
TEXTILES
< 3D Printed >

3D PRINT OVER TEXTILES

Apply a three-dimensional design to the surface of a fabric through the casting of a thermoplastic filament.

Textile Geometry Filament

3D PRINT OVER TEXTILES

Apply a three-dimensional design to the surface of a fabric through the casting of a thermoplastic filament.

Textile	Geometry	Filament

The success of printing depends on the interaction of these three components.

TEXTILES

Fuente: Ofival

ARTIFICIAL FIBERS

Fabrics with composition of polyamides facilitate filament adhesion.

Natural

Viscose - Rayon
Lyocell - Tencel
Modal

Synthetics

Poliester
Nylon
Elastane
Spandex (Lycra)

TEXTILES

Textil Tulle

<Rigid and elastic>

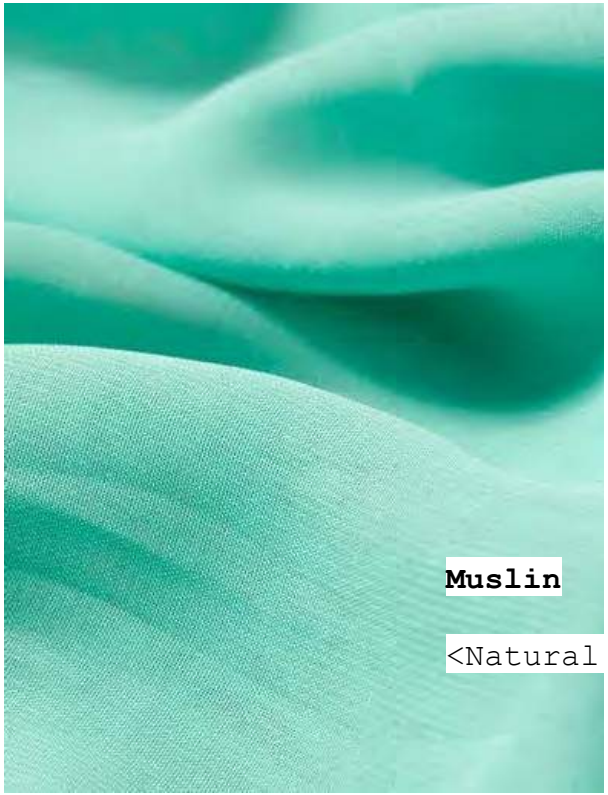
Mesh Tricot

<Nylon & Spandex>
<Sport textiles>

TEXTILES

Organza

<Thin and strenght>
<Natural Silk>



Muslin

<Natural cotton>

FILAMENTS

IMP 3D

RIGID

<Hard>
<Stability>
<Volumes>

<PLA: Geetech - eSun>

FLEXIBLE

<Adaptability>
<Softness>
<Light>

<Smartfil flex>
<TPU 95A - 82A>

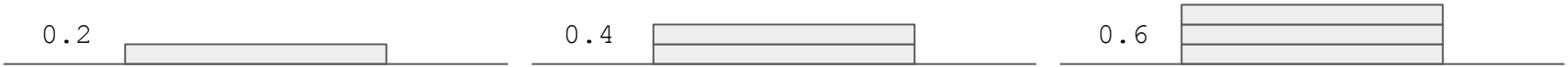
EIN.DRUK

Ana Correa

GEOMETRIES

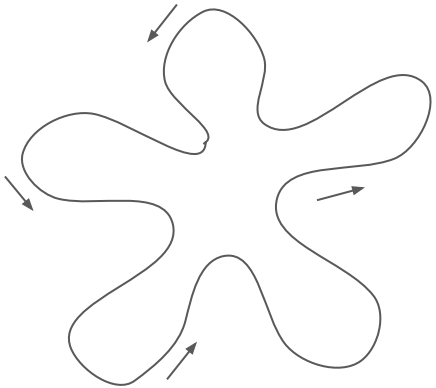
LAYER HEIGHT

Object Height must be a multiple of 0.2

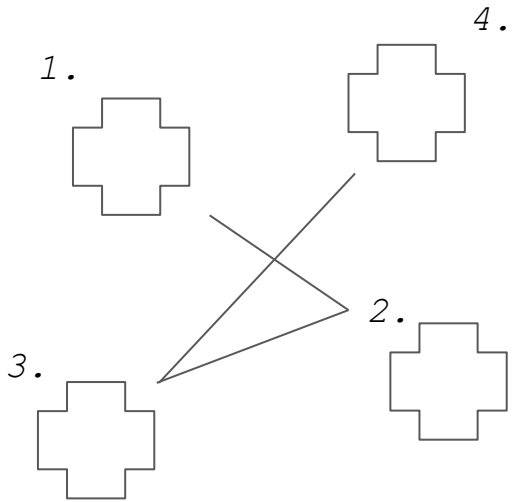


