



**Francesca Malventi: Manipulation of a fabric**

## **Manipulation of a fabric**

**“To fold is to give strength to the matter: the act of crumpling up sheets of paper seemed the most convincing example to make the concept of fold and how to this “act of composition” allows for the creation of a new urban space that is raised from the original soil, digs the ground and the territory, making ridges and folds emerge “**

**Gilles Deleuze**

**Synthetic fabrics account for 70% of the global fiber market, and this percentage has been growing significantly in recent years.**

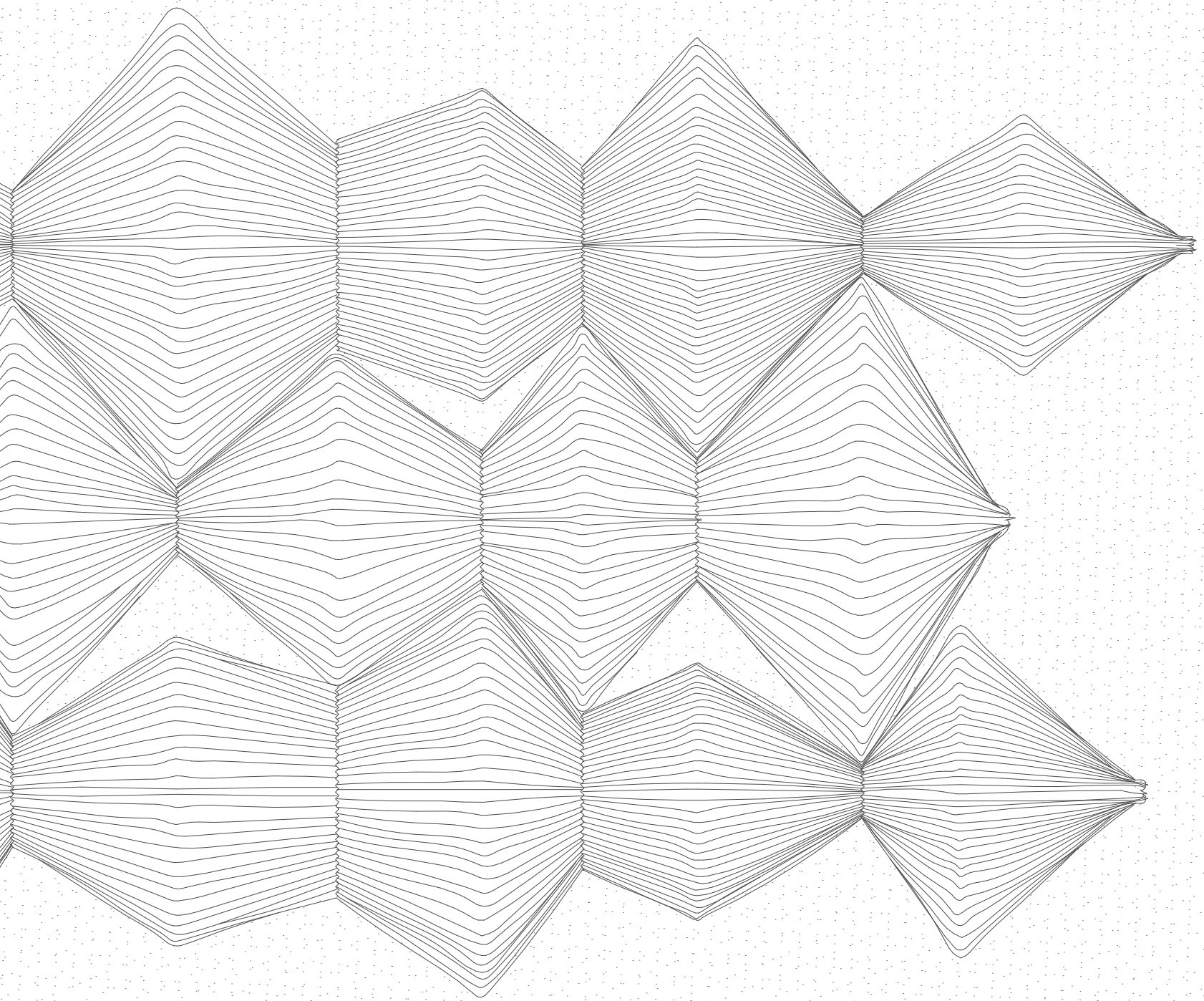
**After studying the properties and parameters that characterize the various types of fabrics, I tried to apply the several tailoring techniques, the art of folding and pleating to synthetic fabrics. Starting from the Japanese origami technique up to contemporary design Issey Miyake and his experimentation in, the relation between body and cloth, the project is trying to give to the fabric rigidity through the use of the fold, let the fabric become independent from its primary supports in volume and shape.**

