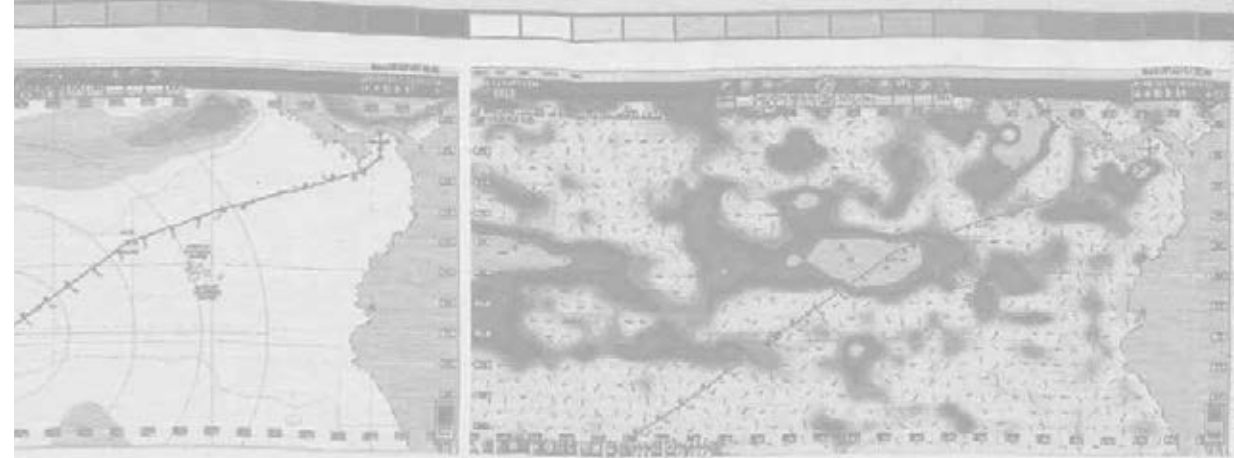
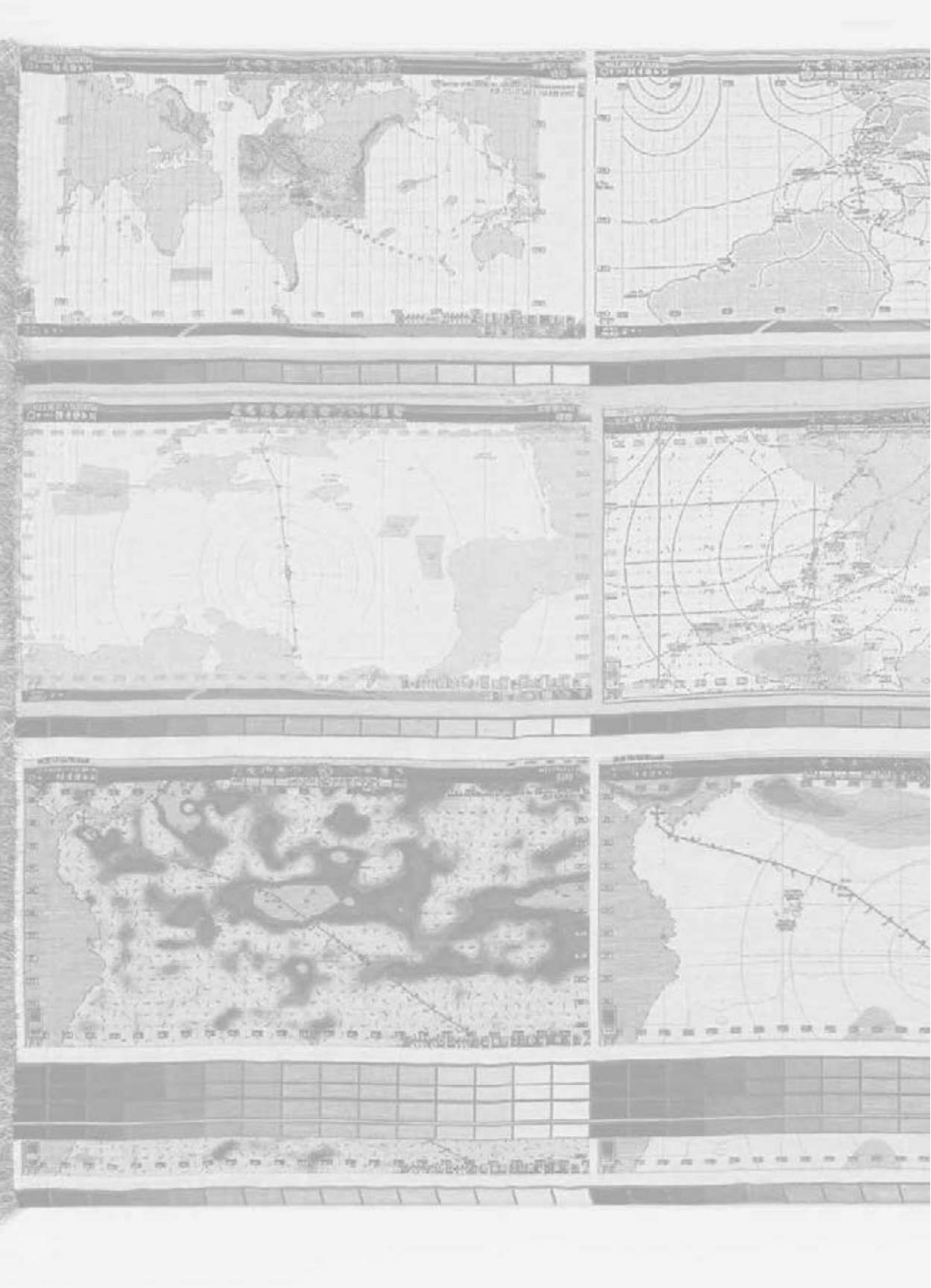


