

A close-up photograph of green bamboo leaves, showing their characteristic overlapping, geometric pattern. The leaves are a vibrant green color and are arranged in a way that creates a series of sharp, triangular shapes. The lighting is soft, highlighting the texture of the leaves.

ALIVE ARCHITECTURE

生きている建築

STUDIO SAMIRA BOON

"A journey of a thousand miles begins with a single step."

– *Lao Tzu*

千里之行, 始於足下

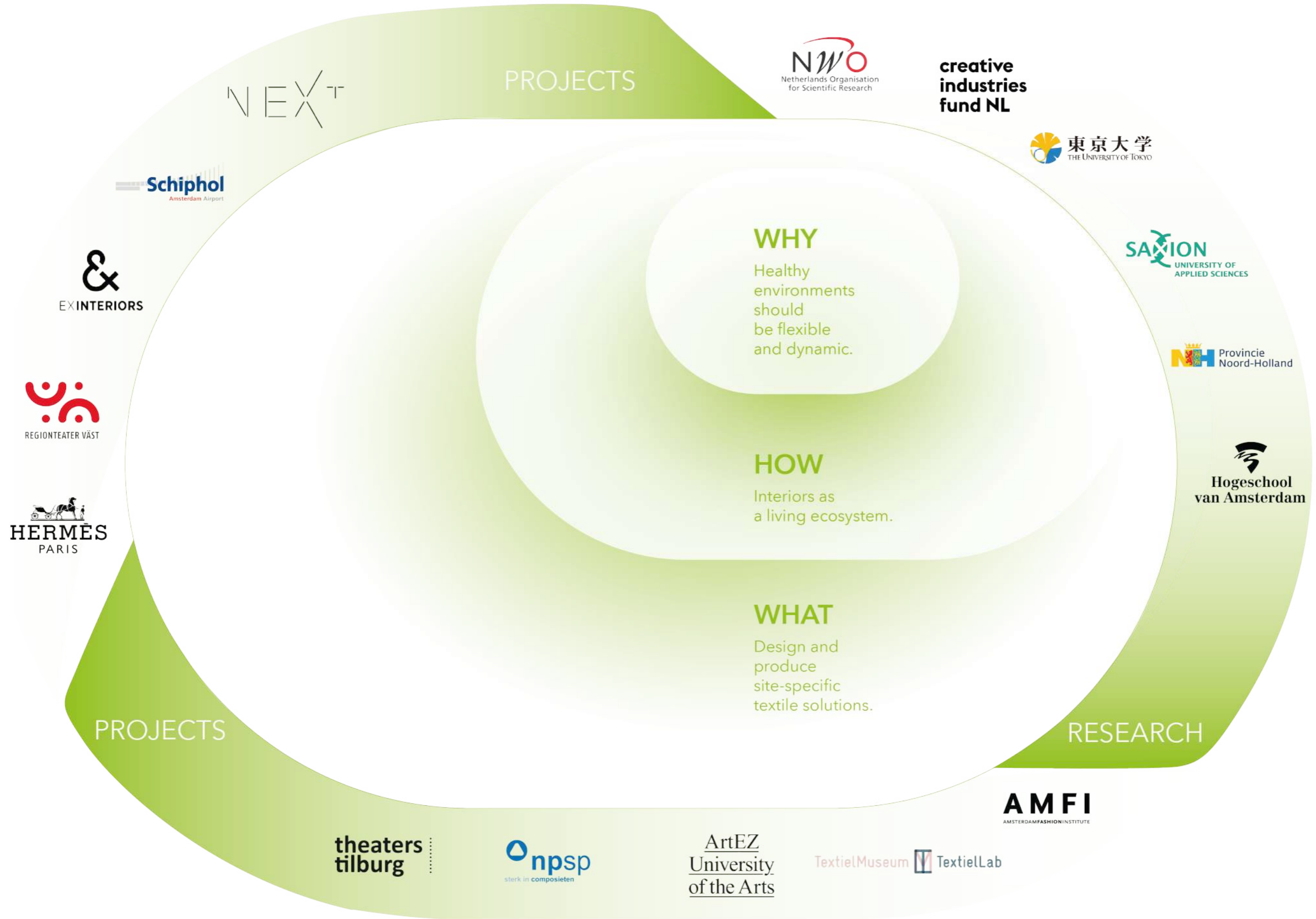
– 老子

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NATURE QUALITIES TO IMPLEMENT







ALIVE

"Architecture as a living ecosystem."

This is an important aspect that runs like a red thread through Samira Boon's work. An architecture that is sustainable, future-proof, adaptive, flexible, and interactive. Just like nature. It is the plasticity and constant movement that makes our ecosystem so intriguing. Taking this as a point of departure, Samira Boon develops dynamic textile installations that strongly refer to natural processes and organisms. The designs can adapt to the needs of the users and play upon the experience of the space.

Image page 8: ARCHI FOLDS. Photography: Josefiëna Eikenaar. **Page 9:** Moon Flower (*Ipomoea alba*). This flower opens at dawn and closes at dusk.

Page 10-11: the installation Caterpillar, in collaboration with NEXT architects for Theatres Tilburg, can adapt its shape like a caterpillar to make the large concert hall also suitable for smaller, more intimate events. When the lights are dimmed the structure reveals a unique pattern of glow-in-the-dark yarn. Photography: davidfotografie.



TSURU BRIGHTON COLLEGE

'Tsuru' is designed for the central atrium of the Performing Arts Centre of Brighton College, UK. This acoustic textile art installation grows ivy-like on the large theatre box walls, both bringing nature into the building, as well as adding important acoustics properties in the heart of it. In geometric facets of various shades of green, Tsuru spreads itself in multiple landscapes, covering an area over 100 square metres up to 30 metres above ground level, making it one of the most complex art installations ever developed by Studio Samira Boon.

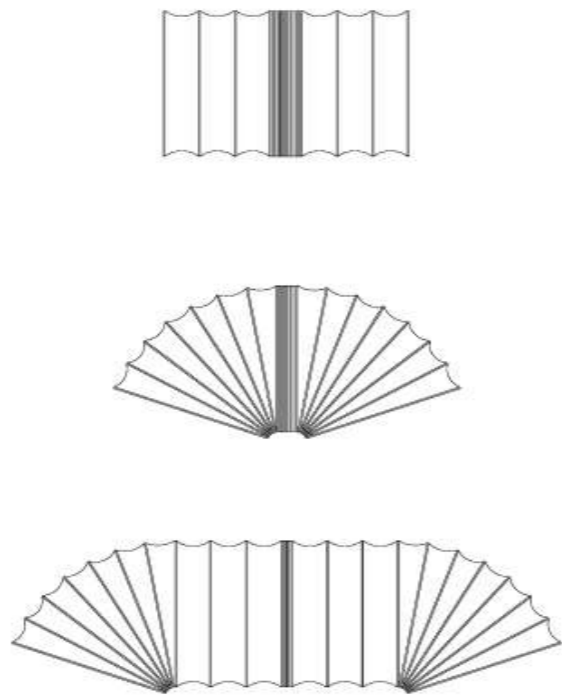
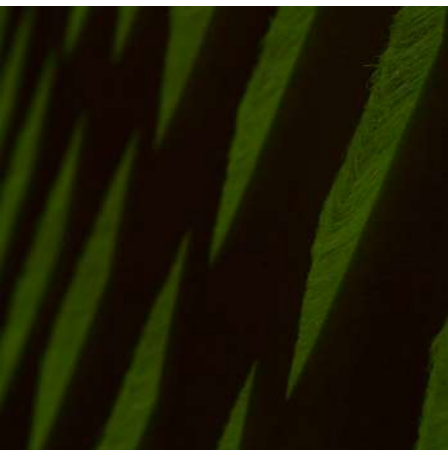
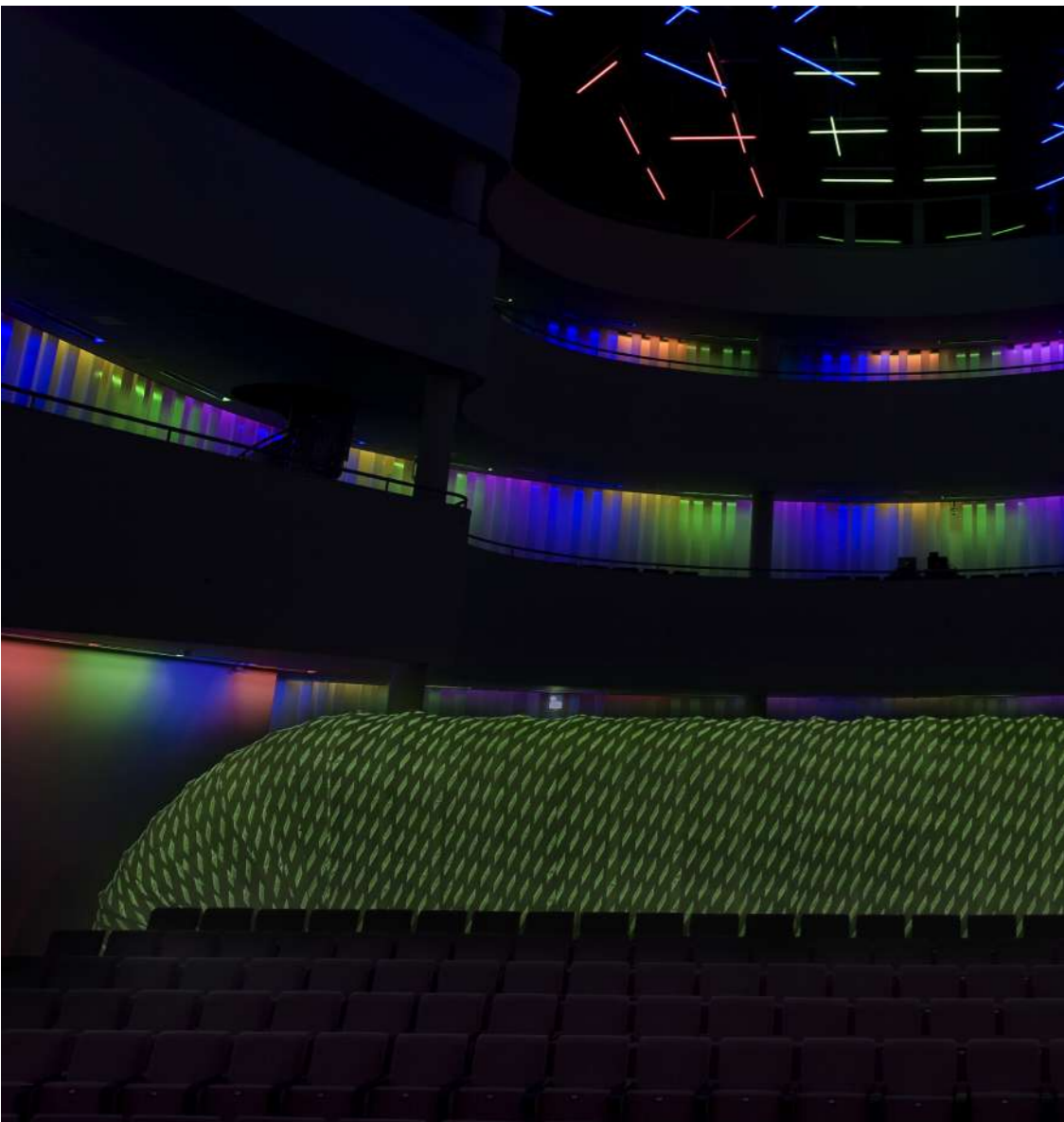
"Studio Samira Boon approached our acoustic challenge with an answer that is both intriguing, beautiful and highly performant. The creative process with Samira's team and the College was inspiring, balancing between architecture, materials and the client wishes. The road from concept to end product has been a real pleasure, resulting in a space in which beauty serves purpose."
- Thomas Dieben, director krft.

