

**Textile as Image:  
Mediation, Materiality, and the Senses in Textile Research**

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## **ABSTRACT**

Textile as Image:  
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Katie-May Arndt

This research-creation thesis moves between theory and practice to inquire into the mediation and transformation of everyday textile materials into visual images. Central concerns are the image and its connection to increasing textile overproduction. Design techniques informed by handmaking and embodied practices are combined with interdisciplinary approaches from media theory and sensory studies to generate discursive design artifacts. The translation of the tactile senses is explored through image-making, alongside a simultaneous historical investigation of the textile through a variety of its changing representational states. Through three distinctive mediums—rag paper, analog image, and networked digital media image—this project examines the affective relationships between wearer and worn, the textile and the body, and the alteration of their connections through representation and symbolisation.

A series of studies that re-imagine everyday textiles and garments through image are presented. Through this practice-based inquiry the potential of research-creation to contribute towards alternative and more holistic ways of making and sharing fashion and textile materials is explored.

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*“The loom can be seen as a frame, portal, or aperture which opens through the two-dimensional world of surface into the third dimension of space. The analogy between the frame of the loom and the picture frame of painting is significant here, as the frame is the device which facilitates the change in the spectator’s point of view from looking at the world to looking at the surface, for meaning. The fact that painting has settled into a tradition of paint on canvas, stretched over a wooden frame, is also significant. The textile of the canvas is the veil drawn over the real which enables the imaginary of art to take its place, as semiotic, representational world.”<sup>1</sup>*

---

<sup>1</sup> (Pajczkowska, 2005, p. 233)



**FIGURE 1**  
The Loom. Digital Photograph, K-M Arndt, 2018.

## Chapter 1: Introduction

### 1.1 Positioning the Researcher

Textiles are transformational materials, and I have understood this special quality about them for as long as I can remember. My mother, in keeping with the tradition of my great grandmother, has always greeted the birth of a baby in our family with a handmade quilt. The blanket offering both the gesture of assurance that one is held within the newly entered world, and a threshold between the beginning of a new life and the extension of a family line. Throughout my life I have made textiles, learning from my grandmothers, mother, and sisters, and in my experience there is always a bit of magic in such ancient, intimate, and everyday material traditions.

Weaving, for example, a technique which I have spent innumerable hours practicing, begins with the loom being ‘dressed’. To dress the loom, from a spool, individual threads of yarn are measured, stretched, and rested between its front and back beams in uniform lines of vertical threads—*the warp*. The warp threads, once arranged and evenly tensioned are separated into a determined pattern, such as the common plain weave, a binary sequence which is held in order through corresponding heddles within harnesses 1-2-3-4. The harnesses are tied to foot treadles, pedals which rest at the base of the loom. When the weaver’s feet step on a treadle, the harnesses rise or fall, the warp threads separate, and an opening is formed. This opening is called *the shed* and is the space in which the weaver passes, back and forth, a shuttle with a bobbin holding the other element of thread required for weaving—the horizontal thread of *the weft*. As the weaver treadles, the harnesses rise and fall, and the shuttle is passed back and forth, back and forth, over and over again between each hand as the shed opens and closes. Seemingly in unison, the lines of warp and weft interlace, over and under, over and under each other, and in the process of separate elements combining—the apparatus of the loom, the knowledge and actions of the weaver, and the hundreds and thousands of lines of thread, something other is formed—a *textile*. Importantly, it is in the void of the shed—the opening which forms between the relations of parts—that *weaving* becomes a possibility, as within the shed’s emptiness is a space where, together, individual elements can join and be transformed into something new.

In 1965, the Bauhaus weaver and writer Anni Albers published her seminal text *On Weaving*. Notable for many reasons, there are two specific details that are relevant here. First, as the art historian T’ai Smith claims, the writing of *On Weaving* allowed Albers to step away from the loom and to

understand the medium of weaving through other means—mainly writing and printmaking (Smith, 2018). Explaining weaving with text, image, and diagram, the unfolding of the book allows readers a mediated understanding of the practice and process of weaving through its various representations, and in addition, the presenting of a mediated understanding to others gave Albers the opportunity to reflect on her medium as a practitioner and understand it in new ways. In particular, the meditation on the practice of weaving through writing gave Albers (2017/1965) the chance, in her words, “to stop and think, or, perhaps, think and stop” (p. 60) about the practice of design in relation to a dramatically shifting cultural and economic structure, and through her understandings, offer other weavers and designers the space and opportunity to do the same (Smith, 2018, pp. 235-236).

Prior to my academic work, I spent several years as a professional textile and clothing designer and maker. Within my practice, I considered at length the relationships between material, labour, and temporality, and using natural fibres and slow processes, I explored sustainable design. In my independent textile and clothing label *maycloth* (2016-2018), for example, I wove organic cotton and linen yardage on a traditional wooden floor loom, and subsequently patterned, cut, and sewed a series of one-of-a-kind garments, entirely by hand. This work, performed at the pre-industrial pace of the human body, attended to the overlooked complexity of cloth and clothing in its most ‘basic’ forms while searching for alternatives to fast fashion and the disappearance of handwork.

Though remaining fascinated by textile processes and their relation to sustainability, and sharing many of the same reservations as designers and makers of previous industrial shifts, I find myself in conflict with the economic and cultural patterns of design today. I feel a deep tension within industry to overproduce and undervalue textiles to keep up with the market, or alternatively, to fetishize the hand and surround my work with imaged content on platforms such as Instagram and Pinterest.

Within this project, I have instead taken the time to pause and reflect on my material practice and my industry. This has opened a space where my attention and knowledge of textile and clothing production and my experiences within industry can be reconfigured into new understandings, and therefore new directions for my design and research practices. With this subsequent intentional shift of focus away from the production of textiles and clothing toward consideration of how textiles (as

fashion) circulate, this project examines the composition of textiles through their *currency*, that is, how it is that they move and flow within cultural, technological, and ecological systems.



**FIGURE 2**  
The Loom's Treadles. Digital Photograph, K-M Arndt, 2018.

## 1.2 Thesis Context

This research-creation thesis investigates the ways that the materiality of everyday life is continuing to become ever more entangled with information technologies and digital media systems. Central to this project are concerns regarding the material and perceptual shifts of digital media systems, and how they are rapidly changing the nature of our embodied encounters. These changes are perhaps especially felt within the field of fashion, which intimately linked to the body, hand, and the tactile senses has become more digitally mediated over the last 15 years (Ellen MacArthur Foundation, 2017, p. 19), with a pronounced increase in digital activity since the COVID-19 pandemic (McKinsey & Company, 2021, p. 65). With more time spent at home and online over the pandemic, 74% of consumers claim they are now more influenced to shop via social media than pre-pandemic, and of those shoppers, 70% express clothing as their most shopped for category (McKinsey & Company, 2021, p. 65). Noteworthy is the 15-30 percent return rate for online shopping, opposed to single digits for brick-and-mortar retailers, which has resulted in an entire industry of “reverse-logistics” (Mull, 2021), where unwanted items must be retrieved for resale, disassembly, or, what is most likely, sent to the landfill.

With the increase in digital fashion activity, where “people today are to a great extent encountering semiotic representations of commodities, rather than ... commodities themselves” (Jansson, 2002, p. 14), the photographic dimensions of fashion’s materials supersede their tactile qualities in importance (Rocamora, 2016). However, the mediation of textile and dressing practice by visual image proves particularly contradictory. Fashion is inextricably linked to the sensuous qualities of touch, “the fleshy body” (Entwistle, 2000) and the ways in which that body *feels*. Simultaneously, it is fuelled by imagination, idealization, and a desire for constant transformation. Fashion and fashion mediation are often linked to the visual senses, with aims of transcending the material constraints of the physical realm and biological body. de Perthuis refers to the fantastical, aspirational qualities that drive fashion as “the synthetic ideal” (de Perthuis, 2005), which through digital technologies and photographic manipulation is given an environment to flourish. In digital and virtual realms, the corporeal no longer restrains fashion’s desires for idealization. Thus, digital media offers, often through image, containers for embodying fashion’s imaginary—where ‘reality’ is transformed into fantasy, and constant change and novelty are fulfilled at a rapid pace (de Perthuis, 2005).

Though driven by fantasy and imagination, there are tangible material consequences to fashion and fashion representation. This is evident in the high return rates for online sales mentioned, where the imaginary embedded in fashion images is disconnected from actual materials, and consequently results in tremendous amounts of textile waste. Alongside rising networked media use in the last 15 years, global sales of clothing have more than doubled, while the average number of wears-per-garment have decreased by 36% simultaneously (Ellen MacArthur Foundation, 2019, p. 19). In 2019, an estimated 62 million tonnes of clothing were produced, a figure which is only projected to further increase to 102 million tonnes per year by 2030 (Fletcher and Tham, 2019, p. 17).

### 1.3 Overview of Thesis

Within the context of increasing textile waste, this project began with practical material concerns into how post-consumer textiles might be re-circulated or upcycled into new value-added materials. However, what quickly became evident through the research process was the necessity to examine the larger systemic issues of how material meanings and values within the fashion industry are produced and exchanged, and how these impact consumptive and productive behaviours. Questioning meaning and value production has revealed the critical importance of attending to the influence of media systems on fashion practice and production, and in particular, how images negotiate material cultural meaning-making processes today (Jansson, 2002; Rocamora, 2016; 2022).

With a background situated in material practice and industry experience, this project has worked to develop a materialist's understanding of images, and simultaneously, a deeper understanding of physical textile materials as they are mediated. The research objectives have been: (1) to prototype conceptual and practical processes and tools for moving away from dominant fashion and media systems, that may provide alternatives to other design-researchers; (2) to examine analog and embodied processes through textile theory and practice in relationship to an increasingly digital world; and (3) to contribute findings toward disciplinary understanding of “the digital turn”<sup>2</sup> within textile and fashion studies. These objectives aim to interrogate and move beyond the historical emphasis of aesthetics, vision, and representation in fashion to consider how a tactile and a

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<sup>2</sup> (Ash et al., 2016) define the digital turn as alterations which have extended “beyond computational technologies to encompass ontics, aesthetics, logics and discourses” (p. 26). This framing is relevant to the impacts of the digital on fashion practice and production, and is the understanding brought to this project.



relational understanding of images through their extended networks can contribute toward more holistic material practices to be imagined and articulated.

Within this project, research-creation processes ask: how do images in digital fashion systems affect everyday fashion and textile practices? Drawing on instances of the textile's changing representation, I trace some defining perceptual changes of the textile through its imaged evolution. Interpreting these changes of perception, which I suggest are evidenced in and produced by the shifting materiality of the textile, I propose that the changing textile—from felt tactility to increasingly visual image—has distanced the body's connection to material. Thus, throughout this thesis titled *Textile as Image*, cloth and image are folded together, made, unmade, and remade through a variety of material and theoretical practices. In so doing, this project inquires into textile overproduction with an attention to how production is impacted by cloth's materialization as image.

Throughout this discussion, I build toward my thesis that the textile can be examined contemporarily as an “index”<sup>3</sup> of the changing perceptual body which both reflects and embodies a dramatically changing sensorial environment. With an interdisciplinary framework, I draw on approaches from discursive design, media studies, and sensory studies to examine mediation and its effects on the body through practice. In the turn from fashion design in the service of industry, the textile-image is subverted through discursive design approaches, transforming what are commonly commodities for sale into “good(s) for thinking” (Tharp & Tharp, 2018, p. 8). Thus, discursive design is employed in the service of discussing rather than perpetuating the issues of material waste, and for opening dialogue around the effects of media on embodiment and materiality. The culmination of this research resulted in the exhibition of three projects from this study: a sheet of handmade recycled textile rag paper, five printed digital collages, and two printed analog photographs which describe the unfolding trajectory of the theoretical and material concerns of textile representation.