Material Codes *Ephemeral Traces*

Kelly Thompson





Material Codes *Ephemeral Traces*

Kelly Thompson



Material Codes *Ephemeral Traces*

The invisible to material research project
Kelly Thompson

5

Reflections on research-assisting
Sophia Borowska

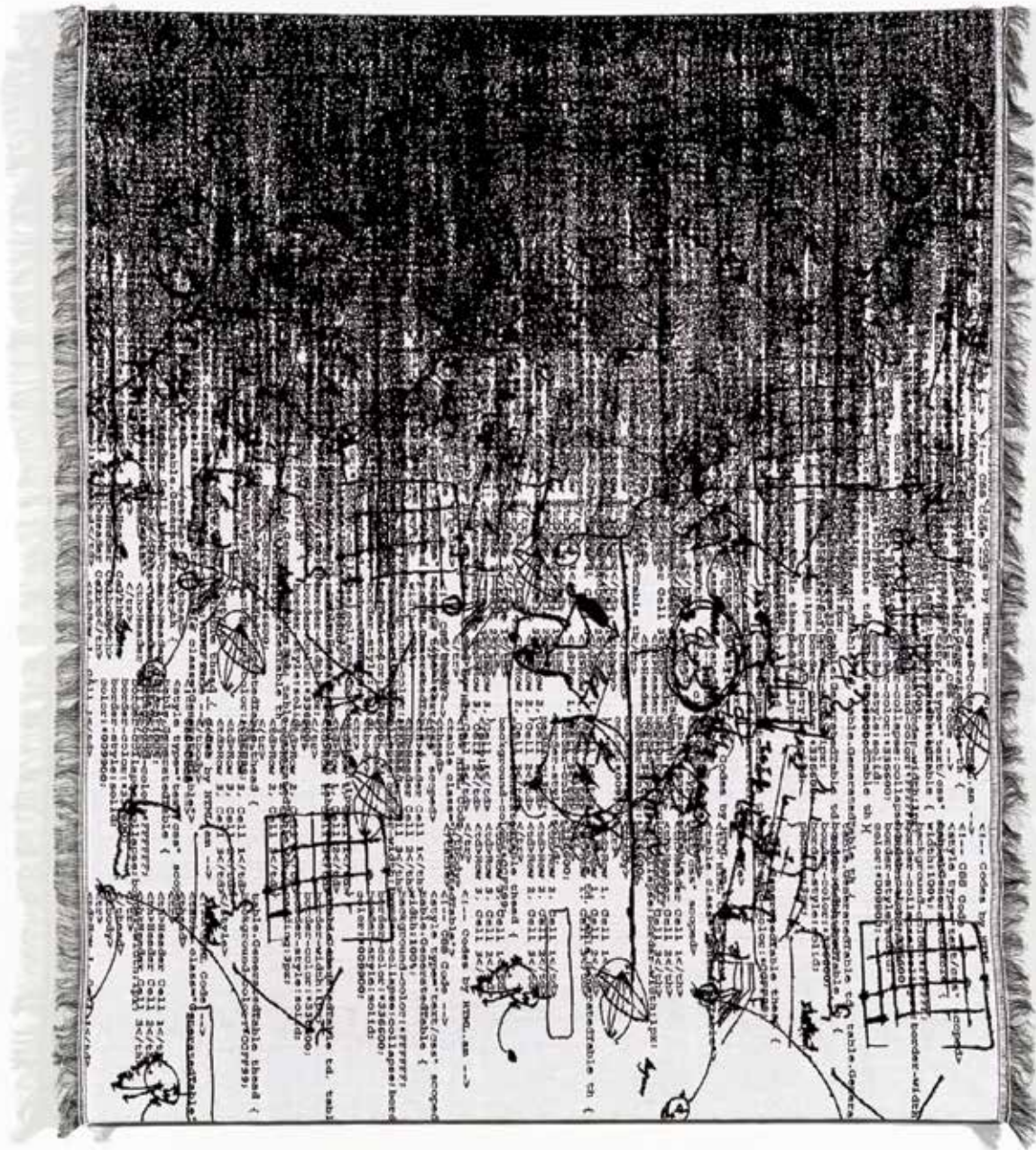
27

Le Jacquard pour artistes: rêves et réalisations
Louise Lemieux Bérubé

35

Climate Data Labyrinth
Kathleen Vaughan

43



The invisible to material research project

Kelly Thompson

Introduction

Material Codes: Ephemeral Traces explores the digitally implicit with the materially expressive through the medium of Jacquard woven textiles. The research asks, when do we notice the normally invisible worlds of digital processing? What is data? How might we see common place digital data anew, while reconsidering technology's fallibility and arbitrariness? Moments of software or hardware failure can reveal to us the invisible processing that goes on behind the screen. How can these ephemeral traces of digital code be materialized to create new meaning?

The overarching aim of the *Material Codes: Ephemeral Traces* project is to critically engage with digital sources, outputs and the processes behind them, namely, our dependence on data that is sometimes under-scrutinized and unreliable. Through in-depth inquiry into constructing cloth structures, the project draws attention to technology, asking what is the impact when the transient is made tangible using digital tools? The samples, tests and artwork produced during this exploration are represented in this document, as evidence of data visualization transformed into textiles through Jacquard weaving.

Funded by *Fonds de recherche du Québec – Société et culture (FRQSC)* from 2014-2018, with infrastructure support from Hexagram/Concordia, the Milieux Institute for Art, Culture and Technology, and the Faculty of Fine Arts at Concordia University, the project addresses three main elements: the exploration of studio practice methodology in the creation

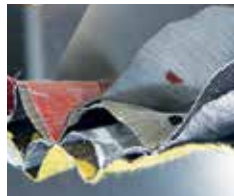
of woven textiles; mentorship and training opportunities for students; and building community for artists interrogating the relationships of digital data and textiles.

The essays in this catalogue highlight different participant experiences over the course of *Material Codes: Ephemeral Traces*. As the Principle Investigator/Artist-Researcher, I provide an overview of creating new conceptual, material and technical understandings. Aspects of this project are further discussed in a recently published conversation with Janis Jefferies.¹

Louise Lemieux Bérubé has had an extraordinary impact as an artist and teacher of Pointcarré design software and facilitator of Jacquard weaving internationally. She provides an overview of her involvement in key exhibitions, workshops and Jacquard development over the past twenty years. I attended my first workshop with Louise in 1999 at the Montreal Centre for Contemporary Textiles, and in 2014 was able to send my Research Assistant Sophia Borowska to learn from her as well.

Sophia Borowska, a Concordia alumna and artist in her own right, shares her experiences as a translator of other people's data and her own contributions into woven textiles, a collaborative development and exchange process.²

Kathleen Vaughan, a friend and colleague in the Faculty of Fine Arts who has observed the whole project from beginning to end, responds and expands on the content and form of the culminating weaving *Climate Data Labyrinth*.



Artist Researcher: A narrative of data to digital, punch cards to industrial weaving.

My studio practice draws on histories of textiles as communicators of economic and social signifiers, as well as cultural and personal maps. As an artist weaver for almost thirty years, my work has explored intersections of age-old and 21st century technologies to produce cloth embedded with narrative content related to place, time and lived experience. Over the past decade, digital Jacquard weaving has been my medium to critically engage with issues of translation and communication, materiality and the sensory experiences of making.

The *Material Codes: Ephemeral Traces* project specifically focuses on elements of digital processing and failure, and the inherent mistakes, glitches, and faults that make us think twice. Transforming the virtual into tactile cloth, the artwork questions the dominance of computational data and how it is controlled and used. It uses the power of digital technologies as tools we have come to depend on (and like to use) to also draw attention to the potential failure of the algorithmic systems driving everyday cultural, economic and environmental decisions. I wonder, where do the ephemeral digital traces end up? How can we question, interpret and make accessible our digital impact on the world?

Textile processes have always been digital, in the sense that they involve technologies and procedures for working with discrete, countable threads and patterns created between warp, weft and the properties of materials used. The invention in 1801 of a weaving loom by Joseph-Marie Jacquard, which uses punch cards to control patterns, is linked to the origins of the digital language of 0's and 1's and enabled more complex patterns to be woven quickly and reliably. Having previously worked with contemporary weave design software and a hand-operated digital Jacquard loom, I was interested in exploring very manual weaving that uses punch cards as code or instructions to threads on 19th century looms. This was facilitated through a residency at the Fondazione Arte della Seta Lisio, Italy, where I wove silk velvet row by row, manipulating a limited number of cards to produce different results. This experience was contrasted with the (near)

removal of the hand, by weaving on a Dornier industrial Jacquard loom over two periods of work at the TextielLab, Tilburg, Netherlands. Other work was produced on the TIS Jacquard loom at Concordia's Milieux Institute.

Fluid Data

Fluid Data (2015) gives glimpses into, rather than aiming to represent, hard didactic data. These are my first experiments in utilizing the idea of 'missing data' with unwoven sections in which the colourful warps blend for a period before being caught again in the structured cloth. The data exists in the file, could be woven, but was not. This could equate to a glitch, however, the spaces are intentional, so more like conceptual visual glitches, where shifts in the control and order of the woven structure results in the unexpected.

Weavings are created two-sided on a loom during the construction process. Often the back holds significant information or is fully reversible—for weavers both sides are significant in understanding process and often become talking points. Screen-based digital files present one perspective, one surface (admittedly with unlimited potential for manipulation in the digital sphere) but we do not have access to the backside of the image file, except possibly as code. Code is instructional, in the same way weaving drafts are to the initiated: both can be flawed or enable new forms to be realized.

Invisible digital systems surround us, at sea and on land, in the tools we use. Materializing the digital suggests drawing attention to the power of multiple systems, and also to the potential of abuse, overload or failure of what we rely on. The imagery in *Fluid Data* layers appropriated data files, error messages, symbols and codes of digital tracking, maps of global undersea internet cables routes, graphs of climate data all connected through the subtle imagery of water.

Each side of the six Jacquard fabric panels provides details and layers of translation, communication and readability. For *Fluid Data (Digital Version, 2015)* the weavings were scanned and assembled into a series of twelve slides that loop were shown on the media wall at the Bath Spa University, UK, MediaWall, which consists of thirty large display panels arranged in a grid of 3 by 10. The overall size is 7.35m high from the floor by 3.75m wide, in a three-storey high public atrium linking two buildings with views to the surrounding countryside. Digitally scaled up more than two and half times on a large screen, the slides cycle, combining front and back images, as a further looping or flow of information. Pixels are both threads and digital moments, inviting a close and distant view of content.







