

Elizabeth Meiklejohn		
Selected work		
elizabethmeiklejohn.com hello@elizabethmeiklejohn.com		

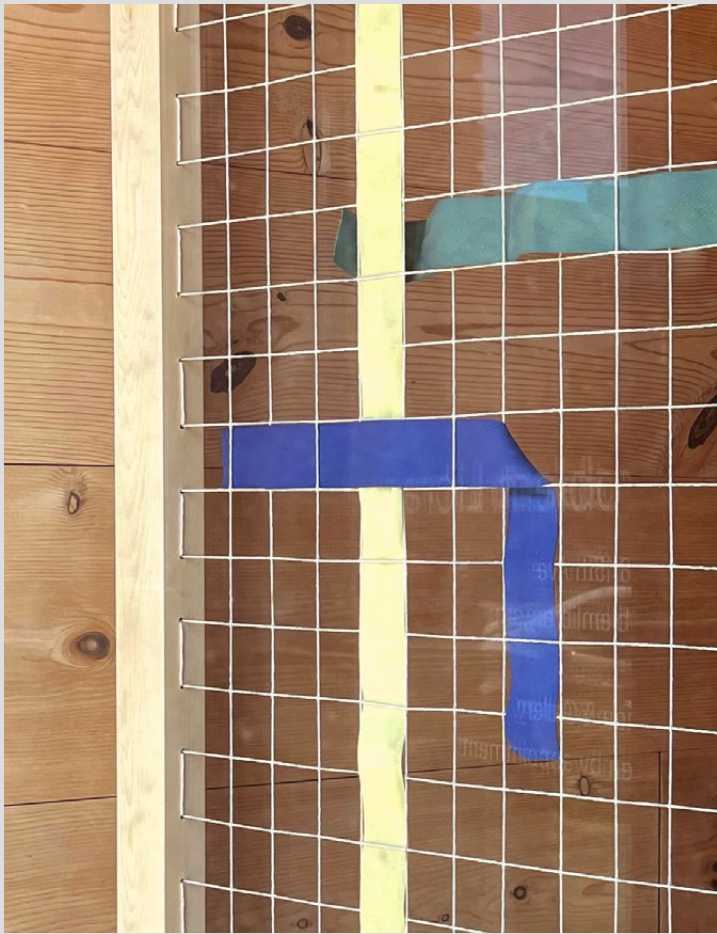
an invitation to weave

2024

What happens when we take disparate parts and intertwine them together? What patterns and forms can be generated by the act of weaving, a practice with a long history of both utilitarian and creative experimentation?

A participatory installation (left) at Problem Library, an arts education space in San Francisco. Starting with the basic elements of a blank grid and a range of dyed cotton ribbons, attendees were encouraged to “draw” in straight or zig-zag lines, fill in cells with different colors and follow or bend the rules of traditional weaving.

A later configuration of the installation (right) paid homage to those traditional techniques, to weaving in its purest form: simple horizontal and vertical strips, passing over and under each other, accumulating colors into something soft and organic, something that blurs at a distance into ambiguous light – all within the confines of the grid.



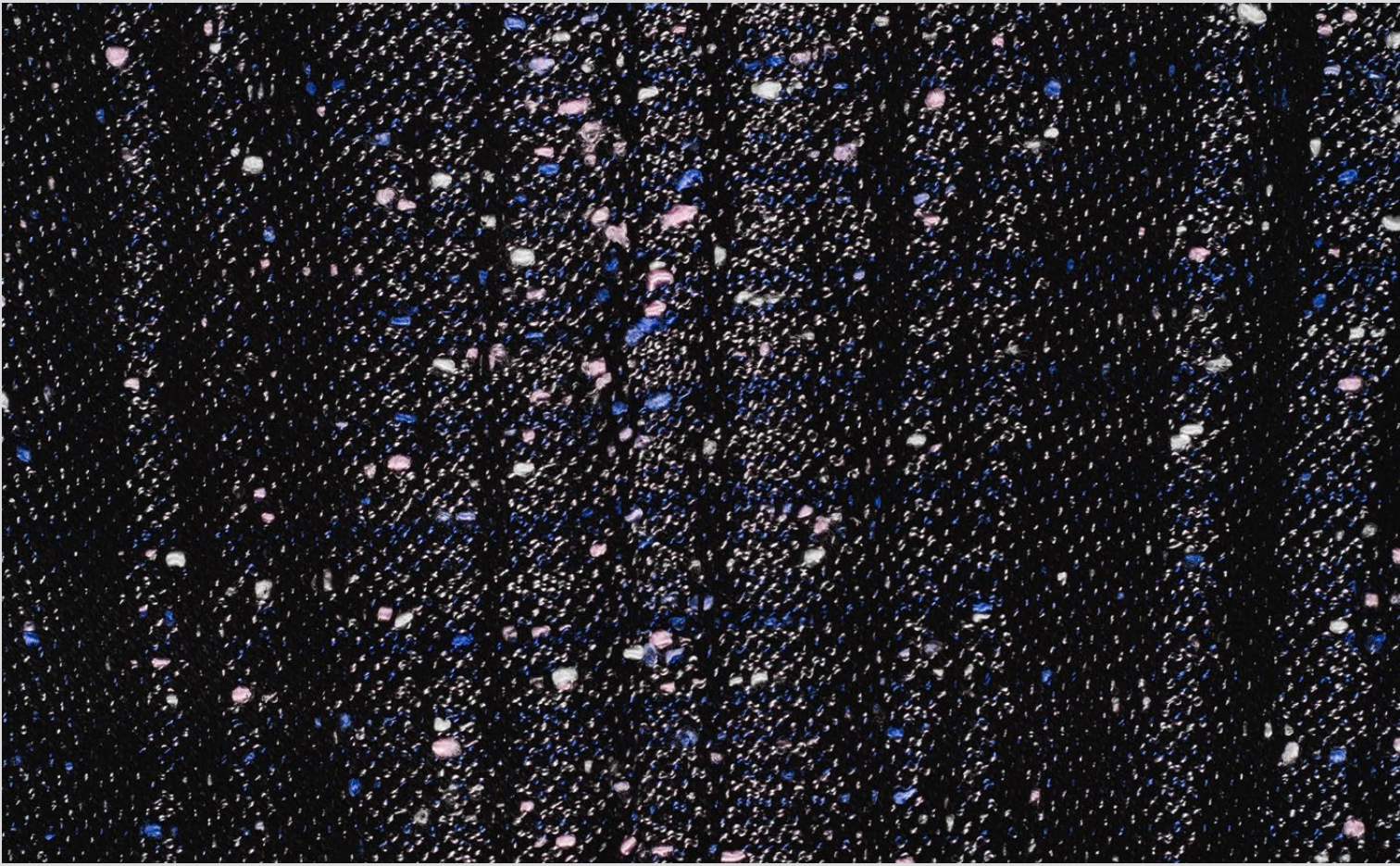
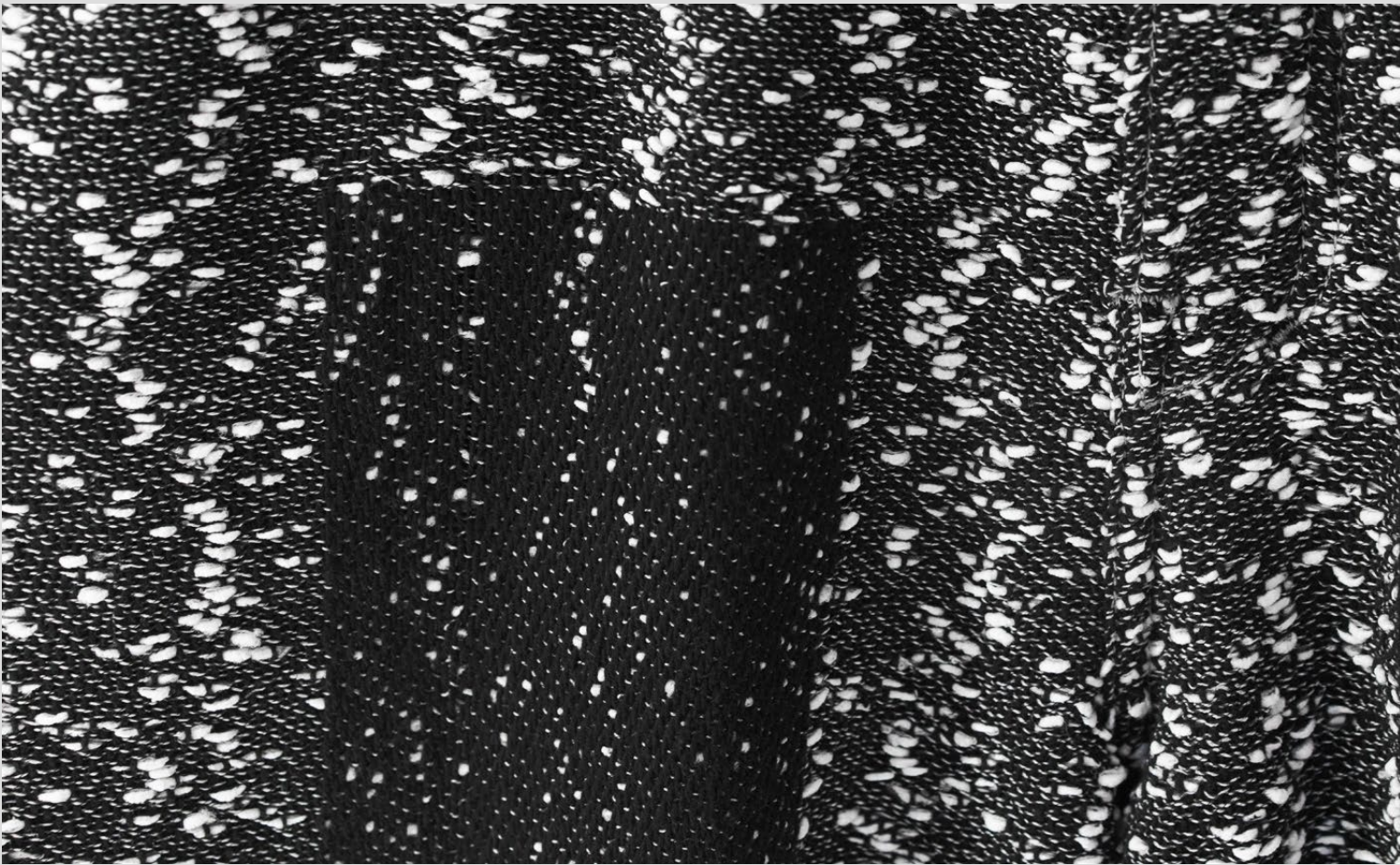
Fabrication assistance provided by Jess Wilson and Blake Conway. Selected photos by Vicki Tan. Graphic design by Nadine Macapagal.

