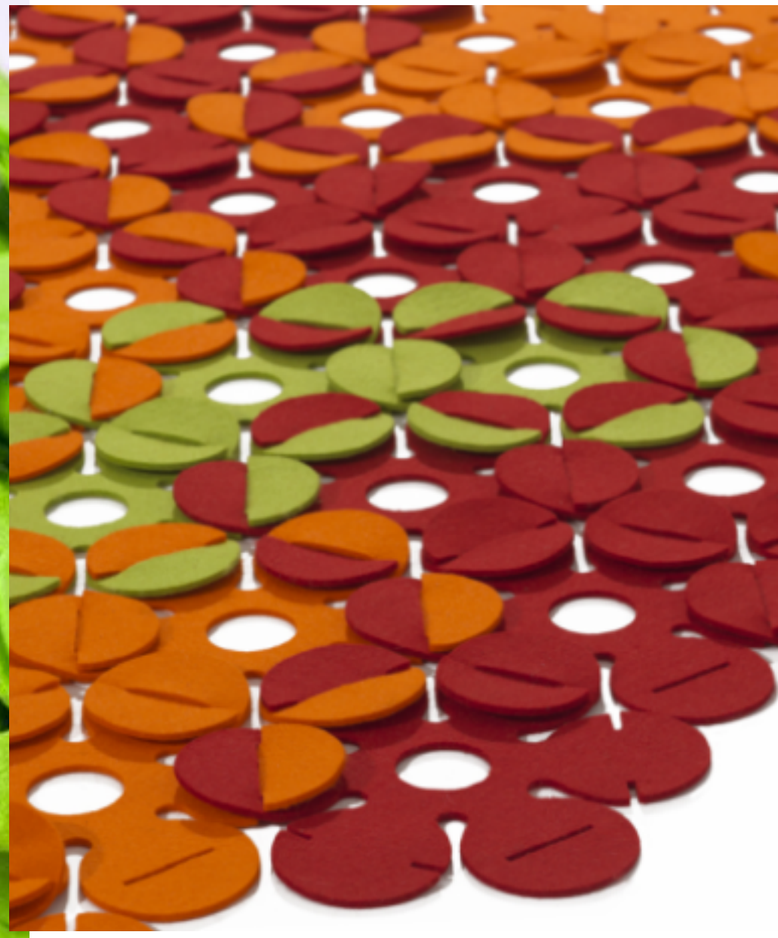
TAKEHIRO ANDO



BERBER SOEPBOER



NASIA BURNET