Climate Data Labyrinth

Thinking about the digital traces of big data fascinates me. I wonder how and where this accumulates, what it might look like, and the various manipulations and translations that have occurred to appear on a lighted screen. What pollution will big data be responsible for, or has it already become the digital equivalent to the Pacific gyre plastic pollution of the future? The landscape of digital source material is vast, information abounds, as we call it up by URL or Google search. Extracting data is as ubiquitous as oil extraction and as much of an economic driver. How many ways is it contributing to the warming of the planet?

While it is impossible to quantify or qualify the impact of 'big data', the large weaving *Climate Data Labyrinth*, 2017, attempts through scale of materials and complexity, to surround the viewer and provoke a cognitive and kinesthetic consideration of questions of 'bigness'. A large immersive cloth sculptural environment, it materializes data through using the digital tools of computers, internet, software and digital looms, a sensory experience of cloth. It was woven at the *TextielLab*, Netherlands.³ Four layers of cloth are woven in a stacked format for the twenty metre length as one cloth. This occurred only after extensive computer design work, testing yarns, files and structures in woven samples. The aim is for a totally immersive bodily experience, a labyrinth-like overwhelm, where information flows in and out of layers of the weaving, making spaces between, with embedded and overlapping data, becoming both surface and structure. Technical and time factors inevitably play a part in decisions made, reality impacting on the materialization of imagination.

In the role of RA - extractor and digital organizer - Sophia Borowska, helped prepare files of open source NASA aerial images of landscapes affected by climate change or human habitation, capturing algorithms from scientific papers on climate studies, and economic spreadsheets of numbers - big data separated from original meaning. From these collected sources, we collaged patterns that were then selectively translated through Ned Graphics and other software into structures and bit maps. From this, the loom software could determine which threads to raise in each row, and weave at an incredible speed. The software does the number crunching, but each decision on design placement, layers, weave structures and density requires human input, artist and technical collaborations.



Navigation

Another series of work is based on a trans-Pacific voyage on a container ship in 2014-15, my observations of the sea and horizon line, navigation and communication systems, radar and GPS screens.⁴ With twice daily satellite feeds to the on-board computer, weather software graphically maps the ship's route, the air pressure, currents, height and direction of sea swell, water temperature, wind directions and speed. Consulted regularly by officers on the bridge, a reassuring human and technology interaction, I captured elements which were later translated into cloth, a tangible visualization of the momentarily lighted screen. Each thread and color can represent multiple information - latitude, longitude, air pressure, shoreline, position, ship route – yet poor resolution of image, or cloth, suggests only a gesture, or data as a 'material' of cultural currency.

Beyond writing on the poor image, Hito Steyerl also links the stable horizon with the subsequent development of linear perspective, enabling Western domination and colonization, and “for redefining standards of representation, time and space.”⁵ In our digital age, large volumes of data are interpreted, arranged or processed by algorithms, a new form of mapping, creating patterns of meaning that drives the contemporary trade routes. This ongoing series of work explores the implications of the digital sphere for us as humans, changes in translation and communication systems, and the power of cloth to signify position.

1 Jefferies, Janis and Kelly Thompson, in TEXTILE Cloth and Culture: Vol 15, 2017, Issue 2. Special issue, Weaving Codes, Coding Weaves, published by Taylor & Francis.

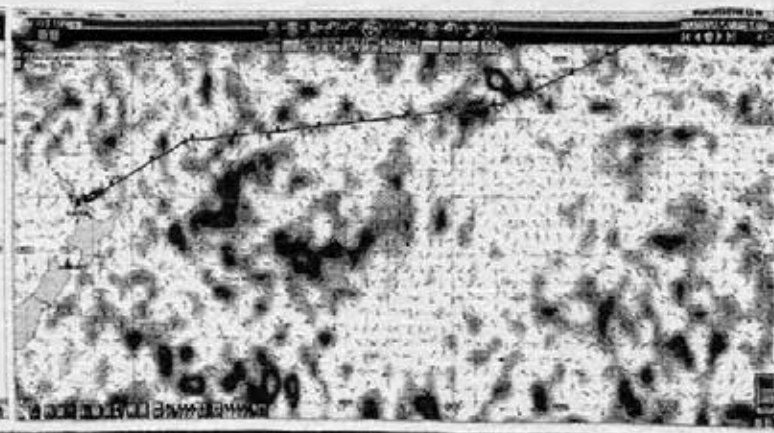
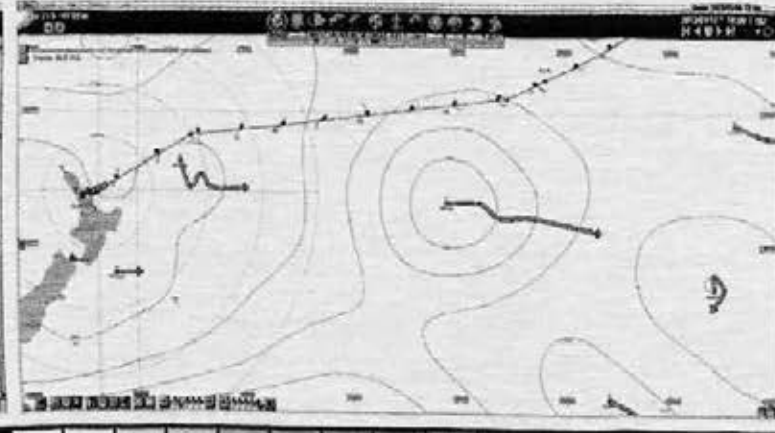
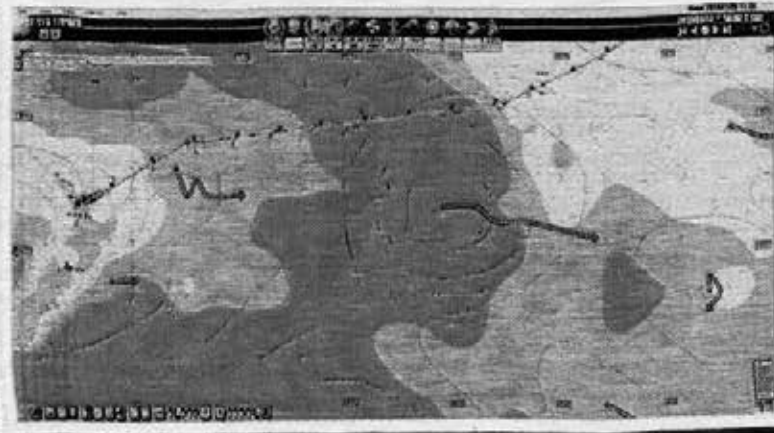
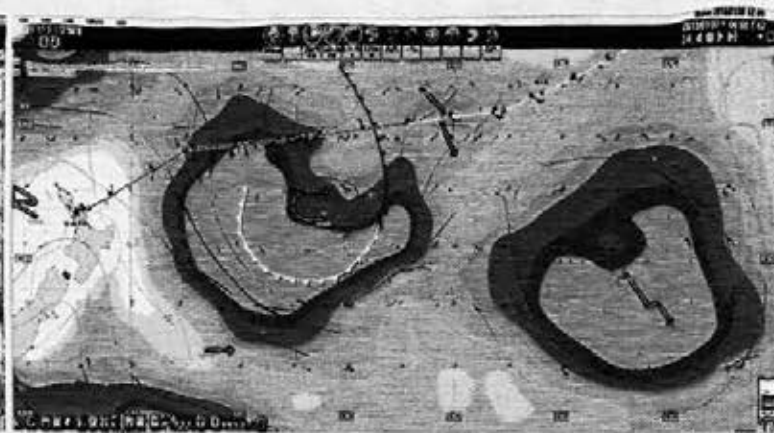
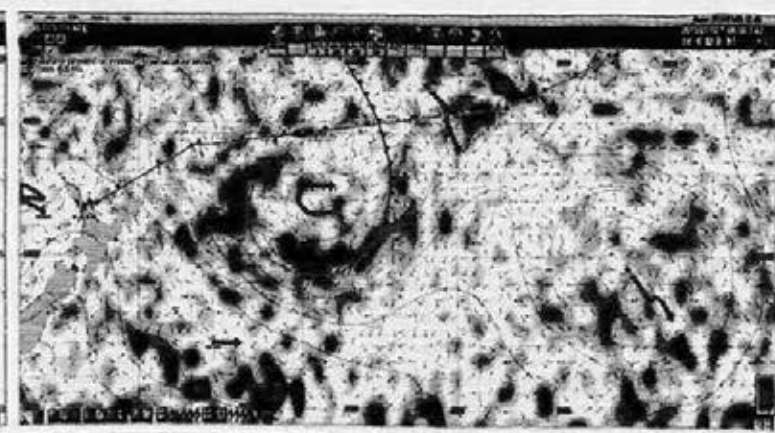
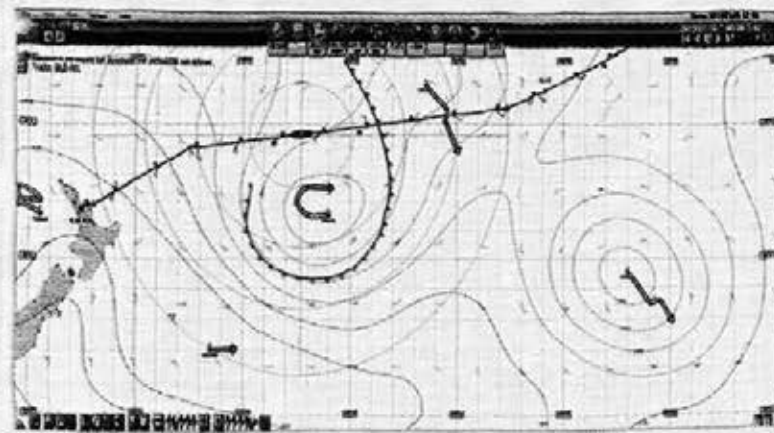
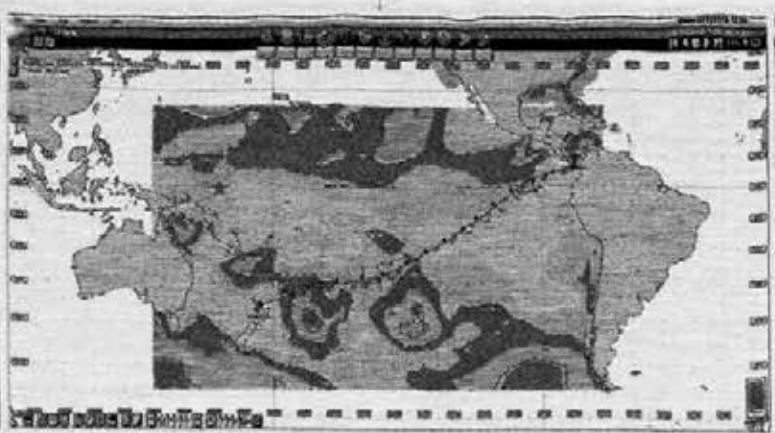
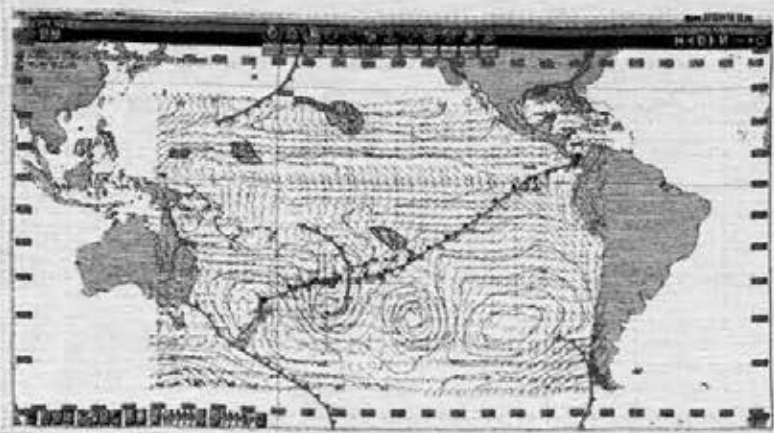
2 See www.materialcodesephemeraltraces.com/contribute-to-the-project.html for documentation of this aspect of the project.