Image page 10: Tsuru close-up. **Page 11:** (top) Tsuru installed at the Performing Arts Centre of Brighton College, UK. (bottom) Performing Arts Centre by Dutch architecture firm krft. **Page 12-13:** The acoustic artwork Tsuru, developed at Textile Lab Tilburg. **Page 15:** Acoustic artwork Tsuru. Photography: Stijn Bollaert.





THE
CAIRNS
THEATRE



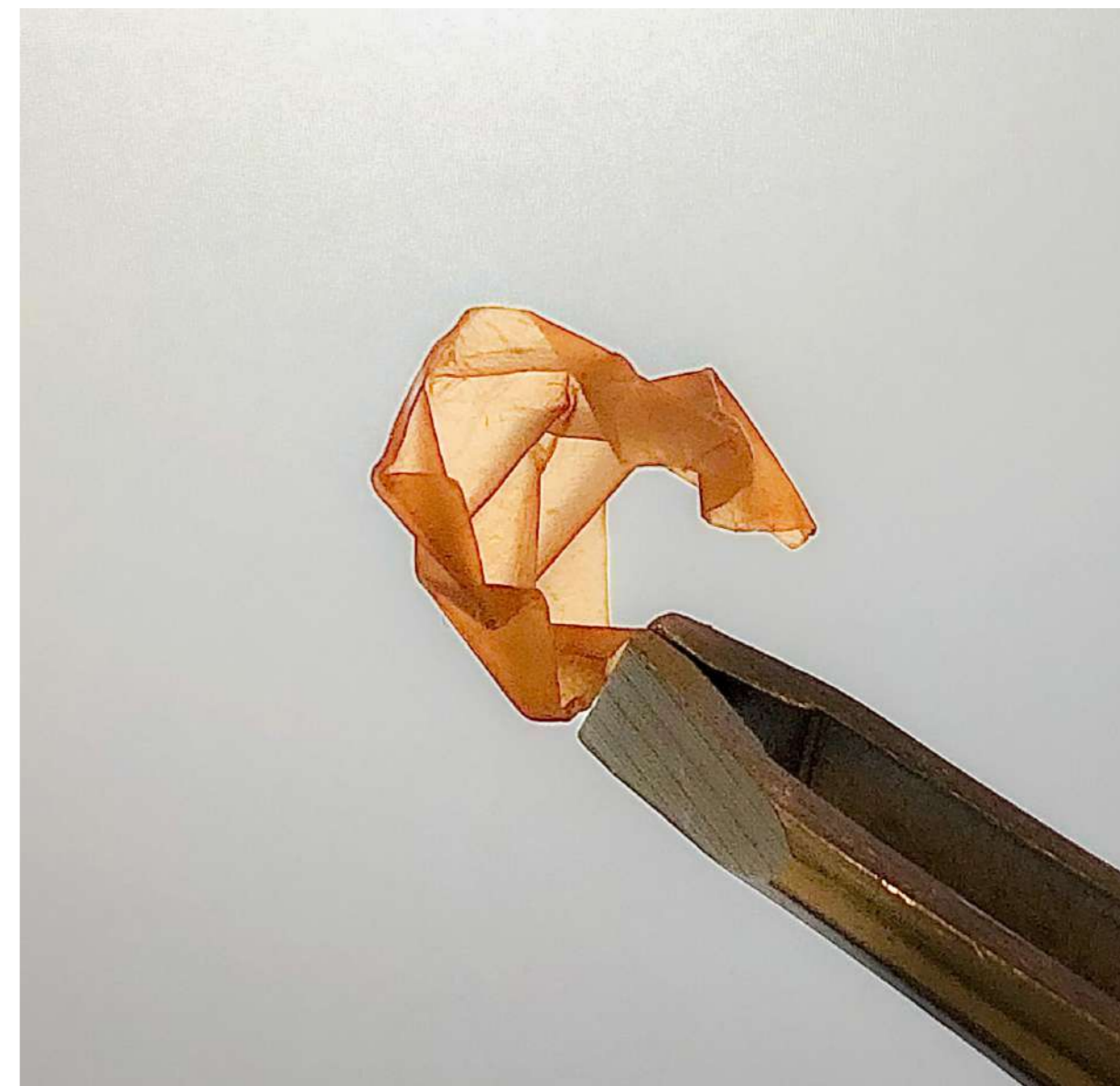


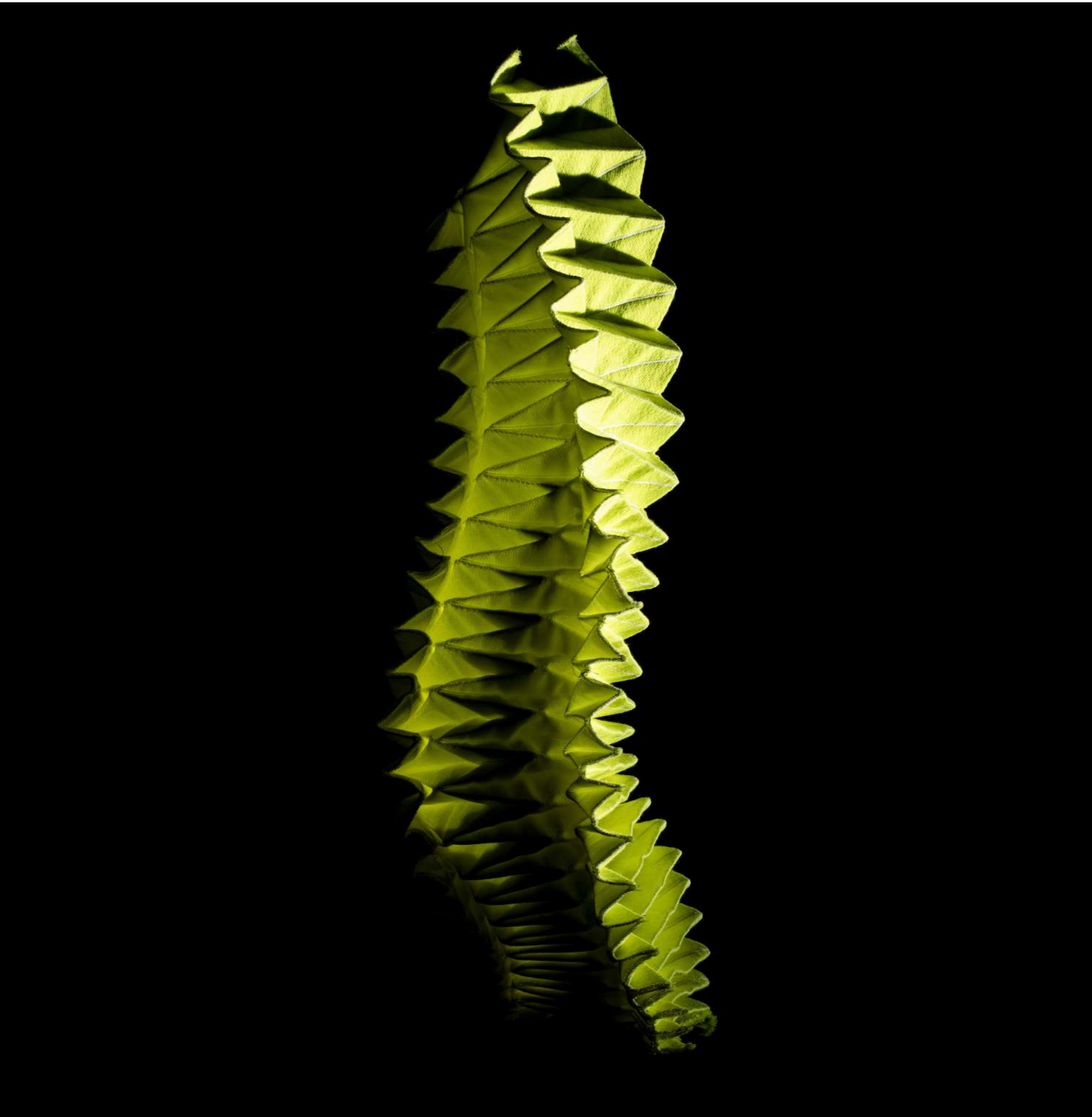
KOMBUTEX

Our exploration of translating nature's systems and reactions into interior elements, designed to function in harmony with individuals and their environment, led to the creation of Kombutex. Based on specially treated kombucha scoby biofilm, Kombutex is a completely biodegradable, bacteria-grown living textile developed from microorganisms. It serves as a catalyst for sustainable and biodiverse indoor ecosystems, transforming interiors into living, regenerative, and interactive spaces.

Image page 18: KombuTex against light close-up. **Page 19:** pulling out raw KombuTex from the brewing container. **Page 20-21:** KombuTex colour and thickness test samples. **Page 22:** Together with the Moon Gallery Foundation, we are sending Sprout to the International Space Station on the 19th of February 2022. **Page 23:** (top) Moon Gallery close-up. (bottom) Sprout for Moon Gallery 2022. Sprout is a light and compactly folded piece of KombuTex. By shaping this living textile through the use of origami folding techniques, our sprout was created as we believe sustainable and living origami structures can provide unique benefits to human habitats on and off Earth.