GEOMETRIES

CONTINUOUS LINES



Flexible Filaments



Rigid Filaments

*Traveling marks the textile

3D PRINT
OVER TEXTILES

Correct placement of fabric

Calibrate the Build plate

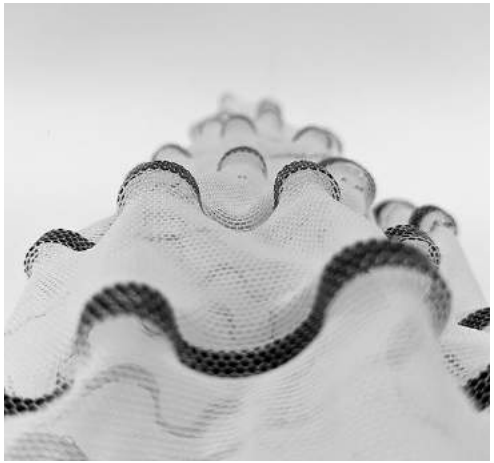
Print Speed: 35mmm/s

Correct T and avoid retractions

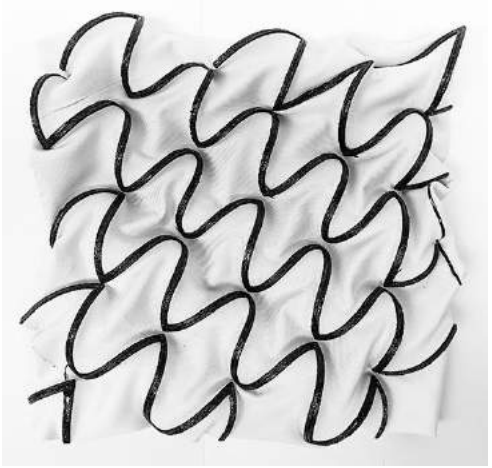
ERRORS

GEOMETRIES

STRETCHABLE FABRICS



< Short heights = small and continuous waves >



< Medium heights = homogeneous and long waves >

< Big heights = waves broad and sinusoidal >

GEOMETRIES

STRETCHABLE FABRICS

Pattern Design

Wide lines = Sinusoids

GEOMETRIES < TEXTURES >

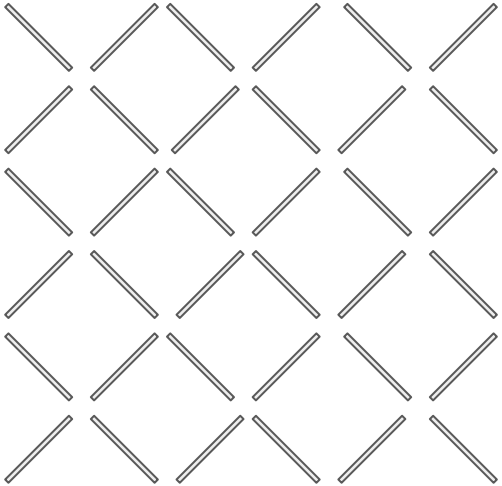
STRETCHABLE FABRICS

GEOMETRIES < TEXTURES >

STRETCHABLE FABRICS

The textures are generated due to the **different tensions** in the textile created **between the spaces with deposited filament and those without**. It is key to study the flexibility of the fabric before placing it in the machine.

Pattern Design

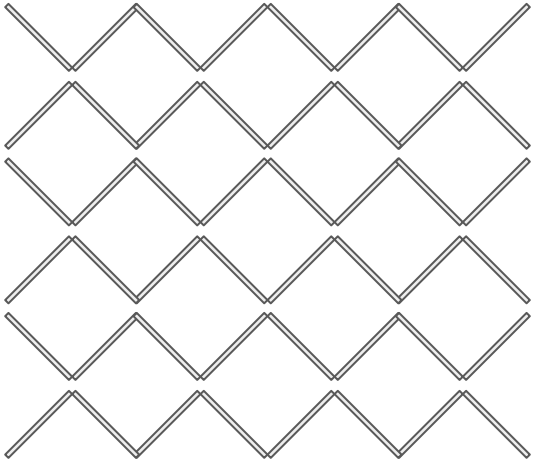


Short lines = Sinusoids

GEOMETRIES < TEXTURES >

STRETCHABLE FABRICS

Tensions between wide and short spaces are interpreted as **valleys and mountains,** resulting in **textures once the fabric returns to its natural state.**



