

PLEASE LEAVE ON THE  
SEAT AFTER USE

**PLEASE LEAVE ON THE SEAT AFTER USE:**  
**CRAFTING PERSONAL NARRATIVE**  
**THROUGH MACHINE KNITTING**

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ABSTRACT

*PLEASE LEAVE ON THE SEAT AFTER USE*

explores my evolving relationship with the Seiki Shima knitting machine, which I have positioned as a key contributor to my research practice. Materializing personal narratives through textile explorations, I have come to understand that the rich, archival properties of textiles are activated through their engagement with people and the everyday spaces they occupy. Textiles embody personal and culturally conditioned behaviours, they respond to their environment - capturing and releasing stories.

This autoethnographic study investigates machine crafted textiles as responsive artefacts. In my project I have used machine knitting to examine notions of the pictorial, which I have described as default canvases and materials as archives, which I have classified as skinships. My approach to textile design is conveyed through my subversion of the traditions associated with hand and machine-made knits.

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ATTESTATION OF AUTHORSHIP

I hereby declare that this submission is my own work and that, to the best of my knowledge and belief, it contains no material previously published or written by another person (except where explicitly defined in the Acknowledgements), nor material which to a substantial extent has been submitted for the award of any other degree or diploma of a university or other institution of higher learning.

A handwritten signature in black ink, appearing to read 'SCHO', written in a cursive style.

Susie Cho 24 June 2019

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INTRODUCTION:  
DEPARTURE/ARRIVAL

An aeroplane blanket sparked the initial hypothesis for this autoethnographic investigation. Using the medium of machine knitted textiles, I have explored the intrinsic nature of textiles that occupy intimate human spaces, such as the domestic and the body. Traditional concepts of craft are challenged through my evolving relationship with the Seiki Shema knitting machine. The transition from handcraft to machine craft informs my exploration of how everyday narratives can be embodied in artefacts.

*Ordinary Lives: Studies in the everyday* author, Ben Highmore (2010) notices the sense of intimacy with the inanimate, for example, the child's blanket – an accessory that serves as an emotional outlet.

During the initial stages of my research, I was captivated by an aeroplane blanket that my parents had kept from their flight to New Zealand, with my sister, when they immigrated here from Korea in 1993. On this blanket are written, in both English and Korean, the words “PLEASE LEAVE ON THE SEAT AFTER USE.” My birth followed shortly after their arrival, marking the

first time someone from our family was born outside Korea. This blanket remains in my parents living room as ‘practical souvenir’, continuing to provide emotional and physical solace. The non-human ‘things’ that cater to our vulnerable and sensitive selves are frequently modest in their sentimental value, slipping seamlessly into our everyday environments.

The Korean Air blanket has come to represent a textile map, charting my family and my socio/cultural transition and assimilation. Its form and texture embody the personal journeys of each member of my immediate family. The intrigue I felt toward the narrative properties of this blanket has laid the ground for my autoethnographic approach to textiles.

When researchers do *autoethnography*, they retrospectively, and selectively write about epiphanies that stem from, or are made possible by, being part of a culture and/or by possessing a particular cultural identity (Ellis, Adams and Bochner, 2001, p. 4).



①

Korean Air Blanket.

In my textile designs, the subject matter begins to emerge through conscious and/or unconscious thought processes that capture the essence of my reality and lived experience, yet are recognisable or familiar to others.



②

Celebrating my little sister's first birthday, wearing traditional Korean garments, known as Hanbok. These garments are characterised by vibrant colours, simple lines and layering.

Diasporic families are frequently limited in the belongings they can carry on their migration journey. My parents chose to ignore the instructions written on the blanket, in their native Korean and the English translation, opting instead to prioritise warmth and comfort. Throughout the years, our trips to Korea have lessened. However, textiles still mark my families cultural identity through their presence in our domestic lives. An iconic bathroom item is the Korean bath mitten, known as the *Korean Italy towel*, which was typically green with four stripes across the bottom; it is used for exfoliating. These abrasive scrubbers remove *ddae* (dead skin) and are viscose cleansing devices common in Korean bathrooms. This exfoliating ritual was embedded in my upbringing, conjuring memories of my mother as she introduced Korean routines into my everyday existence. Patterns, forms and conditioned behaviours revolve around and are embedded within unremarkable textiles. What makes these textiles unique is their intrinsically personal relationship with the body.