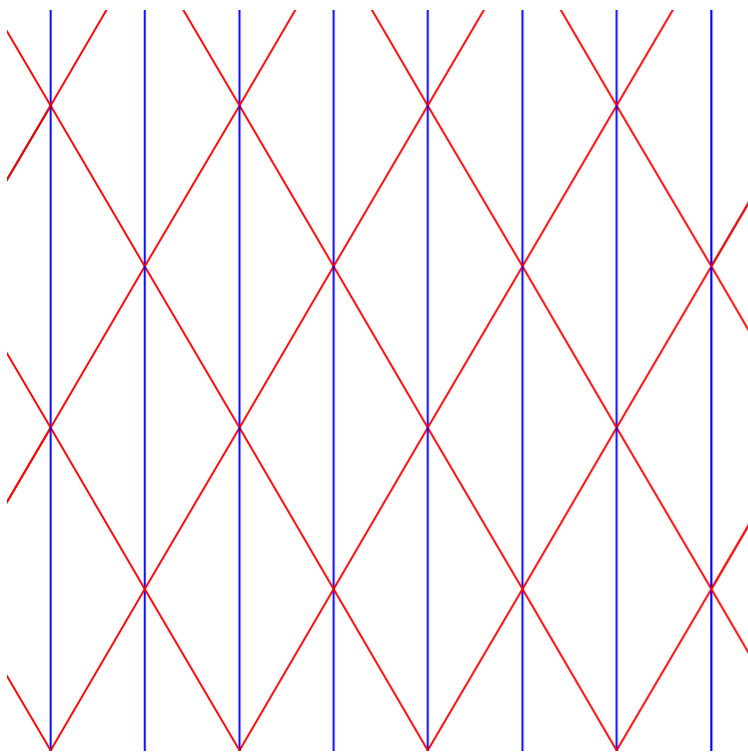
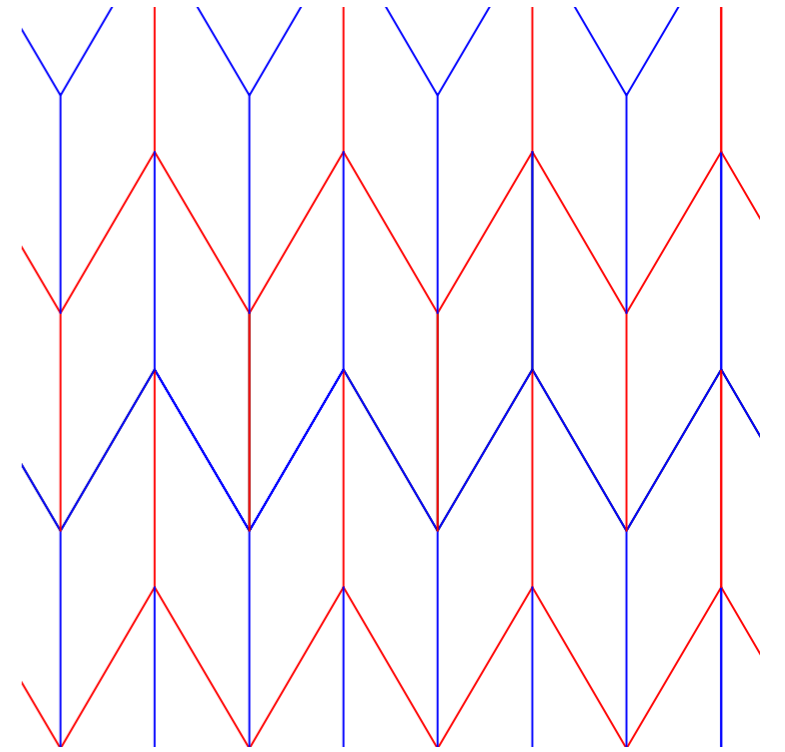
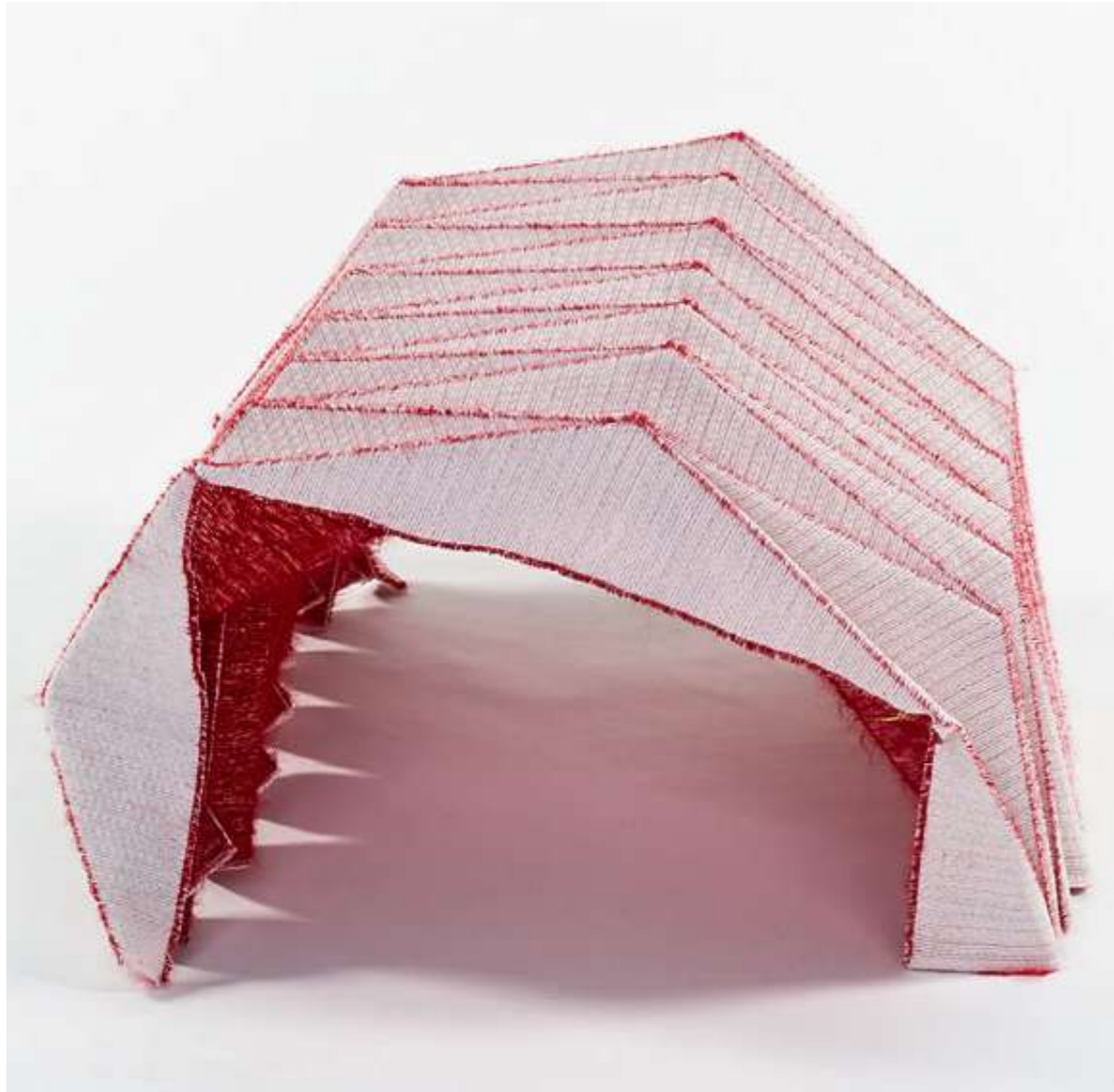


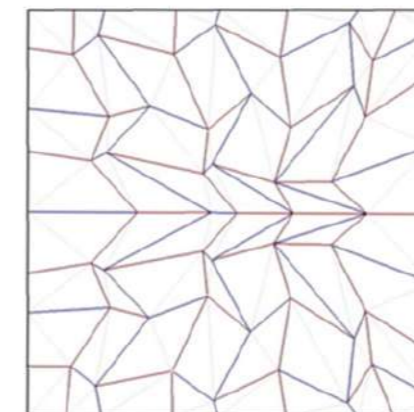


ORIGAMI

Most origami patterns can be interpreted as abstract, mathematical translations of natural shapes and structures, like the ones we find in plants. Samira Boon used these traditional Japanese folding techniques to make 'living architecture'. By weaving the origami patterns directly onto the fabric, she creates structures that are lightweight and at the same time have self-bearing capacity. The origami folding patterns are responsible to a great metamorphosis: they give new properties, natural flexibility and growth potential to the textiles.

Image page 24: Studio Samira Boon, Super Folds. Photography: Josefiëna Eikenaar. **Page 25:** the patterns woven in the textile show resemblances to natural forms, like the nervation of the leaves. **Page 26-27:** two examples of origami folding patterns in practice: the Miura (left) and the Yoshimura (right).