2025

Ana Kraš x unspun

2023

The artist and designer Ana Kraš collaborated with unspun for her first apparel and home goods collection under the brand name TEGET. As the lead textile engineer on this project, I designed and prototyped a range of Jacquard wovens drawing upon the patterns and textures found in Kraš’ fine arts practice, and led the production of three styles in a full size range. Expanding on unspun’s 3D existing weaving technology, I developed new techniques in garment shaping, weave pattern programming and loom control that were necessary to realize these complex designs.



2024

Eckhaus Latta x unspun

2023

As a textile engineer at unspun, a fashion manufacturing startup focused on reducing waste and emissions, I led the textile development, prototyping and production of first-to-market 3D woven apparel products. We developed several styles for Eckhaus Latta’s SS24 collection at New York Fashion Week (left) and selected two for production in a full size range (right). The products use unspun’s proprietary 3D weaving technology to create seamless woven tubes with Jacquard patterning, custom size and shaping, and minimal waste.



Magnetic Reverberations

2023

In the spring of 2023, I was the Experimental Weaver-in-Residence at Unstable Design Lab. In collaboration with Laura Devendorf and Irene Posch, I developed an interactive woven textile that leverages the scattering and reflection of colored light to create an analog color-changing effect. We prototyped a suite of electromagnetic textile actuators and 3D-woven forms, while cataloging and formalizing the design practices that often emerge out of necessity in the domain of experimental weaving.

Published as *Design Bookkeeping: Making Practice Intelligible through a Managerial Lens*.



A project of Unstable Design Lab, based at the University of Colorado Boulder.

2024

Illuminating the Surface

2022

Jacquard weaving and digital image-making, in their entangled histories, have often strived for photorealism or the approximation of nature. Subtle perceptual cues - shadow, specular highlight, texture, symmetry - tell us on an unconscious level whether what we see is authentic. Contemporary virtual artifacts, like 3D scans and environmental assets in film and gaming, exist on the edge of realism; by using procedural-design software rooted in these industries, I strive to create seemingly natural compositions that are complicated by underlying geometries.

These fabrics explore the relationship between 2D pattern and 3D form, described in 3D scanning as texture applied to geometry. Misalignment or complete disparity between these two elements becomes disorienting and uncanny, eliciting an inquisitive, active form of looking that is a recurring goal of my work.



This project was supported by a RISD SPUR 2.0 Grant and created during an artist residency at Praxis Fiber Workshop.

2024

World Settings

2022

How can a fabric change the character of a room, the way it feels to inhabit that space? Drawing upon the history of architectural acoustics and the experiential qualities of emergent patterns, these handwoven, dobby and Jacquard fabrics propose a set of modifications to interior environments and the way we perceive them, through their illusory appearance and complex structural properties.

Across small-scale prototypes (this page) and large wall works (following page), techniques including hand-dyeing, spacer and pile weaving leverage the inherent tendencies of fibers and self-organizing materials, and in turn imbue static fabrics with a sense of aliveness.



World Settings

2022

Continued from previous page.

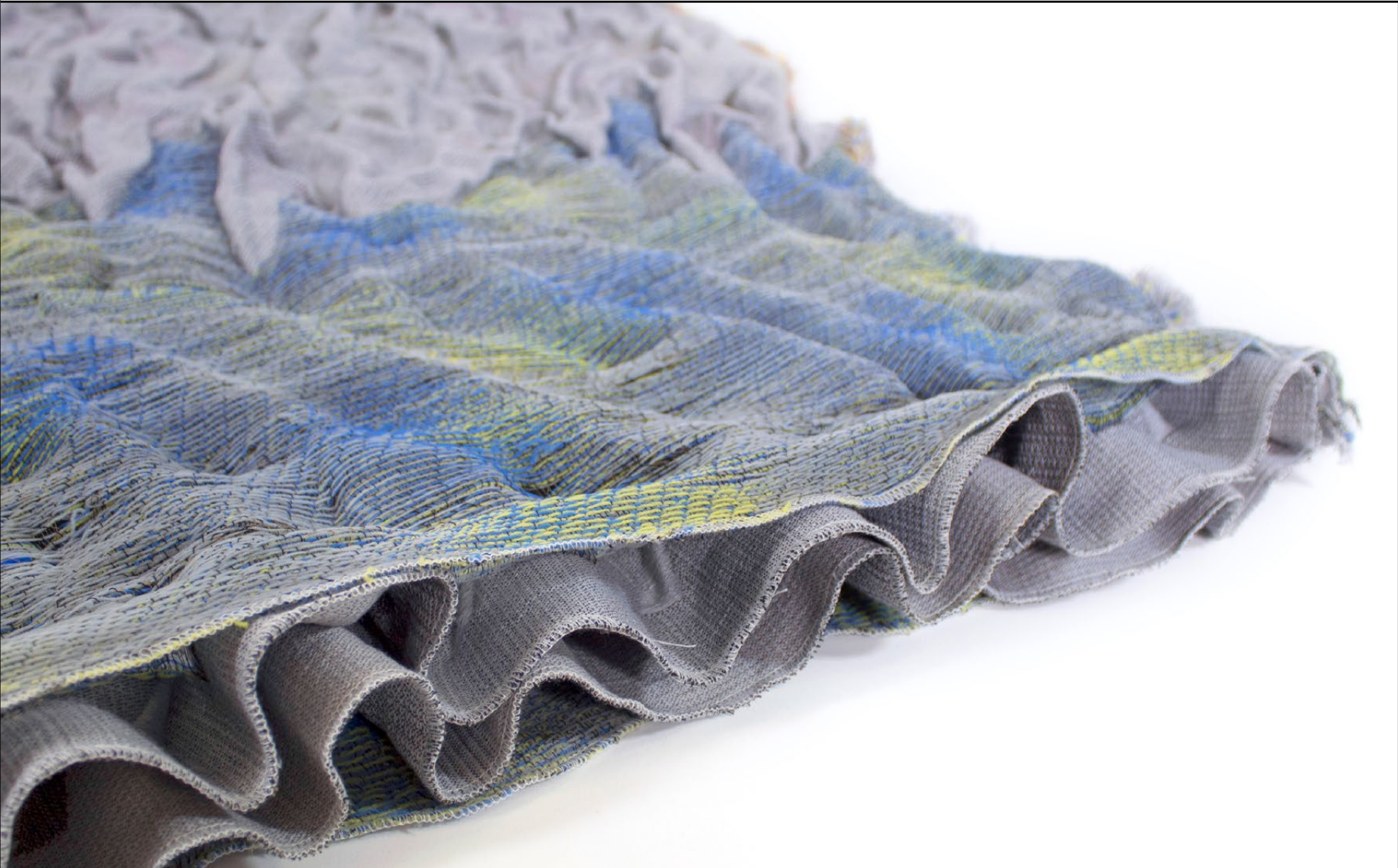


Woven Behavior and Ornamentation

2021

Clothing, soft furnishings and other textile products are often complex multi-material assemblies. Seating is a prime example, with structural supports, soft cushioning and a decorative outer cover. With self-shaping and three-dimensional woven fabrics, we can create single-piece constructions that meet ergonomic and aesthetic considerations while streamlining material inputs and assembly time. Jacquard weaving permits the design of engineered, or “zoned” physical properties across the surface of a fabric, while the simulation tool and library of self-shaping tendencies that we developed enable designers to input known textures and behaviors into each zone.

Published as *Woven Behavior and Ornamentation: Simulation-Assisted Design and Application of Self-Shaping Woven Textiles*.



A project of the Virtual Textiles Research Group, based at the Rhode Island School of Design.