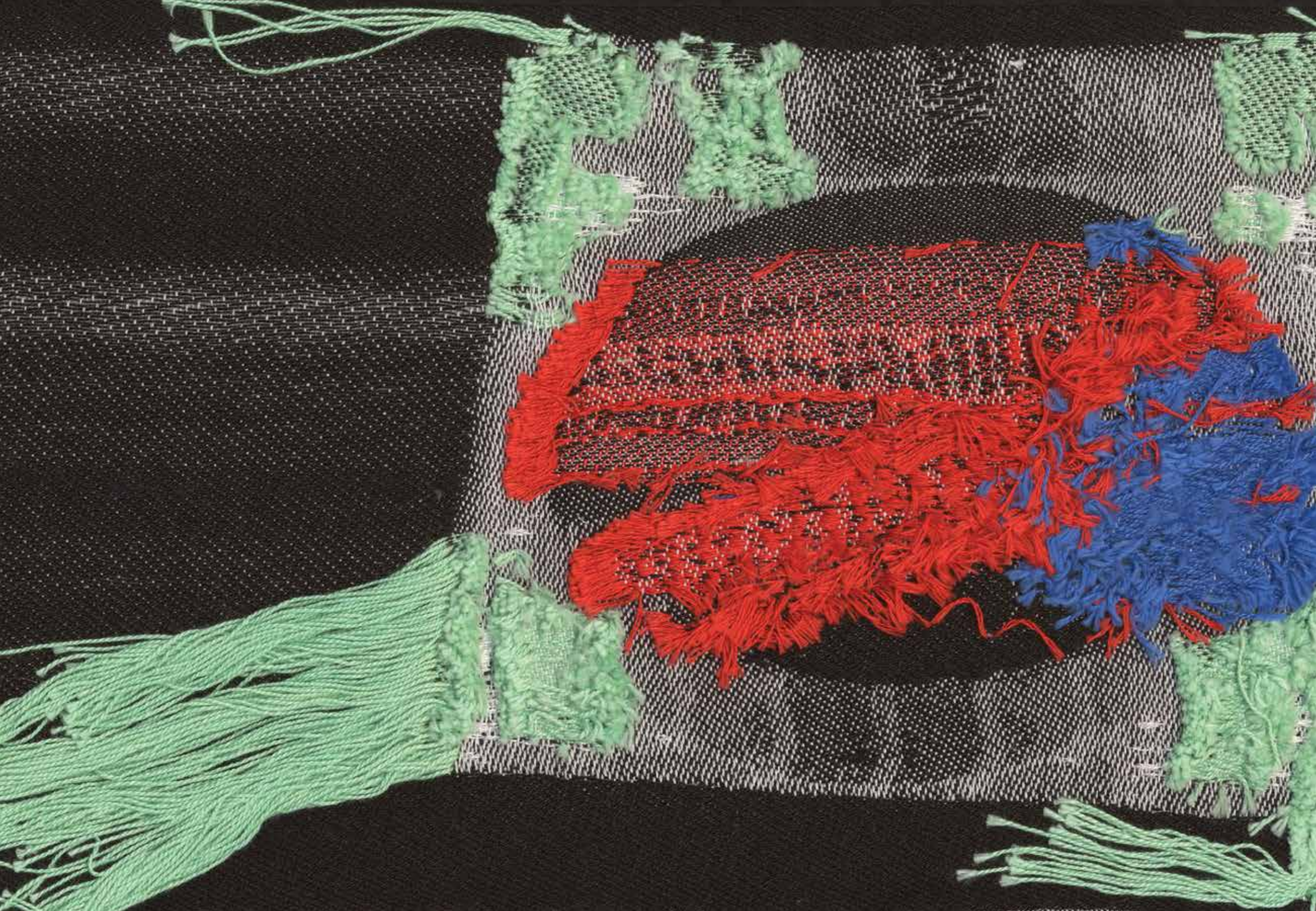
3 This was only possible by working with the exceptional Product Developer, Stef Miero and the team of weavers managing the industrial equipment.