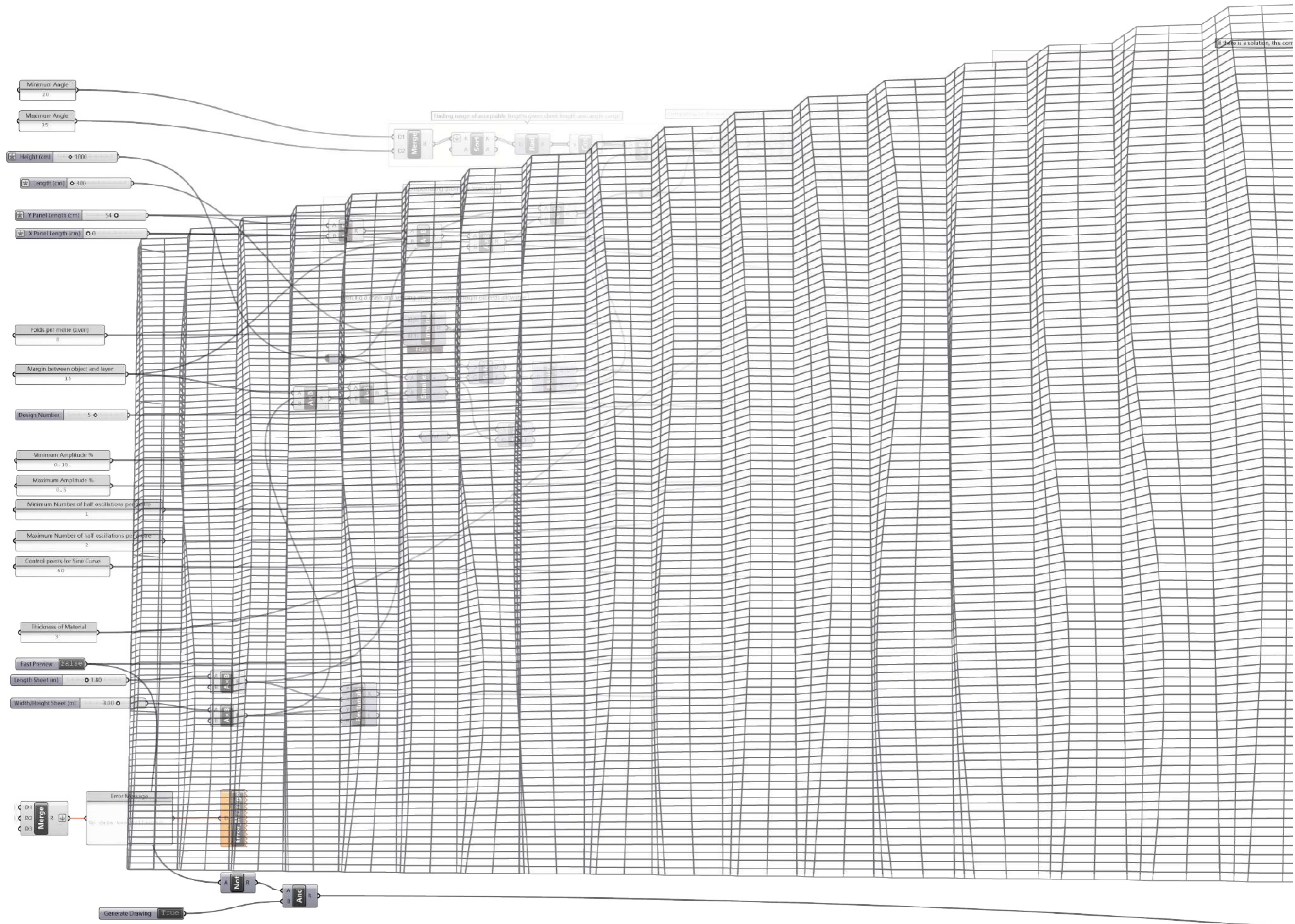


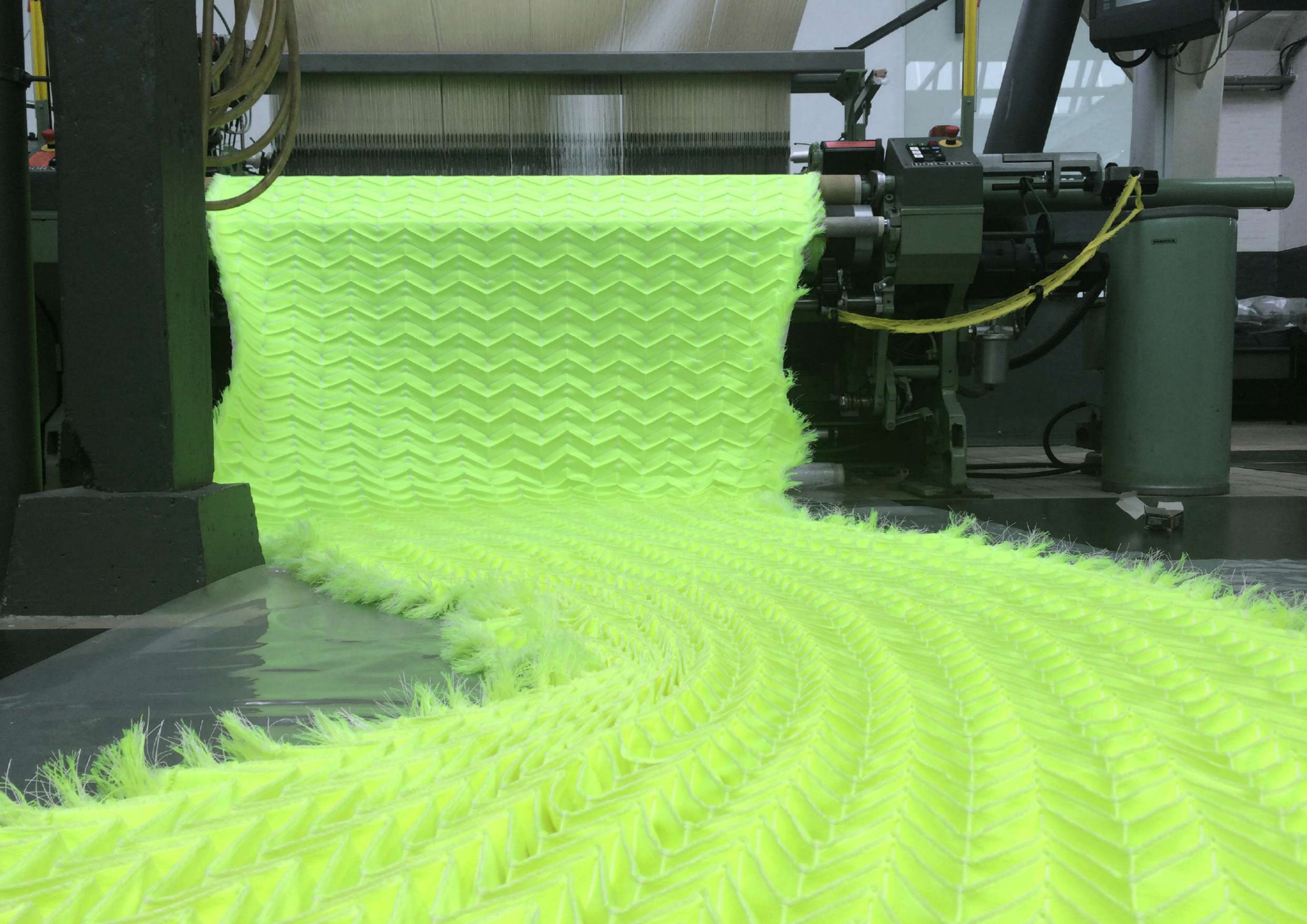


TECHNOLOGY

R&D: 3D textiles bring together technology, science and art. Samira Boon combines the tactile qualities of materials with new research in the field of digital weaving techniques. For ARCHI FOLDS she translated traditional Japanese origami folding patterns into parametric computer models as input for the digital weaving machine, in collaboration with the University of Tokyo.

Image page 28: programming the weaving machine at the TextielLab.
Page 29: paper yarn and the parametric computer model developed by prof. T. Tachi (University of Tokyo). **Page 30-31:** parametric design with Grasshopper.
Page 32-33: folding patterns are woven directly onto the textile.
Page 34-35: Textile pavilion produced by Samira Boon and based on a digital model of prof. T. Tachi.









FLUX

By folding and unfolding the origami pattern, the textile installations can take free forms thereby making new, flexible interior application possible. At Theatres Tilburg the powerful ARCHI FOLDS installations are used to make the large concert hall also comfortable to smaller, intimate events, while optimising the space's acoustics.

Image page 36: ARCHI FOLDS installation the main concert hall at Theatres Tilburg. Photography: Rob van Esch | Architectuurfotograaf. **Page 37:** 3D textile installation for the international exhibition "Urban Living - City of the Future" at Techtextil Frankfurt 2019. **Page 38-39:** ARCHI FOLDS at the Audax Room, Theatres Tilburg. Photography: Ossip van Duivenbode.





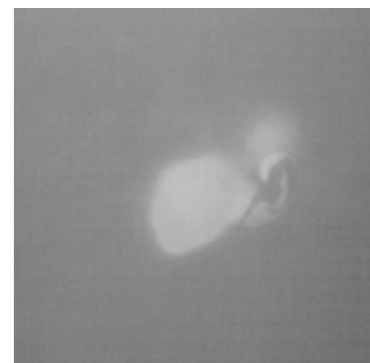
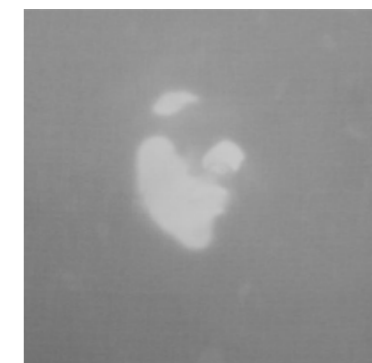
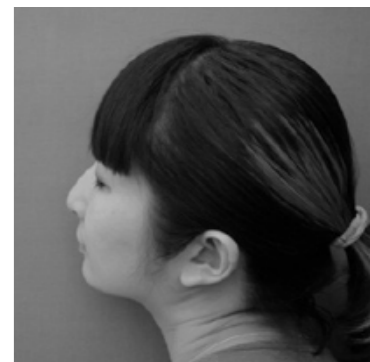
STIMULI

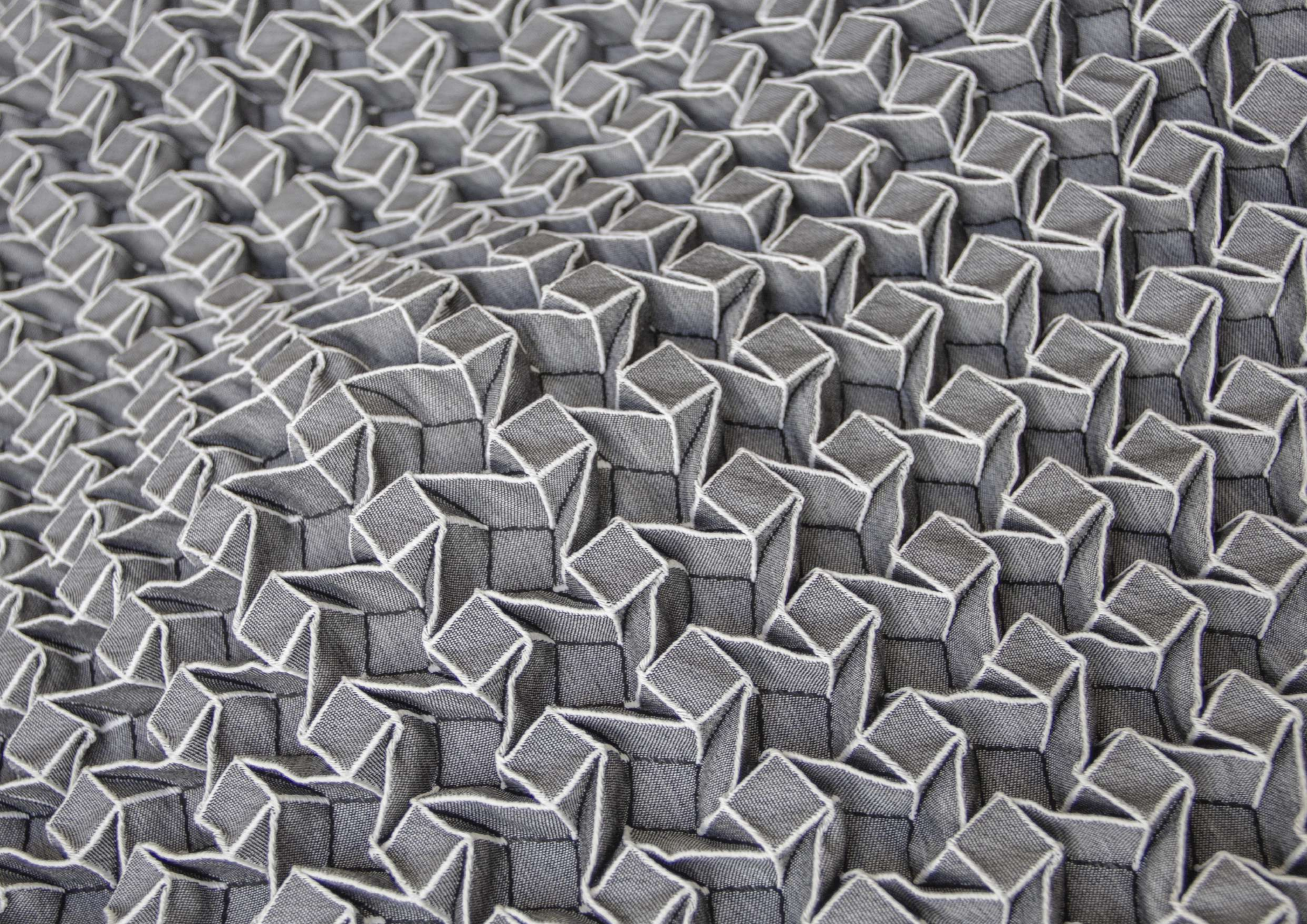
Prof. Dr. Erik Scherder, professor neuropsychology at the Vrije Universiteit Amsterdam, thoroughly researched the influence of physical movement on the elderly. He proved that physical stimuli activate the brain. This was the starting point for the research project "The Art and Science of Dementia Care" that Samira Boon started in collaboration with the Creative Industries Fund NL and the elderly care group Cordaan. By creating haptic environments that play upon tactility, Samira Boon experimented with the diversity and tactility of textiles to stimulate the elderly's fine motor skills. This is how she was able to stimulate the brain in an indirect way. Even the smallest hand movements over the textiles textures has a proven therapeutic effect. Tactility leads to interiors where people feel emotionally connected: they are healing environments.