Following this introduction, chapter 2 overviews several exploratory research-creation cycles which question textile waste, representation, and the distancing of the body through material mediation and representation. Within the chapter creative experimentation ranges from textile rag papermaking and

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<sup>3</sup> The index refers to the semiotician Pierce's taxonomy of signs, where indexical qualities reference specific actions held within materials (Pierce, 1974). Indexicality is explored in this project within textiles and images in more detail in my reflection on Textile and Image (pp. 39- 41) and the section *Imaging Outerwear* (pp. 43-56).

graphic visualization to embodied acts of making and methods of documenting handwork. In chapter 3, mediation and representation of the textile are considered further, with specific examples of textile and image relations, questioning the ways that the photographic image has altered immediate sensory experiences for the body. Chapter 3 outlines the creative production of the final image-making experiments of this project—a series of analog photographs and digital collages which centre well-worn outerwear garments as photographic subjects. Through these studies the senses of touch and vision and concerns of mediation and embodiment raised by textiles and images are studied and reflected on. In chapter 4, I give an overview of the production of the final exhibition of this research including the process of large-scale printing and the material and conceptual concerns of displaying this research. And finally, in chapter 5 I reflect on the conclusions and limitations of this study, and describe potential future directions of research.

## Chapter 2: Exploratory Research-Creation Processes

In this chapter, I situate the early creative and theoretical production of *Textile as Image*, recounting several exploratory processes which have each informed new questions, understandings, and directions for this research. While I present my creative practice, I overview informing literature which has influenced this project. This section of the thesis follows a variety of interdisciplinary approaches which can broadly be categorized as research-creation. Chapman and Sawchuck (2012) describe research-creation as an experimental approach to knowledge production, and a process in which the pursuits of theoretical, creative, and technical considerations of a project are often undertaken simultaneously (p. 6). Following this methodology, creative and academic modes have been combined within this research with the objective of contextualizing alternative knowledge forms, and therefore, different ways of understanding and practicing textile and fashion design research.

The fashion industry often sets its sights on the future, with algorithmic forecasting and quantitative measures becoming increasing factors influencing fashion design today (Rocamora, 2022). Similarly, my previous design training and industry experience have also emphasized prototyping to arrive at a desired result through maquettes or muslins, where a controlled and achieved outcome—in other words, a prediction, (linked etymologically to the Latin *praedicere*)—or a knowing *before-hand* (Oxford English Dictionary, 2023) is arrived at. In contrast to prediction and trend inherent to fashion design, this research has been informed by emergent experiences of craft, where hands, whole body, and mind are entangled, and therefore making *is* thinking, and thinking *is* making (Lee, 2016, p. 7).

As such, methods in this research were not premeditated, but instead arose within and through the research itself. Central have been what Barrett (2010) refers to as *tacit knowledges*. Chapman and Sawchuk (2012) cite Barrett's description of "subjective, tacit knowledges" as "the feeling of 'being in the game'" (p. 12), where the creative process itself emergently presents ideas, limitations, and directions in relation to subjective, situated understandings of a topic, and which positions feeling and affect as valuable drivers in the research process. Rendering the making and thinking processes separate or in a linear mode from this study is not only difficult, but nearly impossible. As a result, this thesis is structured in a way to make the oscillation between theory and practice evident for the reader.

Within this chapter, three research-creation cycles are reviewed. These projects trace the creative and theoretical evolution leading to the final works of this research *Textile as Image* which is overviewed in Chapters 3 and 4. First questioning overconsumption, rag-paper making experiments and visualization techniques examine local textile waste. These material engagements titled *Textile as Rag Paper* (p. 13) and *Biography of a T-Shirt* (p. 18) explore the symbolic replacement of cloth and the movement of the textile's meaning and significance through industrialisation, representation, and mediation. In *Making Hands* (p. 28) and *Drawn Threads* (p. 27), the final projects in chapter 2, I further inquire into some of the ways that representation and symbolisation alter perceptual experience. Through both textile-hand making techniques and digital image-making processes, I question how the hand and the intimacy of textiles are altered through their translation into visual image, aspects which are then examined in more depth in chapter 3 which follows.

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*Rags! Rags!*  
Cash and the highest price paid for  
CLEAN  
COTTON AND LINEN  
**R A G S,**  
AT THIS OFFICE.

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FIGURE 3 RAGS! RAGS! Digital Screenshot of Printed Text. (Wade, 2019)

## **2.1 The Afterlife of Cloth**

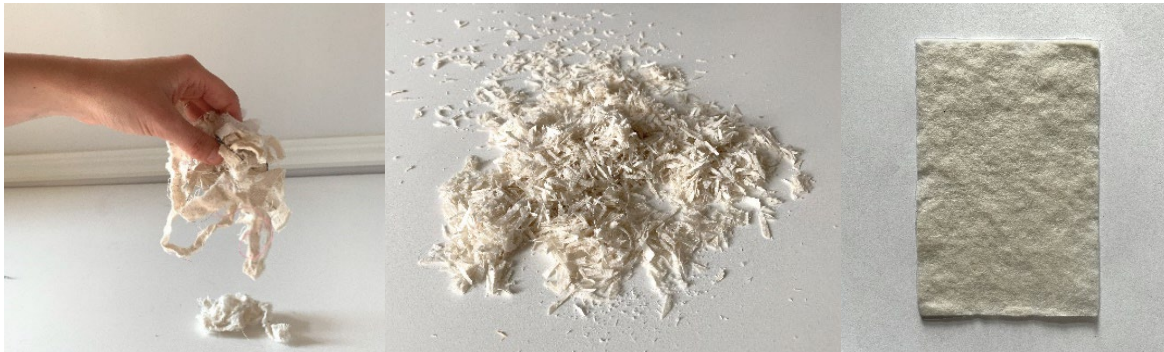
In this section, I introduce the first of my research-creation projects, which considers the afterlife of cloth in two contexts: as contemporary landfill waste, and as historical rag-paper. I also explore textiles and fashion mediation in the context of the first fashion magazine, *Le Mercure Galant*. The post-consumer textile transmuted into rag-paper, and its importance in early print media production has formed the conceptual and material foundations to this research. Furthermore, the rag-paper magazine's pages have also provided points of contrast and parallel elements to conceptualize fashion mediation within digital fashion media systems today. In considering the shifting position of used textiles within culture, and establishing representational systems as productive of fashion's material meanings, the valuation of textiles is established, problematized, and explored as a dominant research theme in this section.

### **2.1.1 The Textile as Rag Paper**

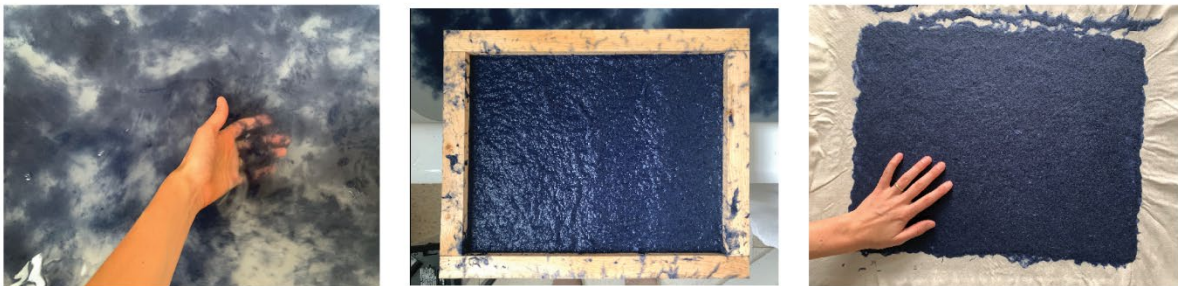
With the overwhelming issues of textile waste within the fashion industry as a starting point, the first stages of this research were informed by processes of textile material unmaking, where I sought to uncover what citing Van Wyck, Hird describes in waste as an “accumulation of the past that is very much alive in the present” (Van Wyck cited in Hird, 2013, p. 107), the landfill serving as “an archive to all our sated desire” (Hird, 2013, p. 107). Working with local post-production and post-consumer textiles, what emerged from this initial inquiry which explored low-tech methods for material re-circulation and upcycling was an introduction to the ancient techniques of wet felting and textile rag-papermaking. Though I had some success in blending recycled cashmere fibres with merino wool through wet-felting techniques, it was rag-papermaking that held my attention and where my early research began to concentrate during my first semester in DART 631 Critical Materiality.

To begin with, I sourced textile scraps from three sites—the soft surface lab at Concordia University, Concordia University's Centre for Creative Reuse (CUCCR), and my personal sewing studio for these initial experiments. Transforming the larger pieces of fabric into smaller more workable bits, I processed the rags and scraps of muslin, denim, and mixed cottons into small pieces that could then be transferred and pulped with a blender. One fabric type at a time, the textiles were blended for several minutes, transformed from textile back into fibre for the creation of rag-paper. I consulted YouTube videos, and two local papermakers throughout this process to eventually find a

blending method that produced a strong enough pulp to create a reliable paper sheet that would hold together.



**FIGURE 4**  
Muslin: Rags, Shredded, Paper. Digital Photograph, K-M Arndt, 2021.



**FIGURE 5**  
Making a Sheet of Paper. Digital Photograph, K-M Arndt, 2021.

At the same time as these material explorations focusing on rags and fabric scraps, I was reviewing literature on the history of the textile's involvement within print media production. In contrast to the landfill phenomena of textile waste today, historically, used textiles were foundational, as rag paper, to the production and circulation of print media. The contrasting valuation of even the smallest scraps of textiles in the past revealed not only a dramatically changing cultural relationship to textiles over the last one hundred and fifty years, but it also suggested the importance of media technologies in the production and circulation of material meaning, both within fashion and culture at large. Consequently, my research into rags and textile-based papermaking served as a starting point for research into fashion's mediation historically.



**FIGURE 6**  
 Femme de Qualite Lisant le Mercure Galant. Digital Photograph of Original Etching with Burin by Nicolas Arnoult (1650-1722). Original dimensions 29 x 34.7cm. Image Source: (Steinberger, 2022, p. 154).

The world’s first fashion magazine, *Le Mercure Galant* was published in France in 1672 (Rocamora, 2016, p. 509). Though its material make-up is undocumented, the paper pages of *Le Mercure Galant* which mediated fashion’s representation very likely originated from well-worn garments transformed into rag paper. I suggest this because before paper was manufactured from new wood pulp starting in the late 1800s, print media like it depended on “the afterlife of cloth” (Brylowe, 2019, p. 3) to create their very pages. Between 1450 until the mid-nineteenth century, end-of-life garments and textiles were valued for their transmutability as cultural surfaces, which once finished being worn, if not saved or passed down, became rag-paper central to the distribution of print media (Hunter, 1988). With post-consumer garments of previous periods not only highly valued, but also recirculated within cultural production, during the Romantic era there was lore that a discarded garment might come back to its former wearer “as a good book or an important letter” (Brylowe, 2019, p. 3). To introduce a garment central to this project—a well-worn cotton jacket, we might



imagine a jacket returning to its wearer not as a book or letter, but instead, as the pages of *Le Mercure Galant*, and on its textile surface, the engraved image of another, newer, and even more desirable garment ready to be worn, and worn out again.

In *Le Mercure Galant* is the first instance of “sensuous translation” (Rodaway, 1994, p. 146) in this project. Within the magazine, the textile is transmuted from a wearable cloth to rag-paper page, physically reconfiguring its tactility into visual and mental concepts, a process which has only been accentuated within fashion and fashion media since. Yet, however draped in a semiotic foreground of engraved images and textual representation, there remains in the rag-paper magazine an indexical relation of the body *in touch* with the media materials. This is evident in the narrative of garment returning to wearer as book or letter, and in lore of rag-paper containing traces of wearers from their previous lives as worn cloth (Brylowe, 2019, p. 4). In the recirculation of textiles within print media, textiles can be understood as holding multiple levels of cultural *currency*<sup>4</sup>. This currency can be said to be composed of the value of substantial manual labour which was embedded in cloth through production at the time, and furthermore, the textile’s mutable materiality which offered a valuable surface for the circulation and exchange of cultural meaning through print.

### 2.1.2 Unmaking

An important aspect of this early study was the establishing of *unmaking* as a generative research method, especially relevant within the context of researching fashion overproduction. This method not only revealed how the historical making and unmaking of textiles can be seen as leading to the manufacture of the printed text (Skeehan, 2016, p. 691), but also how textiles hold histories and material relations within their surfaces, which, once undone, can inform important understandings of how that surface came together, and the material relations of the past that it contains



FIGURE 7  
Recycled Textile Rag Papers. Digital Photograph, K-M Arndt, 2021.