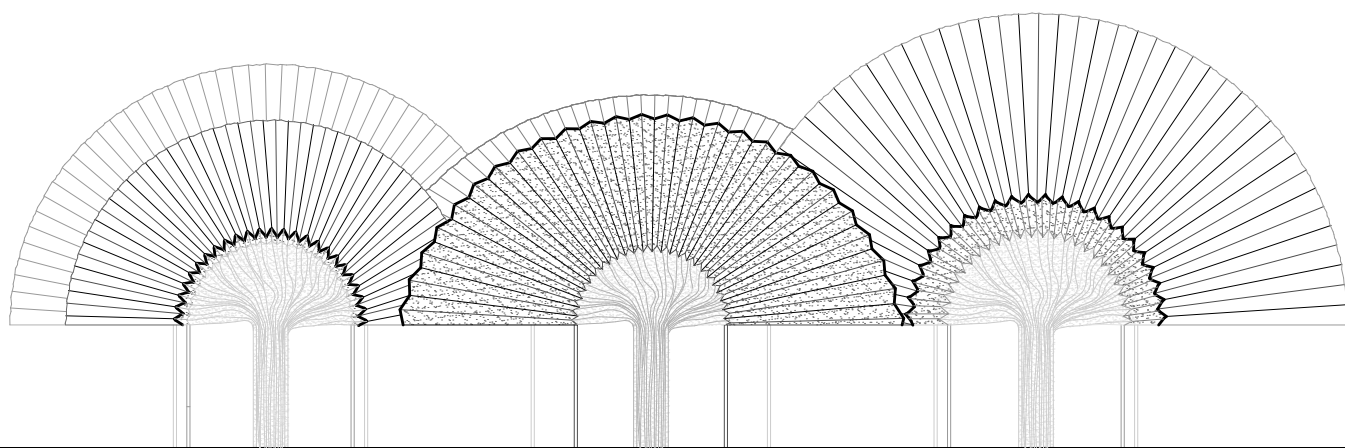
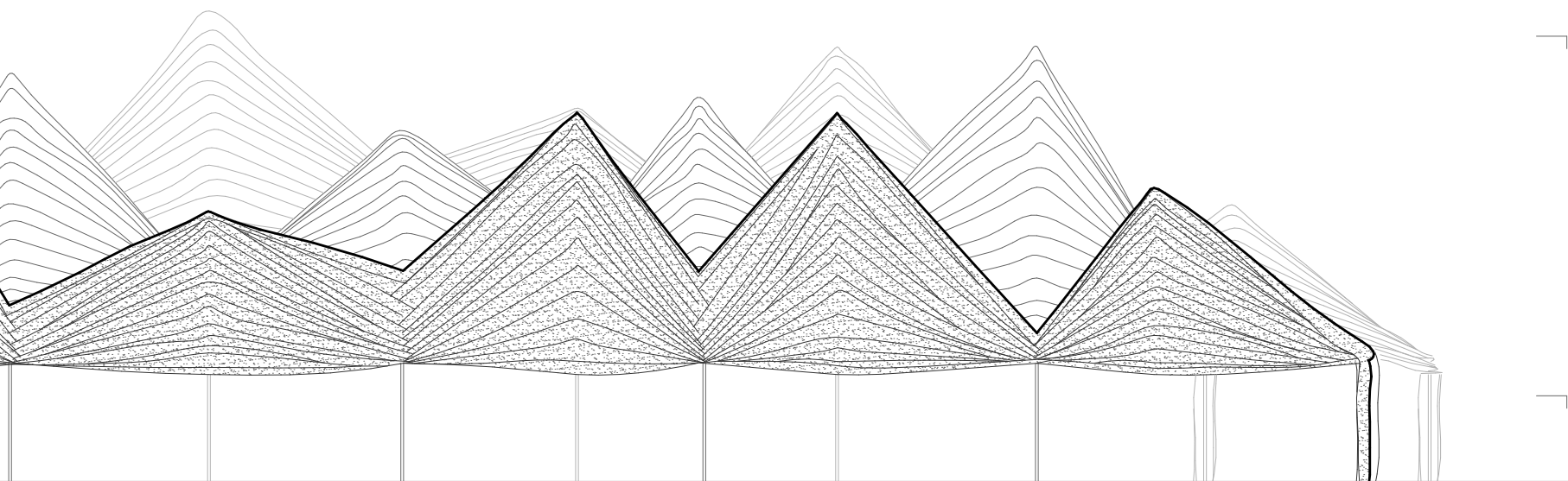
**Polyester yarns are obtained by melt spinning from a polymeric melt at 265 C. They are a thermoplastic material so if the fiber is, cooled down quickly, the structure is frozen, but this effect can be reversed by elevated temperatures.**