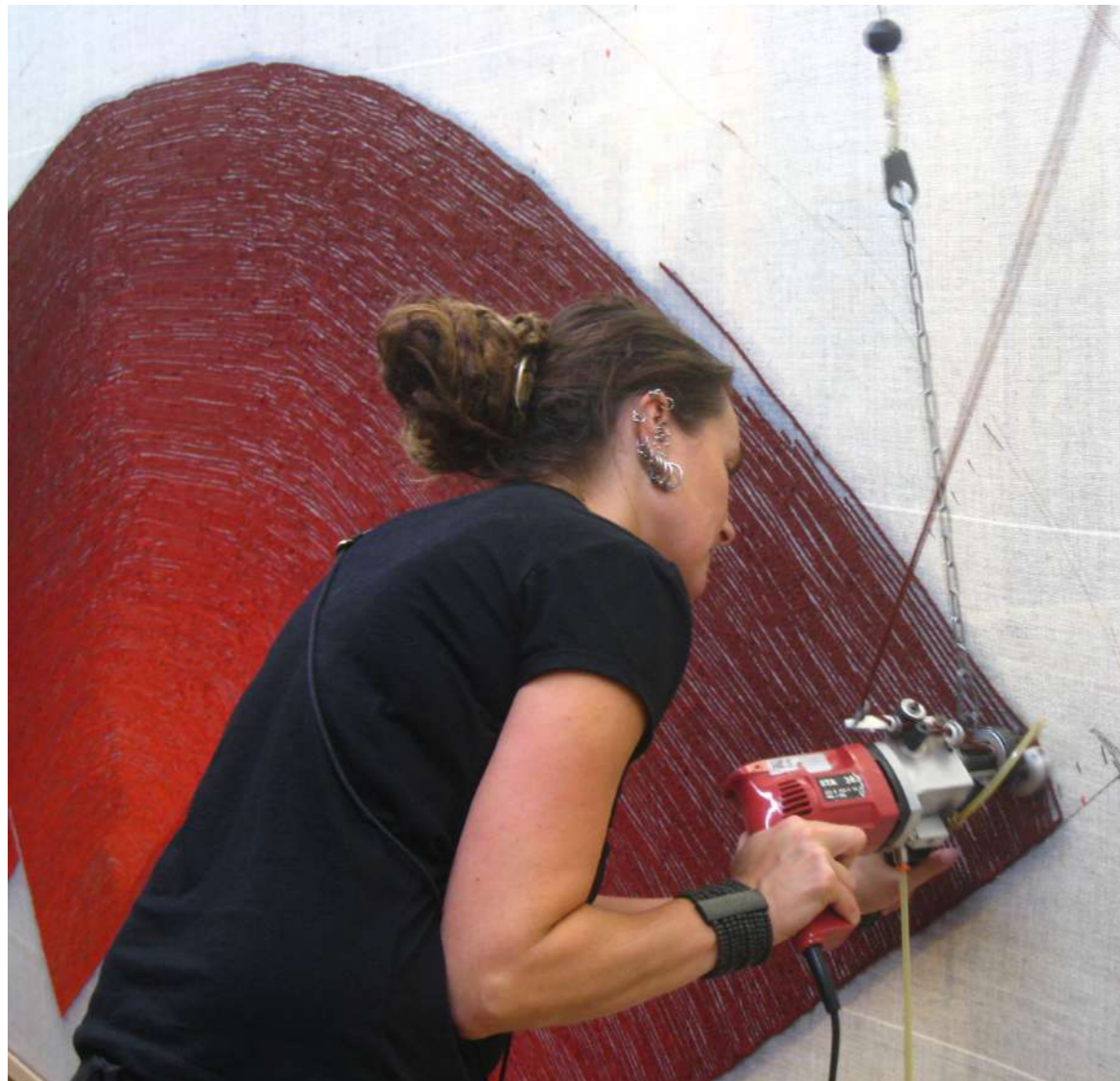
Image page 40: Research project Dementia Care, in collaboration with the Creative Industries Fund NL and the elderly care group Cordaan.

Page 41: Eurasian smoketree (*Cotinus coggygria*) and the project Interactive Elevator, which uses heat-sensitive yarn that reacts on body warmth.

Page 42-43: an integrated cube-shaped acoustic pattern that can be used as a wall panel with functional and aesthetic qualities. **Page 44:** (top) Customised Carpet. The custom textiles can create unique sensory experiences, enrich the tactility and orchestrate the light, bring unity or add accents to the space. (bottom) process of making a Carpet Bench. **Page 45:** Carpet Bench. The craft of hand tufting provides a wide range of shapes and colours, which allow this carpet to become a sculptural form.





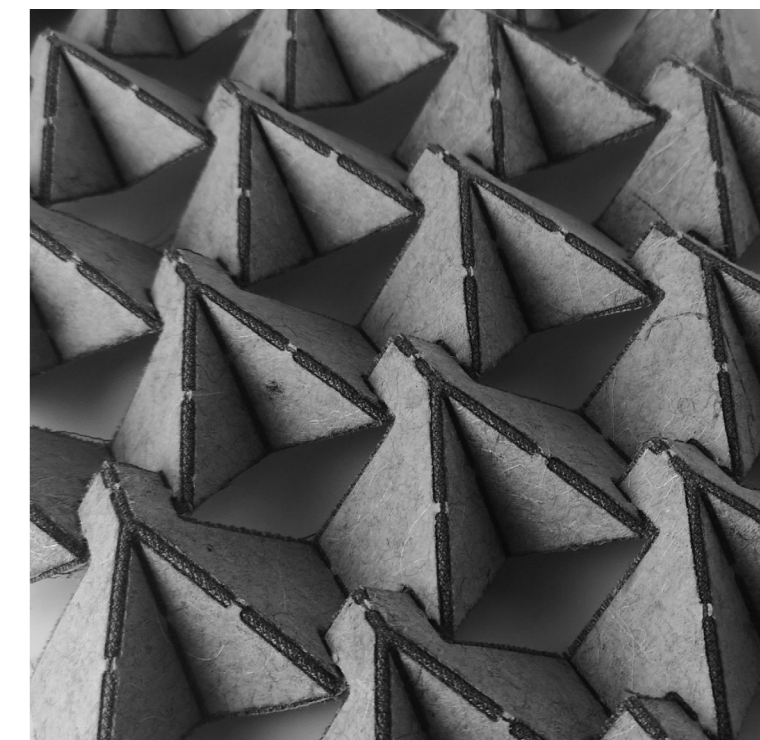


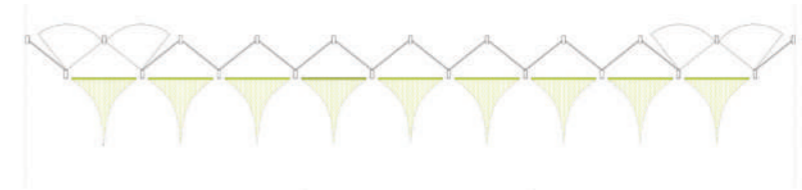


LIGHT

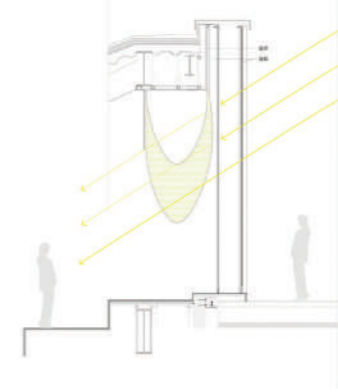
Since its invention, textile has been used to protect humans from the elements. Even today textile can fulfil a pivotal role in the creation of a sustainable energy-efficient architecture. Something as simple as a curtain is a highly effective protection against sunlight, whilst keeping the heat inside during colder days. With textile it is also possible to transform and temporarily divide spaces in a quick and easy manner. These smaller ecosystems are microclimates that can be regulated with textile. Textile surfaces can effectively react on light and heat sources by playing with different inclinations towards the sun, transparency and reflectivity for an efficient energy circulation.

Image page 46: ARCHI FOLDS with reflective yarn is efficient in regulating sunlight. **Page 47:** BiOrigami applies origami patterns on a new bio composite made of textile waste (jeans and jute coffee bags). The project is a collaboration with the Amsterdam University of Applied Sciences (HvA) and is supported by the Kiem Programme of the Netherlands Organisation for Scientific Research (NWO). **Page 48-49:** dynamic installation with curtains at the Jiaxing Gallery in China, i.c.w. MORE Architecture. Because the sunlight's intensity varies throughout the year, the need for light changes as well. The curtains can be positioned in a different angle every season to let the sunlight through.

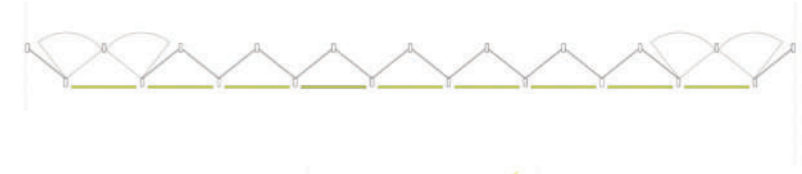
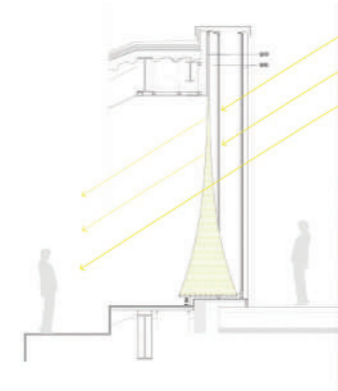




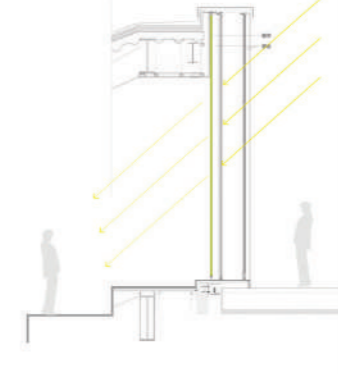
冬天
WINTER



秋天 春天
FALL SPRING



夏天
SUMMER





SOLARS

SOLARS serve as light and heat regulating rolling shades. They showcase carefully orchestrated parametrically designed custom patterns, perforated on two different fabric layers, resulting in ever-adjustable combined light figures. The patterns can be personalised, ranging from flowing organic shapes to precise and geometric forms, and can be perfectly crafted to meet the client's desires and needs. These custom curtains, through their adjustable double-layered fabric, can model the sunlight that passes through them into interiors, allowing the user to masterfully control the intensity of it, the SOLARS layers can always be adjusted in a disposition that blocks all the outdoor light and in one that maximises the passing of it.

Image page 50: (top) Solars in use. (bottom) look to the garden through Solars.
Page 51: Solars exhibited at the "Vrouwen van Soestdijk" in Paleis Soestdijk in January 2024.



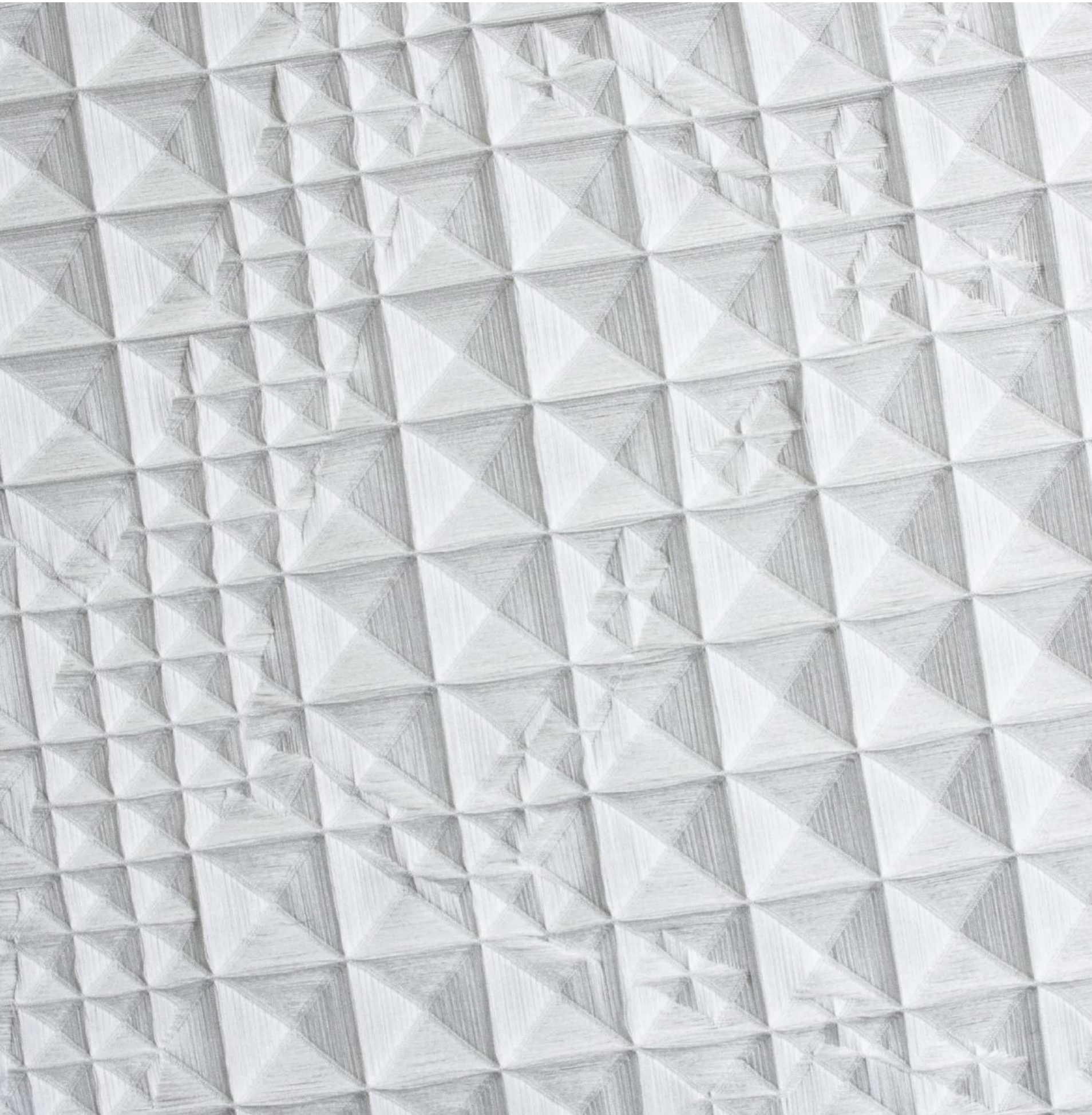


ARCHIFOLD HERMÈS

Studio Samira Boon designed and produced a site-specific artistic facade that enhances the sense of aesthetic, as well as intimacy, for the Hermès Taikoo Li Qiantan store in Shanghai. The installation of the three-dimensional textiles regulates the climate by magically filtering the light and creating a sophisticated atmosphere that expresses the brand's exclusive style. Composed of only two contrasting yarns, a soft, matt-white opaque and stiff, transparent, and shiny yarn, the facade becomes progressively transparent towards the sky to let natural daylight in. At eye level, the gradient of denser weavings and folds mantles the clients in serene privacy.