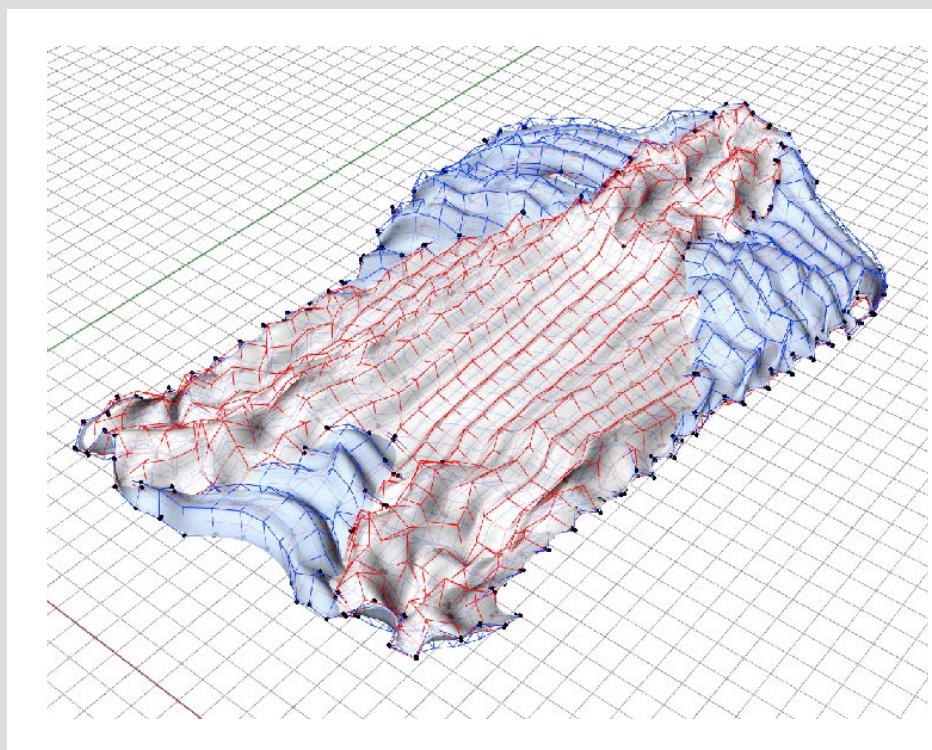
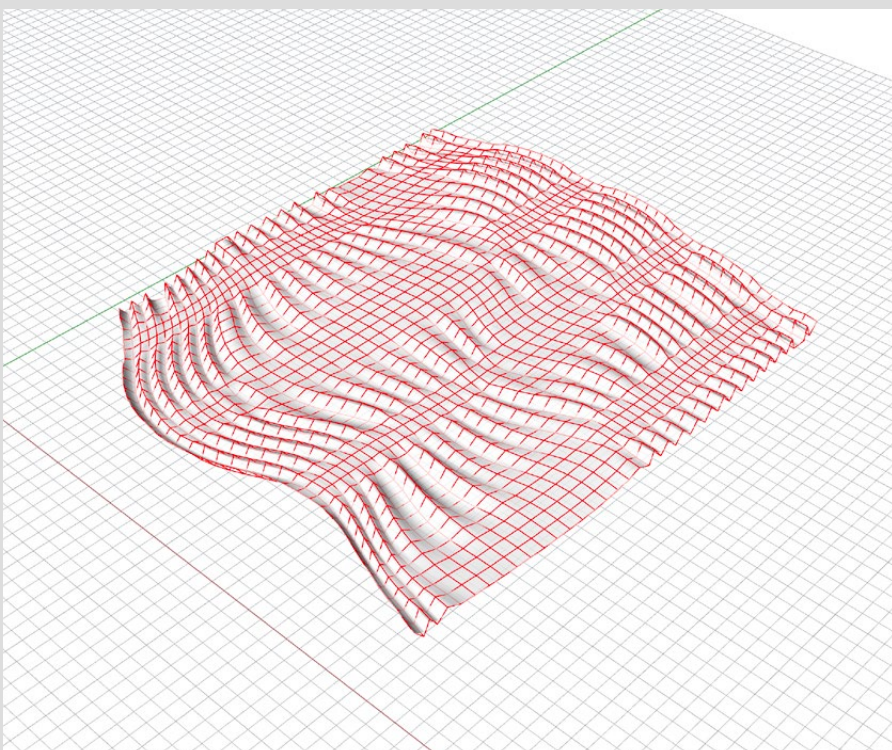
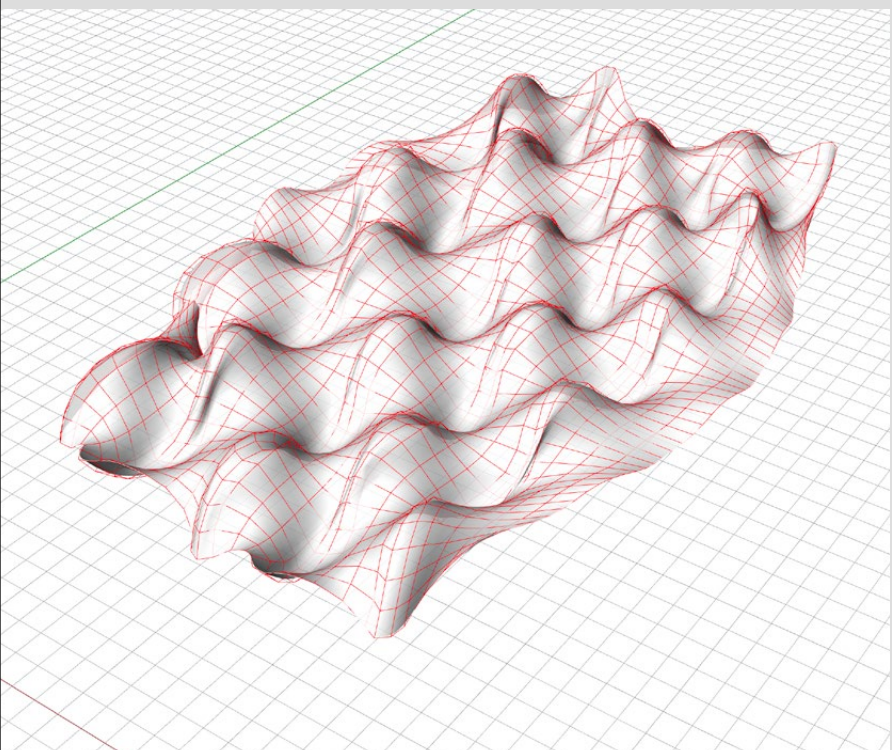
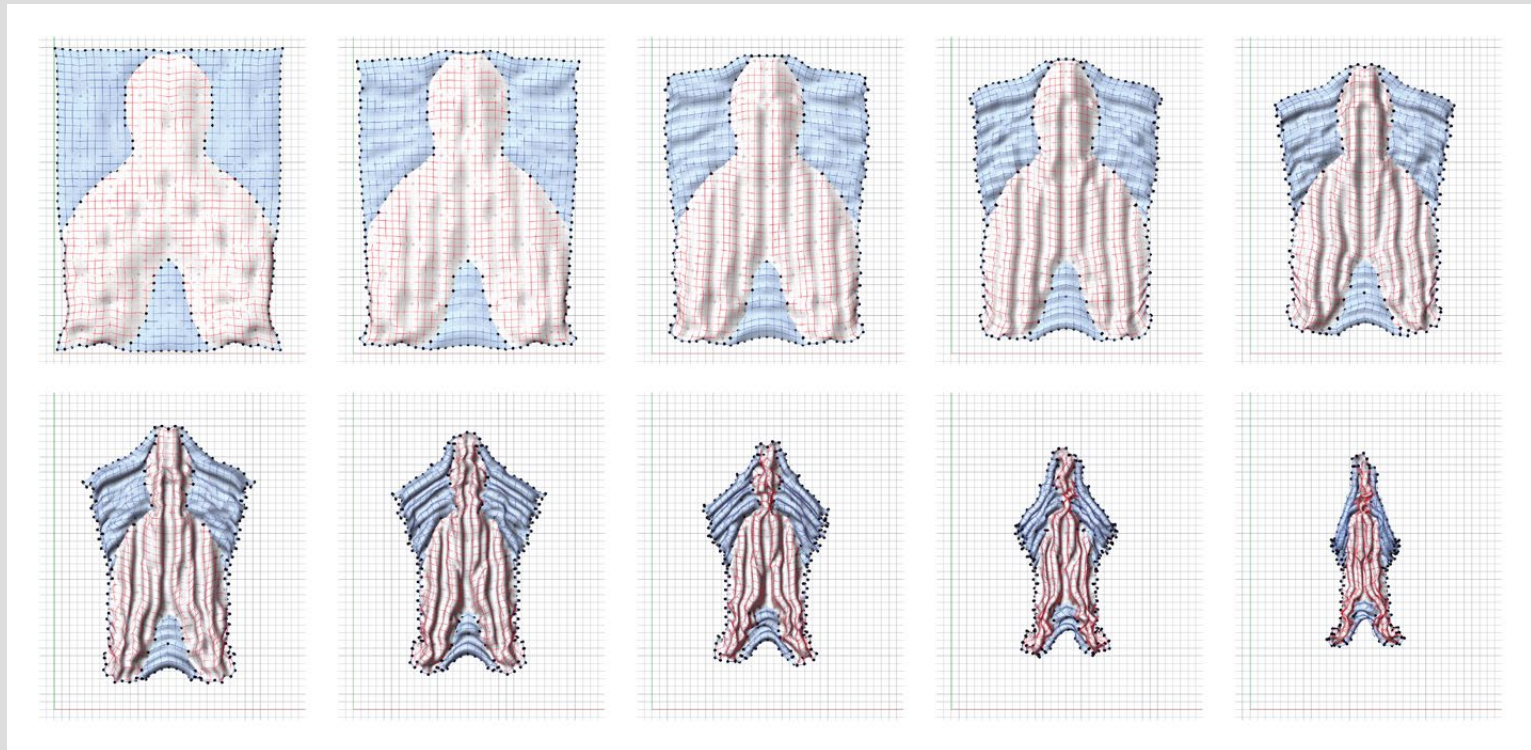
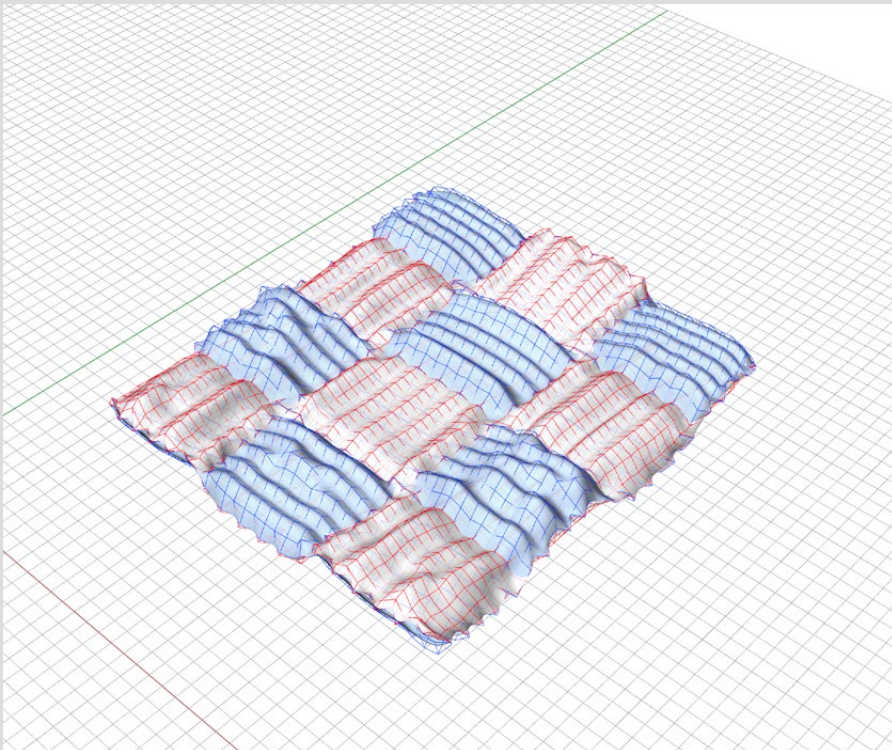