**Using the handcrafted method for the creation of the plisse, where the fabric is pressed between two molds and subjected to a steam bath for 24 hours, the synthetic fabric, unlike natural fibers, is permanently and solidly folded. Each filament is steamed and once cooled and molded.**

**The result of this manipulation, of this contraction and expansion of the material is**

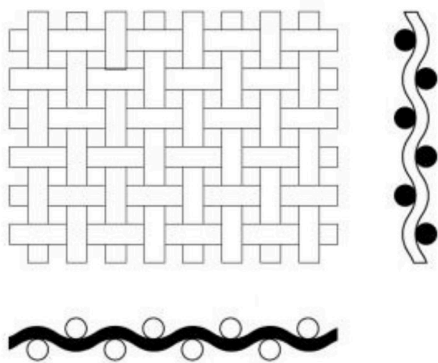
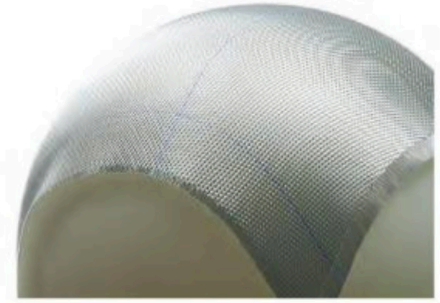
**a landscape of roofs that combined together create a space of shade for the city, a meeting point. A light roof structure that finds its rigidity through its shape: a contemporary reinterpretation of the nomadic tent in the Anthropocene era , with its temporality and quickness in construction.**



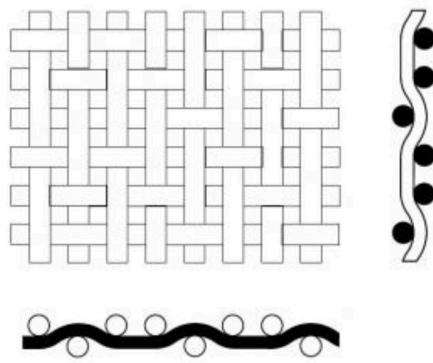


## MATERIAL PROPERTIES STUDIES OF A FABRIC

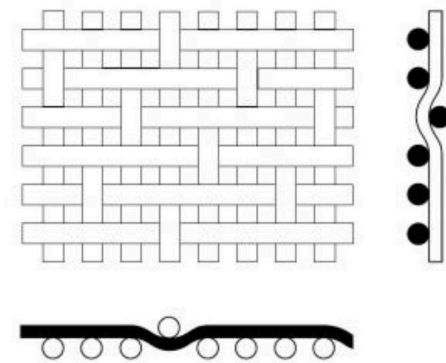
Base fabrics used in textile are generally woven. In the weaving process, weft yarns are inserted between two layers of warp yarns at an angle of 90 to the warp yarns. Due to the structure of the weave, we can differentiate between various fabric types, determining draping properties and rigidity.



A



B



C

A Plain Weave

B Twill Weave

C Atlas Weave

### PARAMETERS:

Type of weave

Weaviness( weave pattern )

Weight per unit area (g/m<sup>2</sup>)

### WEIGHT:

Weft and warp and thread resistance values

Tear resistance values of the fabric

Density of the fabric (expressed in n ° of threads / cm)