<sup>4</sup> McKenzie Wark refers to currency as that which “can store value or act as a means of exchange”, see Wark (2016)

## 2.2 Representation and the Symbolic Replacement of Cloth

Alongside continued research into contemporary textile overproduction and waste which have been examined for what they express about our material relationships to textiles and clothing today, increasing symbolisation has also been explored within this project. Symbolisation, where something (for example, an image or text) stands in for something else (for example, a textile or garment) has also been significant to my understanding. Symbolic replacement reveals how various mediums translate the unique characteristics of one sensuous experience into another sensory form (Rodaway, 1994, p. 146), such as the tactile to optical within the fashion image. The exchangeability of a material's meaning through symbol and sensation can be considered a meaning's "mobile quality" (McCracken, 1986, p. 71), which I have identified and explored as a crucial component in understanding material disconnection and the valuation of textiles today.

Representation has also been an important concept for understanding this. Representation, according to the social and cultural theorist Stuart Hall (1997) is "an essential part of the process by which meaning is produced and exchanged between members of a culture" (p. 15). As Hall expands, the production and exchange of cultural meaning depends upon two representational processes. The first involves a basically similar conceptual system comprised of signs, images, and language—in other words, symbols, which stand in for 'real' things in the world and make reference to the world "both inside and outside our heads" possible (Hall, 1997, p. 17). The second process requires common languages with which this shared conceptual system can be expressed and communicated between group members (p. 17).

Fashion representation viewed in this way positions media systems as the common cultural languages within which the shared conceptual and symbolic system of fashion is socially communicated and exchanged. Importantly, this framing reveals that media systems like networked digital media or the rag paper magazine are not only reflective of existing cultural meanings within fashion, but simultaneously they contribute to the productive cycle of ongoing meaning and value formations. Meaning, in a state of constant flux, is therefore negotiated and renegotiated through practice (Hall, 1997). With a similar conception as the mobile quality mentioned by McCracken, Jansson (2002) describes meaning within culture as generative within "production, exchange and use" (p. 10), thus it is within processes whereby "products, communities and practices *become cultural*" (p. 9).

### 2.2.1 From Significance to Simulation

The movement and exchange of meaning and its representation through symbol within fashion production and mediation can be illustrated in another of my exploratory studies. This early project, titled *Biography of a T-Shirt*, examined a found t-shirt in the urban landscape of the Mile End neighbourhood in Montreal (fig. 8). In this project for DART 600 Design Theory and Practice, I aimed to situate myself and gain understanding of textile waste as it manifests within my neighbourhood and everyday life. Walking, observing, and photographing, I mapped discarded textiles that I came across, investigating their cultural origins. On one walk, I found a t-shirt which offered a case study for further investigating textile waste and material meaning.

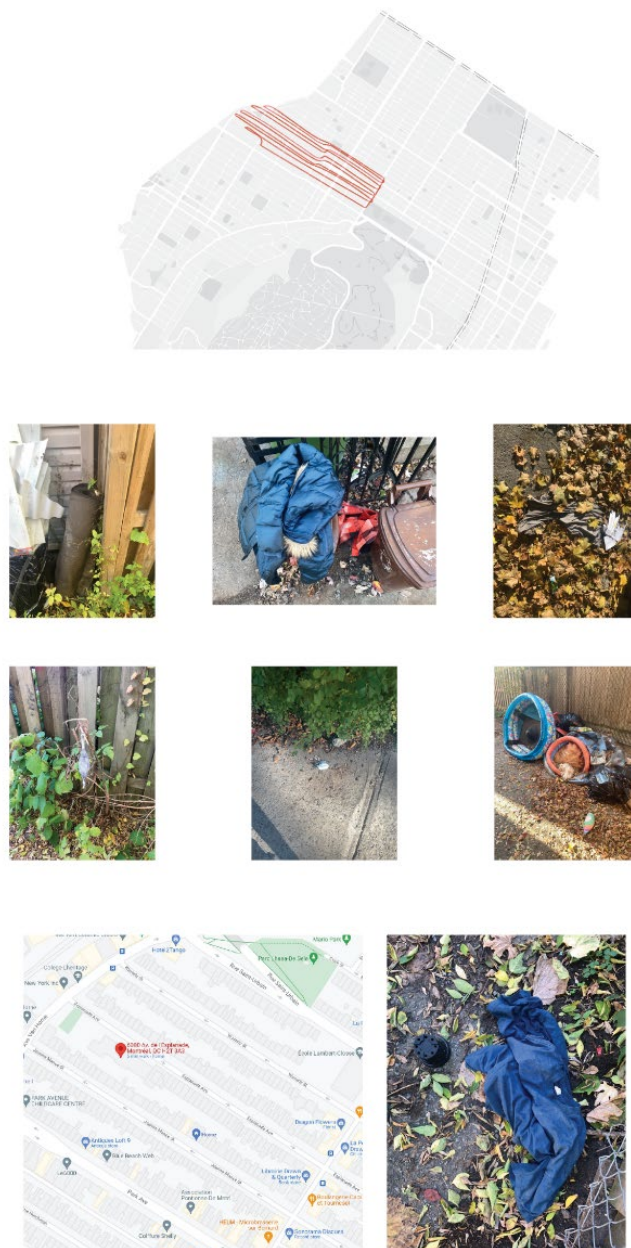


FIGURE 8  
Mapping Textile Waste. Digital  
Photographs. Digital Illustration.  
K-M Arndt, 2021.

Jean Baudrillard’s theories of consumption and simulation can be used to make sense of the disconnection between the words and actual materiality of this t-shirt, specifically through its symbolic representation. The arbitrary symbolisation of the words screen printed on the front of the t-shirt are exemplary of Baudrillard’s post-semiotic framing, where the significance of words CANADA, CLUB WILD WEAR, AUTHENTIC are completely disconnected from the actual locations where it was produced, as inscribed on the tag inside: “Made in Mexico of US Grown Cotton” (fig. 9). Baudrillard builds on structuralism to propose a theory of consumption in which signs and consumer goods not only reflect, but also obscure, generate, and simulate new realities which are hyper real or more real than reality itself (Baudrillard, 1994). He describes this as a move from signification to simulation, a helpful framing when applied to fashion.



**FIGURE 9**  
 Travels of a T-Shirt. Digital Photographs and Digital  
 Illustration. K-M Arndt, 2021.

Drawing on Baudrillard's work, Tseëlon illustrates how the shift from signification to simulation operates within Western fashion, which beginning with its origins in the fourteenth century pre-modern period, can be located in fashion's characterization "by the principle of scarcity of resources that symbolized rank in dress" (Tseëlon, 2016, p. 218). The rarities of natural materials and costs of human labour and skill required to cultivate and process materials into textiles and garments separated those who could afford to invest (from the Latin *investire*—to clothe) from those who could not, by appearance. In this first order of Baudrillard's simulacra, fashion's 'appearances reflect reality', where the signifier of clothing made of rare materials and time intensive processes could be seen as directly signifying an image of high social status for those who could afford to wear them (Tseëlon, 2016, p. 218).

In modernity, fashion's material and social meanings were complicated by technological advancements which reduced costs and increased textile production, making fashion more widely available to a rising middle class (Tseëlon, 2016, p. 219). Whereas, for example, textiles of royal blue in pre-modernity were only worn and available to an elite few, in modernity, social mobility afforded through work and technological development meant that with chemical dyes and 'achieved' social status, royal blue could be worn by almost anyone. In semiotic terms, the signifier of royal blue no longer signified what it traditionally had—social nobility, rare resources, or the luxury of time investment, therefore altering previous class, meaning, and value distinctions. Thus, in the modern period, social changes in fashion's significant meanings had to be redefined and renegotiated. For Baudrillard the modern period marks a shift from the utilitarian towards increasingly more symbolic qualities in cultural production and consumption (Tseëlon, 2016, p. 221).

Arriving at the found t-shirt of today, the disconnect of representation, symbolism, and materiality has reached an extreme, where the significance of the words on the t-shirt are completely arbitrary, the signs empty containers for economic ends. Notoriously opaque with its supply chain, and with a near impossibility to identify manufacturers and producers through an elaborate system of sub-contracting, the fashion system creates disconnection between its parts which limits the possibility to place responsibility on the larger companies and corporations manufacturing and producing clothing. Furthermore, the disconnection of symbolisation which re-replaces meanings in the t-shirt illustrates the nature of globalization, where the negative impacts of the production of goods in one nation are outsourced for the consumptive ends and desires of others (Ferne and Perry, 2011).

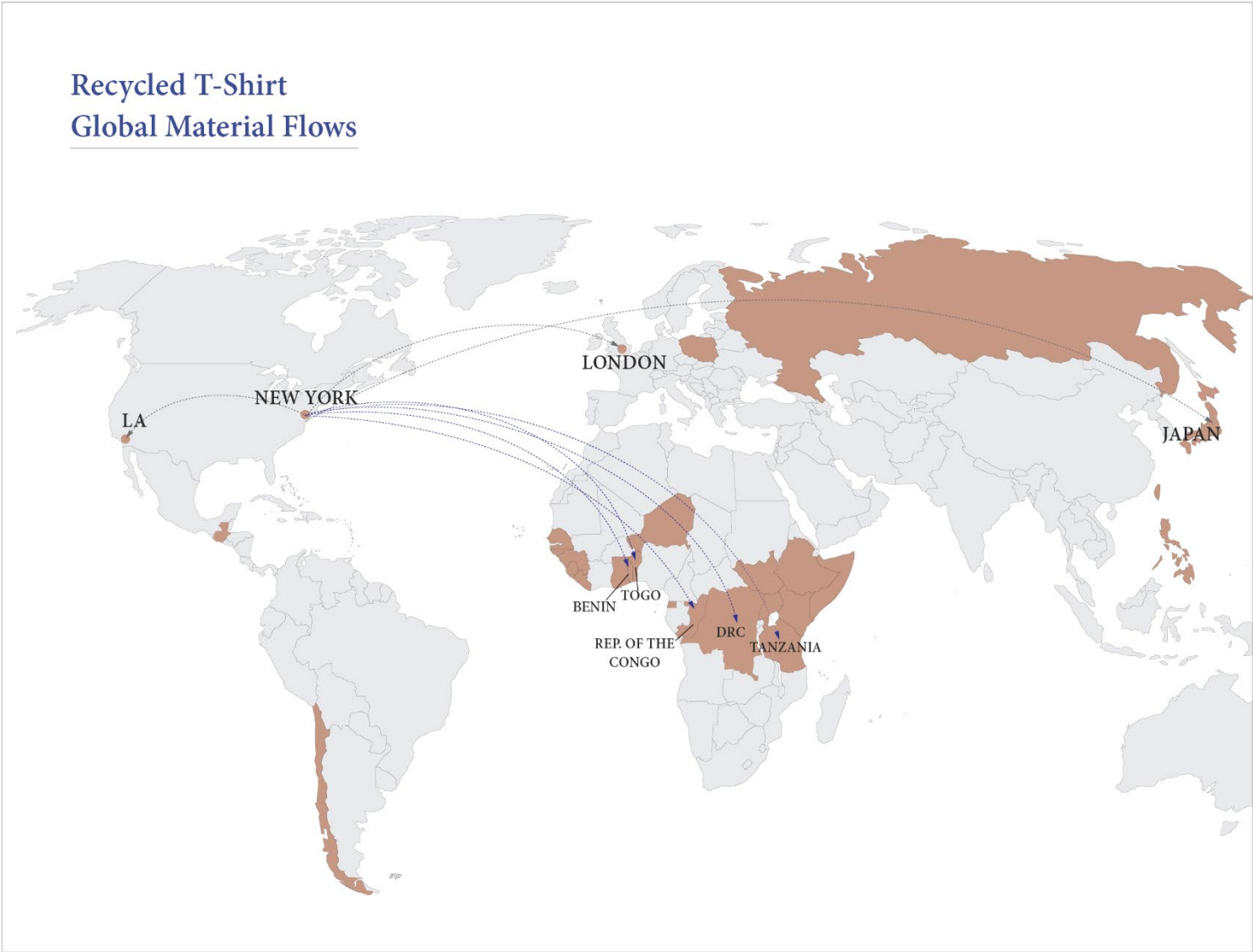
With the aim of communicating the complexity of this t-shirt, design techniques for graphic visualization were explored. Lorber-Kasunic and Sweetapple posit visualization in design research in three regards: “method of inquiry”; “means of documentation”; and “way of disseminating findings” (2015, p. 4), all three of which applied to this project. Visualization methods not only helped to bring forth some of the unseen aspects contained by this t-shirt, but also suited my research aim of finding alternative ways to engage with design without producing *more* textiles and clothing. Sensory communication marks another potential research method to communicate and represent alternative values within fashion.