4 See www.artistatsea.com

5 Steyerl, Hito. 2013. *The Wretched of the Screen*. New York: Sternberg Press. p19









Reflections on research-assisting

Sophia Borowska

Right from my first foray into Jacquard weaving, the interpretation of imagery through weave-structure fascinated me. I was taught by the inimitable Ruth Scheuing, of the Textile Arts program at Capilano University in Vancouver, BC, where I grew up. With little experience and lots of curiosity, I already wanted to draw connections between technical process and pictured content, to relate structure and surface in a way that is only possible with weaving.

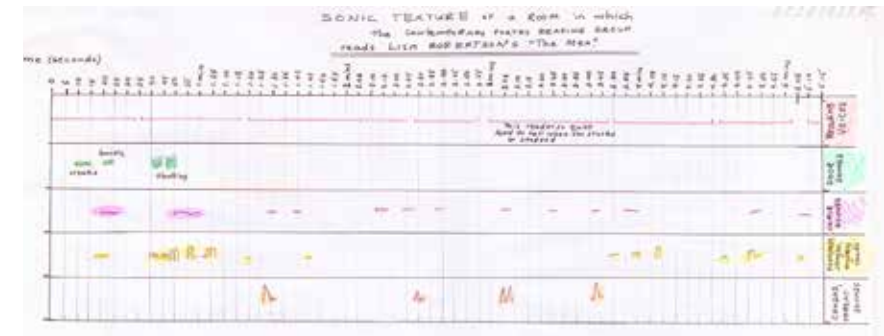
Hooked on Jacquard, I transferred into Concordia's Fibres and Material Practices program in the fall of 2013 and enrolled in Kelly Thompson's intermediate fibre structures class. Concordia University's Jacquard loom is reserved for graduate-level research, but I stubbornly inquired of Kelly about getting access. And kept inquiring. Sensing that my enthusiasm was not waning by term two, she eventually invited me on as a research assistant (R.A.) for her Jacquard research-creation project, *Material Codes: Ephemeral Traces*. The project would provide training opportunities for students like myself to pursue digitally-assisted weaving while assessing the roles, developments, and failures of digital data and technology. I was thrilled with the opportunity to work in this field that had captured me from the beginning.

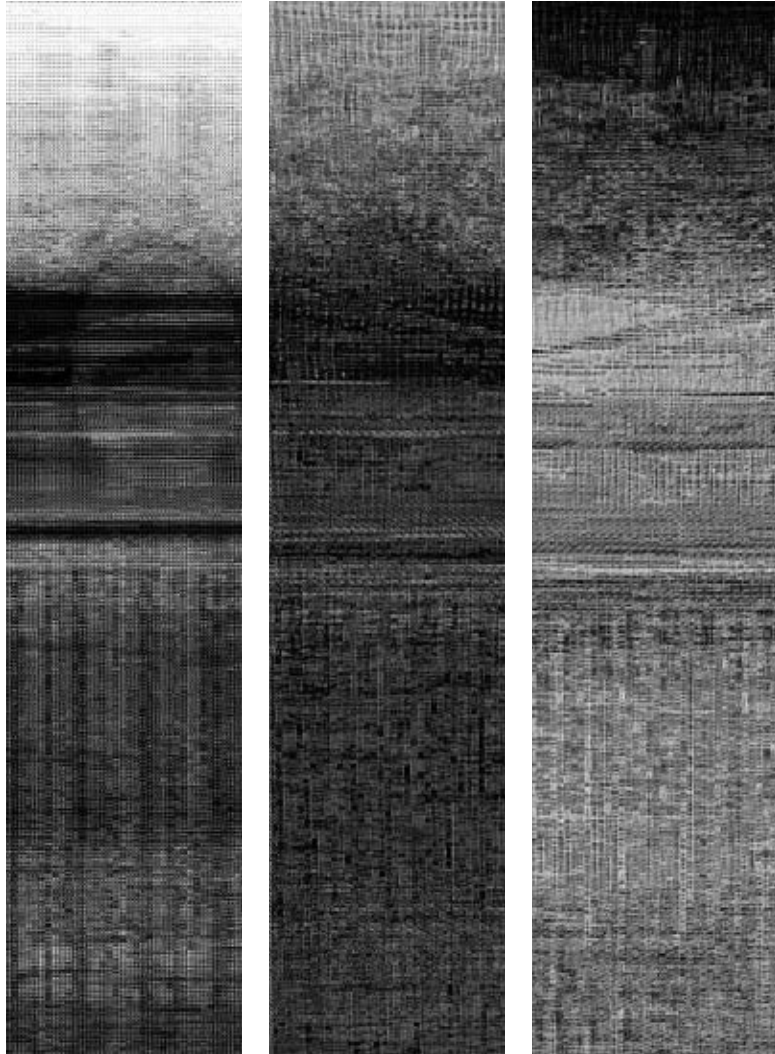
That summer, I participated in the beginner Pointcarré workshop at the Montréal Centre for Contemporary Textiles, which introduced me to the specialized software used at Concordia to translate digital images into woven textiles. Fall of 2014, my R.A. work began in full, with training on the loom and excited brainstorming sessions. In a collective process, we

discussed why and how to materialize data, who to collaborate with, and what directions the project could take. At the suggestion of fellow R.A. and Jacquard weaver Geneviève Moisan, we drew up a questionnaire and took to the halls asking people their takes on data. The simplest question, “what is data?” gave us answers ranging from *everything to nothing, to money and information*. It was clear right away that this research had a broad scope.

Kelly soon devised a project that would both assist in my Jacquard training and gather a range of insights into the concept of data. We would prompt people in a variety of fields to submit digital files representing what data meant or looked like to them (image, text, data set, or other). These files would then be translated into a Jacquard-woven textile. Two copies of each piece would be produced, and the participant would receive a woven interpretation of their data sample. Collecting submissions, translating, weaving, and then archiving them online, became a major focus of my work for the following years. In total 20 samples were created between myself and Geneviève from 2014 to 2017.¹

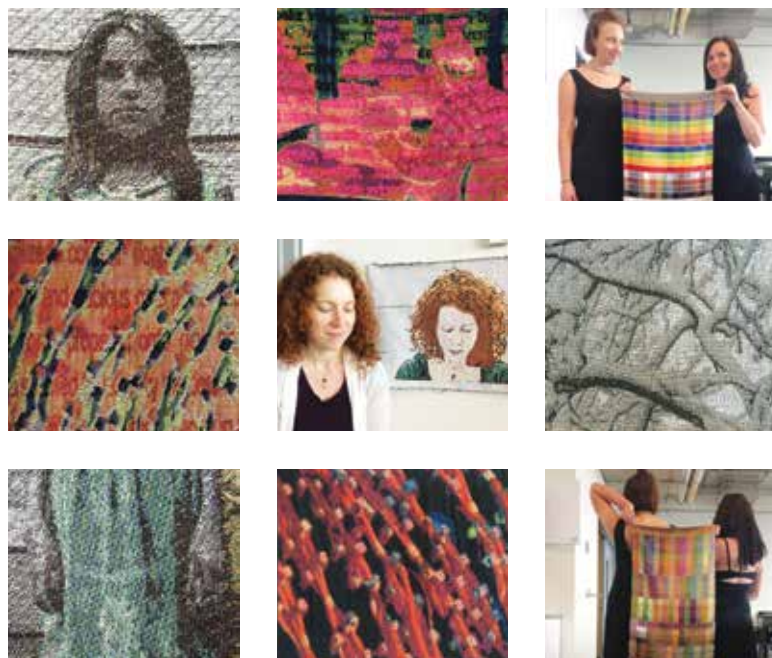
In summer 2015, I recieved the Concordia Undergraduate Student Research Award (CUSRA), at Kelly’s suggestion and with her facilitation. Supporting my full-time research work over a four-month period, CUSRA allowed me to delve more deeply into Jacquard weaving-research. During this period, Kelly had also organized a specialized Jacquard workshop on weaving in full colour, taught by Louise Lemieux-Bérubé. The course was spread out over several months to give the group a chance to test and develop each new technique in between lessons. I divided my time between R.A. work and developing my own research-creation project that came to be titled *Data Excess*² and resulted in a publication, website, and installation. Both pursuits allowed me to spend an inordinate amount of time digging into Pointcarré software, figuring out the most complex techniques, and tricks to achieve desired effects. Concurrently, I devoured many books and articles on weaving, digital culture, and data. I began drawing more detailed connections between the research we were doing and the processes of Jacquard weaving, relating structure and surface.





and scholars across the world. There is always more to learn about the relationships between materiality, data, weaving, and the digital, and I have had a great pleasure contributing to the conversation in my four years working with *Material Codes: Ephemeral Traces*. Throughout its different phases, the project has revealed ways in which Jacquard weaving can enhance our understanding of data, and, more broadly, ways in which material research contributes to a collective body of knowledge.