Image page 52: ArchiFold installed in Hermès Shanghai Taikoo Li Qiantan. Photography: Cai Yunpu. **Page 53:** (top) ArchiFold Hermès exhibited at the "Vrouwen van Soestdijk" in Paleis Soestdijk in January 2024. (bottom) ArchiFold Hermès close-up. **Page 54-55:** Large scale ArchiFold installation for the facade of Hermès Shanghai Taikoo Li Qiantan. Photography: Cai Yunpu



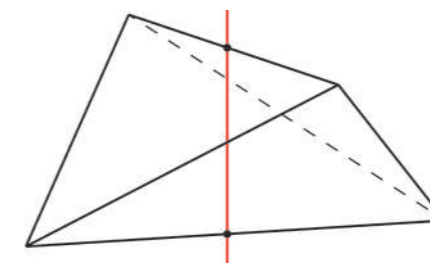


SOUND

Sound has a huge impact on our health, behaviour and productivity. In large, open spaces, such as an office, acoustics stands in between a productive or a distracting workplace. Surfaces reflect and spread sound waves. Texture has a big influence on the way in which sounds moves. By introducing angles and folds, 3D surfaces spread sound more homogenously. The textile's texture ensures the distribution of sound waves and acoustic optimization, while it is density determines the degree of absorption.

Samira Boon created the 'Wall Weaves' collection. This is a series of acoustic artworks that are used as wall-panels in meeting rooms and in people's homes. The 'Wall Weaves' 3D surfaces make the objects suitable for environments with complex acoustic needs. At the same time, they bring space to life by playing upon human perception.

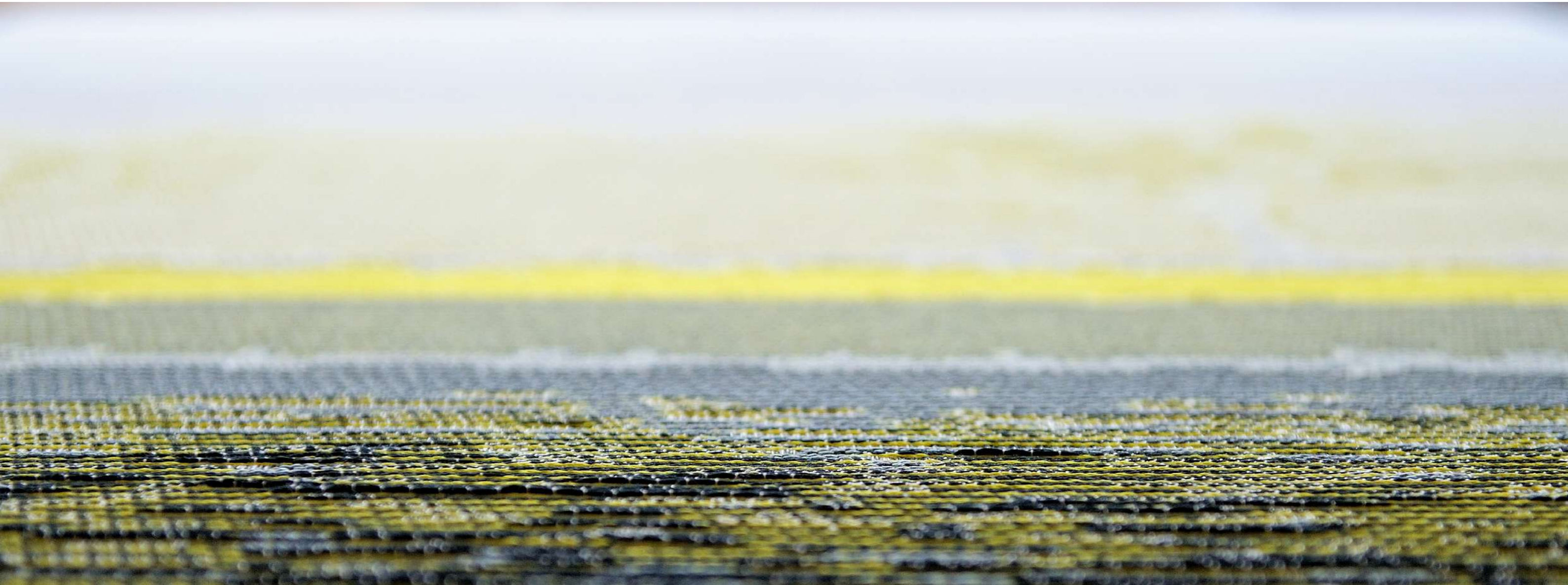
Image page 56: detail of an acoustic artwork from the 'Wall Weaves' series.
Page 57: abstract Dutch landscapes were the starting point for the patters of the 'Wall Weaves'. **Page 58-59:** Waffle screen designed within the DryTech project, commissioned by Droog Design and in collaboration with NEXT architects.
 Photography: Yvonne Lacet.



The apparent waffle structure is actually a quadrilateral







10800 HORIZONS SCHIPHOL AIRPORT

This textile mural, inspired by Matthieu Verhoeven's picture "Empty Landscape", consists of several different wall panels displaying archetypal Dutch landscapes' endless horizontal lines; it can be observed by travellers passing by Amsterdam's Schiphol Airport. The panels are realised using only 4 different yarns, which are combined through the use of complex weaving programming to look like a clear landscape picture from a distance, turning into various layers of yarn with a detailed composition of threads upon a closer look. 10800 Horizons also have an acoustic value $aw = 0.7$.

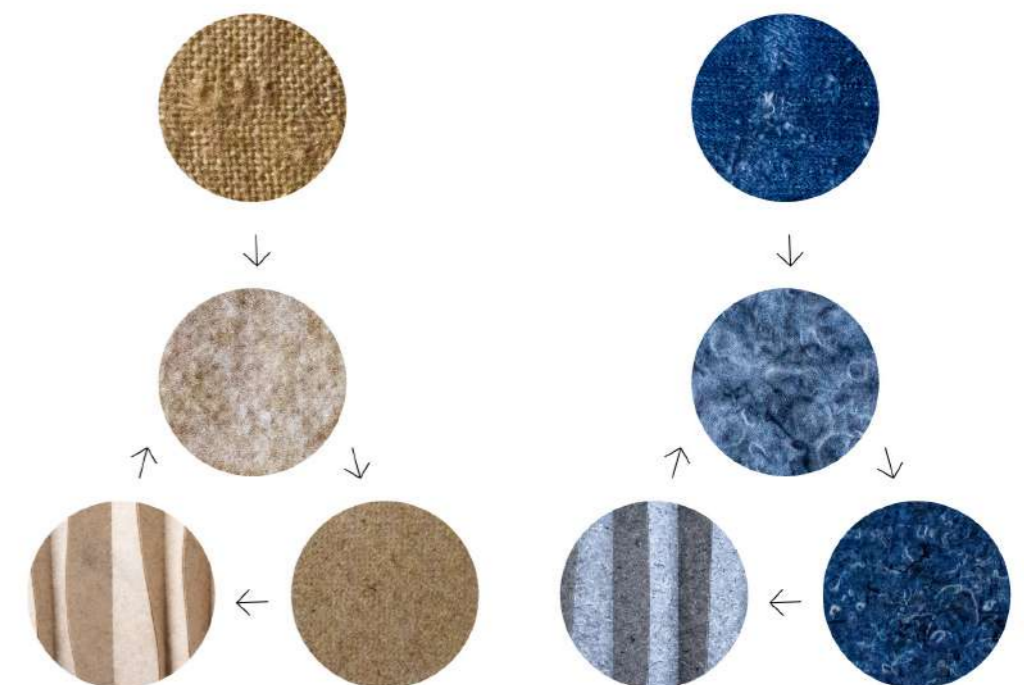
Image page 60-61: (top) 10800 Horizon close-up. (bottom) 10800 Horizons at Schiphol Airport was installed in 2017.