Through a series of visualizations, I attempted to connect the garment to its histories and the actors involved in its production, while considering its relational nature as one of the most ubiquitous garments in everyday life today. I was inspired by Hird’s argument that when thinking of materials relationally, “a significant task is to name the entities that compose [their] networks” (Hird, 2013, p. 109). This concept guided me in my attempts to speculatively recollect and retrieve the histories, places, and resources existing within this discarded garment. In addition to mapping and tracing its material origins, the aspects that I focused on materializing through visualization were its speculative material flows through the global second-hand clothing market (fig. 10); the resources which created it (fig. 11); and the “actors”<sup>5</sup> that produced it (fig. 12) which are displayed on the following pages.

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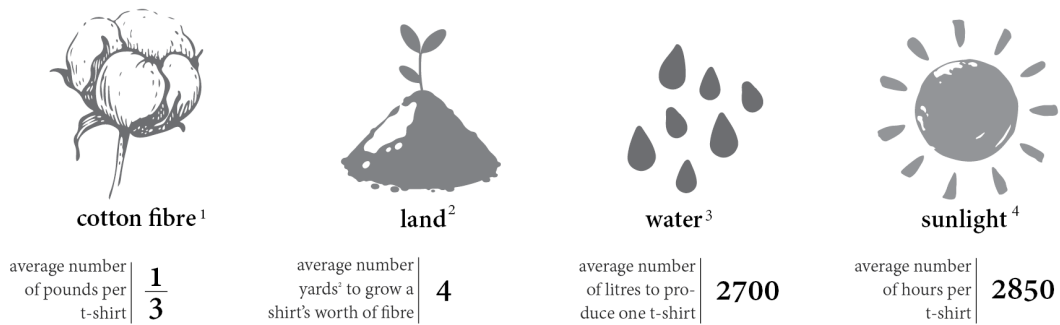
<sup>5</sup> This method applied Petersen and R isberg’s (2009) conceptual framework to “follow the actors” from *Opening Up the Wardrobe* (Fletcher & Ingun Grimstad Klepp, 2017, p. 102).

**Recycled T-Shirt  
Global Material Flows**



**FIGURE 10**  
Global Material Flows. Digital Illustration. K-M Arndt, 2021.

## Resources Needed To Make 1 T-Shirt



1. Rivoli, Pietra. *The Travels of a T-Shirt in the Global Economy*. Wiley, 2015, 62

2. Rivoli, Pietra. *The Travels of a T-Shirt in the Global Economy*. Wiley, 2015, 62

3. Contributor, 3p. "It Takes 2,700 Liters of Water to Make a T-Shirt." TriplePundit, 6 Feb. 2013, <https://www.triplepundit.com/story/2013/it-takes-2700-liters-water-make-t-shirt/54321>.

4. "Average Annual Sunshine in American Cities." Average Annual Sunshine in US Cities - Current Results, <https://www.currentresults.com/Weather/US/average-annual-sunshine-by-city.php>.

**FIGURE 11**  
Resources to Make 1 T-Shirt. Digital Illustration. K-M Arndt, 2021.



## Identified Actors

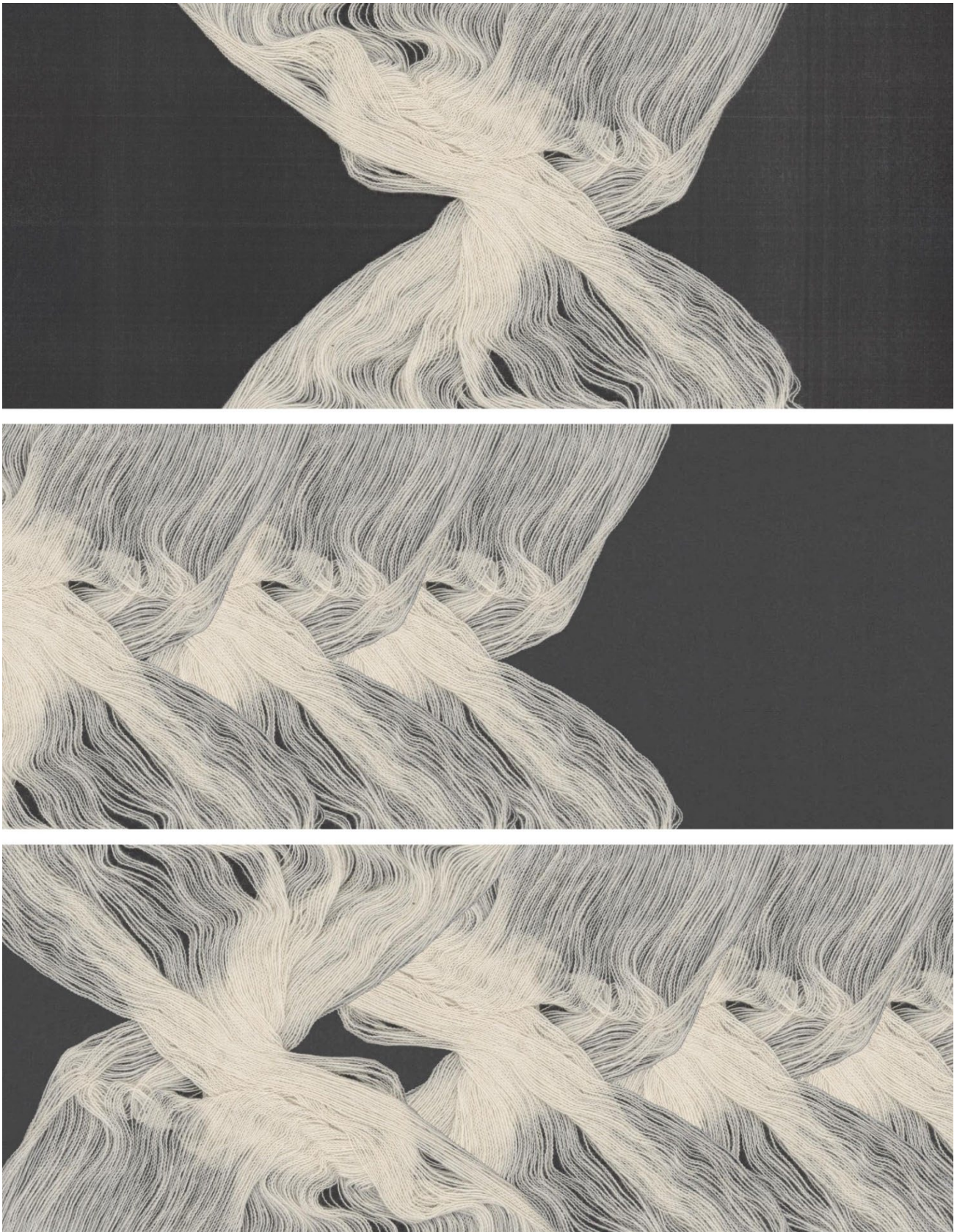


FIGURE 12  
Actors. Digital Illustration. K-M Arndt, 2021.

### 2.2.2 Situating Material Practice

My collection and observation of garments and visualization strategies in this project were exercises in articulating and developing alternative design-research methods that would not contribute to the waste of the fashion system. Instead, research examined the materiality of waste itself. This stage of the study was important for *situating* material practice within the realm of everyday life. It was also foundational to my understandings of the ways that everyday experiences are shaped and conditioned by systems of representation, symbolisation, and mediation—through language, images, and media environments to name a few. The dislocation and displacement from the direct sensations of things through systems of representation leads to what the media theorist Anne Friedberg describes as “implicit time travel” (Friedberg, 1991, p. 420). This postmodern feature, Friedberg claims, has become an ever more common way of sensing daily life, with the manipulation of space and time as “essential features” of media systems which provide an enduring “ubiquity of ... simulated experiences” (p. 420).

The limitation of my research to my proximate everyday environment, a similar mode to when I was handweaving cloth and constructing garments by hand, has been a counterpoint to the perceptual experiences of mediation, bringing instead direct and present experiences to this research. This has been especially important in relation to the subject and exploration of sensory touch, as will be explored in the following sections of this thesis. All materials worked with and examined within this project have been gathered locally and examined by hand, from with my everyday life and encounters. This stance aligns with my aim of taking fashion out of the realm of the ideal and fantastical, and instead positioning it as material, situated, and worldly, as embodied “[practices] that [are] embedded within the social world” (Entwistle, 2000, p. 375).



**FIGURE 13**  
Drawn Threads 1. Digital Scan and Collage. K-M Arndt, 2022.

## 2.3 Drawn Threads

In the previous research-creation sections, the textile and its meaning have been explored through a variety of mediums: waste and rag paper, representational systems, symbols, and language. Each textile mediation process has carried with it a different perceptual experience, revealing a mobile quality to its material meaning and significance. In this section, my research-creation projects *Making Hands* and *Drawn Threads* further explore the tensions which arise through the mediation of materials, particularly the renegotiation of the sensorial body through its extension, stretching, and distancing by mediation processes.

### 2.3.1 The Movement of Cultural Production

An important shift for the body is the removal of cultural production “from the sphere of everyday life into profit-making institutions” (Jansson, 2002, p. 12). Adorno (1991/2020) coined the economic production of culture as “the culture industry”. The merging of cultural and economic exchange is notable for practices like fashion, where the meanings reflected in material practice become interwoven with, and in ways indistinguishable from economic exchange. A consequence of this movement for textiles and clothing which is considered in depth throughout the next phases of this research is the detachment of the hand and body from textile production, and a distancing of the sense of embodied presence and touch when experiencing the textile as a representational image.