- 1 View the full archive here: materialcodesephemeraltraces.com
- 2 Project documented here: data-excess.com
- 3 For more information see: "ARCHIVE: THE SKOR CODEX"
www.materialcodesephemeraltraces.com/archive-societe-anonyme.html



Le Jacquard pour artistes : rêves et réalisations

Louise Lemieux Bérubé

En 2002, lors de l'évènement *Convergence* organisé par la Handweavers' Guild of America et tenu à Vancouver, j'avais été invitée à titre de conférencière principale. C'est devant un auditoire de plus de mille personnes, passionnées du tissage, que j'ai exprimé mon rêve le plus sincère : *l'accès à un métier Jacquard pour tous!*

À cette époque, nous n'étions quelques-unes seulement à posséder ou à avoir accès à un métier Jacquard. Le Centre des textiles contemporains de Montréal (CTCM) avait fait l'acquisition de son premier métier Jacquard vers 1996 et c'est à l'été 1997 que je commençais à offrir les ateliers d'été en Jacquard au CTCM. La première cohorte fut composée de huit tisserandes, et, par la suite, je crois atteindre autour de 500 étudiants en 2018.

Ma première exposition Jacquard en solo tenue en 1997 comprenait 15 oeuvres sur la danse contemporaine. J'avais eu la permission d'utiliser des photos d'archives de diverses compagnies de danse montréalaises. Par la suite et depuis ce moment mémorable, mes Jacquards furent créés à partir de mes propres photos ou vidéos. J'ai photographié plusieurs groupes de danses, soit lors de répétitions en studio, ou lors de présentations publiques et plusieurs séries furent réalisées.

Alors que j'étais directrice du CTCM (1989-2012), j'ai eu la chance de monter deux importantes expositions de groupe en Jacquard. Je pensais que le temps était venu de laisser le monde extérieur avoir un regard intérieur sur ce que nous faisons en tant qu'artistes et tisserands professionnels et émergents. Donc j'ai commencé à recueillir des idées pour organiser une

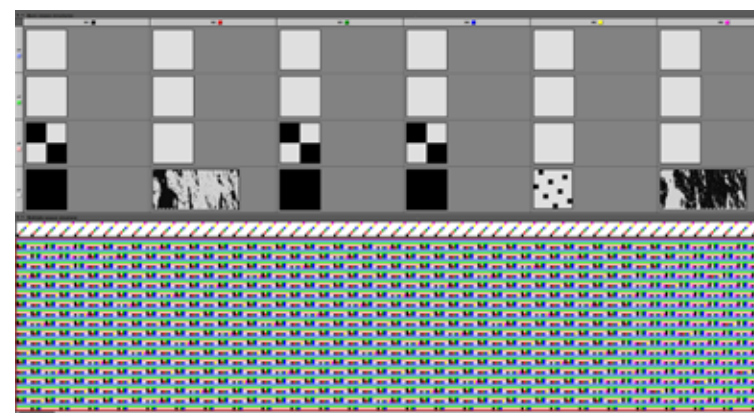
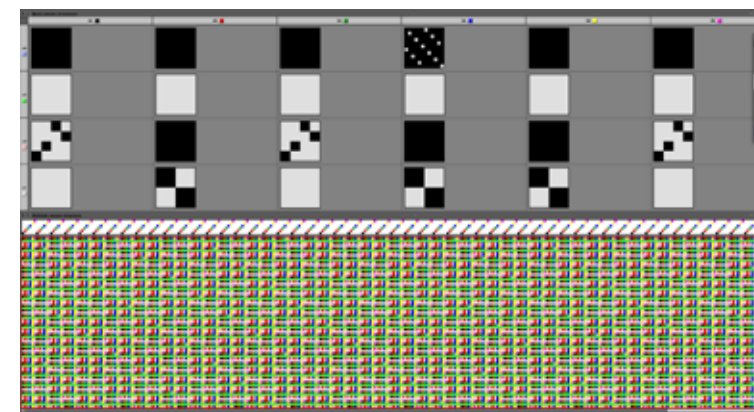
exposition qui pourrait être présentée pour souligner le siècle nouveau qui arrivait à grands pas. Était-il possible de mettre en place une exposition itinérante qui montrerait ailleurs dans le monde le travail du métier Jacquard? Était-il possible de permettre même aux gens qui ne pouvaient pas la voir d'avoir accès à ces œuvres?

La première exposition réalisée en 2000, intitulée *e-textiles*, fut présentée au Musée d'art contemporain de Montréal. Mariette Rousseau Vermette a agi en tant que commissaire, et onze artistes, incluant moi-même, furent invités à présenter une oeuvre.¹

Pendant trois ans, l'exposition *e-textiles* a circulé à travers le Canada et à Sydney, en Australie, avant sa présentation à la Galerie Pendulum à Vancouver, coïncidant avec Convergence 2002. Au lieu d'un catalogue imprimé, nous avons produit un CD-ROM. En quatre parties, le catalogue digital comprenait une galerie virtuelle, un dialogue mené par Barbara Layne, un essai par Margo Mensing un aperçu de l'histoire du tissage Jacquard, et des informations techniques sur le processus.

Puis en 2006, avec l'aide de mes collègues, Étienne Proulx et Marielle Chouinard, nous avons organisé *Jacquard en tête (About Jacquard)*.² Chercheur canadien Denis Longchamps a rédigé un essai critique sur les oeuvres. Nous avons aussi organisé lors de l'exposition un mini-symposium ouvert au public comprenant des thèmes comme le droit d'auteur, l'évolution des programmes de textiles académiques, et les chemins émergents de la création textile. Parce que *Jacquard en tête* n'était pas une exposition itinérante, j'ai produit à l'interne un DVD pour rendre l'exposition accessible au monde.

Depuis, les métiers Jacquard se sont multipliés, heureusement. Il y a sur le marché de la création textile indépendante quelques marques de métiers Jacquard, notamment *TIS* (France/Suisse), *AVL* (États-Unis), et *TC1* et *TC2* (Norvège). Des institutions d'enseignement et des artistes indépendants à travers le monde ont investi dans cet équipement. Il existe aussi quelques établissements industriels qui invitent les artistes à réaliser des oeuvres en Jacquard avec leur technologie. Sur les métiers industriels, le tissage



est automatique, c'est-à-dire contrôlé par une commande automatique du métier à tisser. Cette option m'amène à penser que toute la création se situe en amont, c'est-à-dire, à la composition des images, du visuel, aux choix des armures qui apportent des textures diverses, ainsi que les fils choisis pour la réalisation concrète.

Des artistes de différents niveaux sont intéressés par le tissage sur métier Jacquard. Le défi pour moi est de répondre aux besoins des uns et des autres, qu'ils soient tisserands "amateurs" ou enseignants dans une université. La diversité des questions et des ambitions ont rendus chacune de ces expériences très enrichissantes. Qu'on me demande de clarifier certaines expressions techniques, ou qu'on me demande d'expliquer des compositions d'armures complexes, ou encore de proposer ou suggérer des constructions textiles novatrices, toutes ces questions et réponses ont permis l'avancement de la connaissance du tissage Jacquard, autant pour moi que pour chaque participant, je crois. Mon ambition fut et est toujours aujourd'hui, que les tissages Jacquards ne soient pas simplement un transfert d'une image en noir et blanc, mais bien une construction, une composition de différents éléments d'une oeuvre textile.