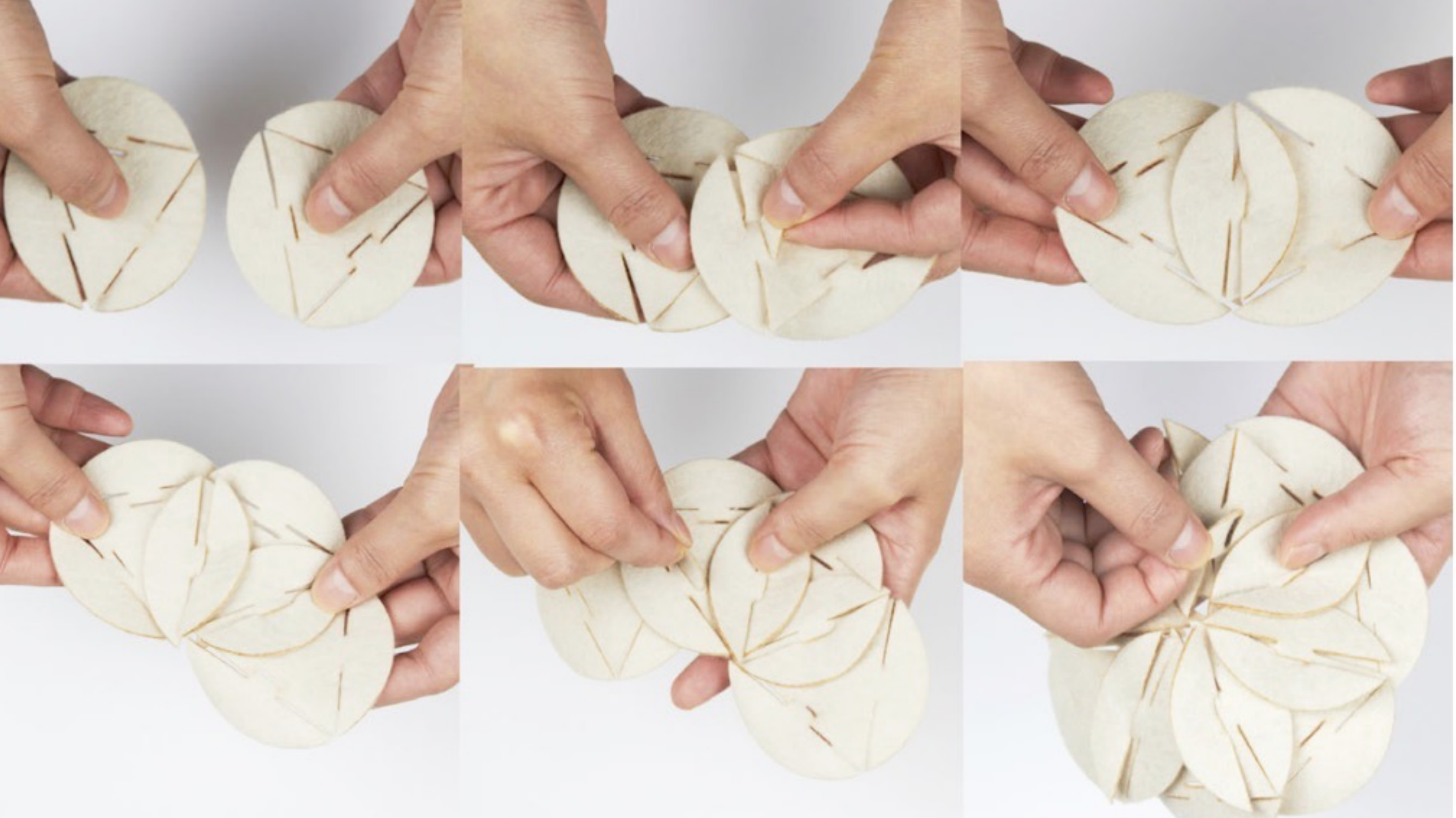
SARAN YOUKONGDEE

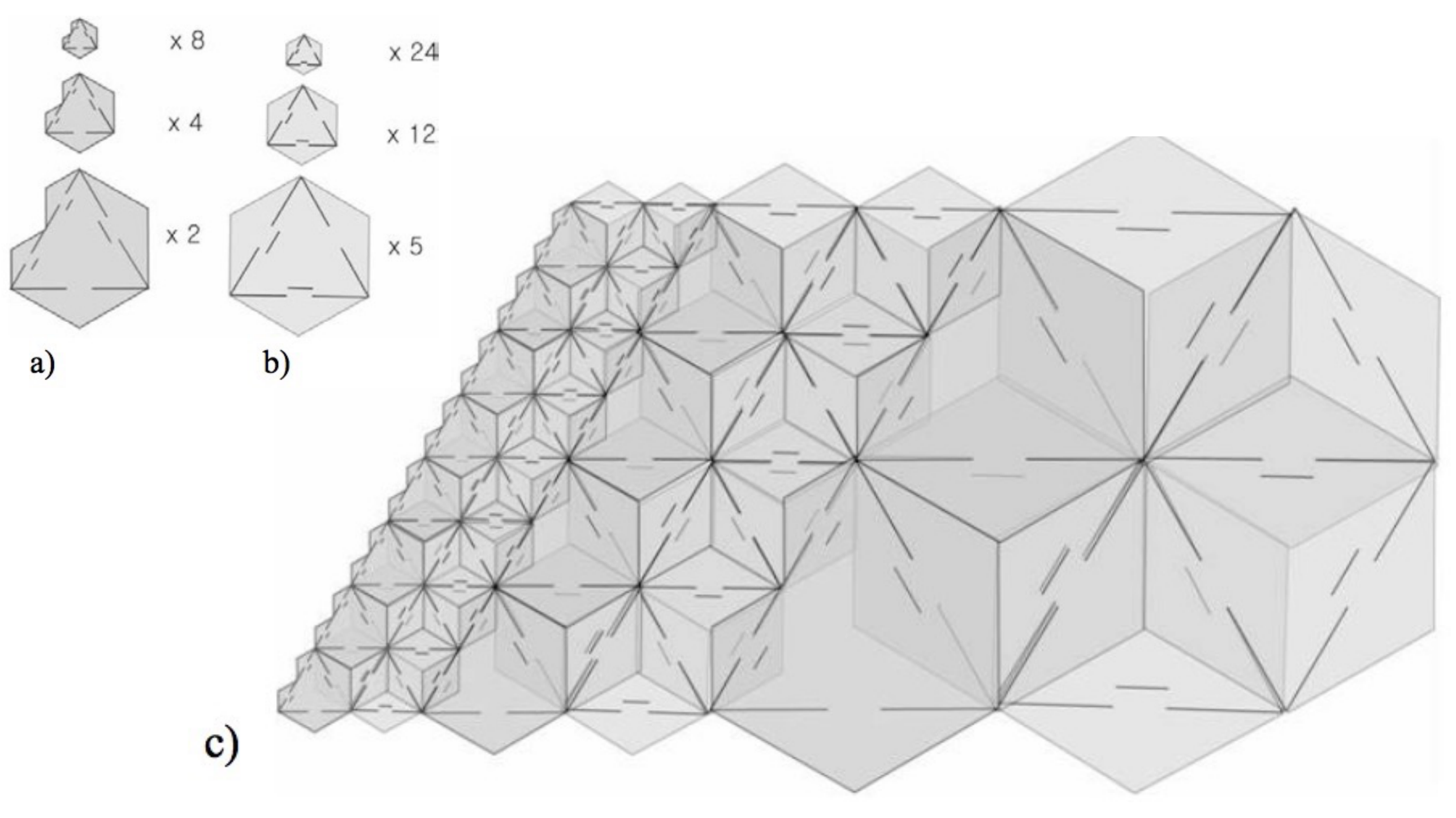
MARY ANN WILLIAMS