Pattern Design

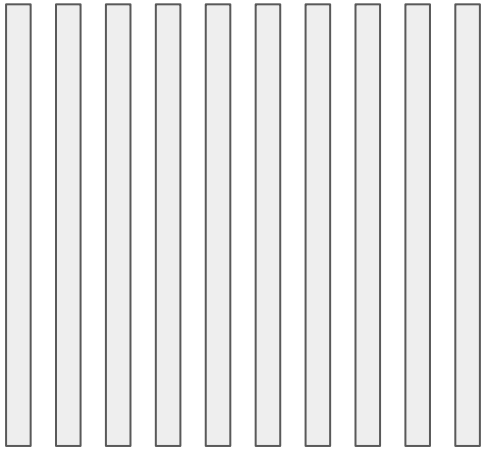
Short lines = Sinusoids

Photography by Ana Correa

GEOMETRIES < TEXTURES >

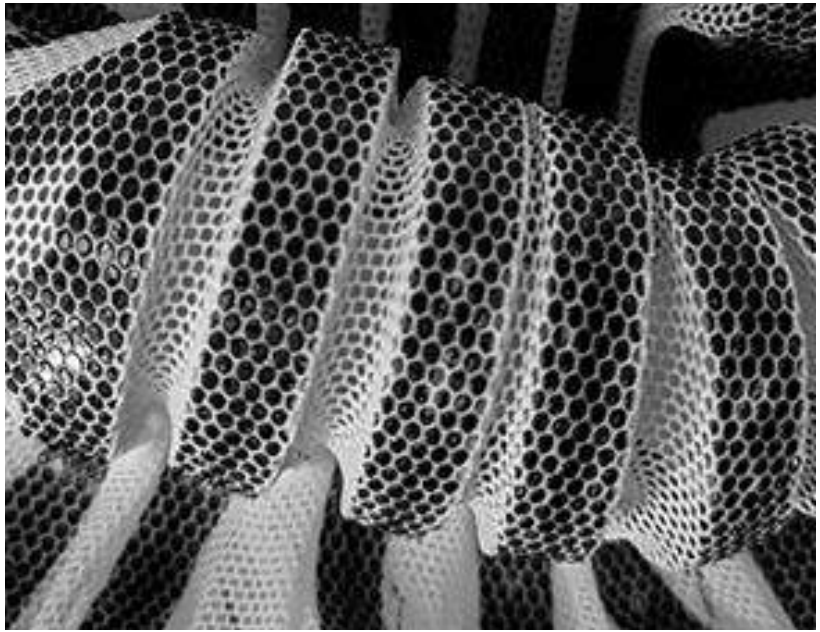
STRETCHABLE FABRICS

By expanding the textile, the fibers **maintain their expansion** in the printing area and **contract** in the absent areas of filament