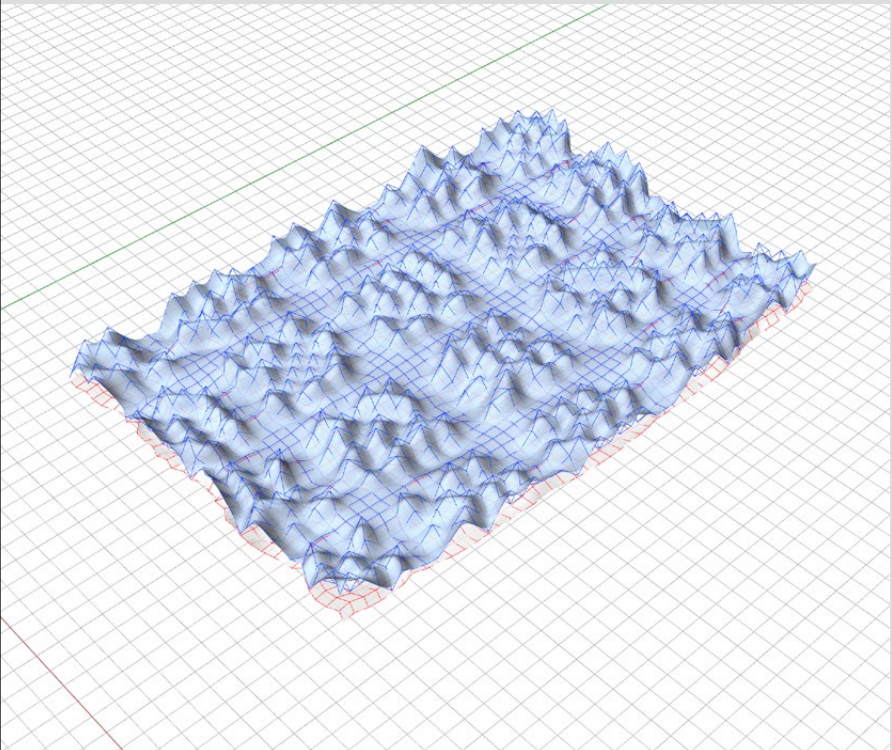
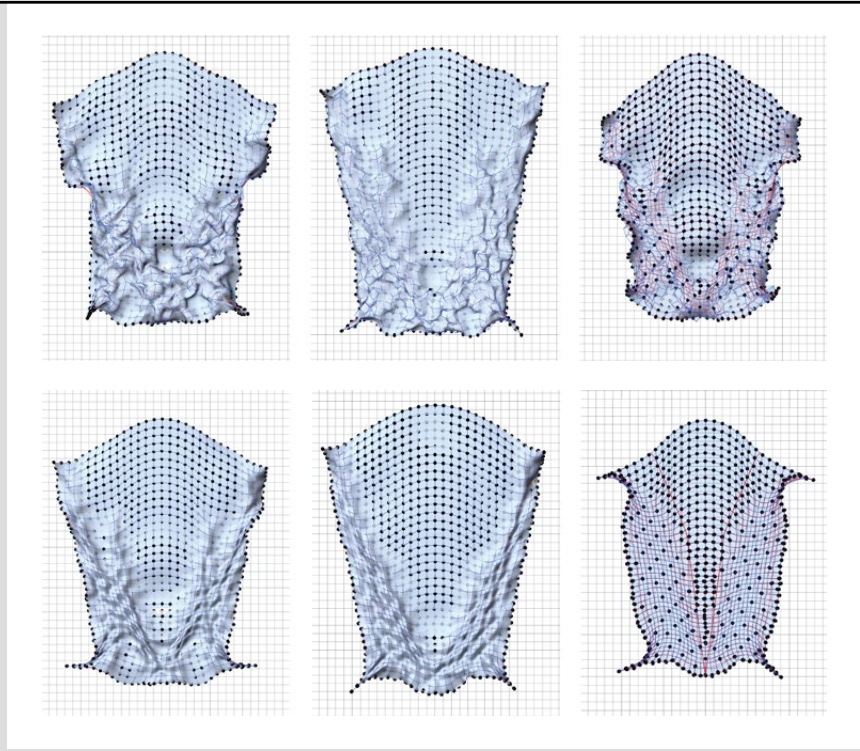
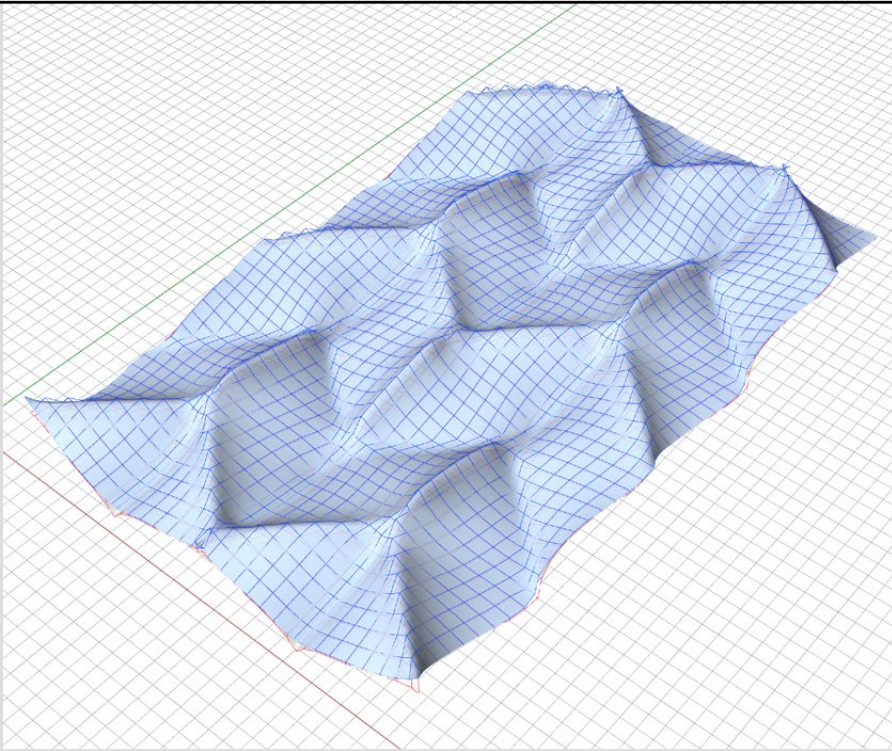
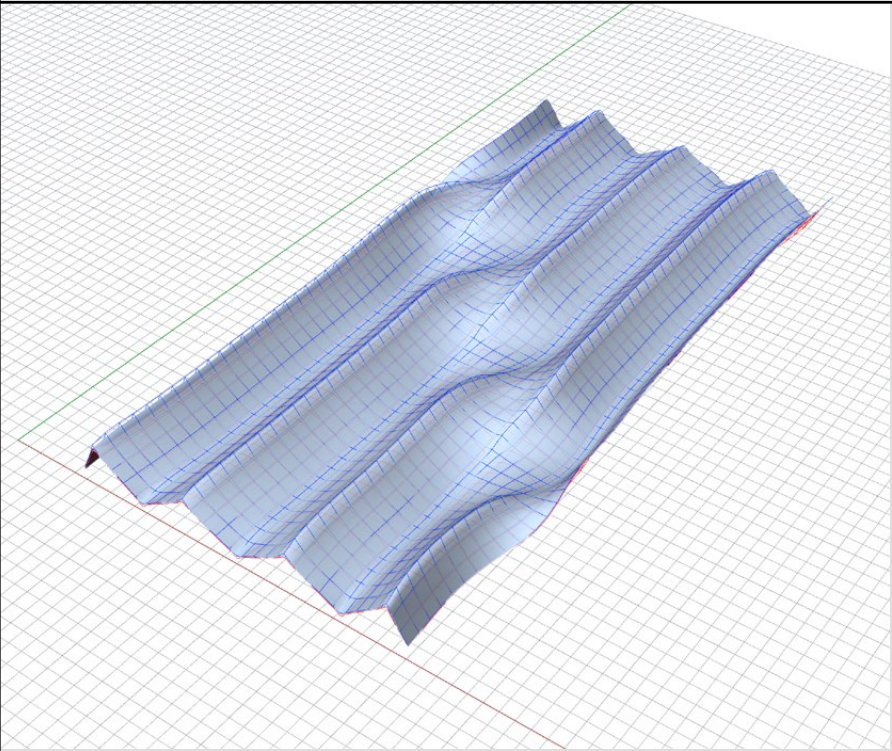
2022