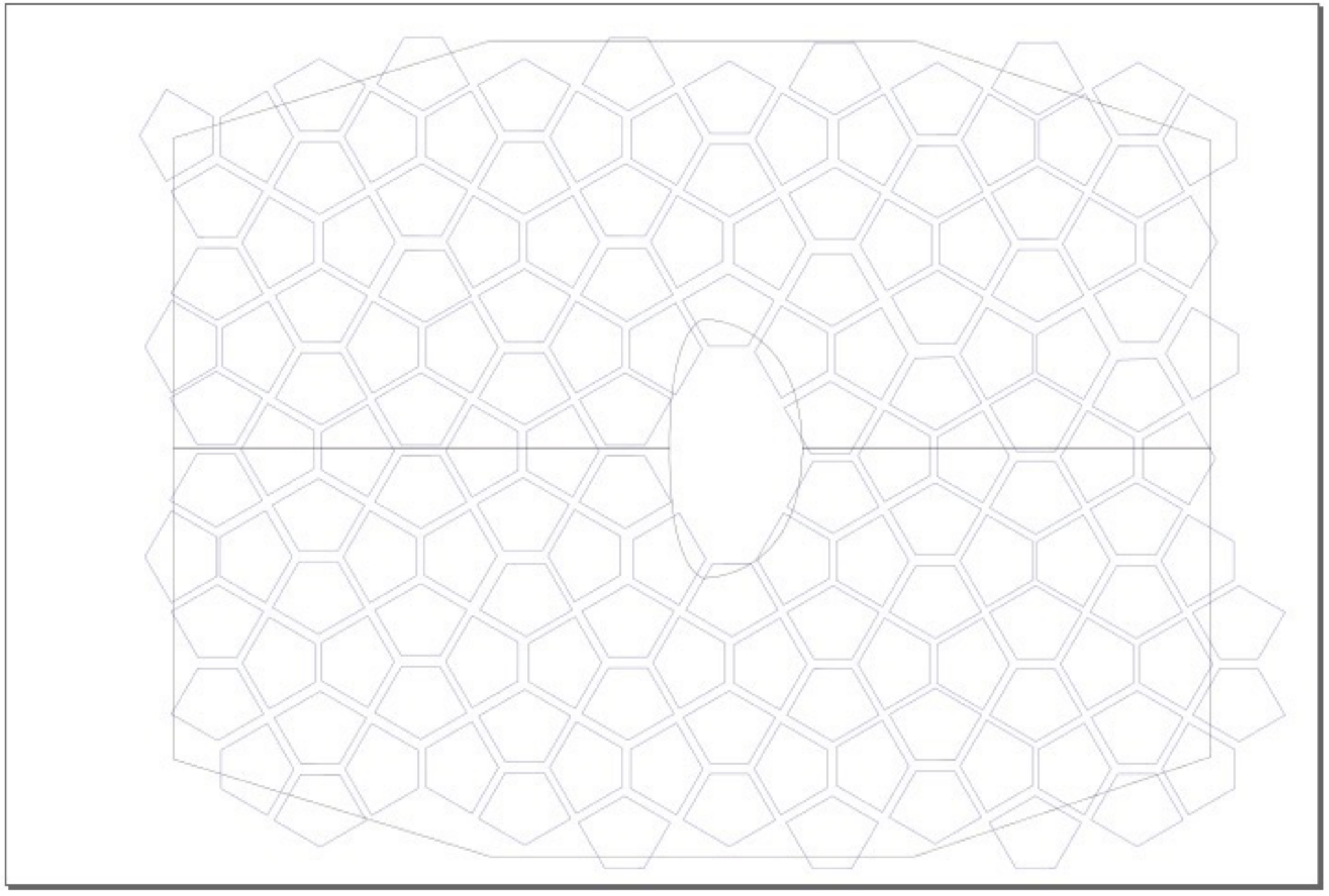
KOSUKE TSUMURA

MATIJA COP

EUNSUK HUR




x 8
x 4
x 2
a)
x 24
x 12
x 5
b)
c)