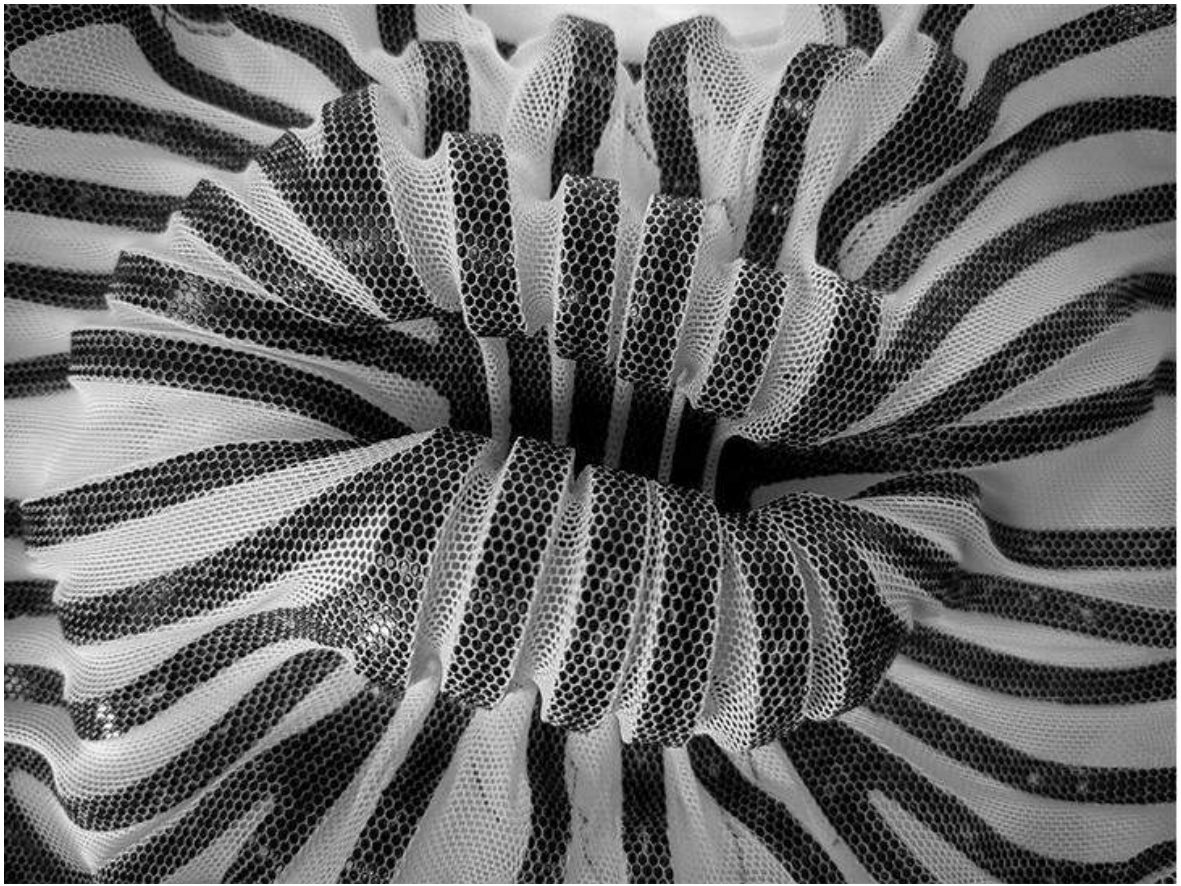
Pattern Design

Wide lines = pleats



GEOMETRIES < TEXTURES >

STRETCHABLE FABRICS



Pattern
Design

Wide lines = pleats

GEOMETRIES < TEXTURES >

STRETCHABLE FABRICS

Drag and Drop
DESIGN MORPHINE

GEOMETRIES

STRETCHABLE FABRICS

Drag and Drop
DESIGN MORPHINE

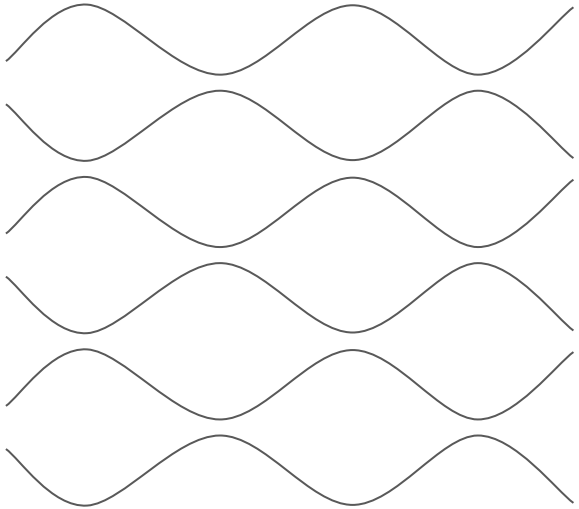
GEOMETRIES < TEXTURES >

STRETCHABLE FABRICS

Flor de la Exploración
ANA CORREA

GEOMETRIES < TEXTURES >

STRETCHABLE FABRICS



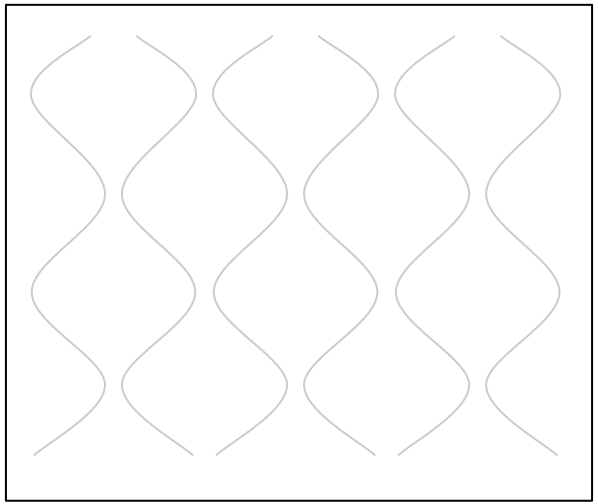
Pattern Design

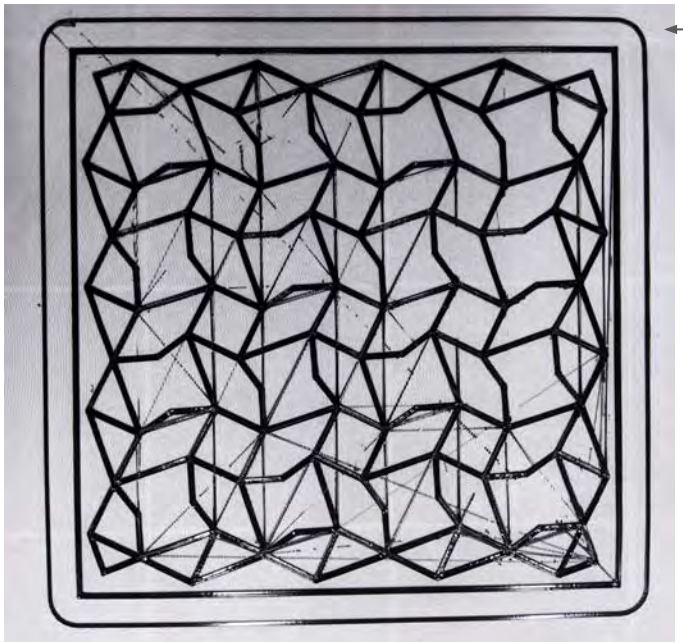
Wide lines = pleats

GEOMETRIES < TEXTURES >

STRETCHABLE FABRICS

Building a frame around the print area preserves the textures
on the fabric after cutting the textile with a garment pattern





SKIRT

Keeps the tension area

GEOMETRIES < TEXTURES >

STRETCHABLE FABRICS

REFERENCE

[Impresión 3D sobre textiles - Mecanismos dinámicos - Laboratorio Biomimético]