Woven Sketching Tool

2021

Self-shaping textiles, which undergo shape transformations during the finishing phase, have unique structural properties and diverse applications but are challenging to design and prototype. Woven textile design software demonstrates the graphical aspects of fabric, but offers limited representation of fabric behavior. With a custom-built solver in Grasshopper and Kangaroo for Rhino, we use parametric modeling and simulation to ideate, refine and inform the physical production of woven fabrics with specific three-dimensional qualities, shifting the iterative work inherent to textile design into a digital space.

Published as *Rapid Sketching of Woven Textile Behavior: The Experimental Use of Parametric Modeling and Interactive Simulation in the Weaving Process*.



Self-shaping Jacquard-woven fabrics

2021

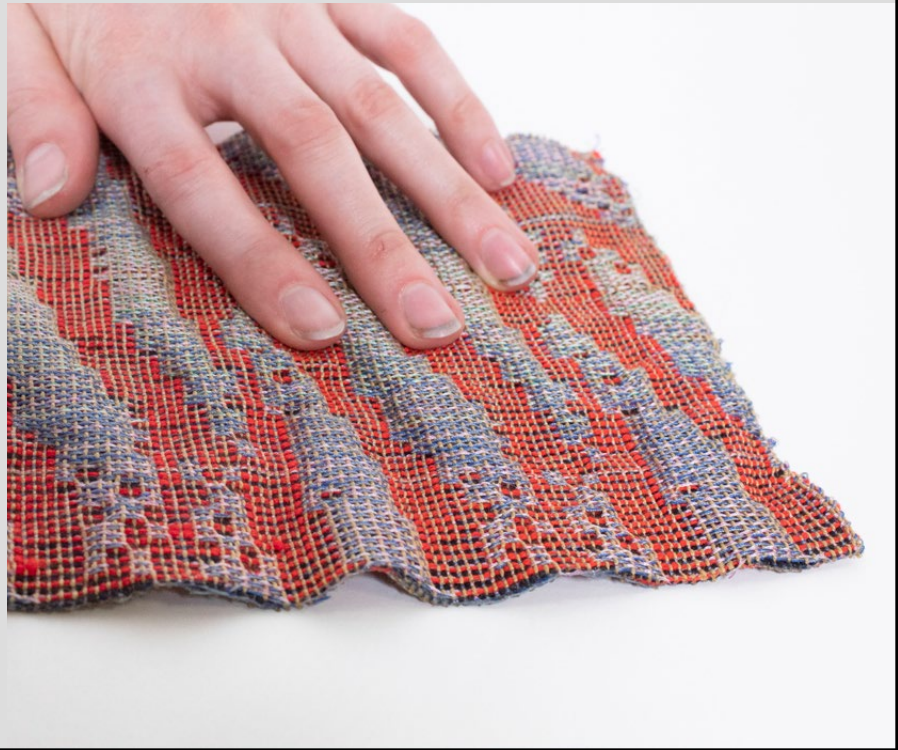
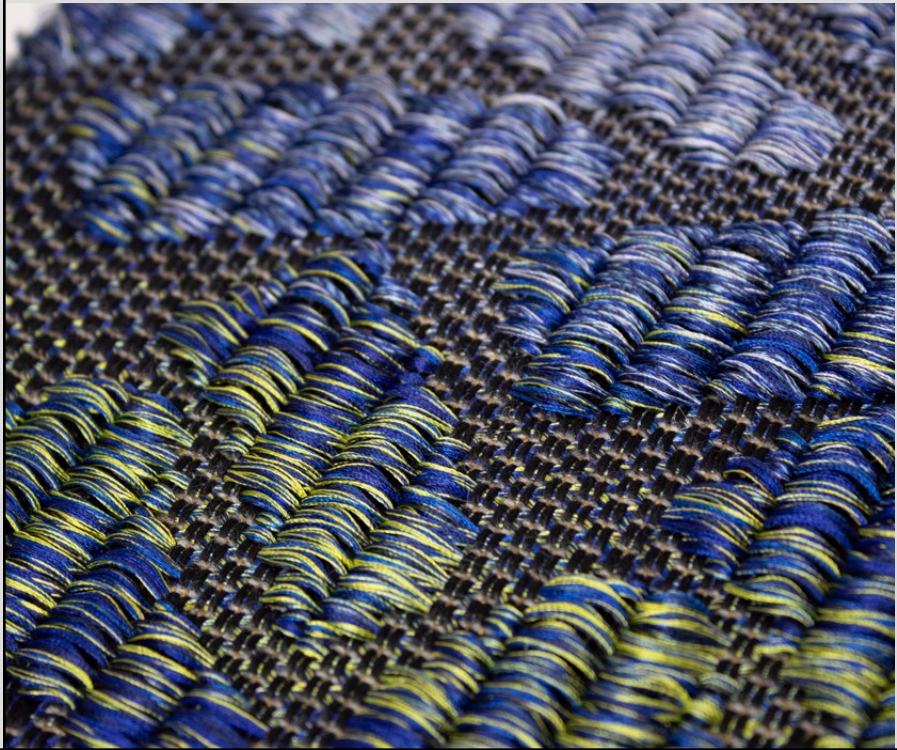
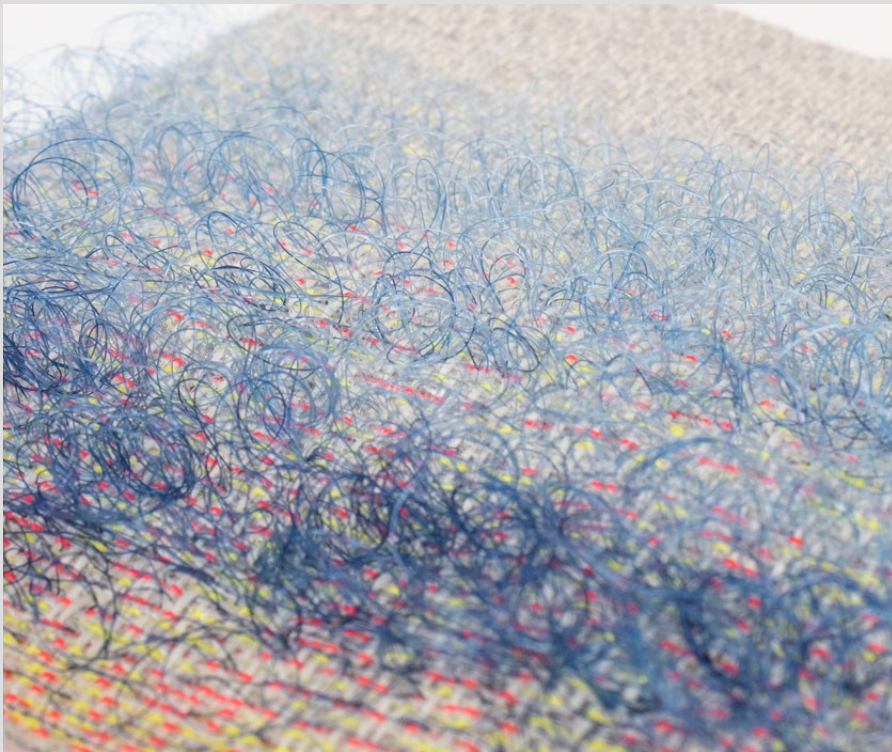
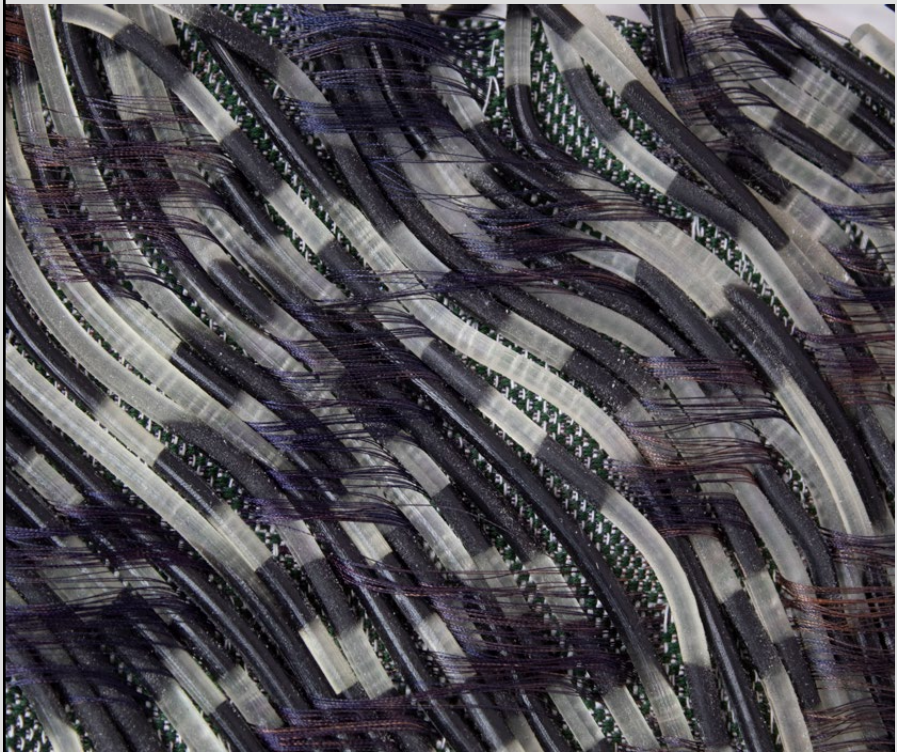
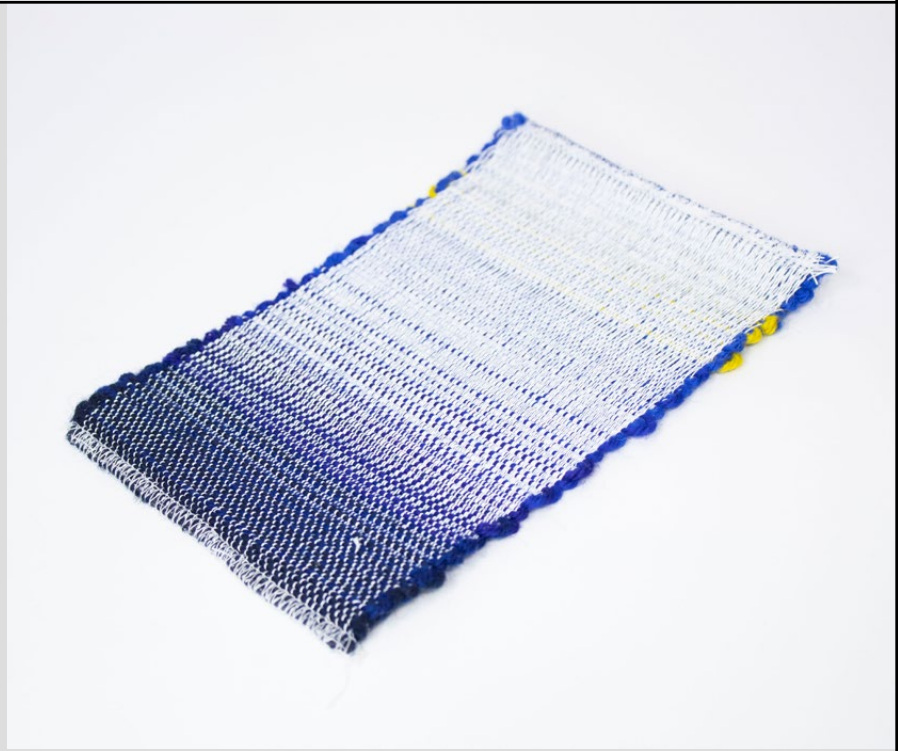
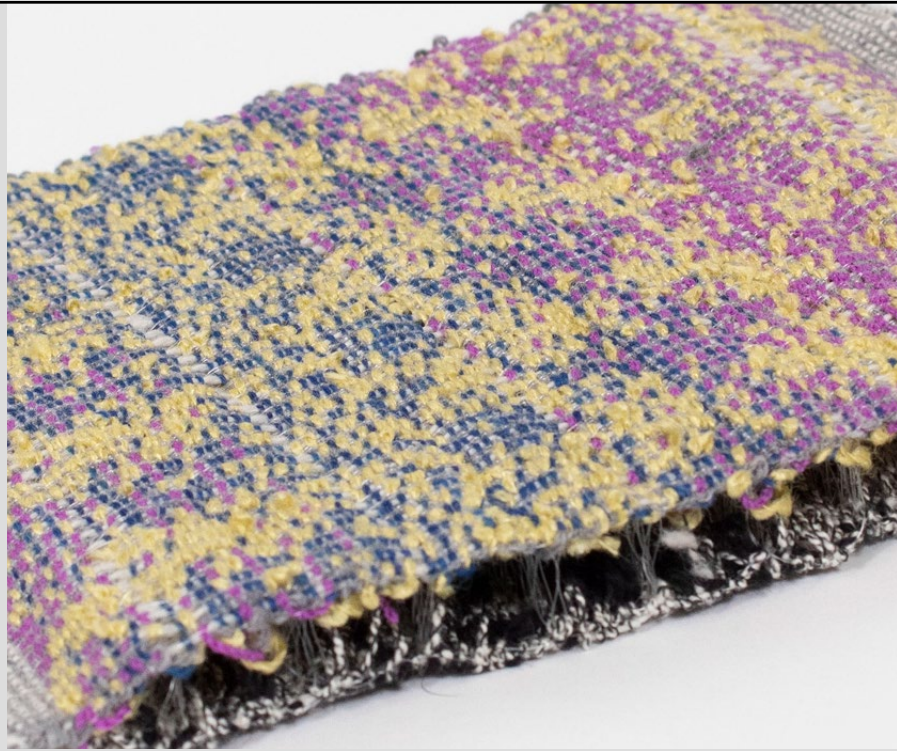
Studies in three-dimensional weaving, designed and programmed in Pointcarré and woven on a Staubli Jacquard loom. Through multi-layer structure, differential shrinkage and the interaction of surface color and base texture, these pieces come alive when when removed from the loom and finished, resulting in pleated, convoluted and corrugated forms.