③

Korean Italy towel.



CONTEXT



④

Simulation of a blanket.

## MATERIAL ARCHIVES

Professor of Visual Studies, Giuliana Bruno (2002) discusses in her text, *Atlas of Emotions*, how artworks materialise as maps of memory, remnants of habituated environments and various states of mind that attempt to communicate with the viewer through diverse spatial forms. Concerned with how textiles are used as a means of communication within our everyday lives, my research looks beyond our conscious awareness of textiles and considers the subconscious effect textiles have on people including myself and my making process. Using computerised knitted textiles as my sole medium, I have established a correspondence between myself and the artefacts I design. These artefacts explore how an individual's cultural identity can become enmeshed in objects and how one can share and preserve personal narratives through conditioned linguistic and interactive qualities of textiles which are explicitly designed as narratives.

Materials become activated through their engagement with people, and this creates a dialogical, reciprocal relationship where each party attempts to understand why they occupy these spaces. The textiles that come to inhabit our private and public environments are primarily textual responses, the outcomes of political, cultural and social provocations wrapped in histories.

Exploring knitted textiles as embodied fragments, I am interested in how certain textiles can be perceived as intrinsically narrative – where the textile becomes a part of you, you start to exist as the materials. Author of *The thinking hand*, Juhani Pallasmaa (2009) states “As we construct our self-made world, we construct projections and metaphors of our mindscapes. We dwell in the landscape and the landscape dwells in us” (p. 20). This text celebrates the potential of the human hand and its relationship with one's conscious and subconscious processes of thought and making. The unification of both hand and mind parallels art and art practices that concern both the physical and mental journey involved in creating artefacts. I am interested in this unification but also, how this relationship has changed through technological advancements, as art and craft practices often need to be redefined when makers transition from the handmade to machine produced objects.

Exemplifying a shift from gendered domestic textiles crafted for the home, narrative textiles are designed to be read or experienced visually in public environments such as museums and galleries. Historically, the production of craft-based textiles has been domestically gendered through associations with family and utilitarianism. According to textile critics, Julie Wolfram Cox and Stella Minahan (2015), knitting usually takes place within domestic spaces such as the home with or without family and in knitting circles with other women in knitting circles. Whereas, textile artefacts that are exhibited in public spaces, such as art galleries, loosen their traditional applied or decorative connections with home-crafts, becoming political feminist commentary or narrative objects.

Presenting textile artefacts in formalised spaces such as art galleries, it reinforces conditioned behaviour associated with the view of art, cautioning the public not to touch. This break with the tactile reading of soft textiles effects our conscious and subconscious connection to the textuality of the artefact.

## DEFAULT CANVAS

The production of narrative textiles allows the subconscious or personal memories of the maker to take shape. Each artefact enables the maker to compartmentalise a thought process and materialise unique insights. The outputs of my iterative making process are reminiscent of a default canvas. By default canvas, I am referring to my interpretation of knitted textiles where the image is coiled within the loops of the fabric. This perception reflects on the simultaneous production of the material and the image. W. J. T. Mitchell (2005) discusses media as not exclusively a visual experience, it typically requires other senses to thoroughly read the object, such as hearing and touching “seeing painting is seeing touching, seeing the hand gestures of the artist, which is why we are so rigorously prohibited from actually touching the canvas ourselves” (p. 259). A knitted canvas can mimic a painted canvas. However, my process differs as it considers the machine as an extension of the hand, the process and the outcome are synonymous. Rather than a traditional painting practice that uses a surface as a foundation, computerised knitting embraces the

synchronised process of the form and its content as *one*.

A default canvas is often established through the lens created by the curated space of the art gallery. For example, artist Rosemarie Trockel creates knitted paintings using computerised knitting machines. Exhibiting these textile images in art spaces, Trockel breaks down the domestic associations of gendered craft-based textile narratives, opening the space of objectification associated with viewing fine art. Trockel's symbolic representations recall the American visual art tradition of minimalism. However, her work reproduces, through her use of formal abstract patterns, a gendered narrative, drawing on women's knitting patterns as the origins of her stripes and checkerboard canvas designs. Trockel's artworks raise important questions for my research, by introducing the medium of knitting into the gallery, she challenged the values associated with heroic male art while questioning entrenched notions of what constitutes craft. Her use of industrial production techniques removed the visual aesthetic associated with craft enabling her to mimic pop-painters such as Andy Warhol.