The Lasercut

Vector Design

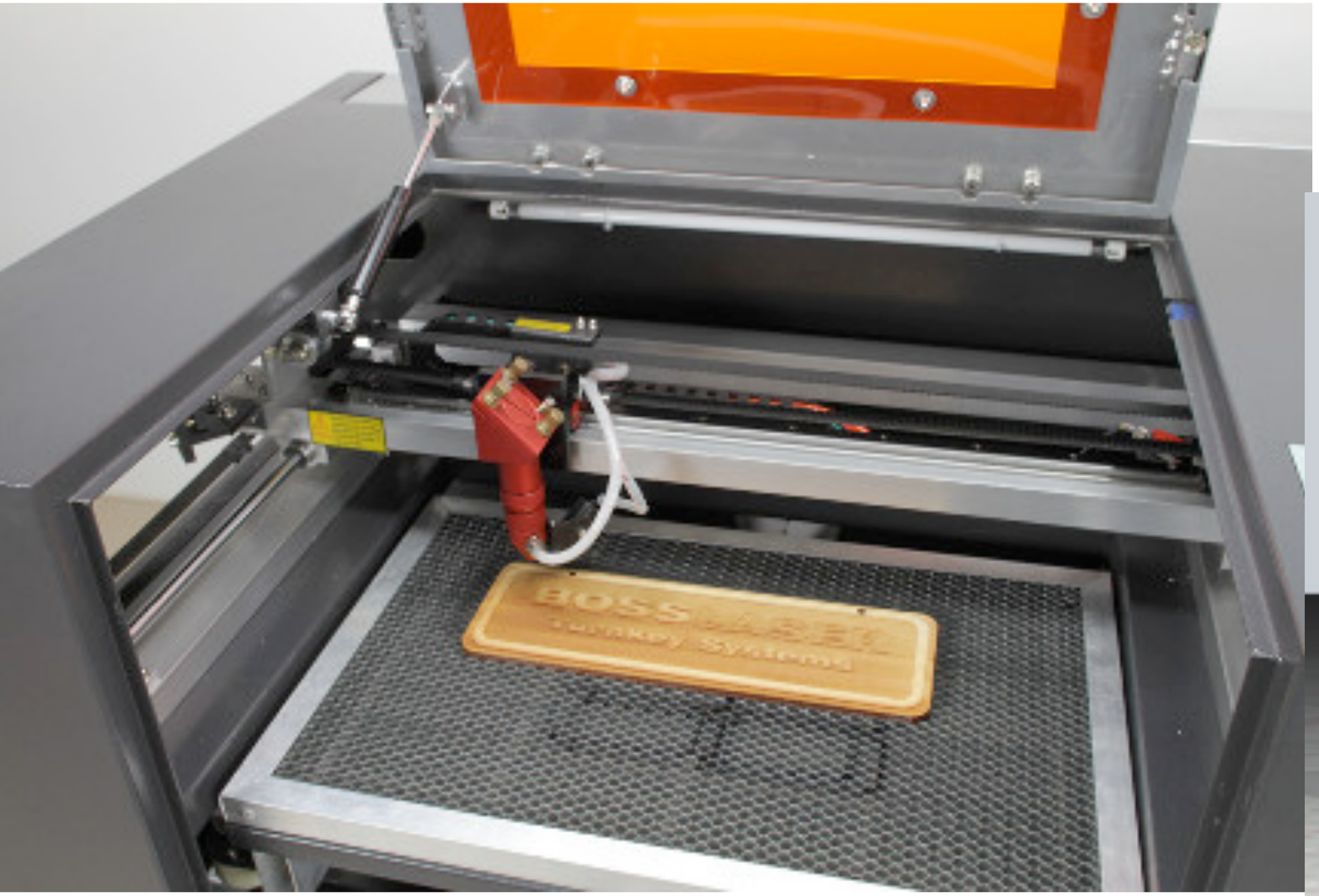
The laser works cutting **flat** materials with a laser beam.

Usually lasercuts in the **DIY** labs are from 40W