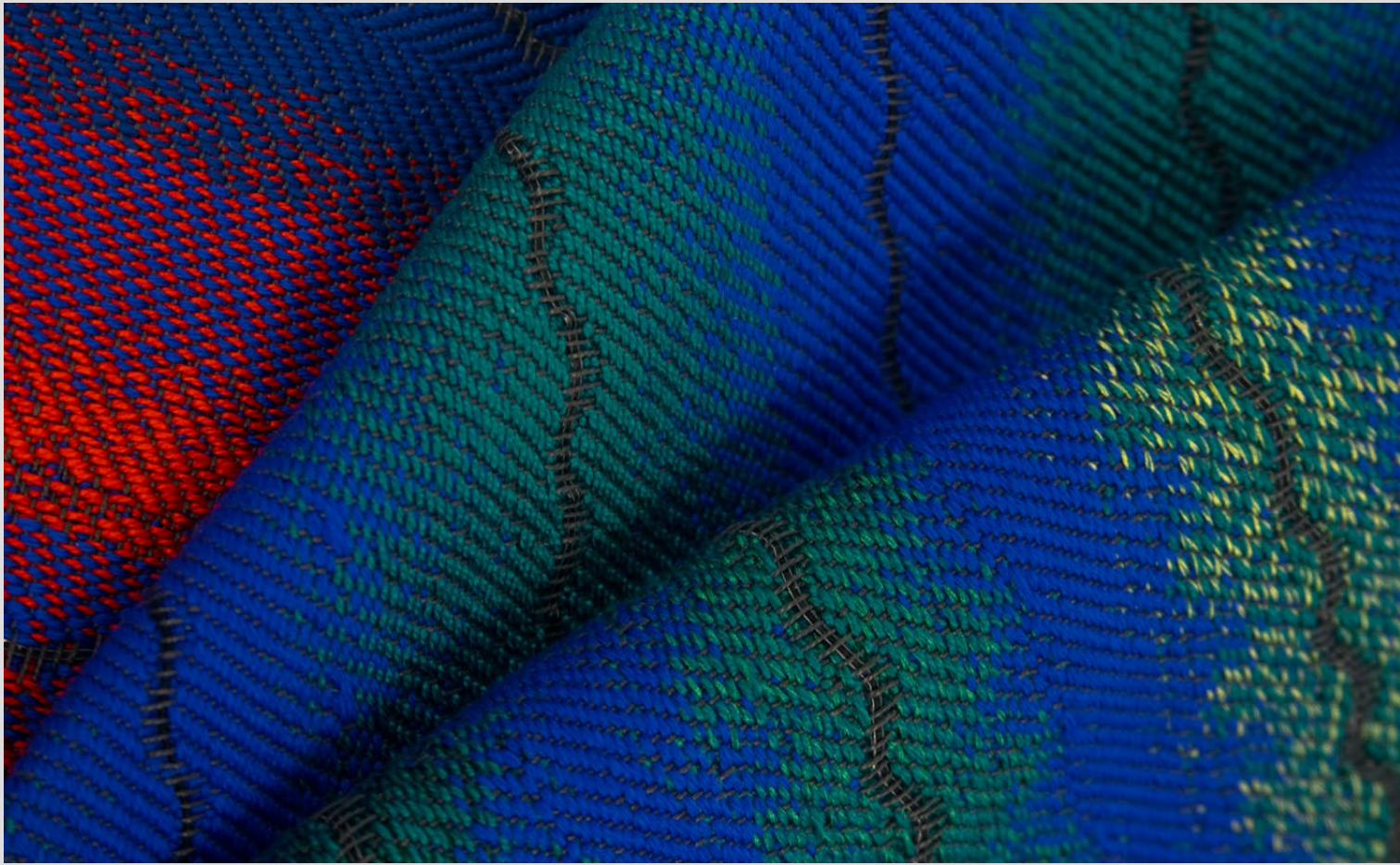



Abstract Haptics

2021

A collection of woven fabrics designed to promote open-ended tactile experiences, through highly textured surfaces and diffuse, scattered patterns that elicit a searching, exploratory gaze. We are familiar with non-representational appeals to certain senses - immersing one's self in an abstract painting or a piece of ambient music is perfectly understandable - yet contemporary haptics are often quite literal, replicating the sensations that arise in occupational or recreational contexts. What would it be like to engage in an abstract haptic experience?

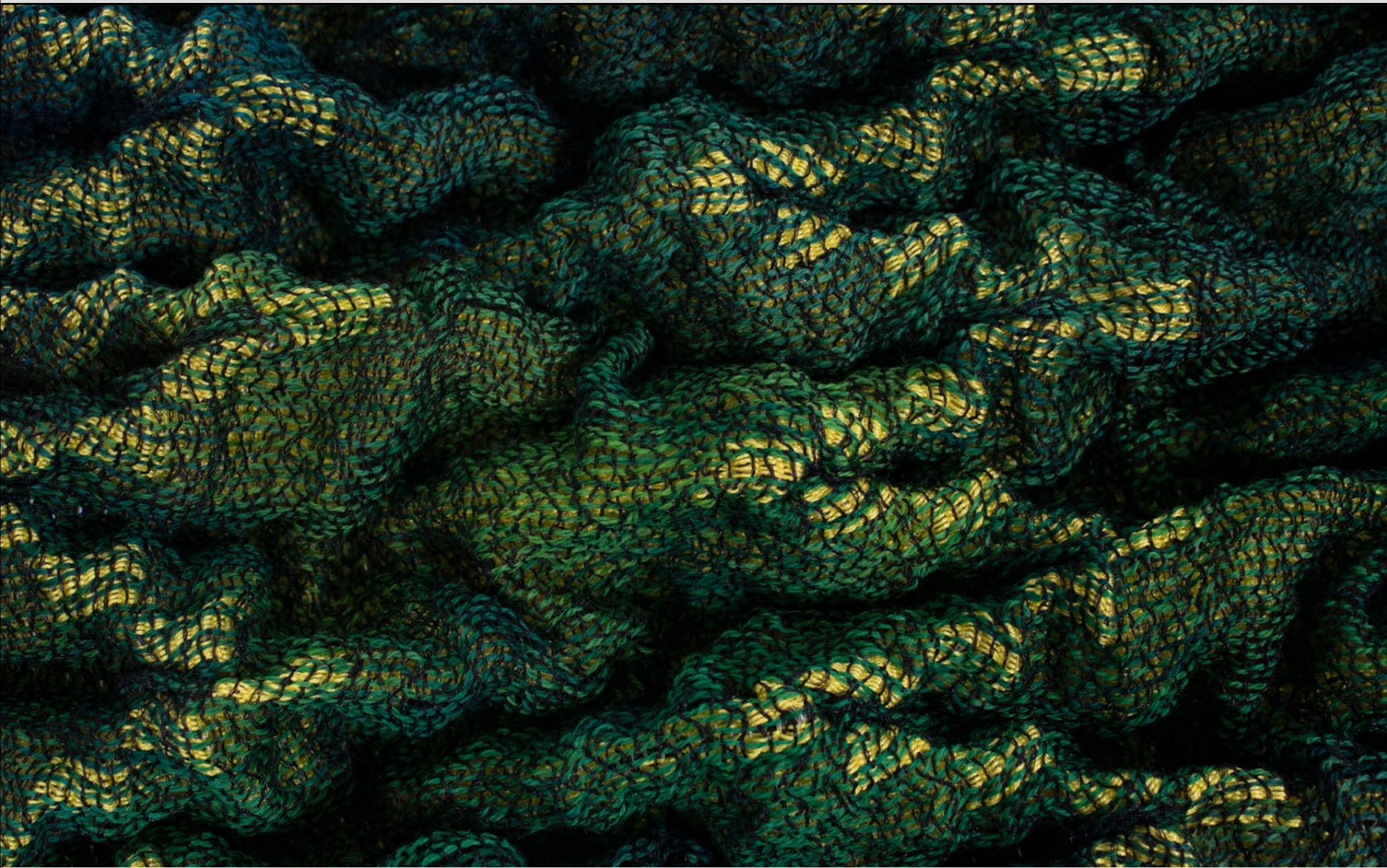


Acoustic Fabrics	2020	
<p>Acoustic fabrics, with a flexible piezoelectric fiber incorporated during the weaving process, can detect sounds at a range of decibel levels. As the primary textile contributor to this project, I designed, fabricated and iterated on “fabric microphone” prototypes until they met the desired performance standards.</p> <p>Keeping the handfeel and appearance consistent with conventional cotton-based apparel fabrics, while also achieving a high modulus and a functional fiber integration, were key considerations. Weaving techniques such as tiedowns, warp floats and deflected wefts were used strategically to yield different mechanical properties in the fabric.</p> <p>Subsequent projects included biomedical applications of acoustic fabrics and a woven detector of space dust that was installed for data collection at the ISS for six months in 2022.</p> <p>Published by Wei Yan et al. as <i>Single fibre enables acoustic fabrics via nanometre- scale vibrations</i>.</p>		<div data-bbox="926 296 1909 904"></div> <div data-bbox="2102 136 3332 904"></div> <div data-bbox="926 971 1909 1579"></div> <div data-bbox="2102 971 3332 1735"></div>
<p>A collaborative project between the Fibers group at the Massachusetts Institute of Technology and the Textiles department at the Rhode Island School of Design.</p>	2022	

Self-shaping hand-woven fabrics

2020

Self-folding fabrics woven on a 10-harness floor loom. With a strategic pairing of high-stiffness and high-shrinkage weft yarns, the weave structure either constrains the materials’ tendencies or creates space for them to be fully realized. The result is a fabric with distinct zones of physical properties inherited from localized combinations of material and form. By utilizing pockets of air as a functional ingredient, the thick, cushioned fabrics propose an alternative to upholstery foam and multi-material assemblies, providing support through structure.