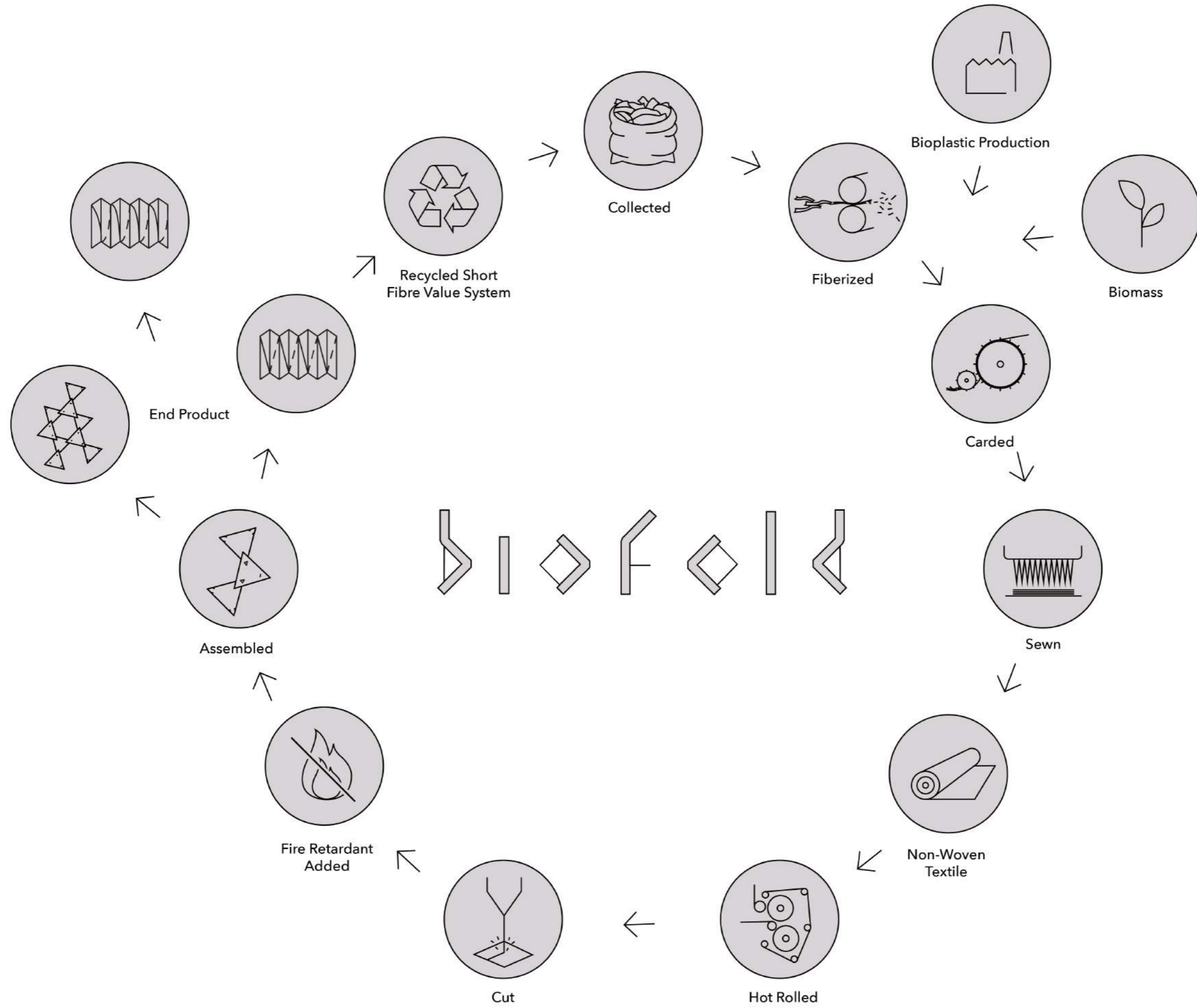


BIOFOLD

Biofold is a unique series of interior acoustic elements, composed of hard-to-recycle and non-reusable textile waste streams from jute coffee bags, viscose from the mattress industry, denim, or locally sourced hemp. These materials are combined together with biobased plastics to generate a sustainable biocomposite. Due to its folded shape and structure, BioFold reaches the highest acoustic properties. Its parametrically-designed folded surface gives interiors a distinct, sustainable identity and it can be installed as a wall panel or an acoustic element. This unique sustainable sound-panel received the Architizer A+Award in the acoustics category.

Image page 62: BioFold in use. **Page 63:** how BioFolds are made. The sustainable cycle. **Page 64-65:** BioFold process diagram. **Page 66-67:** Intertidal, modular BioFold, at Kunstlinie Museum, 2001.





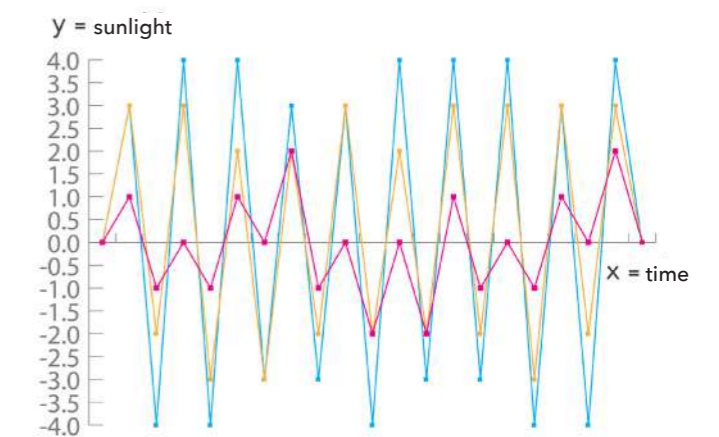




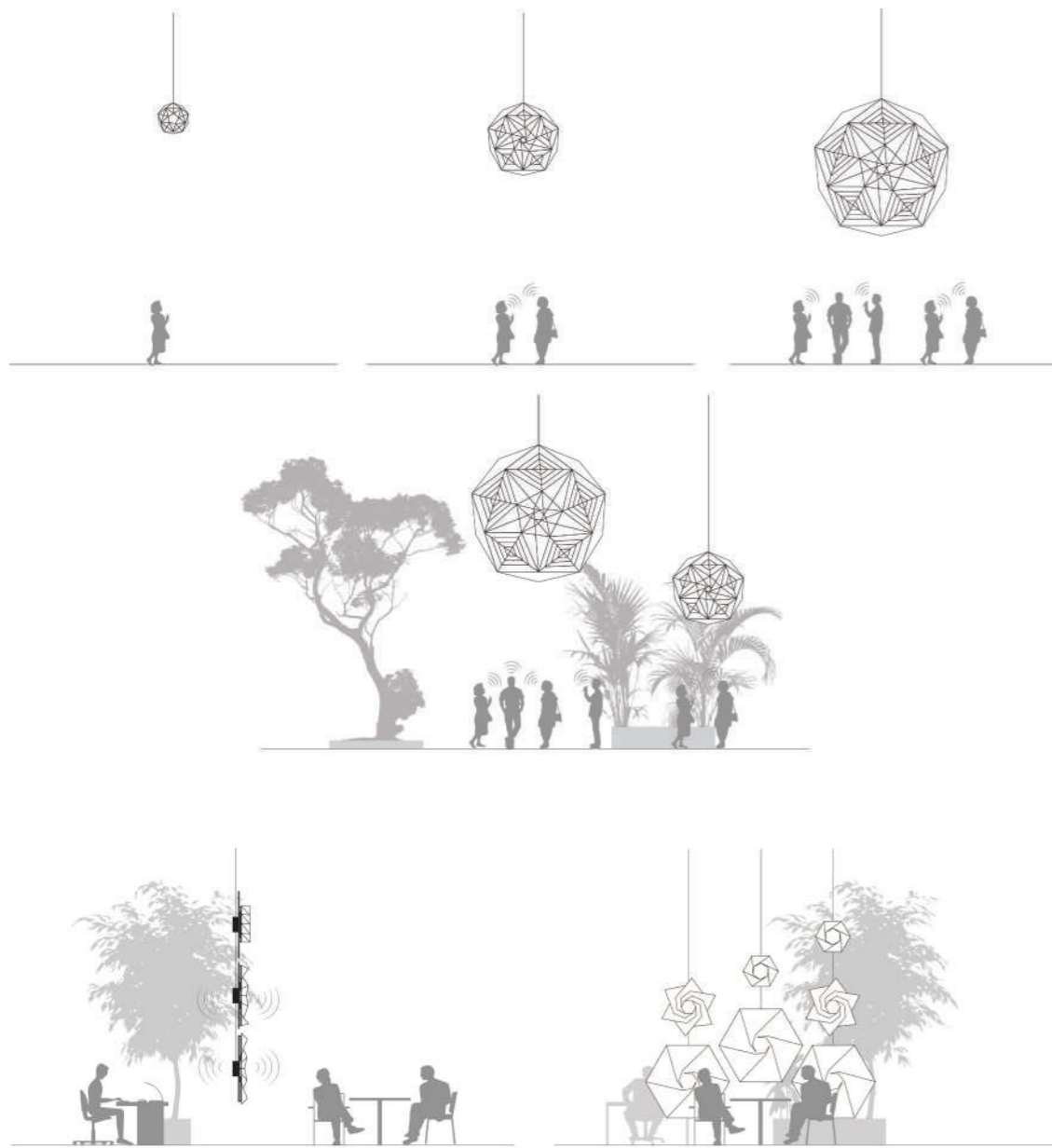
FUTURE

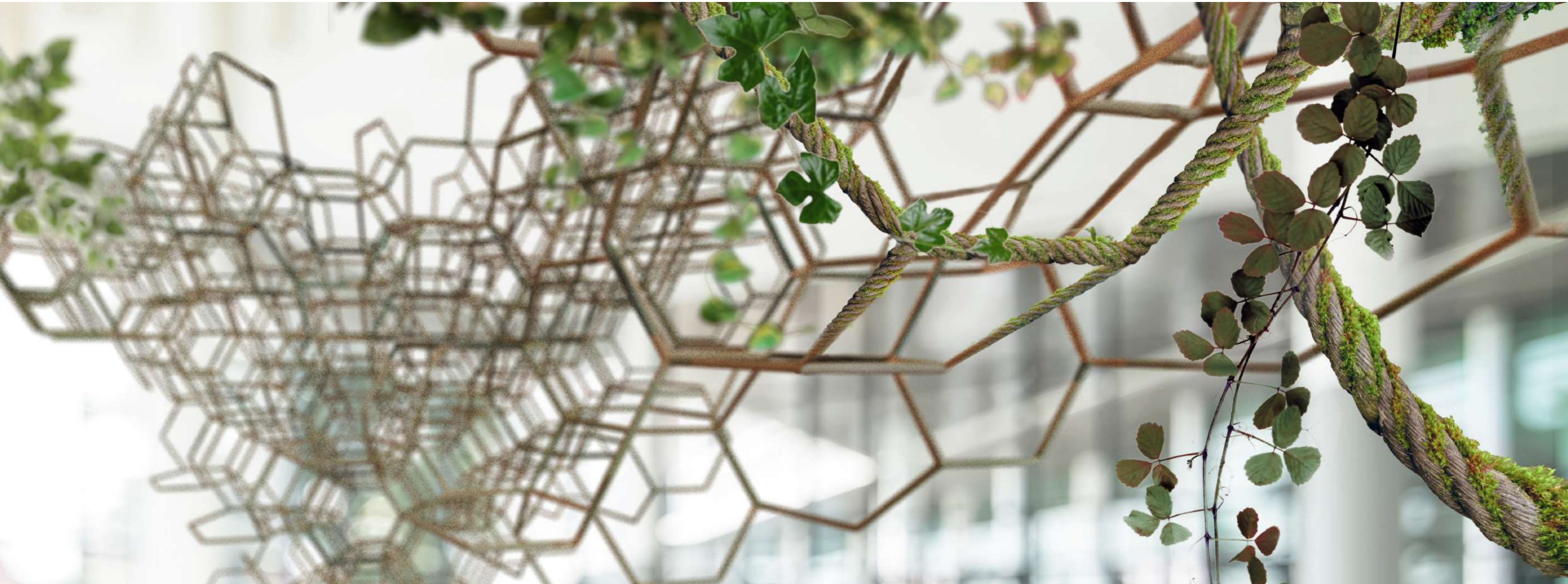
For Studio Samira Boon the future of architecture lies in the synergy between the user and its environment to improve the indoor climate. This translates into interactive systems that respond to our changing needs and circumstances. For the research project HORTUS BIONICA the studio develops different robotic species that respond to human needs and environmental stimuli, such as the sun. With this input they are able to change shape in an automated manner. The result is a garden of robotic textile creatures that blurs the boundary between technology, nature and architecture. HORTUS BIONICA has a number of smart functions, including: climate, UV, acoustic and power control. HORTUS BIONICA is a collaboration with SensorLab Utrecht and is supported by the Creative Industries Fund NL.

Image page 68: HORTUS BIONICA, developed in collaboration with SensorLab Utrecht, integrates sensor technology to allow textiles to respond to environmental factors in an automated way. **Page 69:** plants are natural climate regulators. The fern (Nephrolepis) is known for its air purification qualities and regulation of humidity. **Diagram:** The sensors of the HORTUS BIONICA species constantly adapt to environmental conditions to regulate the indoor climate. **Page 70:** HORTUS BIONICA concept illustration. **Page 71:** one of the HORTUS BIONICA textile species.



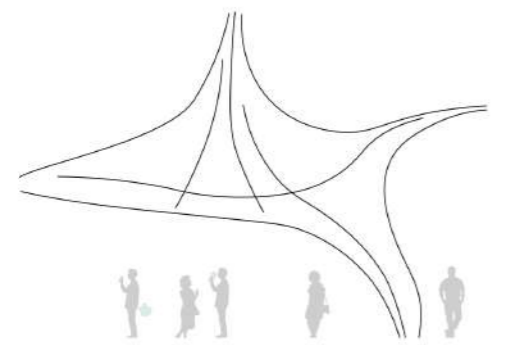
To efficiently regulate interior climate, HORTUS BIONICA's sensors constantly adapt to environmental stimuli.