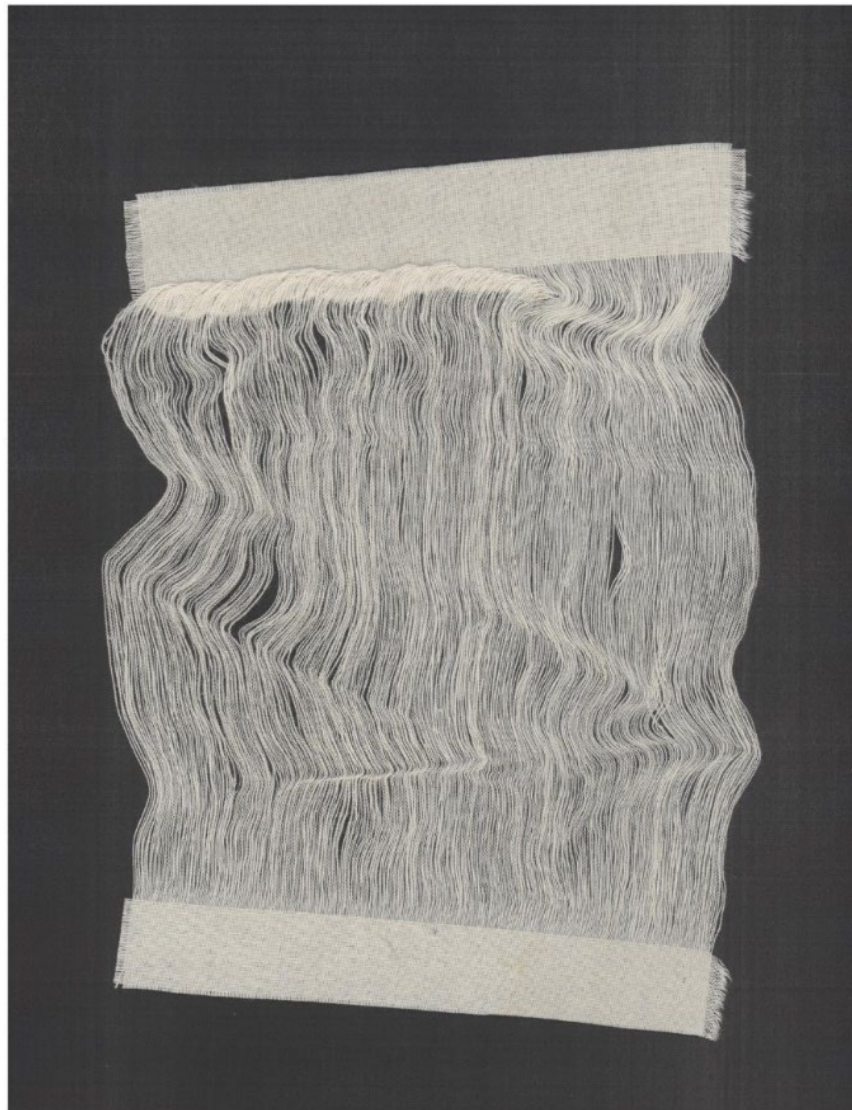
The fashion design-researcher Yeseung Lee reflects that “the removal of hands... [economizes] cost” (Lee, 2016, p. 5), but how does the removal of body and hand affect material connection? Exploring the concept of the absent body, and moreover questioning the ways that images alter embodied relationship to presence during my directed study DART 651, I explored the tangibility of the hand and body within textile-making through research-creation. In these studies, I was also seeking methods which might convey the embodied aspects of textile making processes explicitly within research. In *Making Hands*, I recorded my own hands involved in acts of knitting and crocheting. Recording these acts of making with video, I cut and compiled actions and sequences together, displaying multiple channels simultaneously. The multi-channel exploration was meant to emphasize both the temporal alteration which takes place through video mediation, all the while conveying the significant labour and actions which are embedded within textiles and fabric through the rather overwhelming display of many hands at work (fig. 14, next page).



FIGURE 14  
Making Hands. Digital Video Stills. K-M Arndt, 2022.

Within these explorations of my hands making, I also explored the technique of drawn thread work. New to drawn thread work, I was especially interested in exploring it in relation to the concepts of presence and absence of the body which I had been researching within textile production and mediated experiences. Utilizing materials at hand, this project examined these concepts through cotton muslin. Muslin is a significant material in the fashion industry, and especially relevant in this project for the ways it is often concealed as the absent toile underlying garment making processes.

Though I intended to follow traditional drawn thread processes, where warp or weft threads are removed and then stitching is added over top to secure the loose threads that remain, as I removed threads from the muslin, lifting, separating and pulling single strands of weft, one thread after another, after another, and another, over, and over again, I was drawn to the threads' absences instead. In their removal, the behaviour, texture, and characteristics of the fabric's hand transformed. In the categorical range of textile materials, muslin is stiff and stable, a humble fabric without many compelling properties outside of its affordability in comparison to other types of cloth. Yet, in the removal of one direction of its threads, again unmaking the textile to make sense of its materiality, the underlying tension which had been embedded within the threads from the weaving process began to free, moving the fabric in unusual ways. The material properties changed entirely from stiff and rough into a flexible, delicate, and soft plane of threads (fig. 15).



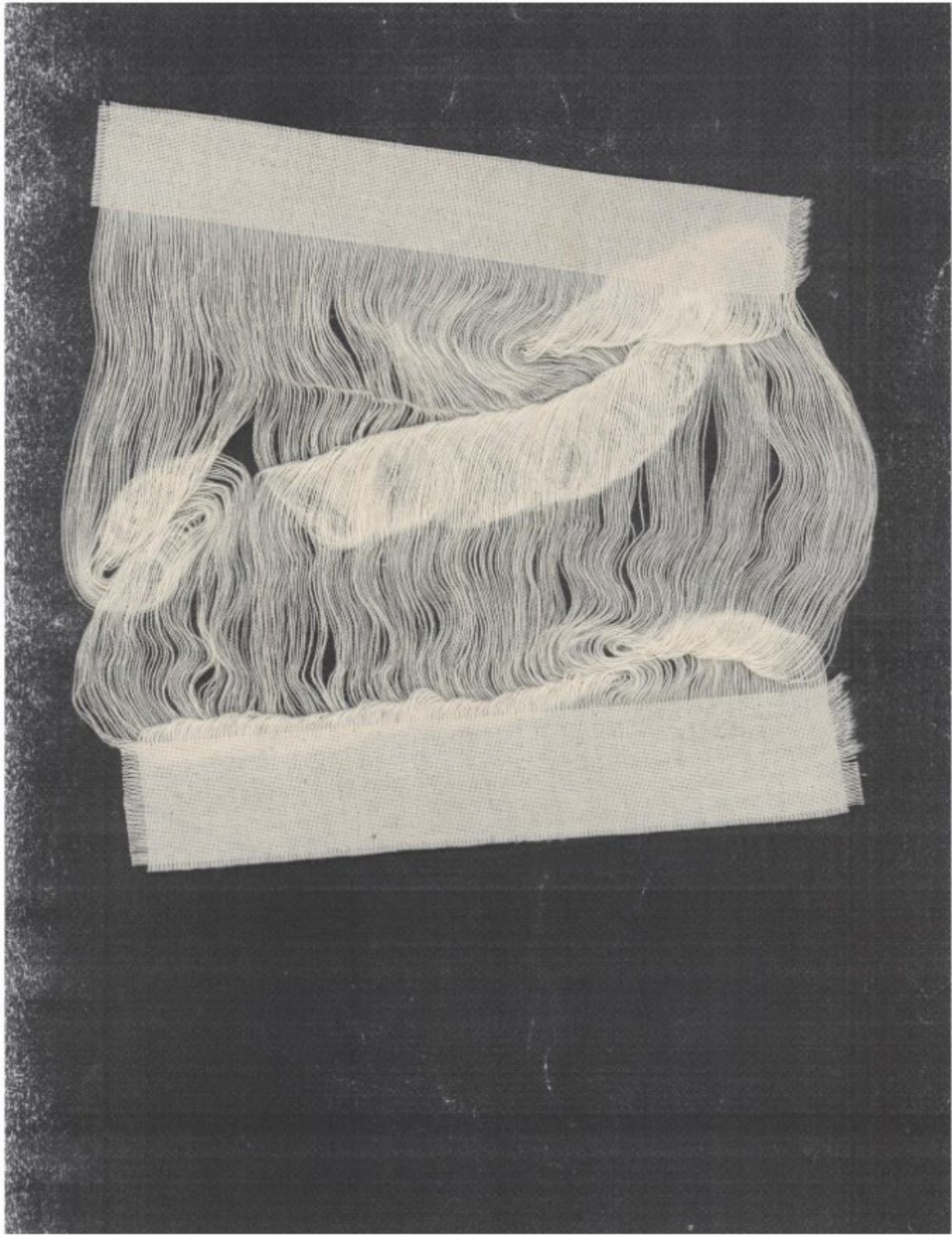
**FIGURE 15**  
Drawn Threads 2. Digital Scan.  
K-M Arndt, 2022.

### 2.3.2 Toward a Haptic Materiality

Anni Albers (1965/2017) notes that “[a]long with cave paintings, threads were among the earliest transmitters of meaning” (p. 50). Historically, tapestries have been records holding messages and ideas within their structures. But the visual meaning a textile depicts is always accompanied by the tactility of its materials (Smith, 2018, p. 243). This is because, as the architect Pallasmaa (2011) asserts, “[a]ll the senses including vision, are extensions of the tactile sense; the senses are specialisations of skin tissue, and all sensory experiences are modes of touching and thus related to tactility” (p. 10). It is perhaps especially in our perception of textiles, then, that their deepest meanings reside within the affect of the haptic (from the Greek *to lay hold of*) where the visual and the tactile senses, together, evoke a textile’s movement. Through this motion, the pre-symbolic registers of material touch, holding, and psychological containment which reside within cloth are conjured, albeit unconsciously (Pajaczkowska, 2010).

Threads are therefore full of sensory complexity. They are connections of processes, movements, and *emotion*. The tension of weaving, the hand making, or the body in motion and relation are all held together and bound within the textile as a surface, and as a structure. As the art historian T’ai Smith notes, “‘reading’ a textile entails an entanglement of different sensory modes” (Smith, 2018, p. 243) to access their meanings fully. The textile is intimately linked to touch and feeling, perceptions which are so often altered and removed when abstracted into visual image. In the image, the intimacy of touch and proximity of the body in space is replaced with a remove inherent to the eye, the “organ of distance and separation” (Pallasmaa, 2011, p. 46).

In *Drawn Threads* the sensory modes of tactile and optical are entangled, wherein vision is suffused with touch, therefore shifting the image and its optical focus toward what the visual art and media theorist Guiliana Bruno (2014) describes as “a haptic materiality” which offers a “reciprocal contact” (p. 3) to be communicated and experienced. These images, digitally scanned, are reflective of touch which is distanced through vision, but they also express the textile’s silent and affective qualities, which are in other ways incommunicable. The image and the textile are both records, one holding in stasis a reminder of the other’s dynamics. Both surfaces record and express specific relations of materials, entangled. Haptic representations such as these studies begin to communicate aspects of the mobility of meaning which appears at the surface, the surfaces reflective of material contact and mutual exchange.



**FIGURE 16**  
Drawn Threads 3. Digital Scan. K-M Arndt, 2022.



As has been discussed in Chapter 2, the initial stages of this research undertook several exploratory research-creation phases which established the research scope and the material and theoretical territory of this project. Textiles have been followed from contemporary waste to a history of the used textile in rag-paper, examining the connections of textiles and media. Through studies of mediation, the significant role of representational systems like digital and print mediums have been explored in relation to how they express and generate cultural and material meanings of the textile.

The textile's intimate, silent, and felt qualities which connect to proximity, embodied presence, and physical and psychological containment have been established as important ways in which the textile is pre-symbolically understood through the body and its sensory perception. Yet, as has been identified, through the movement of cultural meaning production from the everyday into economic value production, these meanings and experiences have been dramatically altered. With "the stretching of markets across national and international space" (Lury, 2009, p. 68), cultural products like the textile undergo representational and symbolic transformations, forms which can more easily circulate and be exchanged to generate economic value (Lash & Urry, 1994). The photographic image and digital media systems have been identified as central to these processes, with the image increasingly negotiating and mediating materials and replacing immediate experiences of the textile, and will be examined further in the next chapter.

### Chapter 3: Textile and Image

In this chapter which outlines the final parts of this research, discursive design, media studies, and sensory studies more closely examine the photographic image. First, I position images and media systems as environments which are composed of particular sensory experiences and directive of behaviour. This framing offers understanding of the structuring qualities of fashion images which, beyond their imaged surface, orient the body and material practices. In the subsequent sections, I trace specific relations of cloth and image. Looking first historically at analog photography, I examine the development of photographic technologies, processes which were developed with the aid of textiles such as lace. Following my examination of the relationship of analog photography and textiles, I examine some differences between analog and digital image-making processes. Taking the material and conceptual differences of these image-making methods, I then turn to a contemporary example of digital fashion, a growing phenomenon where garments and textiles are purely image. Through the trajectory of cloth, to analog contact photograph, to digital image, the distancing of the body and the proximate sense of touch is questioned. These concerns are then examined and reflected on in the final creative works of this research which are explored in *Imaging Outerwear* (p. 42).

#### 3.1 Media as Environment

Within these final processes, I have been influenced by the media theorist Marshall McLuhan's (1965) foundational definition of media and any medium as "[extensions] of ourselves" (p. 23). One medium, McLuhan asserts, is the content of another. In writing, the medium contained is speech; speech is container for the process of thought, where in thought itself is a non-verbal or extra-cognitive activity before it is translated into the mediated forms of spoken or written words (pp. 23-24). The process of translation inherent to mediation is what led McLuhan to remark that *the medium is the message*, meaning that the structure of a medium has perhaps an even greater impact on how it is experienced than the message that it delivers. For example, McLuhan writes about the way that the medium of the phonetic alphabet, which relies entirely on the eye and a linear, logical process for its perception has come to dominate Western culture, and therefore shapes and overarchingly directs perceptual experience and behaviour toward the eye as a result (McLuhan, 1967, p. 44). The visual emphasis of written language reflects aspects of the visual emphasis within fashion.