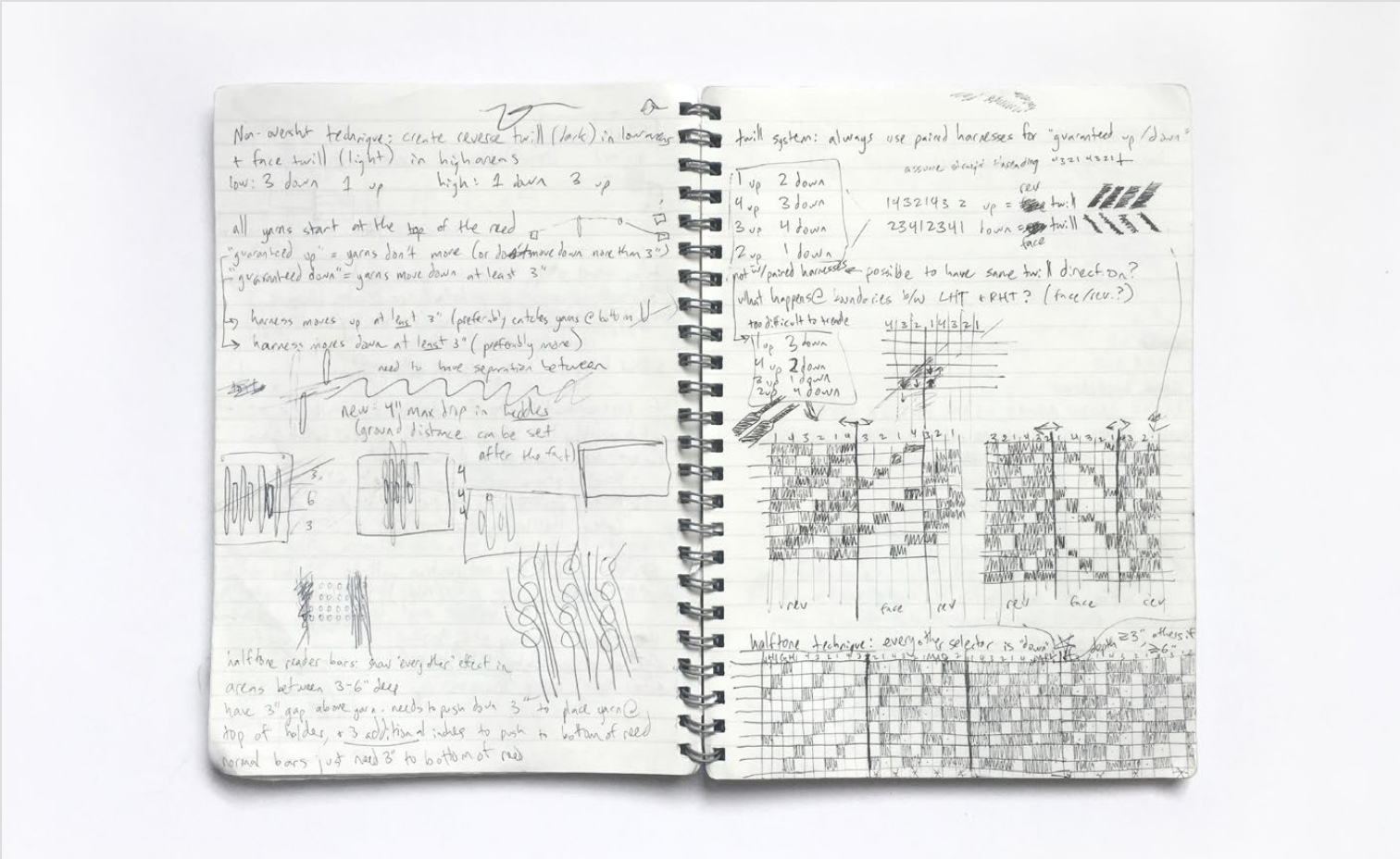


Soft Survey

2018

How can a fabric capture the essence of a time and place, like a geological or photographic record? What can representational and non-representational modes of surveying tell us about a terrain? Also, what if a loom had wheels?

By retrofitting a four-harness counterbalance loom with a novel shedding mechanism, woven patterns are generated from a unique input: not a programmed file or a treadling sequence, but the topography of the ground that the loom traverses while weaving. Situating this form of “field recording” in public parks led to moments of curiosity, patient observation and improvised teaching amidst the creation of several large-scale woven works (following page).



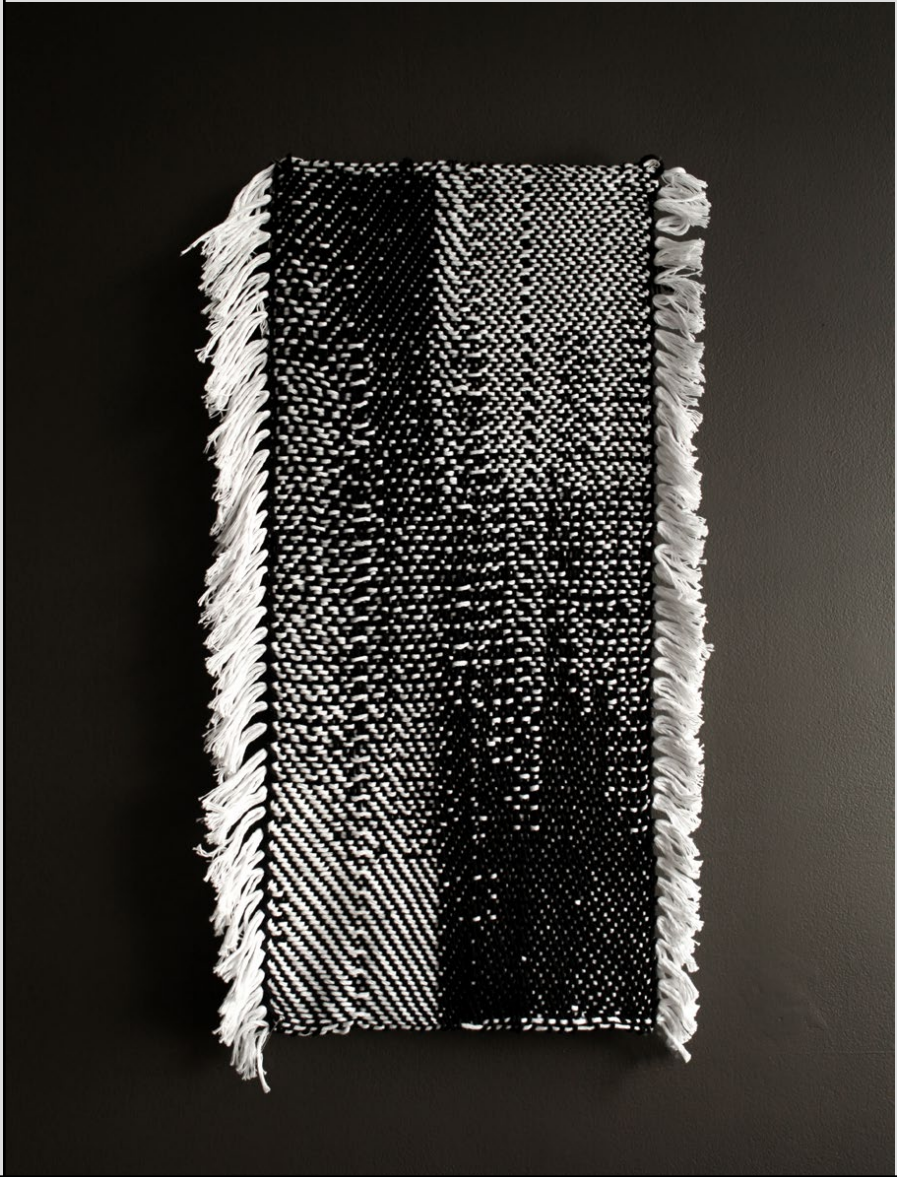
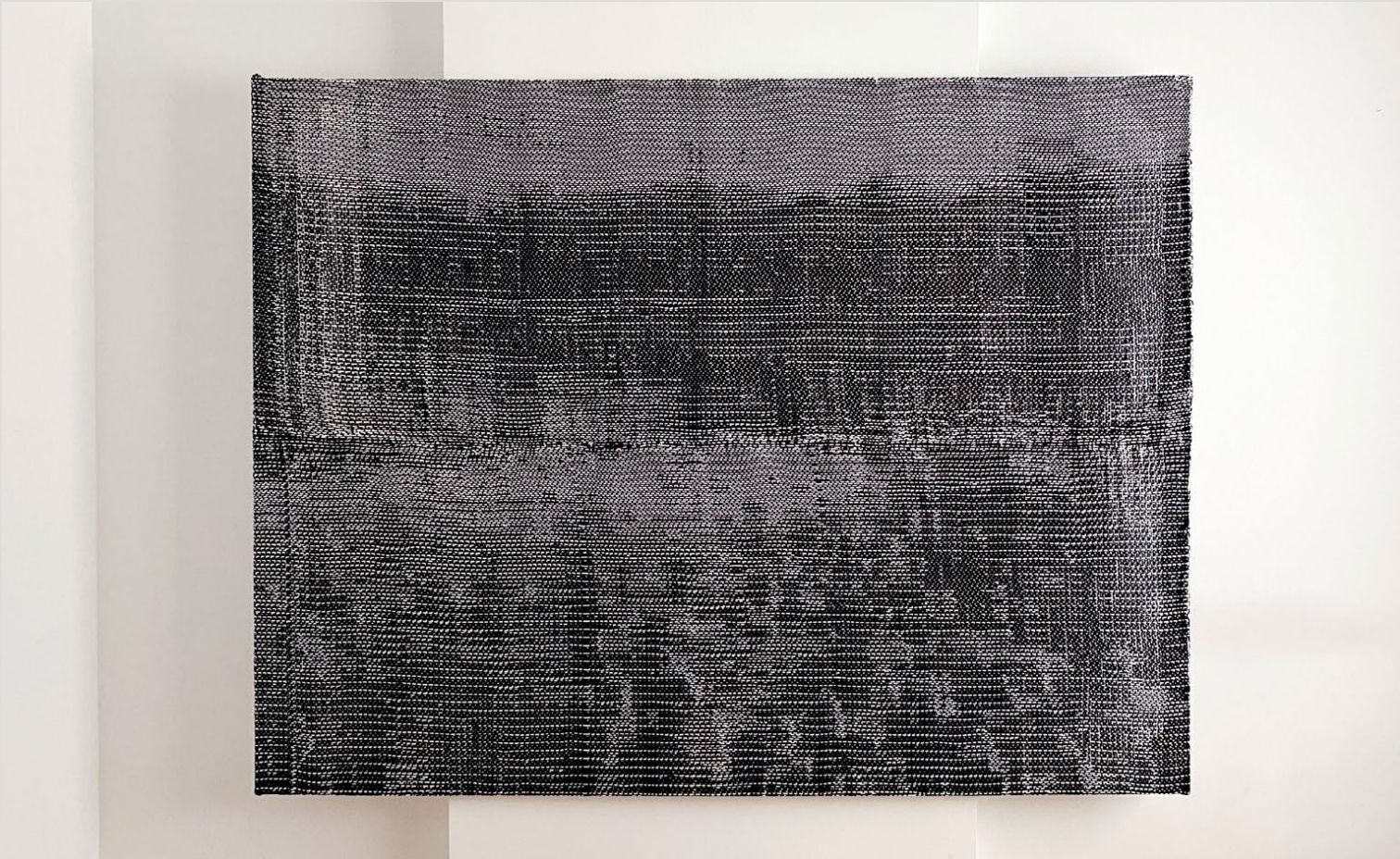
This project was supported in part by a grant from the Queens Council on the Arts.