ZER COLLECTION

GEOMETRIES < VOLUMES >

SANDWICH TECHNIQUE

<Adaptability through patterns
with separate designs>

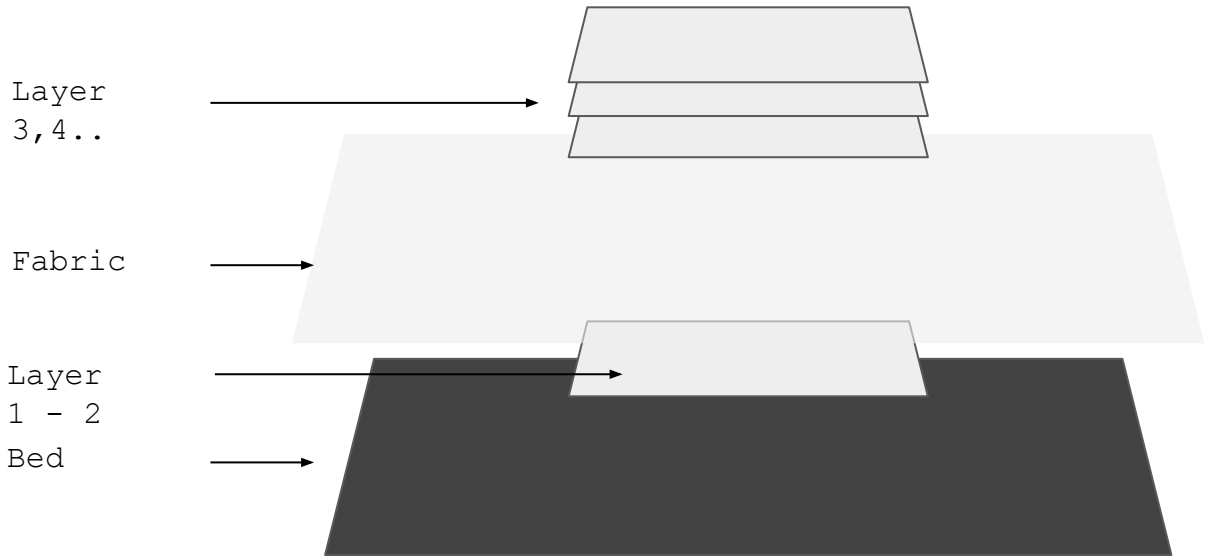
<Add weight to fabric>

Photography by GEETECH

SÁNDWICH

TÉCNICAS < SÁNDWICH >

Tejidos rígidos + Filamento rígido
IMP 3D

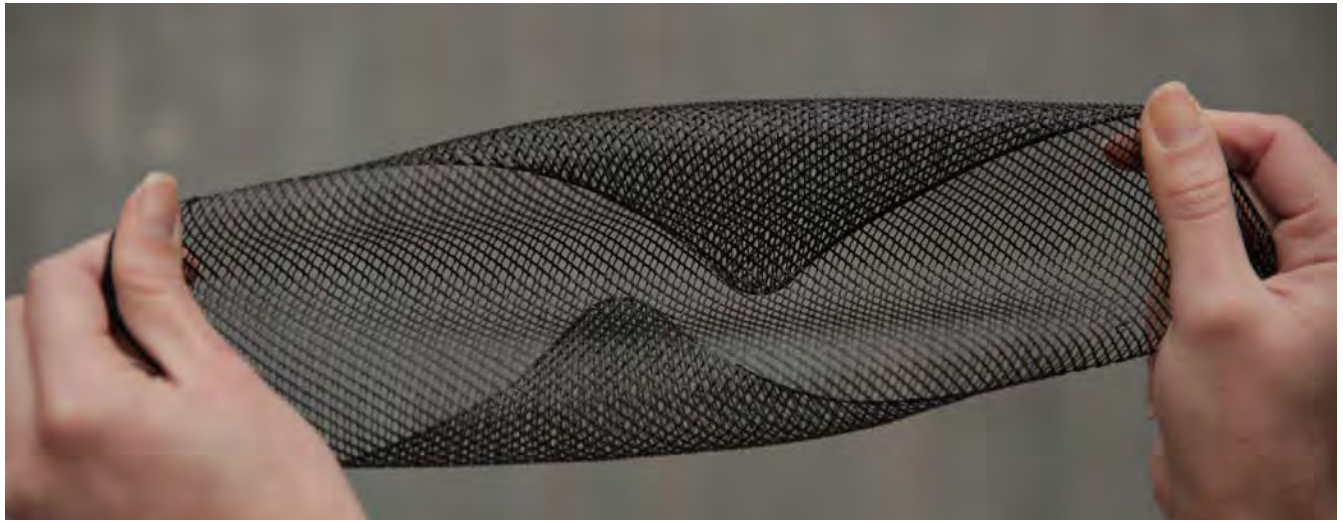


*The textile must be a mesh

3D PRINTED TEXTILES

FLEXIBLE FILAMENT

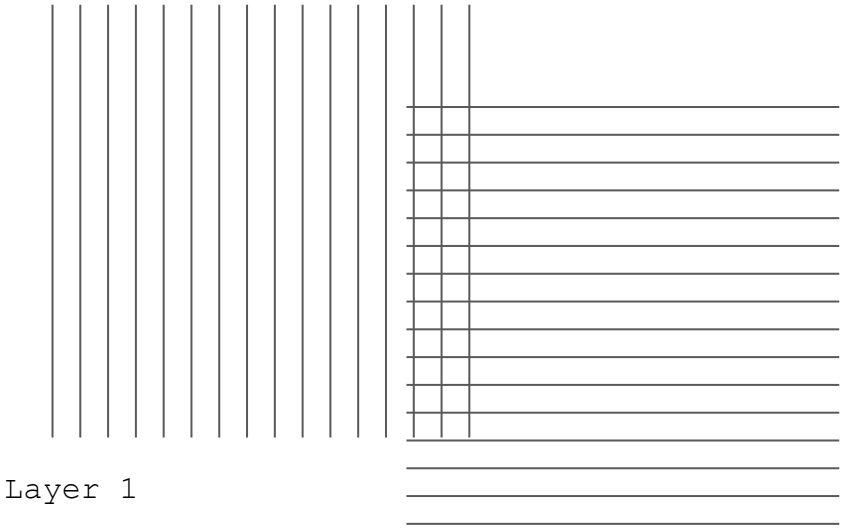
3D Printed textiles are geometries designed with the union of filament threads with the mechanical properties simulating conventional fibers.



3D PRINTED TEXTILES

FLEXIBLE FILAMENT

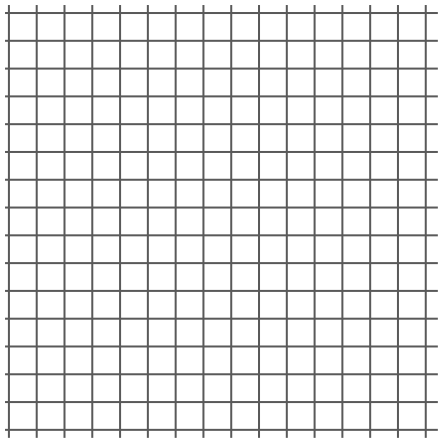
The key in the design of 3D printing textiles is the creation of patterns with **lines perpendicular** to each other, creating meshes of different thicknesses and sizes.