Après tout, je crois bien que mon rêve s'est réalisé! On peut, si on le souhaite, avoir accès à un métier Jacquard pour réaliser son propre rêve.

1 artistes e-textiles : Junichi Arai, Lia Cook, Francis Dorsey, Emily DuBois, Laura Foster Nicholson, Louise Lemieux Bérubé, Ruth Scheuing, Cynthia Schira, Liz Williamson, Hideo Yamakuchi, Bhakti Ziek.

2 artistes *Jacquard en tête (About Jacquard)* : Mitsuko Akutsu, Joey Berzowska, Lia Cook, Frances Dorsey, Josée Hamelin, WenYing Huang, Janis Jefferies, Julianna Joos, Christine Keller, Rudy Kovacs, Barbara Layne, Lisa Lee Peterson, Louise Lemieux Bérubé, Christine LoFaso, ChiaHui Lu, Robin Muller, Emiko Nakano, Vita Plume, Ruth Scheuing, Kathy Schicker, Cynthia Schira, Kelly Thompson, Liz Williamson et Bhakti Ziek







Climate Data Labyrinth

Kathleen Vaughan

In her *Climate Data Labyrinth* (2017), Kelly Thompson offers the visitor an enveloping experience that questions our structures of knowledge and communications with particular reference to the single issue that most threatens our survival: global climate breakdown.¹ To create the imagery for her room-scale environmental weaving, Thompson borrows climate scientists' visual artifacts: mathematical equations, satellite images of landscapes, text – the tools and techniques of climate scientists' data collection. Images, numerals, symbols, landforms, collaged together and barely recognizable, dance across the multiple surfaces of *Climate Data Labyrinth*, appear and disappear in cloth layers and folds, peek from pockets, and emerge, partially seen, through surprising transparencies. The layers conjoin and split apart, loll open mouths and undulate tiered folds. We are lost in the convolutions of labyrinthine draping, lost in the confusions of data. The content seems 'significant' but is distressingly incomprehensible: how can we understand, negotiate, tease apart and unravel the work's meanings when it seems that nothing we individually do can actually affect climate shift – no matter how earnestly we each change our behaviours of consumption. The data that Thompson gives us are impossible to read, understand and translate into action or optimism.

Thompson's suspended four-layer, woven cloth environment takes the form of an open ring so large – about five metres in diameter – that the full work cannot be perceived in one glance. The visitor must walk around and within the work to begin to encounter the weaving's content and inner structures, presented in a limited palette of warm tones against grey/black neutrals. Perhaps conscious that 2017 was just about the hottest year on

record,² Thompson has selected colours of inexorable warming – the heat of burnt orange, an inextinguishable sizzling yellow, the charred carbon of remains. We see in these colours the forest fires that have raged this year across tinder-dry western North America. Integrating rayon, plastics, monofilament, mohair, cotton and linen, *Climate Data Labyrinth* offers an enticing interplay of both non-biodegradable and natural materials, devastatingly like our own afflicted world.

I have been a keen observer of Kelly Thompson's creative projects throughout the last decade since we both came to Concordia University. Right from the start, she spoke of her intent to create an environmental weaving, an architectural weaving, a weaving that was an object in space rather than artwork on a wall. *Climate Data Labyrinth* is the realization of this long-standing artistic desire, as well as the mobilization of a much broader artistic and conceptual engagement with questions of big data: data sets that are oriented to understanding large patterns of behaviour, and are themselves so large that traditional approaches to computation break down. To take up these issues, and investigate the connections of digitality that link jacquard weaving and other forms of data assembly and translation, in 2014 Thompson mobilized the Weaving Data Research Group, which provided opportunities for affiliated artists and graduate researchers to investigate together as much as it provided a framework for Thompson's independent artist inquiry.³

In the interval, Thompson has explored the relationship between data and jacquard weaving through multiple artistic projects, using practices both historical and contemporary. At the Lisio Foundation (Fondazione Lisio Arte Della Seta)⁴ in 2014, she looked back to 19th century techniques for weaving velvet with punch card technology, digital prequels. Exploring options for manipulating the punch cards beyond their conventional use (via reversals and overlappings), Thompson's *Traces* (2014) made contemporary these tools of the past as she wove small velvet works of subtle luxury. In 2015, she worked in digital darkness (without personal online access) as an artist at sea on a container ship traveling between Charleston, South





Carolina, and Auckland, New Zealand drawing, stitching and writing the relationships she encountered between the actual transport of goods around the planet, and the digital transfer of navigation and weather data that allowed such trading travel to take place.⁵ Her photos from aboard the ship – navigation panels, radar and weather maps, images of the cargo hold, became the basis of large-scale *Artist at Sea* (2015) weavings she developed at the TextielLab⁶ in Tilburg, Netherlands. Using Tilburg's high-speed commercial jacquard looms, Thompson was able to create weavings larger than those possible on the TIS loom at Concordia University. This hands-on experience with Tilburg's tools and technicians then made possible the conceptual work and more extensive TextielLab residency required to produce *Climate Data Labyrinth* (2017).

Complex and large, *Climate Data Labyrinth* laid flat is 1.7 m in width – or the average height of today's human male – by 20 metres in length, and is woven of eight weft fibres forming four layers intersecting in multiple ways. A project of collaborative problem solving with the technicians of the TextielLab, the making began with maquettes, structural experiments, yarn choices and sampling of various weave structures, each layer individualized by the choice of threads brought forward or pushed back. Each choice must be planned and programmed before the creation of the cloth begins, every 'stitch' – or moment where the weft crosses the warp – determined in advance. *Climate Data Labyrinth* was a decade in the anticipation, three years in the readying, eight months in specific planning, two weeks in the programming and sampling, and just 16 hours in the actual high-speed automated weaving, a digital magic.

Climate Data Labyrinth arrived in Canada in a person-sized roll, strapped to wheels for mobility. Unwrapped, unfolded, binding edges clipped open, installed, Thompson's artwork hovers uncannily about two feet above the ground, glowing against the darkness of Concordia University's Black Box. This is a work of paradox, of great substance that in levitation appears weightless; a still project whose waves and folds suggest movement; a product of desolation and anxiety that in its remarkable virtuosity and material appeal seduces us into believing in human capacity. We look at Thompson's *Labyrinth* in hope that we can from among its many layers

of woven cloth, find the thread that will lead us out of the dangerous paralysis of data overload, away from the monster of climate change denial, and towards a future of ethical engagement with our beautiful and fragile planet. If artwork like this is possible, perhaps the implications of the climate breakdown it summons will not destroy our planet after all...?

- 1 This is the phrase proposed by environmental writer George Monbiot as preferable to 'climate change,' which he suggests trivializes the issue and its devastating implications for our planet. See his blog at www.monbiot.com/category/climate-change
- 2 In fact 2017 was the second hottest year ever, and the hottest year without a mitigating El Niño effect. The year's temperatures represented an intensification of the overall global warming trend, as discussed in the *Guardian*: www.theguardian.com/environment/climate-consensus-97-per-cent/2018/jan/02/2017-was-the-hottest-year-on-record-without-an-el-nino-thanks-to-global-warming
- 3 This project, *Material Codes, Ephemeral Traces*, was made possible by multi-year funding from the Fonds de recherche du Québec – Société et culture (FRQSC)
- 4 www.fondazioneisio.org
- 5 www.kellythompson.org/artist-at-sea.html
- 6 www.textiellab.nl/en



Biographies

Kelly Thompson is Californian born but New Zealand raised. She is an Associate Professor in Fibers and Material Practices, and Graduate Program Director, in the Department of Studio Arts at Concordia University, Montreal, Canada. She is a member of the Textiles and Materiality Research Cluster at the Milieux Institute for Art, Culture and Technology at Concordia University. Previously she was Head of the BA Textile program, at Goldsmiths, University of London for four years, and before that taught at the Otago School of Art, New Zealand. Thompson has a BFA from the California College of Arts and Crafts 1985, and a MA (Visual Art) 1994, from the Canberra School of Art, Australian National University. Thompson has exhibited work internationally in exhibitions, festivals and biennials. www.kellythompson.org and www.materialcodesephemeraltraces.com