Thinking of mediums less as messages and more as environmental conditions relates to ideas from media philosopher John Durham-Peters (2015). He maintains that within the last century and the rapid development of mass media, the notion of media as “message-bearing institutions” has taken over cultural understanding, whereas media of previous eras, which often referred to “the natural elements such as water and earth, fire and air” have historically been considered as environments (p. 5).

By considering media systems and images as environments which structure behaviour, I draw from sensory studies the assertion that sensory perceptions are physical but also cultural acts. Therefore, sensation is both limited to and generated by historical and culturally situated ways of knowing and understanding the world (Fackler, 2019, p. 520). Cultural geography also positions the senses as mediums which orient perception of time and space, but notes how the geographical information provided by the senses is both biologically and culturally constituted (Rodaway, 1994). As Rodaway expands in *Sensuous Geographies*, which examines post-modernity and representation:

“The sensuous reality is determined, therefore, not merely by raw sensations or naive experience but within the context of a complex of a culture’s systems of beliefs and within the confines of its technological prowess. Cultural practices and technologies of a society effectively mediate person-environment encounters and largely determine geographical understanding. In the middle of this complex the senses are both medium and message, physically and culturally defined, a structure and information” (p. 145).

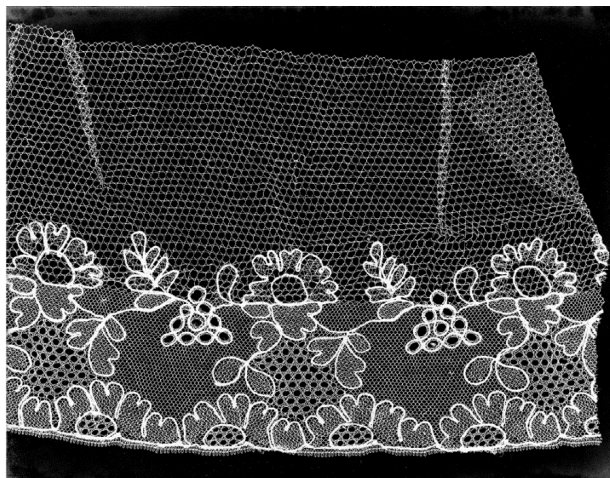
Environments of the past have been made up of biological and ecological sensory information (Rodaway, 1994, p. 176). Alternatively, the digital environments inhabited today are composed of cultural and economic co-ordinates and “synthetic, sensuous media” (p. 176) which negotiate the information available to the body’s senses. The image is therefore positioned as an important coordinate which orients the body and is directive of the productive and consumptive practices and behaviours which affect material outcomes for fashion and textiles.

### 3.2 Cloth and the Production of the Photograph

Following the image etymologically, this section explores two different meanings of the image: *imago*, from the Latin "to imitate or copy"; and *imagier*, from the middle French, which can be understood as an inwardly generated and perceived picture, linking less to a copy as to the generative experience of imagination (Oxford English Dictionary, 2023). With this imaginative sense, there is a closer relation of the image to the definition of the virtual, as it is used within computing: "not physically existing...but made by software to appear to do so" (Oxford English Dictionary, 2023). These understandings of the image are explored in relation to the textile and its image in the following section beginning with the lace contact image and its role in the development of photographic technologies. Following this investigation of the image as a copy, the imaginary virtual textile-image of born-digital fashion garments within networked media today is explored. These investigations combine with image-making practice, questioning their influence on touch and embodiment, topics researched in the final practice-led inquiries of this project which follow.

#### 3.2.1 Cloth as Contact Print

Beginning with the meaning of an image as copy, a photograph of a textile or garment represents the tactile world as a two-dimensional visual image, serving as record or reproduction of an existing object. The image in this sense can be traced back to the origins of analog photography with Talbot's early 'photogenic drawings' made between 1834 and 1845 through the placement of objects onto writing paper soaked in photosensitive chemicals (Monteiro, 2017, p. 62). When exposing the photosensitive paper to light, the parts of the object in contact with the paper would cast a shadow that, unexposed, remained blank on the paper, and therefore recorded a negative copy of the object where it was touching the paper. As Monteiro expands, among these early photographic experiments, some of "the first and most important photographic subjects" were pieces of lace and other textiles including muslin, calico, and lace owing to their variable transparency (p. 62).



**FIGURE 17**  
Contact Print of Lace. William Henry Fox Talbot. Made Before December 1845. Digital Image Courtesy of the Getty Open Content Program. Image Source (Monteiro, 2017, p. 63)

Because early textile photograms were able to capture very detailed qualities of fabrics, images of lace were circulated to manufacturers in place of textile samples, replacing the need for *actual* cloth, as would have been necessary before image-making technologies were available. In this way, the lace photograms served not just as copies of an original which could be used to record a pattern, but they can also be seen as seeds: transmitters of reproductive information used in the further making of more lace. In thinking about Talbot's lace image re-placing actual fabric, a phenomenon which has only since increased and become more commonplace within fashion and cultural production, the fashion theorist Susan Kaiser's attention toward distribution as ambivalent with the double meaning of both "dispersing" and "dividing" (Kaiser, 2011, p.19) is particularly potent. With this framing, the distribution of fashion can be viewed (similarly to meaning exchange) as an abstracted flow in between spaces, processes which bridge the material movement between production and consumption, but furthermore, "site[s] of rupture" (Kaiser, 2011, p.19) where the material processes of image making override the material making of textiles and garments in importance. As the lace contact prints transformed textile to image, the imaged copies of lace, in turn, accelerated the production of more lace.

Within this structure, we see an earlier but perhaps more straight forward working of media logic than in digital networks. Durham-Peters suggests that by viewing media in an infrastructural way, which allows "understanding the work of media as fundamentally logistical", we can recognize in mediums like images the media logics which organize, orient, and arrange "people and property, often into grids" (Durham-Peters, 2015, p. 37). To think of Talbot's lace photograms and fashion images in an infrastructural way, and furthermore, by examining the ways that images operate logistically, we can see how these images and the images which have proceeded them contribute to a reorganization of textile production and manufacture in a multitude of ways. With their ability to record patterns of lace quickly, the images contributed to the reorientation of the need for the labouring hands of lacemakers. Talbot's textile contact images mark an important function of the image within fashion, especially as it relates to early industrial production: the image-textile as "recording media that [compresses] time" (Durham-Peters, 2015, p. 37). It can be seen that this compression of information acts as an accelerator for textile distribution, quickening the pace of textile material production and altering the perceptual relation of the body in turn.

### 3.2.2 The Contactless Digital Image

Unlike the specific material quality of analog photographs like Talbot's lace photogram, the digital image is produced very differently, which reveals differences to digitally imaged materiality. To define digital in a basic sense reveals aspects of this difference. In their book *Digital Anthropology* Horst and Miller (2012) define the digital as everything which can be "ultimately reduced to binary code" (p. 3). Rather than materials which are held with relative stability in physical form, as on cellulosic film or photographic paper which act as a sensor to record a picture in analog modes, images produced digitally are non-specific and use a singular silicon sensor for the creation of multiple photographs. The exchangeability of the digital sensor is significant to note within digital images, as it points toward an influential consequence of the abstraction of physical materiality into digital form—the material proliferation of both further difference and further particularity, which anthropologists Horst and Miller argue leads to an "intensification of the dialectical nature of culture" (Horst and Miller, 2012, p. 3) and material exchangeability. This aspect will be explored through practice and reflected on in the subsequent section titled *Imaging Outerwear* which begins on page 43.

The sensor used in digital image-making is composed of millions of photosites, more commonly known as pixels (picture elements), which are "light sensitive area[s] made of crystal silicon" that sample photons of light into a rectangular grid, sampled through spatial, tonal, and durational qualities, which together, capture and organize information (Lodriguss, n.d.). With the digital image, a photodiode "absorbs photons and releases electrons through the photoelectric effect" (Lodriguss, n.d.) phenomena which are recorded and stored as electrical charges which become a representation of the proportions and quantity of photons that accumulate in contact with the sensor during the length of image exposure. This information, itself representative of the electrical charge of each pixel, is stored in a digital file which indicates the pixel's location and brightness, constituting a scene in 1s and 0s. This file is then interpreted by a computer and results in the turning on or off of the pixels on a screen depending on the presence or absence of an electronic signal.

Turning to examples of the textile as digital image today, it is fascinating to examine 'born digital' fashion collections composed of virtual textile materials. *Tribute Brand* is a contemporary fashion company that, as their Instagram profile reads, "creates digital clothing that consumers can buy and paste onto social-media images of themselves" (Tribute Brand, n.d.). In these instances, the textile is

reduced to *pure image*, “shaped by and for digital media” (Rocamora, 2016, p. 506), embodying and exemplifying aspects of the “changing nature of materiality” (Thrift, 2005, p. 231) brought about through digital networks. No longer tactile, but instead ‘contactless’, the digital garments of contemporary fashion design like those of *Tribute Brand*, require no physical touch to make and no physical body to wear (Choufan, 2022, p. 324). The textile in these instances evidences new technological infrastructures which provide new surfaces “of and for both value and knowledge” (Lury, 2009, p. 79). In this final stage of tracing the textile through its cultural production and representation in this project, the textile has been transformed from a cloth embedded with the body and hand through handmaking processes, into its digital and virtual states which have been removed, almost entirely, of the physical body and the senses of contact and touch altogether (fig. 18).



**FIGURE 18**  
Tribute Brand [@Tribute\_Brand]. (2021, January 1). “Contactless&Cyber Bala Dress For @Fashionsnapcom” [Photograph]. Instagram. <https://www.instagram.com/p/Ckrk3dbgs65/>

### **3.3 Imaging Outerwear**

The final stages of creative research have employed analog and digital image-making practices to further understand the materiality of photographic images, and are discussed in this section.

Through these processes, I inquire more closely into the transformation of textile to image, and the implications of this transformation for the sensorial body. My final studies centre outerwear garments, clothing which marks the body's furthest extension. As the body's outermost layer, outerwear is at once representative of the limits of the body's physical reach, while simultaneously materializing a border between self and surrounding environment. This physical and metaphorical dynamic has become a rich space to question the textile, the body, and the image in relationship to their extended networks, surrounding environments, and sensorial exchange. Thus, in my final research-creation processes, two everyday outerwear garments are examined through image: the first a five-year-old bull denim studio jacket that I made for my husband, and has since been worn innumerable times; the second, a roughly fifty-year-old denim jacket, handed down from grandfather to grandson. Both garments bear extensive traces of wear and use, yet are absent of a wearer's body.

These garments evidence the ways that wearing clothing is a reciprocal relationship, "in which the garment is animated by the body of the wearer at the same time as it influences the wearer's bodily demeanour" (Negrin, 2016, p. 127). Central to the exchange of wearer and worn is the reciprocal sense of touch and contact, for as Rodaway (1994) citing Montagu (1971) reminds us, "to touch is always to be touched" (p. 41). Upon these articles of clothing are found traces of this entanglement, as defined by touch, proximity, and alteration, documented by image. Therefore, these outerwear pieces record an interaction which "takes place at the boundary line of the self" (Pallasmaa, 2011, p.10), and thus index, in their very materiality, an exchange and entanglement between wearer, garment, and environment. Through these images, the present-absent body, the haptic relation of vision and touch in textile-images, and the changing nature of materiality and embodiment are explored.

#### **3.3.1 Blue Cotton Shop Coat**

In the first garment-image study, a project done during DART 611 Interdisciplinary Design Practice for coursework, the changing form of garments into digital image was observed. Continuing to work through the perceptual differences of hand and eye, tactile and digital, actual and virtual, I intimately examined the transfer and transformation that takes place in and between physical and digital states of a garment as it is imaged and re-imagined. Employing the common 'flay-lay' process of digitally



documenting garments to be shared and sold online, this project explored and combined the textures of physical and digital states of clothing through the flatness, depth, and inter-dimensionalities which were elements that offered entry points for the creation of digital collages. Drawing equally upon image-making and clothing design techniques, the project moved between object and image, tactility and opticality, embodiment and disembodiment.