These stretched and mounted textiles are designed to be consumed just like a painted canvas. Through democratising the perception of textiles, artists and designers begin to question prevailing notions value within their hierarchal tradition of fine art. My practice is positioned within this contemporary notion of textile design. My generation of designers has grown up immersed with technology that re-negotiates our making processes. I often wonder if I gravitated toward using the Shima Seiki knitting machine because I was taught a similar language playing Nintendo and other pixel-dense computer games when I was young? The modification of craft through technology has allowed my practice to be produced at higher speeds than knitting an illustrative textile by hand. I refer to my use of technical processes as a form of engaging in making image short-cuts, familiarity through inherent knowledge.

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⑤

Rosemarie Trockel, (1985-1988), *Untitled*. Knitted wool. Retrieved from <http://www.sothebys.com/en/auctions/ecatalogue/2014/contemporary-art-evening-sale-n09141/lot.4.html>

#### THINGNESS IN OBJECTS

W. J. T. Mitchell (2005) is an American professor whose body of work largely critiques the exclusivity of the notions behind visual culture. He questions the intense response to pictures we see in everyday life and that these images are not stagnant objects but animated beings who yearn to be communicated with. He is interested in the life of the image and its readability. All viewers senses have to be regarded as interdependent when they converse with textile artefacts. This sensual interdependency relies on reactions to my experience with this artefact.

My mental impression is mediated by how my senses react to textiles; this engagement provokes the dialogue between myself and the textile, which contrary to Highmore's (2010) understanding of engaging with the inanimate, W. J. T. Mitchell (2005) explains, should be understood as an animated being. Mitchell adverbialises artworks in his texts, expressing human qualities and emotions within these animate beings. My work strives to engage the conditions that Mitchell proposes, triggering sensations to communicate meaning. I am captured by the textile in a reciprocal relationship, from inception through to the production of its final form.

## GENDERED FORMS

Textile artist, Freddie Robins, like Trockel, questions cultural preconceptions of gender and domesticity associated with the practice of knitting. Robin's artwork depicts a literal representation of established notions of gender through her knitted caricatures of houses. Knitting as a medium is frequently perceived as quirky, with artists consciously using humour as they attempt to enter the formal environ of art practice. The medium of knitting (traditionally connoted with comfort and security) is used to capture a darker, social narrative. Robins navigates a personal feminist story – illustrating the confinement of women's identity by using domestic imagery. The knitted surfaces of her houses communicate in a somewhat humorous way, lessening the overt criticism, yet the depth of her portrayal is reiterated through the softness associated with touch and feminine bodies.

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Freddie Robins. (2002). *Knitted Homes of Crime*. Hand knitted wool, quilted lining fabric. Retrieved from <http://www.freddierobins.com/blog/knitted-homes-of-crime>

Cox and Minaham (2015) reflections of knitting as gendered, is further highlighted by their assertion that quilts only began to be perceived as material art objects when they were displayed in art museums, as historical artefacts. Textile lecturer, Sonja Andrews (2016) noted that the production of textiles has tended to be regarded as a gendered practice historically and placed within the realm of "decorative arts". Textiles presented as history could be used to enlighten the public about various social events and to educate museum visitors about diverse cultural communities. The result was to elevate the craft because it was understood as a manifestation of narrative, an archive of the everyday, parallel in value to other popular art forms.

ICONS:  
ILLUSTRATION AND THE PICTORIAL  
AESTHETIC OF SIMPLE IMAGES

Popular icons are regurgitated throughout history to provide new meanings, accentuating social and political change. Rosemarie Trockel's knitted images are an example of this, especially her selection of iconography that reclaims the symbol of the Playboy Bunny. This distinctive logo is dispersed and de-contextualised through Trockel's repetitive composition, becoming the satirical subject matter of a traditionally women-dominated pastime, knitting. Contemporary artist Kelly Jenkins also uses the medium of machine-knitting to edit chatline advertisements found in newspapers and on magazine covers that hyper-sexualise women. Kelly renegotiates this imagery by re-knitting them into humorous tapestry forms. Trockel, Robins and Jenkins share the issues and frustrations of being artists who are associated with a craft-based practice. They use the medium of knitted textiles to highlight a feminist position, revealing the gender-bias experienced by women artists.