2020

Soft Survey

2018

Continued from previous page.



This project was supported in part by a grant from the Queens Council on the Arts.

2020

proof-of-usufruct	2016	
<p>In 2016 I moved into an apartment at the intersection of two major freeways, a short distance from the Port of Oakland. In stark contrast to the locally sourced, naturally dyed, regenerative fiber-arts ethos of that place and time, the only textile materials that were “local” to me were bound up in sites of transit and commerce, from the stacked shipping containers to the retail loading docks and carefully arranged endcap displays.</p> <p>To harvest fibers from these sources was a renegotiation of the implicit contract, or usufruct, between a creative practitioner and their surroundings, in which what could be gleaned from the land was not wool, flax or cochineal but T-shirts and jeans, bath mats and facial exfoliators. Somewhere between garment and sculpture, these pieces argue that the “finished product” sold in stores is in fact an unprocessed mass of raw material, from which yarns and fibers can be extracted and spun into something new.</p>		 <div data-bbox="2965 938 3098 1031"> <p>EXHIBIT 101: MICHÈLE LORNE proof of usufruct #1 knitted from RECYCLED washing pants and KNOTTED corded yarn</p> <p>EXHIBIT 102: MICHÈLE LORNE proof of usufruct #2 knitted from recycled denim jeans</p> </div>
	2020	

Everything else

?

The processes that I design in order to make my work are as novel and exciting to me as the finished pieces themselves. I draw upon my knowledge of digital fabrication and creative computation to generate complexities and strange new possibilities in textile form, pattern and color. Concepts like adversarial interoperability, productive wandering and playful tinkering inspire this ongoing practice.

Clockwise from top left:

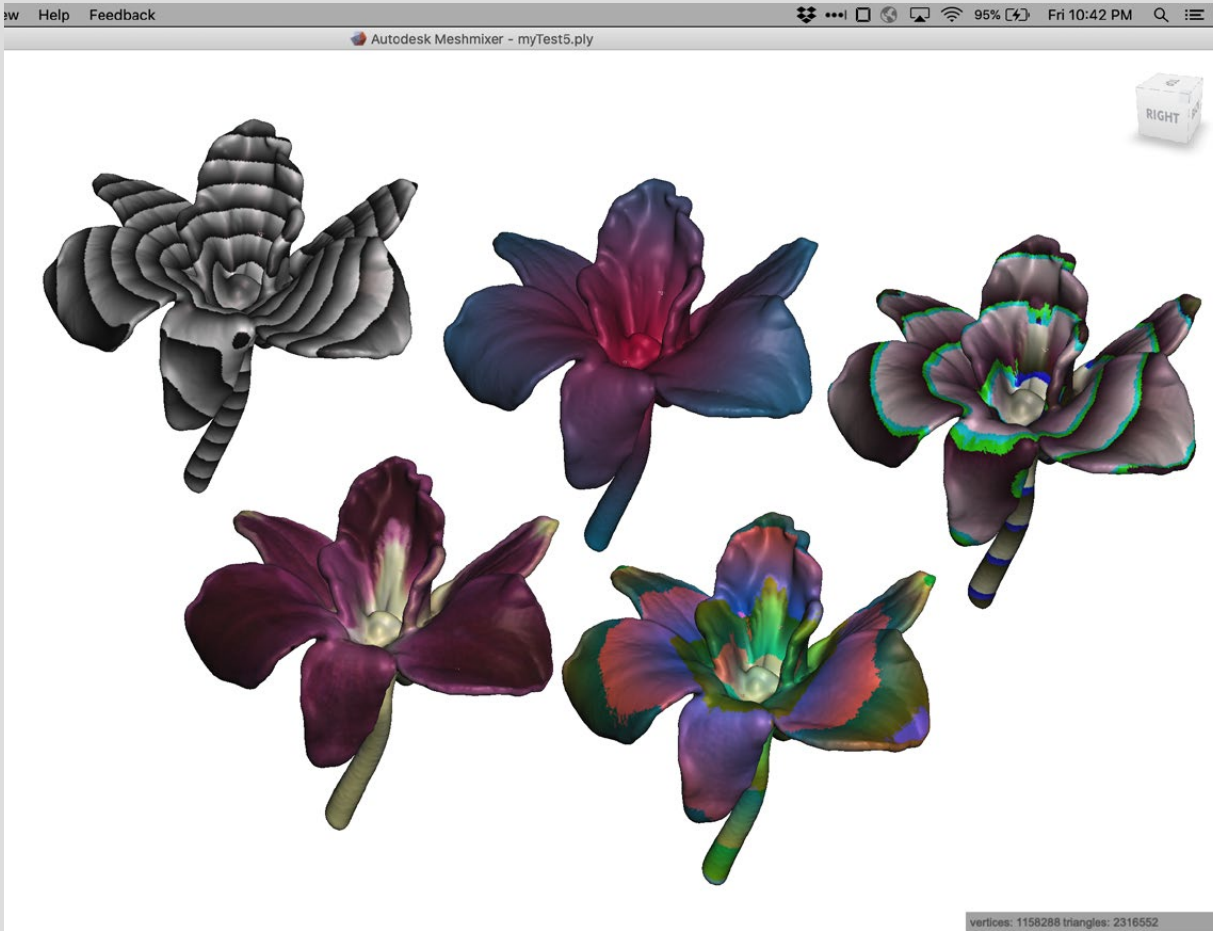
- 1. Managing Jacquard design files with hundreds of colors requires robust documentation. I developed a system to encode, and subsequently decode, surface pattern and structural information from each color in the weave graphic.
- 2. Digital embroidery created by parametrically transforming the original embroidery file with a custom Python library.
- 3. Tiles printed on a hacked multicolor 3D printer. The machine is programmed to print a solid color, but its cartridges are swapped during printing, resulting in an unpredictable gradient.
- 4. Tool for simulating color blending in woven fabrics, built in Grasshopper for Rhino.
- 5. Overwriting the RGBA channels of 3D mesh file vertices to create spontaneous patterns.

∞

Color # in palette	Hex code	Base hue	Value modifier	What's happening in the structure?	What's happening visually?
119	#0b9dc3	#80ffff	#666666		- same as above but with E2F3 color permutation.
120	#1e9d9d	#80ffff	#777777		- same as above but with E2F4 color permutation.
121	#2f9eae	#80ffff	#888888		- same as above but with E3F1 color permutation.
122	#40				- same as above but with E3F2 color permutation.
123	#51				- same as above but with E3F3 color permutation.
124	#62				- same as above but with E3F4 color permutation.
125	#73				- same as above
126	#8				- same as above
127	#a				- same as above
128	#c				- same as above
129	#00:				- Compound shaded satin, AC color permutation.
130	#00:				- There are 6 (4 choose 2) permutations of A,B,C,D saturation.
131	#11:				- In the compound satin, there are always two wefts weaving a weft-faced satin and two weavings a warp-faced satin.
132	#22:				- same as above
133	#33:				- same as above
134	#44:				- same as above
135	#141493	#8080ff	#222222	- Linen (D) compound satin on face and reverse layers.	- Compound shaded satin, AC color permutation.
136	#2525a4	#8080ff	#333333	- Linen (D) & poly (E,F) on middle layer.	- There are 6 (4 choose 2) permutations of A,B,C,D saturation.
137	#3636b5	#8080ff	#444444	- No channel.	- In the compound satin, there are always two wefts weaving a weft-faced satin and two weavings a warp-faced satin.
138	#4747c6	#8080ff	#555555	- Middle layer tied down to reverse.	- same as above but with AB color permutation
139	#5858d7	#8080ff	#666666		
140	#6969e8	#8080ff	#777777		
141	#400180	#ff80ff	#222222		
142	#511291	#ff80ff	#333333		

This pattern has too many colors.

OK



[183	157	255	255]
[189	255	255	255]
[255	217	255	255]
[135	255	255	255]
[255	125	255	255]
[255	148	255	255]
[218	30	255	255]
[32	71	255	255]
[255	127	255	255]
[58	255	255	255]
[14	255	255	255]
[255	153	255	255]
[255	145	255	255]
[173	255	255	255]
[155	255	255	255]
[133	255	255	255]
[244	188	255	255]
[27	42	255	255]
[250	255	255	255]
[0	196	255	255]
[173	191	255	255]
[189	255	255	255]
[30	126	255	255]
[255	143	255	255]
[145	255	255	255]
[40	83	255	255]
[120	208	255	255]
[166	255	255	255]
[143	255	255	255]
[145	0	255	255]