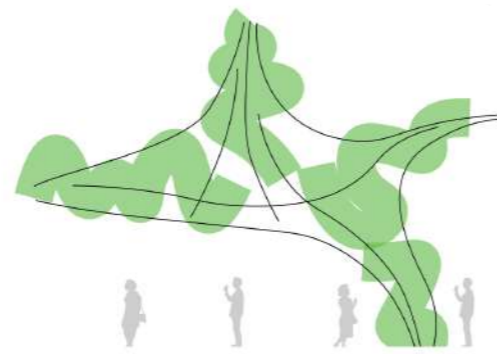


Bad Air

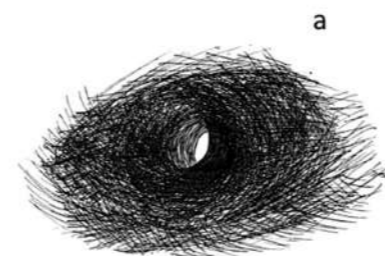
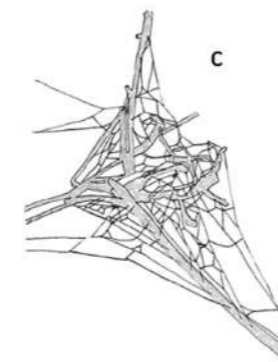
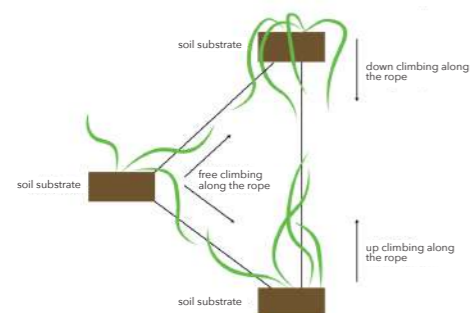
Good Air



Plant expansion over the lace grid



Air Purification



BIONIC LACE

With the research project Bionic Lace we take the first steps in implementing our vision of a light and energy-efficient architecture of the future. We followed the principle of employing the minimum of materials to obtain the maximum effect, inspired by complex single-cell organism Radiolaria and intricate spider webs.

We constructed large-scale adaptive 3D lace rope-based structures serving as climbing grids for air-purifying plants and scented flowers. The ropes of the structure offer moisture and are easily penetrable by the roots of the plants. The evolving structures of Radices Laceum Bionica aim to innovate public interiors by bringing a natural element that meander, breath and purify the air.

Image page 72-73: Bionic Lace concept picture. Page 72: Bionic Jungle idea visual demonstration. Page 73: spider web, line drawings by E. J. Roberson.



STUDIO SAMIRA BOON

After her studies at the Delft University of Technology (TU Delft), Samira Boon moved to Japan and lived there for 4 years. During this period, she designed the Furoshiki Shiki: a series of bags inspired by Japanese folding techniques. When Samira moved back to the Netherlands, she started focusing her research on the development of 3D textiles: ARCHI FOLDS, in collaboration with the TextielLab, Theatres Tilburg and the University of Tokyo. She combines traditional origami patterns with advanced digital weaving techniques. By optimally combining and programming different patterns, bindings (weaving structures) and materials, it becomes possible to weave ready-made 3D products directly from the weaving machine. These 3D textile installations can be used in interiors and play upon the use and experience of spaces, acoustics, and climate regulation.

With ARCHI FOLDS, Samira Boon won the Creative Heroes Award. Her designs have been recognized internationally, winning a.o. the A'Design Award and the Architizer A+Design Awards. The most recent project titled BiOrigami, is a collaboration with the University of Applied Sciences and supported by the Kiem programme of the Netherlands Organisation for Scientific research (NWO), this research is focused on the architectural applications of new circular bio composite materials from textile waste.

The designs are included in museum collections and exhibitions, including: Techtexil in Frankfurt and the TextielMuseum in Tilburg, the Netherlands. (They) are sold at the Museum for Contemporary Art (MOT) in Tokyo, the TATE in London and the Stedelijk Museum in Amsterdam, amongst others.

As an expert in the field of material research, Samira has taught at academies and universities, including the Design Academy Eindhoven, the Academy of Architecture, Amsterdam Academy of the Arts and the University of Seoul. Since 2014 she is a lecturer at the Royal Academy of Arts (KABK) in The Hague.

Studio Samira Boon works from Amsterdam and Tokyo. Next to Samira Boon, Naoko Ikehara, Anna Sitnikova, Maki Ito, Michelle Franke are part of the studio's multidisciplinary team, alongside a changing team of interns.

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脳を活性化することを証明しています。教授との出会いが、サミラブーンが Creative Industries Fund NL および高齢者ケアグループCordaanと共同で手掛けた研究プロジェクト「認知症ケアの芸術と科学」の出発点となりました。サミラブーンは、触覚に影響を与える環境を作り、繊維の多様性と触覚を実験し、高齢者の細かい運動能力を刺激することで、間接的な方法で脳を刺激することが出来ることに気が付きました。テキスタイルのテクスチャ上での最小の手の動きでも、治療効果があることが実証されています。人々の感情が繋がっていると感じられる癒しの環境を触感によって創ることが出来ます。

画像22ページ: Creative Industries Fund NL および高齢者ケアグループCordaanとの共同研究プロジェクト、認知症ケア。 23ページ: Eurasian smoketree (Cotinus coggygria) と、体温に反応する熱に弱い糸を使用するプロジェクトInteractive Elevator。24-25ページ: 機能的で審美的な品質を備えた壁パネルとして使用できる統合された立方体の音響パターン。

<光>

その発明以来、テキスタイルは自然の成分から人間を保護するために使用されてきました。今日でもテキスタイルは、持続可能なエネルギー効率の高い建築物の作成において極めて重要な役割を果たすことができます。カーテンのようにシンプルなもの、寒い日には熱を内部に保ちながら、日光から効果的に保護します。テキスタイルを使用すると、すばやく簡単に空間を変化させ、一時的に分割することもできます。これらの小さな生態系はテキスタイルで規制できる小さな気候と言えます。テキスタイルの表面は、効率的なエネルギー循環のために、太陽、透明度、および反射率に対してさまざまな角度で動くことにより、光と熱源に効果的に反応できます。

画像26ページ: 反射糸を使用した ARCHI FOLDS は、太陽光の調整に効果的です。27ページ: BiOrigami は、繊維廃棄物(ジーンズとジュートコーヒーバッグ)で作られた新しいバイオ複合材料に折り紙パターンを適用しています。このプロジェクトは、アムステルダム応用科学大学(HvA)とのコラボレーションであり、オランダ科学研究機構(NWO)のキエムプログラムによってサポートされています。28-29ページ: 中国の Jiaxing Gallery でのカーテンによるダイナミックなインストール。日光の強度は年間を通じて変化するため光の必要性も変わります。カーテンは季節ごとに異なる角度に配置して、日光を透過させることができます。

<音>

音は私たちの健康、行動、生産性に大きな影響を与えます。オフィスなどの大規模なオープンスペースでは音響の影響で、生産的な職場にもなり得、気を散らす職場にもなり得ます。物の表面は音波を反射、拡散します。テクスチャは、音の動きに大きな影響を与えます。角度と折り目を導入することで、3D化した表面はより均一に音を広げます。テキスタイルのテクスチャは、音波の分布と音響の最適化を保証しますが、密度は吸収の程度を決定します。

サミラブーンは「Wall Weaves」コレクションを作成しました。これは会議室や人々の家の壁パネルとして使用される一連の音響作品です。「Wall Weaves」の3D化した表面は複雑な音響ニーズのある環境に適しています。同時に、人間の知覚に基づいて存在することで、その空間に命を吹き込みます。

画像30ページ: 「Wall Weaves」シリーズの音響パネルの詳細。31ページ: オランダの抽象的な風景は、「Wall Weaves」の出発点でした。32-33ページ: 「Wall Weaves」シリーズの音響パネル。

<未来の建築>

スタジオサミラブーンにとって、建築の未来は、ユーザーとその環境の屋内気候を改善するための相乗効果にあります。これは、変化するニーズと状況に対応するインタラクティブシステムに変換されます。研究プロジェクト HORTUS BIONICAのために、スタジオサミラブーンは人間のニーズや太陽などの環境刺激に対応するさまざまなロボットの種を開発します。このインプットにより、自動化された方法で形状を変更でき、その結果、テクノロジー、自然、建築の境界を曖昧にする、ロボットのテキスタイルクリーチャーの庭ができました。HORTUS BIONICAには、気候、UV、音響、電力制御など、多くのスマート機能があります。HORTUS BIONICA は、SensorLab Utrechtとのコラボレーションであり、Creative Industries Fund NL によってサポー

トされています。

画像34ページ: SensorLab Utrecht と共同開発された HORTUS BIONICA は、センサー技術を統合して、テキスタイルが環境要因に自動で応答できるようにします。 35ページ: 植物は自然の気候調節因子です。シダ(ネフロレピス)は、空気浄化の質と湿度の調節で知られています。図: HORTUS BIONICA種のセンサーは、環境条件に絶えず適応して、屋内気候を調節します。36-37ページ: HORTUS BIONICA 繊維種の1つ。

<スタジオサミラブーン>

デルフト工科大学で学んだ後、サミラブーンは日本に移り、その後4年間を過ごしました。この期間中、彼女は日本の風呂敷にみられる折り畳み技術から閃き、一連のバッグ「フロシキシキ」をデザインしました。サミラはオランダに戻り、TextielLab、Theaters Tilburg、東京大学と共同で、「ARCHI FOLDS」と名付けた3Dテキスタイルの開発に関する研究に焦点を当て始めました。伝統的な折り紙のパターンと高度なデジタル製織技術を組み合わせた研究をすすめ、さまざまなパターン、バインディング(織り構造)、および素材を最適に組み合わせてプログラミングすることにより、既製の3D製品を織り機から直接織ることを可能にしました。これらの3Dテキスタイルインストールションは、インテリアで使用でき、音・熱・光など様々な異なる環境に合う空間作りの提案を可能にしています。

ARCHI FOLDSで、Samira BoonはCreative Heroes Awardを受賞しました。彼女のデザインは国際的に認められ、a.oを獲得しました。 A'Design AwardおよびArchitizer A + Design Awardsです。BiOrigamiというタイトルの最新のプロジェクトは、オランダ科学研究機関(NWO)のKiemプログラムのサポートのもと、ファッハホーホシューレ(専門大学)とのコラボレーションで研究されており、この研究は、繊維廃棄物をいかに新しいバイオ複合材料の建築用途として循環させられるかに焦点を当てています。

サミラのデザインした作品は、フランクフルトのTechtextilやオランダ、ティルブルフのテキスタイル博物館など、博物館のコレクションや展示に含まれています。 東京の現代美術館(MOT)、ロンドンのTATE、アムステルダムのStedelijk博物館などで販売されています。

材料研究の分野の専門家として、サミラはデザインアカデミーアイントホーフエン、建築アカデミー、アムステルダム芸術アカデミー、ソウル大学などのアカデミーや大学で教鞭を執りました。2014年以来、彼女はハーグの王立芸術アカデミー(KABK)で講師を務めています。

スタジオサミラブーンは、アムステルダムと東京で活動しています。サミラブーンの他に 池原直子、アンナシトニコワ、伊藤真紀、ミシェル فرانケは、変化するインターンメンバー含めてこのスタジオの専門的チームの一員です。

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