Layer 1

Layer 2

Result

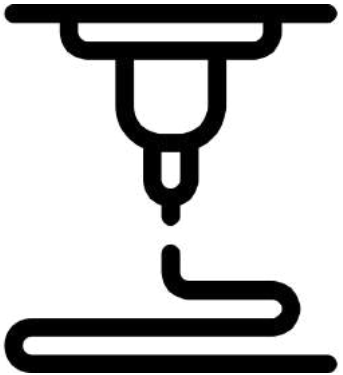


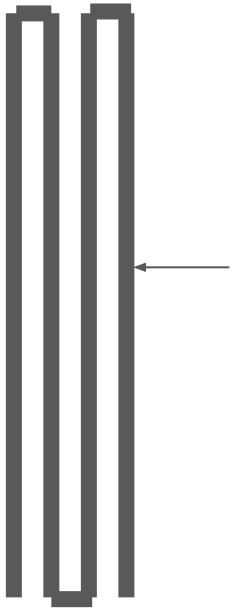
3D PRINTED TEXTILES

FLEXIBLE FILAMENT

NOZZLE DIAMETER

0.4
0.6
☆ ***0.8***





0.7
1.1
1.7

3D PRINTED TEXTILES

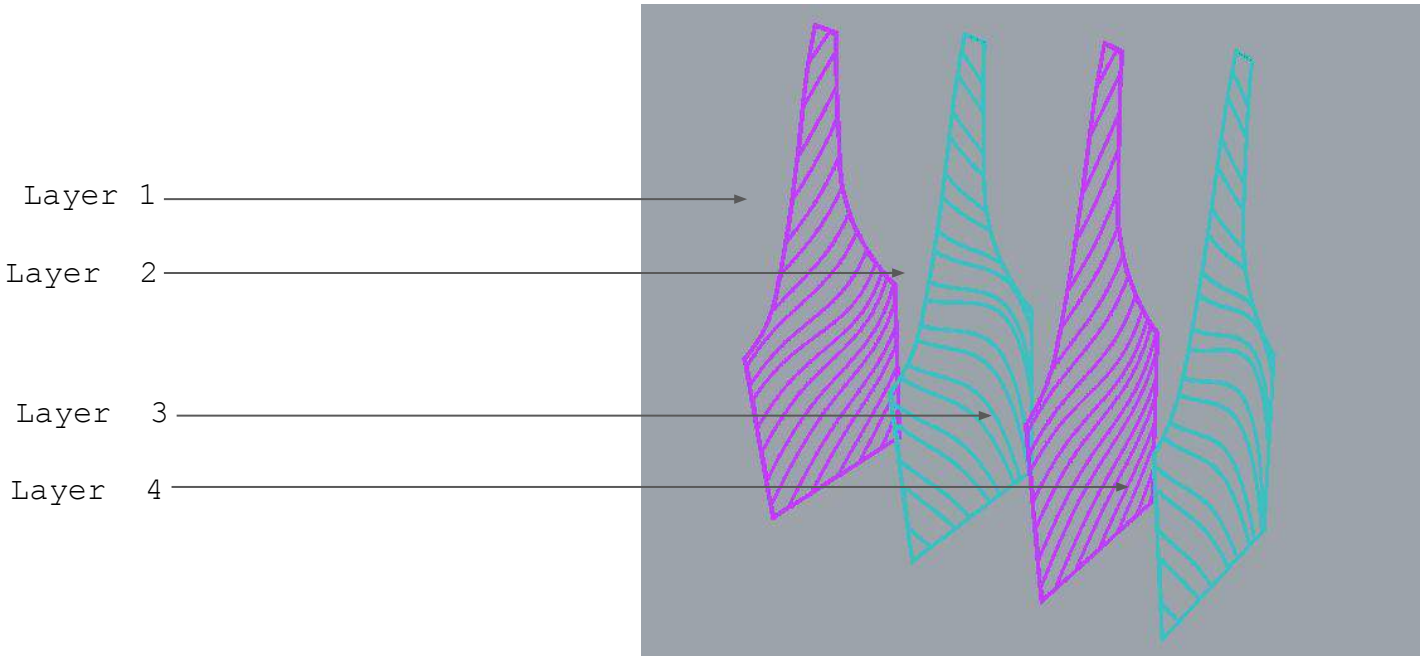
FLEXIBLE FILAMENT

Digital Pattern: CLO

Textil Design