The images originate from an outerwear garment that I made in 2018—a studio coat in a heavy blue cotton twill, a garment which has been worn and worn and worn over again as evidenced in the folds, stains, and gestures of the fabric which hold the wearer’s body (fig. 19). This garment was chosen for the ways that it communicates of a specific body which has participated in the reciprocal relation between wearer and worn, yet is absent. It was also chosen for the way it could complicate the visual dominance and bodily disconnect of an image through its emphasis on tactility and traces of wear. The garment was digitally photographed from front, back, and side views, the digital files then transferred into Photoshop. As a novice engaging with the software, I was influenced by patternmaking and garment construction techniques from my material background.



FIGURE 19  
Shop Coat in Three Views. Digital Photographs. K-M Arndt, 2022.

I worked the material of the images, cutting the garment along seam lines, where the individual elements of the coat were taken apart, erased, multiplied, and then eventually stitched back together into new articulations which mixed the three views of the images. An emphasis on digital manipulation techniques such as copying and pasting, repeats and material multiplications, and layer stacks highlighted the nature of the digital material of the garment-as-image, signalling its differences from its stable, immediate physical counterpart. In particular, the sleeves were most expressive of the tactility and differing physical and digital textures which became a dominant focus of each collage, which are figured in the following pages.



**FIGURE 20**  
Collage 1. Digital Photograph and Collage. K-M Arndt, 2022.



**FIGURE 21**  
Collage 2. Digital Photograph and Collage. K-M Arndt, 2022.



**FIGURE 22**  
Collage 3. Digital Photograph and Collage. K-M Arndt, 2022.



**FIGURE 23**  
Collage 4. Digital Photograph and Collage. K-M Arndt, 2022.



**FIGURE 24**  
Collage 5. Digital Photograph and Collage. K-M Arndt, 2022.

With these collages, I endeavored to mix the main elements of my research—the textile, the image, and the changing relationship of the body to different states of representational materials—and engage with them freely, without an objective. Reflecting on this, the garment passed through three material states: first, the tactile garment became a digital image. Next, the digital material of the garment as image was disassembled, multiplied, and reformed. Finally, through printing the digital image, the coat returned to physical form as five new image-objects, altered materially, texturally, and formally from the original garment. The collages communicate of these varied points and the different materials explored within this process, combining physical, digital, and virtual states and experiences of the textile.

I find the collages speak of many elements simultaneously: touch, tactility, and embodiment, and equally, of disembodiment, mediation, and the body's present distance. They are highly tactile, and extremely visual. I find them strange and ambiguous, in ways indescribable and indefinable. I hope these qualities get to the affective dimensions of textiles and clothing—the affect which Sampson describes within worn garments as “experience which sits at the edge of or beyond language” (2020, p.4). Thus, the problems of mediation, the intimacy of experiences of wearing clothes, and the affect which rests outside of or remains inaccessible by language are positioned as the exploration and the outcome of this study.

### 3.3.2 Henry's Grandfather's Denim Jacket

*Henry's Grandfather's Denim Jacket* documents an encounter with a garment that was worn by a passenger on the bus. On a day in September whilst transiting to campus, the ragged cuffs of an onboarding passenger caught my eye. I could not only see that the jacket was very well worn, but I could also perceive its difference of use and time which made it stand out against the new fashion fabrics of other riders. I was compelled by this jacket, and could feel that it was special.

I decided that if we happened to get off at the same stop and if there was the opportunity, I would compliment him on the jacket. As we approached Place des Arts station the rider got off the bus in front of me, and we both headed into the metro station. I quickened my pace to walk beside him, and acted on the feeling to tell him that I really loved the jacket. Thanking me, he began to tell me that it was passed down to him from his grandfather who passed away a few years ago. As we kept talking, I told him about my research, and wondered if he might be willing to lend the jacket to study and document for this thesis project. He very generously said yes, and after a few stops on the metro where we both happened to be going to the university campus, we exchanged email addresses and agreed to be in touch.

I reflected on how this experience and garment could be conveyed within research practice and what was important to communicate. Given my inquiries into the image and embodiment, and wanting to deepen my understandings of the affect of indexicality in both garments and photographs, I felt that a documentarian approach exploring analog image-making methods would be an effective way to understand and express the garment. The work of Ellen Sampson (2020) who documents imperfect garments in museum archives informed this direction. Sampson explores traces and gestures of wear within garments using analog image-making to look closely, materialize, and analyze the intimacy and affect both contained and produced by worn clothing, with a focus on accessories such as handkerchiefs and gloves (2020, p. 4).

Of particular interest in this project was continuing to explore the body through Sampson's notion of the body's absent presence. In the case of the museum archive where Sampson's research focuses, present absences of bodies are represented in the garments she images which bear traces of use, but will never again be worn. In the case of *Henry's Grandfather's Denim Jacket*, the absent body of the previous wearer, Henry's passed-on grandfather who wore the garment countless times, yet will



never wear the garment again, is made present through materializing the “affect of absent gestures” (Sampson, 2020, p. 9) which the jacket references and recalls indexically in the traces of wear which are embedded in and held by the denim of the jacket.

Sampson builds on the argument of Lucia Ruggerone (2017) who stresses the necessity of directing fashion practice and discourse away from the dominant emphasis on how clothing looks and how it is explained, often in terms of meaning related to identity. They instead suggest attending toward the affective and overlooked *feelings* of being dressed. Feelings are experiences inherent to dress and its materiality, yet sit at the margins or outside of linguistic mediums, and are therefore often disregarded within fashion. Unlike written language and image-based mediums which focus on the perception of the eye, integral to cloth and wearing clothing are often interior experiences, which are conjured through reciprocal contact and the sense of touch that comes through being inside the medium of clothed environment. It is the affect in this garment which acted upon me, and to which I responded. Similarly, it is the affect which I aimed to convey and communicate through research.

Upon borrowing the jacket, I was struck by its weight. I examined it: threadbare tags; stained and torn cuffs; the line of a continuously turned collar; a worn shoulder where a strap often rested. Conducting initial image-making experiments with a digital camera, I focused on investigating these individual aspects which evidenced repetitive gestures and patterns of how the jacket was worn and used. It is important to note my experience when photographing digitally, which was quick, experimental, and non-precious (fig. 25).



**FIGURE 25**  
Denim Jacket, Details. Digital  
Photograph. K-M Arndt, 2022.

After some time getting to know the garment, I switched from a digital to a medium format film camera to examine alternative image-making modes and photographic materials. With only 12 images in a roll, and little film photography experience, I was much more careful and intentional with each frame. Rather than focusing on fragments, most of the analog images I took focused instead on the garment as a whole. It was my final 3 images, where I picked up and dropped the garment, allowing the weight and the body of the cloth to fall spontaneously, partially opened, partially closed which I find encapsulates the *feeling* of the jacket on multiple levels (fig. 26).



FIGURE 26  
Denim Jacket, Negatives. Medium Format Film Photographs Digitally Scanned. K-M Arndt, 2022



**FIGURE 27**  
Henry's Grandfather's Denim Jacket 1. Medium Format Film Photograph, Digitally Scanned. K-M Arndt, 2022.



FIGURE 28  
Henry's Grandfather's Denim Jacket 2. Medium Format Film Photograph, Digitally Scanned. K-M Arndt, 2022.

There are analogies in the present-absences inherent to worn garments and analog photography which Sampson draws from Didi-Huberman's concepts of stains and photographs as "indexical imprints, traces of something that was once there but is now gone" (p. 5). In the film photographs of *Henry's Grandfather's Denim Jacket*, layers of affect—through encounter, relationality, and significant embodied experience—are documented and made present for viewers to experience (fig. 27 and 28). The images, once again, complicate the relations of the tactile and visual senses, folding together the temporality of textile and image: fifty years of wear in the fraction of a second of the camera shutter's mechanical release.

### 3.4 Reflections on Textile and Image

The material process of recording and displaying photographs of textiles as images has illuminated how the digital and virtual textile today, with its dependence on a present or absent electronic signal for its production and for its display is very different from the representational nature of textiles previously. As the rag paper and photograms discussed earlier, the textile has related indexically to the body and to a reciprocal sense of touch between tactility and representation. Claire Pajaczkowska writes that “the indexical serves to commemorate haptic presence” and connects, unconsciously, to the memory of the moment of present touch (2010, p. 142). Touch is tangible and affective, embodied within the indexical as “the interplay between the absence of the contact and the presence of the sign which sets in motion the memory of a time in which tactile contact was present” (p. 142).

In a similar way, the feminist film theorist Mary Ann Doane (2007) explains that:

“[u]nlike icons and symbols, which rely upon association by resemblance or intellectual operations, the work of the index depends upon association by contiguity (the foot touches the ground and leaves a trace, the wind pushes the weathercock, the pointing finger indicates an adjoining site, the light rays reflected from the object “touch” the film). The object is made “present” to the addressee. The specificity and singularity associated with the index are evidenced most clearly in Peirce’s designation of the demonstrative pronouns (for example, “this,” “that”)” (p. 133).

Thus, the index does not resemble, but is directly causal (Doane, 2007, p. 133). Importantly, indexicality is singular, specific, and unique; it directs attention to a particularity. It has a *this-ness* or a *that-ness*. This body in that cloth; this garment now that piece of paper; this moment of touch, the mark of a presence. A specific and tangible presence which becomes a guarantee of “the real” (Pajaczkowska, 2010, p. 145). The handwoven textile, the rag-paper page, the photogram, and the analog image can each be thought of as indexical of the body, the hand, and moments of touch, where materials through their reciprocal contact, were mutually altered. In the woven textile, the weaver’s selvedge suggests the hand pulling tightly or loosely on the shuttle, a wobbling edge evidencing the absence of the once present body in motion. The rag paper page, rumoured to “retain traces of the people it touched” (Brylowe, 2019, p. 4) suggests the wearer of its previous life

as worn cloth. And, in the photograms of lace, traces of a material in contact with a photosensitive paper remain now, within the presence of the fabric's shadow; an image conveying a material history, the indexical movement a guarantee of its existence.

The digital material of the textile as image is interchangeable; it is iconic and symbolic in Pierce's semiotic terms which Doane (2007) describes above. In the seventeenth-century rag-paper magazine, there are the beginnings of these features now commonplace within digital media, but made more explicit by the paper page than the screen-based image of today within the layer of text that covers and at times obscures the textile. In rag-paper, the textile is still tactile, indexical, specific, yet interchangeable aspects of iconic and symbolic qualities of the textile and fashion as symbolic representation begin to figure prominently. This symbolic and iconic text relates to theorist and geographer Nigel Thrift's reference to software and binary code when he writes of the "new layer of mechanical writing which is increasingly directing the world, a writing which is itself informed by a broad-ranging set of theories" (Thrift, 2005, p. 233).

The digital image can be understood to make textile materials "commensurate" (Appadurai, 2017, p. 4), wherein the heterogeneous material *qualities* of a textile are converted to numeric *quantities* of binary code. As a result, the complex and ambiguous nature of the textile is transformed to the same units of measurement, 1s and 0s, symbolising what is otherwise an assortment of difference, to a standardised same (Horst and Miller, 2011). The ease of material exchangeability made possible by digitisation lends itself well to capitalism. The anthropologist of globalization Arjun Appadurai (2017) explains how within capitalism "exchange creates value" and thereby, "[v]alue is embodied in commodities that are exchanged" (p.3). As such, value is understood as objective, that is, not inherent to economic objects and materials, but rather, generated conditionally between objects and subjects (p. 3). For the philosopher Simmel, this exchange occurs "in the space between pure desire and immediate enjoyment with some distance between [commodity] and the person who desires them" (Simmel cited in Appadurai, 2017, p. 3). The distance between consumer and commodity is important, as it establishes the 'sacrifice' of economic exchange, a distance which must be overcome for desire's fulfillment. Celia Lury, writing on contemporary branding similarly identifies that value is created for a brand if it is able to establish a difference—between 'here and there' or 'before and after' (Lury, 2009, p. 79), thus the importance of distinction, separation, and space between material

and meaning is highlighted as essential when it comes to the generation and exchange of economic value.