to 120W to cut paper, textile, wood, plexiglass

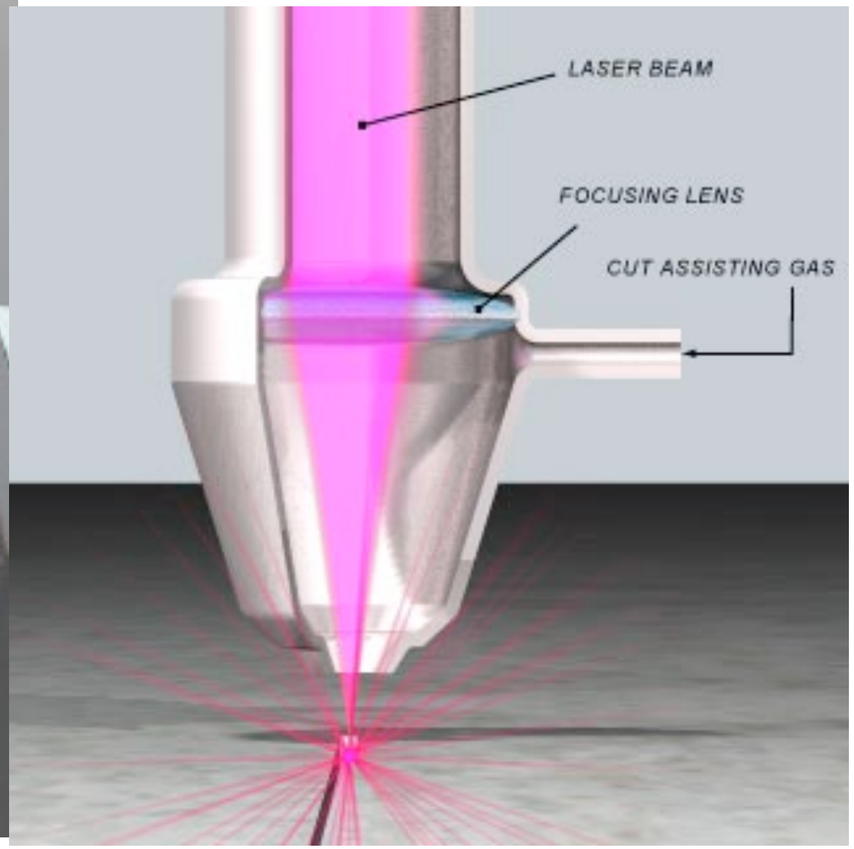
Lasercut is an **entry-level** machine for many fables: easy to learn, simple and rapid to use.