### MATERIAL

**MICROPERFORATED  
POLYESTER MEMBRANE  
( Polyethylene terephthalate - PET )**

### CHARACTERISTICS:

Yarn: 2x PES 1100Dtex

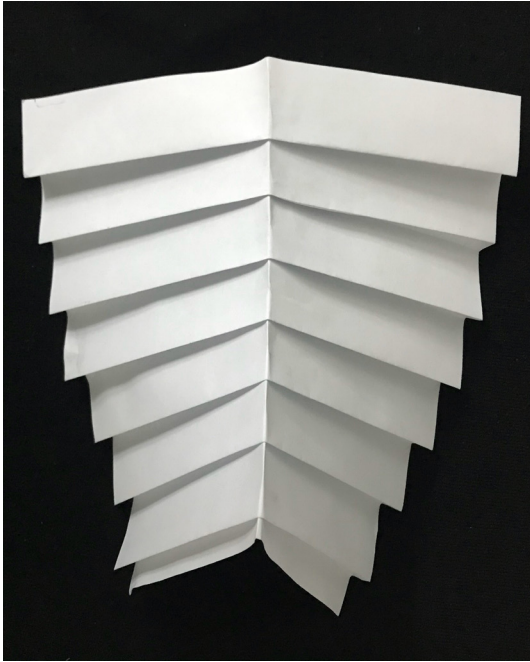
Weight: 850 g/sqm

Thickness: 0.72 mm

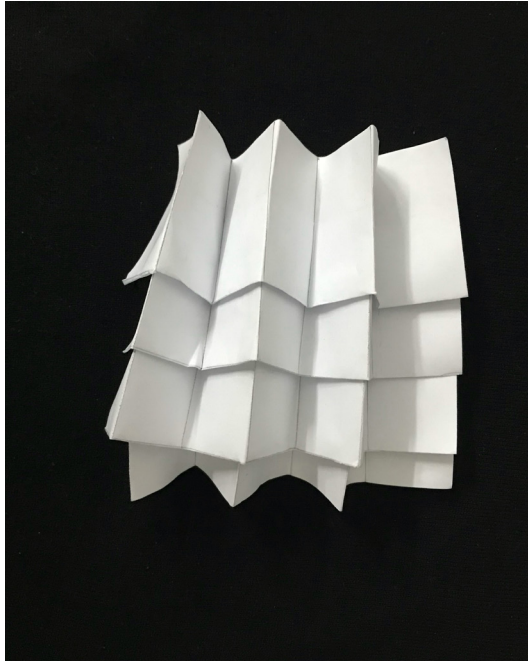
Width: 350cm

Tensile strength: 420/400  
N/5cm

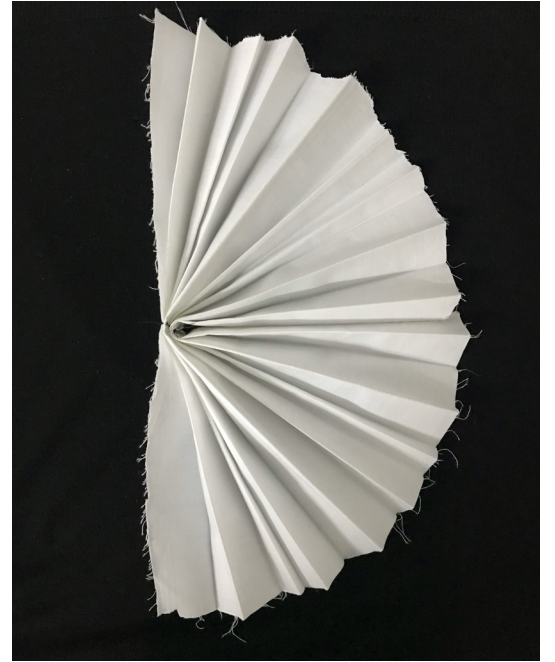
## SIMULATION OF PLEATS ON PAPER



**Gathering pleat**



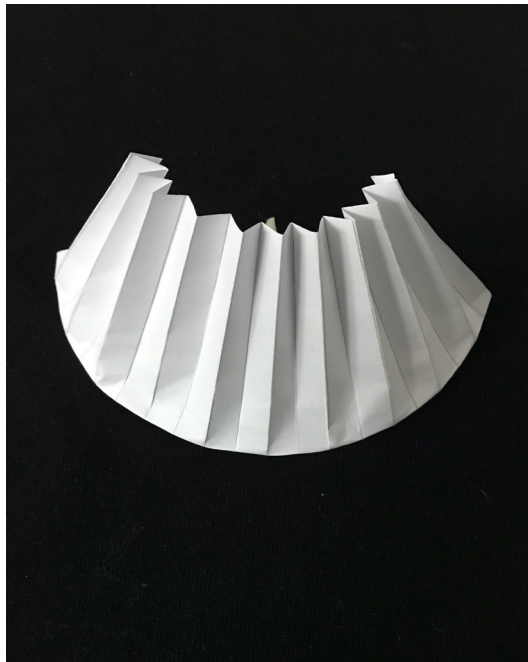
**Accordion Across Knife**



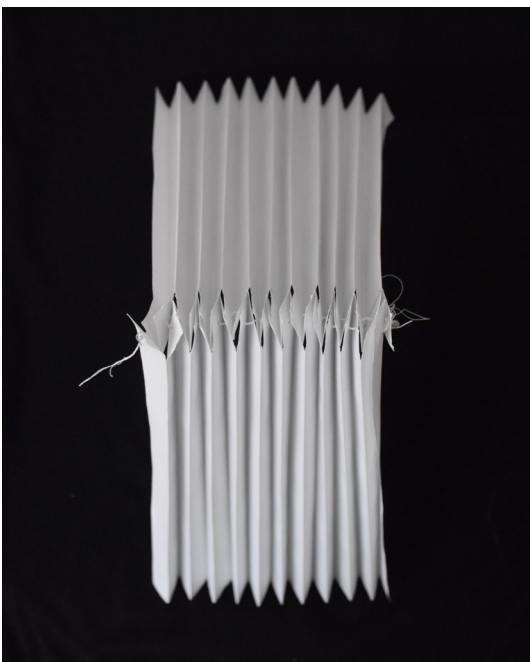
**Roundish Knife Pleat**



**Crimp 1**



**Crimp 2**



**Sliding Joint**



**Internal view**