Henry's Grandfather's Denim Jacket and the Blue Cotton Shop Coat imaged in this study each hold extensive touch, and the proximity of connections of bodies and cloth in contact over enduring lengths of time. The value of attachment linked to these qualities of exchange are singular, specific, and irreproducible. They are composed of time spent and experiences lived, remaining now as imprints and traces in the cottons. These once felt sensations are translated, changed by the image-making processes and photographic materials into other sensuous experience. They are also in ways extended. Brought from one time and place into another, the qualities of tactility which now exist visually are present—here and now. With their transformation into photograph, they are distanced from the actual garments themselves. Yet, in their exchangeability from cotton, to light, transferred to cellulosic film or electromagnetic pixel, they are also communicable across spatial and temporal bounds. Within this context, rather than creating the common economic distance of desire to be overcome by monetary exchange, imaged mediation—through its distance—transfers the intimacy of attachment and affect.

Writing on images, the lecturer Martínez Luna (2019) argues that “[t]he concept of presence interweaves temporal dimensions, such as experience in present time, and spatial dimensions, which involve aspects related to distance, proximity and corporeality” (p. 46). Thus, in briefly tracing the textile through its analog and digitally imaged evolution in this chapter, we can see that the textile-image can simultaneously present both proximity and distance; presence and absence.

While the image can copy and transfer information from the physical world communicably, this material transferability linked to an exchange predicated on economic ends often increases distance for the sake of increasing desire. As we move closer to the image of imagination, there can be a distancing from the actuality of our felt senses and the ecological environments we are in proximity with. The digital image which appears or disappears through the presence or absence of electromagnetic signals helps to illuminate the photograph as a part of larger “processes of connection, identification, translation, and last but not least, invention” (Fackler, 2019, p. 527). In this light, the image is as productive of experience as representative of it. This reveals the impact of



the networked image environment we inhabit, and which through our continuous contact, like a well-worn coat, are materially altered.

## Chapter 4: Research Exhibition

In this chapter, I overview the production of the final exhibition of this research as part of the Master of Design graduate colloquium DART 620, where selected works were installed in a departmental classroom on Concordia University's SGW campus. As this research has been, in many ways, focused on the absence, removal, and alteration of the perceptual body in relation to textiles and technological mediation, scale was determined as an important design element for re-introducing the body into the experience of the research on display for viewers. In this section I trace the large-format printing process, exhibition display strategy, and the final works exhibited.

### 4.1 Large Format Printing

To offer an embodied experience of this research for visitors, the main garment-images of this research become large-scale physical prints. For this, I learned to work with the large-format Epson printer in the Post-Image Lab, and overcoming a technological learning curve, eventually arrived at the final prints. Reflecting on the printing process, it was interesting to note the similarities between the large format printer and the loom—instead of a bolt of fabric, a roll of paper; instead of a hand throwing a shuttle, the printer head moving automatically back and forth, back and forth across the page. I found this process quite miraculous, watching the tactility of the image appear before my very eyes as it quickly entered this transformed physical state: from cloth, to pixels, to paper (fig. 29).



FIGURE 29  
Large Format Printing, Digital Photograph. K-M Arndt, 2023.

#### 4.1.1 Surface, Structure, Materiality

A central problem that emerged was how to display the large collages, each approximately 40” x 44”. Since the exhibition space was a classroom, there was only a single wall available for mounting. This challenge required substantial attention to think through the materiality of the image more closely. First imagining garment display typologies, I decidedly opted instead for structural surface supports to hold the five photo-sculptures. The collage structures were made from reclaimed wood building materials, and held the collages horizontally which were then arranged dynamically in the space. This orientation of the image asked for an embodied engagement and attention from viewers (fig. 30). As I have explored throughout this project, with both images and textiles, what appears as a simple surface has a substantial depth of structural processes which support it and make its existence possible. Though the supports were a substantial addition, carrying through these structural-material and conceptual elements of the textile and image reinforced the “informational and infrastructural” (Durham-Peters, 2015, p. 30) qualities of media which I have explored throughout this study. Carrying these elements through the display of the collages, the denim jacket images, and the rag paper mounted on the wall merged the superficial, structural, and material elements of this research together, uniting the research aesthetically and conceptually together in display.



FIGURE 30  
Research Exhibition 1. Digital Photograph. K-M Arndt, 2023.

The denim jacket prints were hung as a diptych on the wall, unframed, using a basic bull clip and screw mounted to a piece of the same reclaimed wood as the collage structures. This allowed the image and its paper materiality to be evident and unobstructed for viewers (fig. 31). Once these images were scaled up and printed, I realized parts of the photographs were slightly out of focus since they were made with the much less calculable process of analog film and my novice photography skills. Because the garment was borrowed and the wearer had since left the country, and because the camera, also borrowed, had since been sold, there was no option to retake these images. In a way, I think it suits this project, as the lack of control and measured precision in these photographs provides a point of contrast to the exactness of the materials and processes of the digital collages that they were displayed alongside of.



**FIGURE 31**  
Research Exhibition 2. Digital Photograph. K-M Arndt, 2023.

The final component of the exhibition returned, circularly, to the beginning of the research process. The last work displayed alongside the collages and photographs was a large piece of handmade recycled textile rag paper. The paper was made from a combination of denim and cotton scraps, the same materials as the garments which were imaged and collaged. The paper was mounted on the wall beside the denim jacket prints using the same recycled wood and bull clip display strategy, which are figured on the following pages.



**FIGURE 32**  
Research Exhibition 3.  
Digital Photograph. K-M Arndt, 2023.



**FIGURE 33**  
Research Exhibition 4.  
Digital Photograph. K-M Arndt, 2023.



**FIGURE 34**  
Research Exhibition 5.  
Digital Photograph. K-M Arndt, 2023.

## Chapter 5: Textile as Image

### 5.1 Conclusion

Throughout this thesis, the transformation of the textile has been explored through a variety of its mediated material states. Beginning with an exposition of handweaving, cloth has been followed from its intimate and tactile relations with embodied practice, through to its contemporary state as the contactless virtual textile in born digital fashion garments of networked digital media today. In the process of following its material transformation through research-creation practice, cloth has been explored through its evermore common state as image. Through this research, this project suggests the textile-image as representative of the distancing and disconnection of the body from its immediate material environment, and as indexical of increasing capitalistic and technological coordinates which deeply impact material movement and exchange.

Beginning with an investigation of the industry's proliferation of textile waste, the intent of this research was to move away from contributing to processes which perpetuate textile over-production. Taking waste as an expression of material disconnection, unmaking existing textiles shifted the emphasis of this project from value-adding for recirculation, toward systemic inquiries concerning how values generate and influence material practices. Through research-creation, media systems were identified as significant factors which negotiate meaning and practice within fashion today, and as such, centred in this study as dominant influences affecting the over-consumption and over-production of textiles and garments today. In particular, the visual photographic image within fashion has been explored for its increasing role as interface between consumer and commodity, and for its transformation of material and embodied perception.

Regarding the initial objectives of this research to prototype processes and tools which aimed to provide alternatives to the consumptive and disconnected relationship to clothing and textiles promoted by fast fashion and the overflow of fashion media images, this project has developed and synthesized several approaches which other designers and researchers might draw from and further develop. While examining the cultural dominance of the eye and interpreting its relation to distance and material disconnection, image-making practice in this project has centered garments that are imbued with a history of wear and use, introducing aspects of embodied contact into photographic practice. Furthermore, the rapid pace and ubiquity of images common to fashion media has been studied, and countered with slow practices and immediate contact with materials. Presence, as

contact, and as absence of touch has been examined. Thus, the sensuous primacy of opticality in textile imaged representation has been complicated by the tactile qualities of physical wear and exchange, both within the final photographs and within the processes of image-making. While there are limits to the extent that a representation of touch, tactility, and contact can fully be communicated by the visual distance of an image, the tactile subject matter of these images hold possibility to reach beyond vision and language to communicate some of the intimate and indescribable qualities of making, wearing, and using textiles into fashion awareness and into academic discourse.

This project suggests continued research in this direction as potential approaches to effectively promote understandings of the value and attachment of clothing outside of economic exchange into a transferable and communicable form. In particular, slow techniques such as film and contact printing which share in the indexical and reciprocal qualities of textile practices have been identified as methods which can translate the intimacy of embodied contact inherent to clothing and textile making and wearing which cannot be expressed or experienced linguistically.

The outerwear garments examined in the final parts of this research are representative of both the physical and metaphorical boundaries of the analog body. These garment-images explore a changing experience of the sensorial body to the digital environment and its perceptually mediated world. The digital textile-image has been suggested as representative of aspects of the increasingly symbolic and synthetic media environments we are surrounded, entangled with, and affected by. Unlike a coat which surrounds, envelops, and encounters a body, thus, evidencing that which it has touched and that which it has been touched by within the alteration of its materials, a static digital file displaying a worn virtual garment online remains untouched within the bounds of computational structures and binary code. Though the digital files may not be subject to the instability of material change and wear, the affective relationships between wearer and worn explored in this project illuminate that we are in continuous exchange with our surroundings, and through our contact, altered.

Cloth as an interface becomes communicative of this reciprocal contact with a world of images and imagination, composed of the digital display of 1s and 0s, flashing on and off as they compete for our attention. The woven textile, and the ubiquitous binary structure of its over under, over under structure has wrapped us for extended lengths, invisible, yet ever-present as an environment. Further

inquiry into the textile as proxy to digital code, and its performative nature as a precursor to computational processes holds a depth of possibility for further understanding the impacts of the digitally mediated world we are increasingly surrounded by and inhabiting today on our embodied perception and understanding, and is an expected future direction for this research.

The textile has long held cultural importance for its ability to drape itself over, to cover and conceal, and to transform the world that it touches. There are limits in this research to the extent that the mediated textile through language, image, and conceptual framings can reach the depth of the meaning or the intimacy of actual textile materials themselves. To explore research methods which would not contribute to the problems of textile material waste, the production of textiles and clothing has been avoided in this project, recognizing the paradox in commenting on textile waste and overproduction while producing more textiles. Furthermore, inquiry into the influence and materiality of images on fashion and textile practice has centred image-making rather than clothing or textile practice. While this study has opened space for alternative understandings of textiles and textile research methods to emerge—aspects which have been identified as critical for materializing new directions for fashion—I acknowledge that the research contradicts itself at times with its argument for intimacy, while commenting from a theoretical and material distance. Moreover, though this project has not contributed to textile waste, it has not been neutral or circular with its use of materials either. These aspects could be further reconciled in future research.

At the same time, this project has highlighted that interdisciplinary understandings from media theory and sensory studies contribute generative understandings of the ways that digital images alter our connection and attachment to textiles and embodied practices, factors which impact the sustainable production and consumption of clothing. Material sustainability within fashion is complex and multi-faceted, yet value and practice have been identified as central to material outcomes. Despite the growing figures and the rising awareness of fashion industry issues, Fletcher and Tham argue that there have been no reductions of net levels to negative impacts on the environment (2019, p. 20). This could relate to the fact that statistics do not communicate the affective, imaginative, and embodied experiences of our attachment to clothing (Minozzo, 2022), nor do they override the emotional reach and influence that media images have on consumptive behaviours.



Continued research which combines the interdisciplinary findings and sensory research methods from this project with the affective and emergent aspects of textile handmaking is expected in future research to implement theoretical concerns from this research into practice. This could lead to the development of not only artifacts imbued with value and attachment which promote emotional and ecological durability, but combined with sensory research outputs, might also transfer the tacit, implicit, and intimate knowledge of textile practice into discourse and sustainability awareness. This may deepen understanding of the influential aspects of both the clothed and digital environments that we cannot always see, but are nonetheless touched by, and with these findings, bring alternative values to the surface to be implemented in fashion and textile theory, awareness, and practice.

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