Very go machine to prototype and experiment **on-demand** production

https://www.youtube.com/watch?v=WdJ4KranBcw



How does it work?



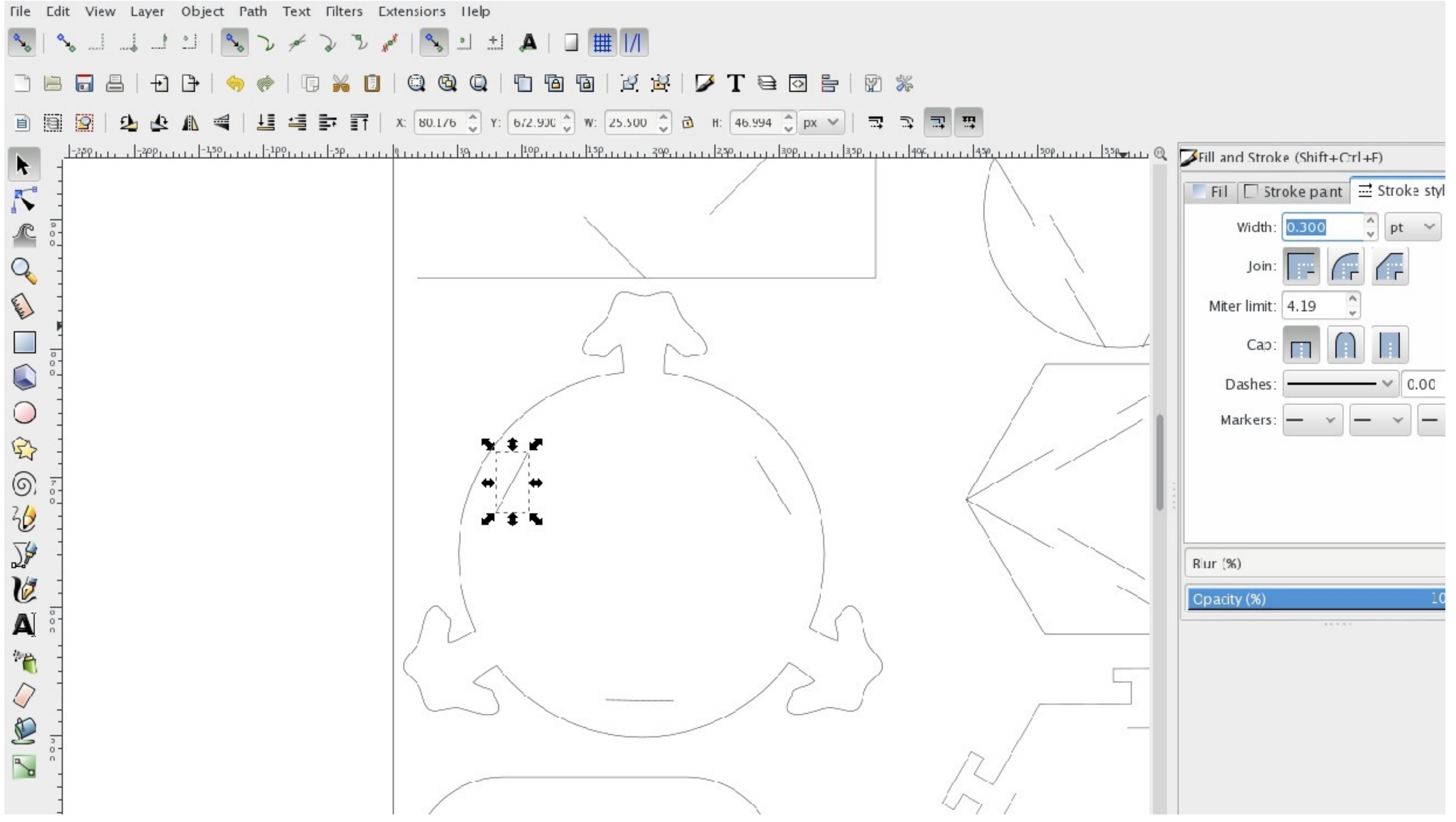
- Paper and Pencil
- Vector software
- Lasercut