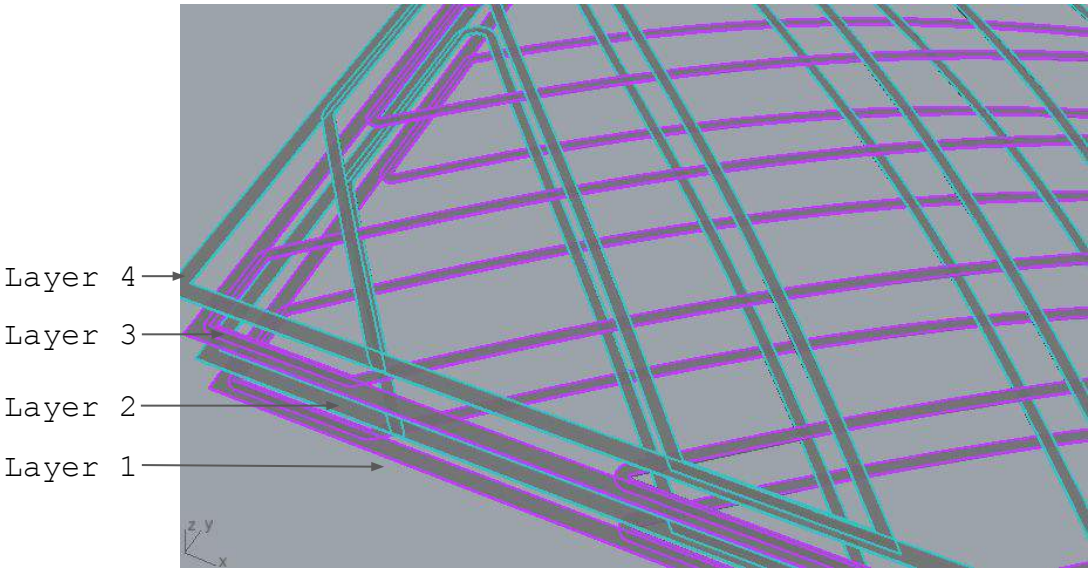
3D PRINTED TEXTILES

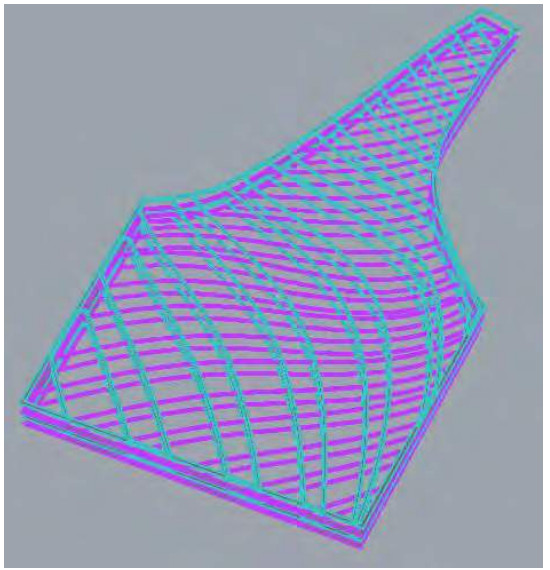
FLEXIBLE FILAMENT



3D PRINTED TEXTILES

FLEXIBLE FILAMENT





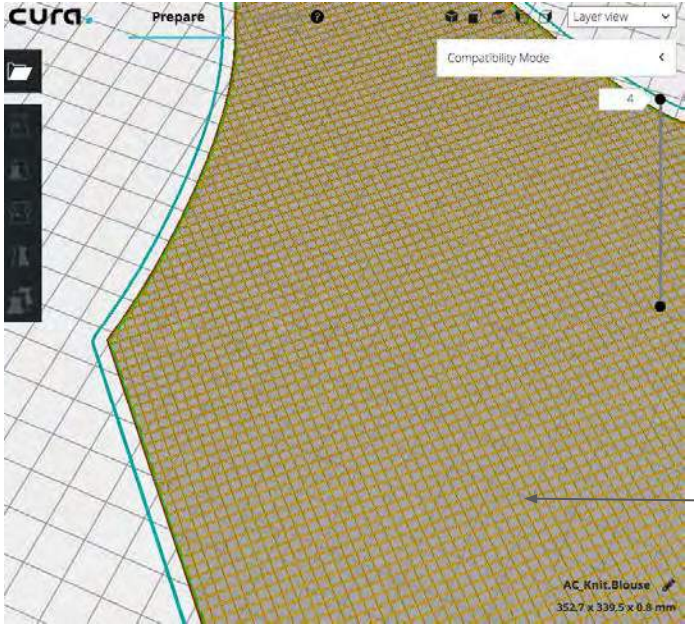
DANIT PELEG

3D PRINTED TEXTILES

FLEXIBLE FILAMENT

Pattern

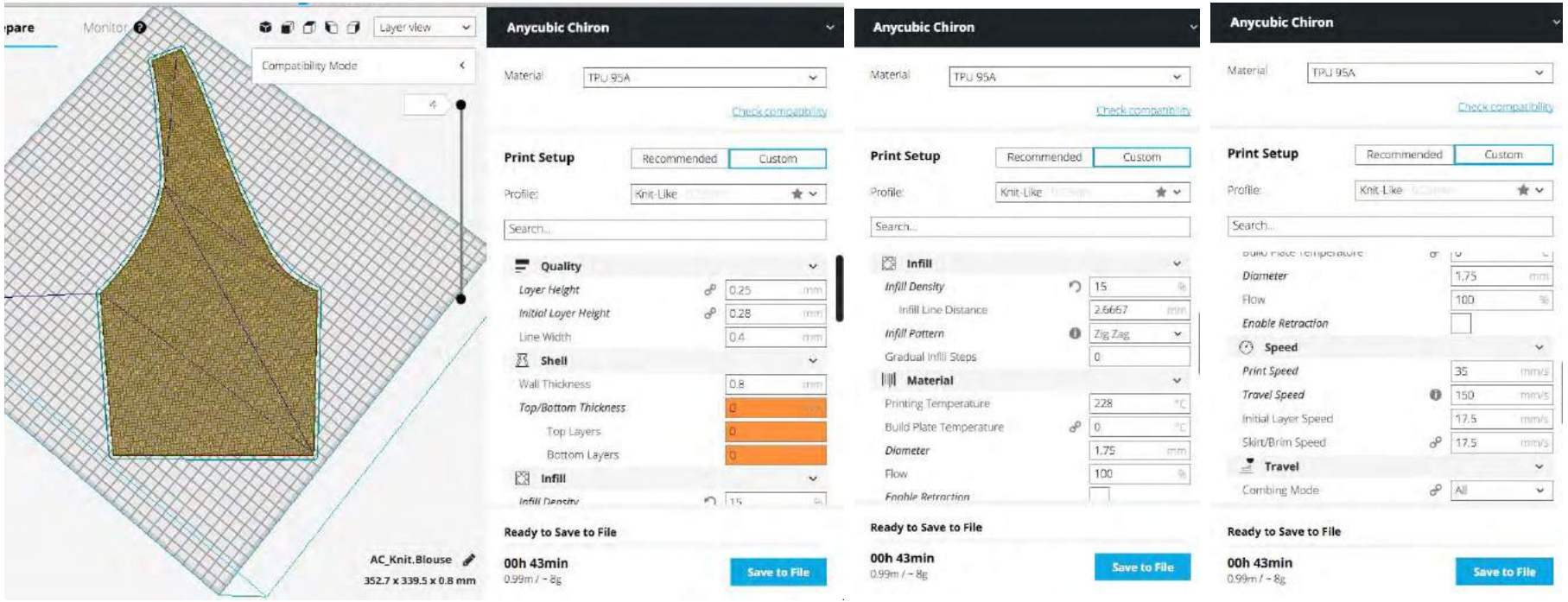
Knit.Blouse.stl