Sophia Borowska is a Montréal-based artist and researcher working in fibres, sculpture, and installation. Her work questions the potential for control in architectural and virtual spaces through textiles and the manipulation of threads. The evocative powers of material and process are harnessed to create spaces that propose an embodied and haptic – rather than detached and visual – mode of experience. She holds a BFA, with great distinction, from Concordia University in Montreal, and a diploma in Textiles from Capilano University in North Vancouver, Canada. She is a member of the Textiles and Materiality Research Cluster at the Milieux Institute at Concordia. Borowska has exhibited work in Canadian artist-run centres, festivals, and DIY spaces, and has presented research and been published in Canada and the United States. www.sophiaborowska.com

Louise Lemieux Bérubé is internationally recognized for her knowledge and innovative work in Jacquard weaving and computerized embroidery. Her work has been represented in major public collections in London, United Kingdom; Berlin, Germany; and Montreal, Canada. She co-founded the Montreal Centre for Contemporary Textiles, where she has taught students from everywhere and, as a lecturer or exhibitor of her work, she has travelled around the world. She is the author of *Le Tissage créateur*, a comprehensive text book on weaving, and the co-author, with Carole Greene, of *Louise Lemieux Bérubé, Unwinding the Threads* published in 2012. www.lemieuxberube.com

Kathleen Vaughan is an artist, writer and educator who works across media to consider questions of place, home, belonging and mobility, and the role that the arts and education can play in supporting social and environmental justice. Kathleen is Concordia University Research Chair in Socially Engaged Art and Public Pedagogies, Associate Professor of Art Education and a member of the Writers Guild of Canada, for her work on television scripts. A favourite of those projects featured a purple poodle extraterrestrial who came to earth to teach children to read — uniting many of Kathleen's core thematics: colour, collaboration, communications, and an abiding love of curly dogs. www.akaredhanded.com and www.re-imagine.ca

Image Details and Photo Credits

All works by Kelly Thompson, unless otherwise identified.

Cover **Weather Captures II**, 2015 (detail)
Cotton, linen. 1.68 m x 1.25m
Woven at TextielLab, Tilburg, NL.
Photo: Michel Dubreuil

2 **Fluid Data**, 2015 (detail)
Hand woven digital jacquard, 6-colour warp rotation, mercerized cotton, linen, polyester.
Photo: Michel Dubreuil

4 **Layered Errors**, 2017
1.68m x 1.90m
Woven at TextielLab, Tilburg, NL.
Photo: Guy L'Heureux

7 **Big Data** Spreadsheet detail

8 **TextielLab**, Tilburg, NL.
Photos: Kelly Thompson

12 – 15 **Fluid Data**, 2015
Each panel 45cm wide x approx. 140cm high
Hand woven digital jacquard, 6-colour tapestry warp, cotton and linen.
With weaving assistance from Sophia Borowska
Photo: Michel Dubreuil

16 **Climate Data Labyrinth**, 2017 (detail)
1.68m x 20m
Cotton, linen, mohair, acetate, monofilament, rayon, polyester.
Woven at TextielLab, Tilburg, NL.
Photo: Guy L'Heureux

18–19 **Climate Data Labyrinth**, 2017
Details as above

21 **Pacific Ocean from container ship**
Photo: Kelly Thompson

22–23 **Weather Captures II**, 2015
Details as above

24–25 Dancing Lights Sample
www.materialcodesephemeraltraces.com/archive-thompson.html
Translation, weaving, documentation: Sophia Borowska

26 **Fluid Data** – in progress on Jacquard loom at Hexagram/Miliuex Institute, Concordia University
Photo: Kelly Thompson

29 CPRG Reading of Lisa Robertson's "The Men" Sketch Submitted by: Joelle Levesque
www.materialcodesephemeraltraces.com/archive-levesque.html
Translation, weaving, documentation: Sophia Borowska

30 Quantitative Analysis of Culture Using Millions of Digitized Books Submitted by: Hossein Ghayoor
www.materialcodesephemeraltraces.com/archive-ghayoor.html
Translation, weaving, documentation: Sophia Borowska

32 Photo of "Roept u maar!" by artist Peter Stel
Submitted by: Société Anonyme
www.materialcodesephemeraltraces.com/archive-societe-anonyme.html
L to R – Image submitted, weaving - front and back
Translation, weaving, documentation: Sophia Borowska

34 Weaving Data Research Group - Workshop with Louise Lemieux Bérubé, 2016
All hand woven on Jacquard with 6-colour mercerized cotton warp, www.materialcodesephemeraltraces.com/wdrg-weaving-samples-blog

WhiteFeather Hunter, **Sonya & Osanna (SAOS-2 + U-2 OS)**
After William Gale Gedney – details, top and bottom.
Sophia Borowska, **Contemporary Crowd**, 2016. Double-sided Jacquard Weaving, 46 x 74 cm
Sophia and WhiteFeather holding sample, front and back.
Sophia Borowska, **Dubious Data Pools**, (front and reverse face)
2016 Double-sided Jacquard Weaving, 46 x 71 cm,
Geneviève Moisan, (with woven self-portrait)
Claire Nadon, (Winter, detail)

37 Pointcarré Design window, structures for 6 colour-warp set up
Sophia Borowska, designer

39 **Split**. Submitted by: Emily Dubois
www.materialcodesephemeraltraces.com/archive-dubois.html
Translation, weaving and documentation: Sophia Borowska,
with help and suggestions from Emily Dubois and WhiteFeather

40–41, **Climate Data Labyrinth**, 2017 (installation view and details)
42, 45, Cotton, linen, mohair, acetate monofilament, rayon, polyester.
46–47 1.68m x 20m. Woven at TextielLab, Tilburg, NL.
Photo: Guy L'Heureux

50–51 Colour tests on 6-colour warp rotation, mercerized cotton

58 **Fluid Data (digital version)**, 2015
Assembled from high-resolution scans of weavings, with assistance from Sophia Borowska.
Anthony Head & Neil Glen
MediaWall, Bath Spa University, UK

Image on velum inserts, front and back (detail, reduced colour)

Weather Captures I, 2015
Cotton, linen. 1.68 m x 1.25m
Woven at TextielLab, Tilburg, NL.
Photo: Michel Dubreuil



Acknowledgements

This research voyage into the many facets of weaving digital codes has been supported in many ways, by many people and organisations. My sincere and grateful appreciation to you all.
Thank you.

Material Codes Research Assistants:

Sophia Borowska, Kathryn Shriver, Geneviève Moisan, WhiteFeather Hunter, MJ Daines, Kelly Arlene Grant, Etta Sandry, Elizabeth Johnson.

Textile and Materiality Research Cluster:

Co-directors Joanna Berzowska, Barbara Layne, and cluster researchers

Milieux Institute for Art, Culture and Technology at Concordia University:

Marc Beaulieu, Harry Smoak, Bart Simon

Colleagues, collaborators & studio conspirators, especially:

Cynthia Hammond & Kathleen Vaughan

Louise Lemieux Bérubé

Faculty of Fine Arts, Concordia University:

Colleagues in the Fibres and Material Practices programs and Department of Studio Arts

Centre for Digital Arts, Faculty Research Facilitator, Lyse Larose

FoFA Gallery, Jennifer Dorner, Tiffany Li

TextielLab, Tilburg, Netherlands:

Stef Miero, Weaving Product Developer, Technical Weave and Front Office Teams

Mariette and Bas van Dooren

Published by Kelly Thompson, in association with
Textiles and Materiality Research Cluster,
Milieux Institute for Art, Culture and Technology
Concordia University, Montreal, Quebec, Canada
2018

Fonds de recherche du Québec – Société et culture – Recherche Création

ISBN: 978-1-7752732-0-2

Designer: Tina Carlisi
Printer: Quadriscan

Fonds de recherche
Société et culture
Québec



UNIVERSITÉ
Concordia
UNIVERSITY



MILIEUX
institute for arts • culture • technology