Tools

- Breathe, we're not in a rush
- Start from a basic geometry (triangle, square, hexagon…)
- Design interlocking (internal or external)
- Iterate
- Start simple, then go complex
- Explore 3d options

How to proceed

Inkscape – Basic commands


File Edit View Layer Object Path Text Filters Extensions Help
Fill and Stroke (Shift+Ctrl+F)
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Stroke paint
Stroke styl
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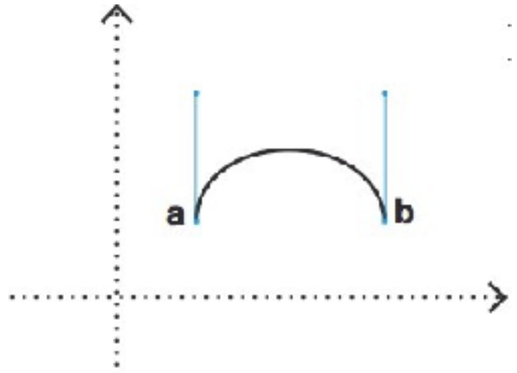
pt
Join:
Miter limit:
4.19
Cap:
Dashes:
Markers:
Blur (%)
Opacity (%)

Vector Design



Vector image

Lighter than raster, vector images are defined by equations between points. They can be enlarge as you like without altering definition and weight.

.svg (inkscape)
.dxf (autocad)
.ai (adobe illustrator) .eps (ibrido)
.pdf (ibrido)

Raster image (bitmap)

It's a grid of little square, called pixel. The resolution and weight of image depend on the quantity of pixel for every inch (ppi).

.jpeg

.gif

Useful commands

- Global settings (re-size)
- Document settings (Units, grid)
- Tools
    - Select and transform (increase size, rotate)
    - From Object to Path
    - Transform using nodes (Shift+CTRL+M)
    - Filling and stroke (size and color of stroke)
    - Make square, polygons and circles
    - Round corners
    - Boolean operations
    - Group and ungroup

Assignment

The students will have to design and fabricate a modular reconfigurable system or seamless garments. The soft connection can be designed to be implemented in the assembly of a garment, being applied on the seams or it can be designed as single elements that act as construction parts of a garment.

The whole process needs to be documented on the personal webpage.

Their task is to upload their open source file, accompanied by a manual of materials and a tutorial of how to make it and track its life throughout the whole course. Keep metrics of it while the duration of the course, use social media to share and track its spreading,.

Evaluation

Document how soft interlocking connection has been designed and fabricated

how the connection either creates a full garment or has been applied to the seams

show that the connection is well designed and holds the pull/stretch of a garment

include all downloadable files in your documentation

Visit us in Milan!

zoe@wemake.cc

THANKS!