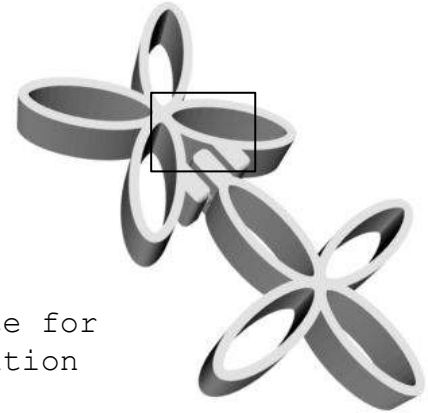
Cura

3D PRINTED TEXTILES

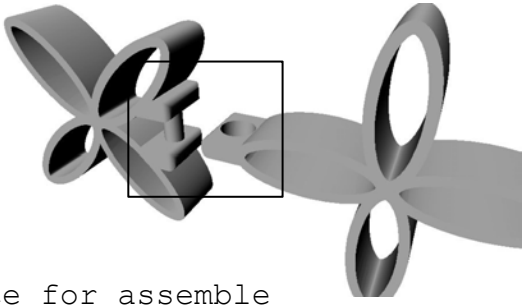
FLEXIBLE FILAMENT



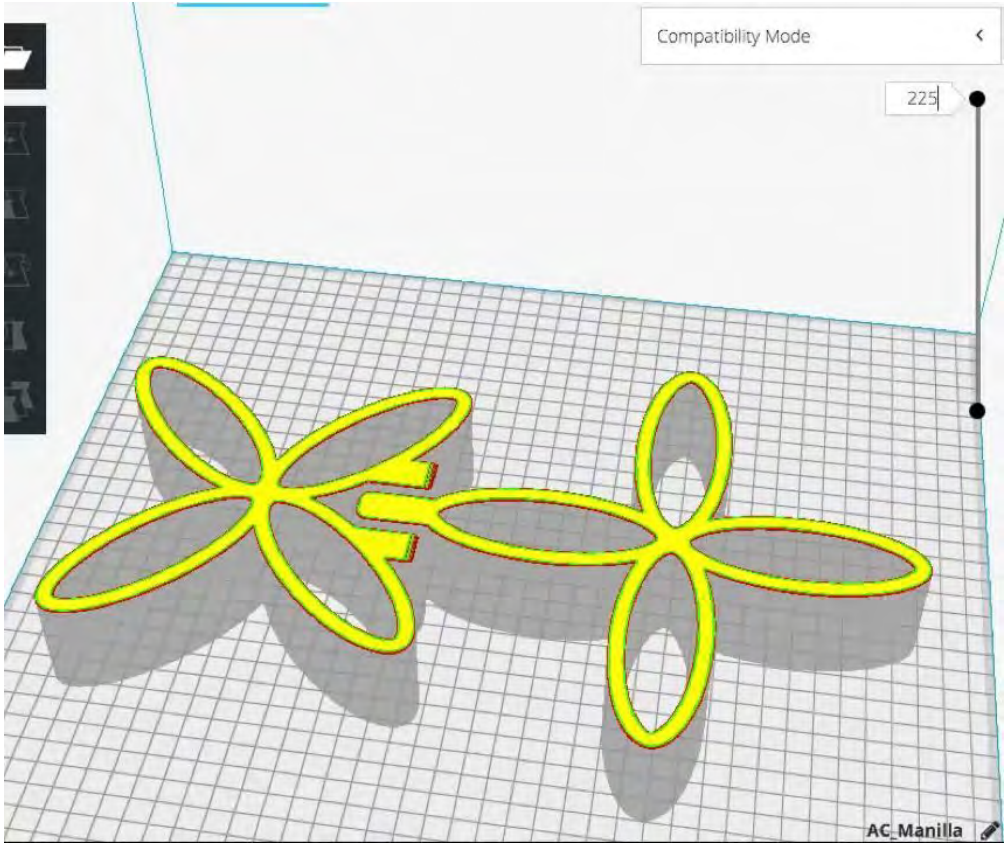
3D TEXTILES



Space for rotation



Space for assemble



3D PRINTED TEXTILES

RIGID FILAMENT

Nervous System

1.600
Pieces
Nylon


< THANK YOU >