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Kelly Jenkins. (2004). *Knit Chatlines #1 – Neon Original*. Digital machine knitted canvas using six colours of merino wool. Retrieved from <http://www.kellyjenkins.art/knitted-paintings>

## THE DOMESTIC: SKINSHIP

*Yohji Yamamoto: Dream Shop* (2006) exhibition challenges the taboo of touching surfaces that occupy intrinsically in art galleries. Visitors are invited to wear the clothing on display to experience the show rather than observing from a distance. As a textile critique, Jessica Hemmings (2019) reveals her surprise of discovering no sleeves for the arm to enter, rather realising the coat as a cape. This feature may not have been recognised through mere sight, so for Hemmings to participate with the garment, it enabled a more intimate dialogue for the lonesome wearer. Yamamoto addressed curiosity for a person to engage further with an artefact. The contrast of experiential conditions behind Trockel and Yamamoto's work informed my practice on how to imply a participatory environment within my practice for an individual.

Los Angeles artist, Sterling Ruby debuted a fashion collection that showcased decades worth of textile experimentation in art. In a recent interview for *Dazed & Confused Magazine*, Ruby (2019) explained he did not see himself making fashion as being any different than doing a painting for a sculpture.

Not that I mind that someone has an artwork or has a painting and hangs it on their wall, but it's fun to think of something being worn out into the world and moving, and that other people can see (Sterling Ruby, 2019).

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Backstage at S.R. STUDIO, Sterling Ruby's fashion label. Christina Fragkou, (2019), 13 /35 [Photography]. Retrieved from <https://www.dazeddigital.com/fashion/gallery/27624/12/s-r-studio-la-ca-ss20>

Bruno (2002) maps cultural history through different visual/spatial forms such as film, clothing and architecture.

Clothes exhibit the consumption of living: like the furniture we use, they “wear” the marks of life... House, attire, and the film body inscribe the experiential narrative on their tangible surfaces (Bruno, 2002, p. 323).

Creating dimension spaces from textiles, especially clothing emphasises notions of textiles as portable, budding with the wearer in the shaping of a shared visual/ sensual experience. Textiles viewed in this way embody notions of travel and psychogeographic exploration. Within domestic spaces, Bruno (2002) suggests, objects, such as the mattress we sleep on, becomes a map that allows people to travel the unconscious, tracing the itinerary of our unconscious journeys. Textiles are mimicking places, acting as markers and metaphors of our lives. According to Bruno (2002), a map can be an imprint or a trace from the body, both mental and physical. Both metaphor and personification of the textile as a map aligns with my practice. In my work, I am exploring how textiles can materialise sensory experiences as souvenirs of a subjective engagement with the everyday.

Andrew (2013) notes textiles as representations of soft values such as comfort and familiarity, these materials are intrinsically emotional. These values are reminiscent of the textiles we encounter in our daily routines. Everyday textiles, such as bedding, have an implicit role which is to offer physical and emotional sustenance (tactile memories) to the person experiencing them, while, also serving as decor within domestic spaces. Whether the textile expresses a meaningful visual sign (clothing) or functions as a supporting character in my day (bedding), I am engaging in a consensual relationship with textiles, they travel with me through the hours and minutes of my day.



## METHODOLOGY

This investigation is auto-ethnographic and is positioned as an iterative, dialogical relationship with a knitting machine, the Shima Seiki's physical processes and outcomes for creating narrative textiles were performed through automatic and manual software. The knitting machine enables me to clarify my findings while provoking reflections on my practice. A human-object relationship is by default, personal, as it relies on the tools of questioning and reasoning of ones' own practice to dictate the process and outcome of a project.



⑨

SIG123SV 14G, Shima Seiki knitting machine.

## MOODBOARD AS STORIES

A storyboard reflects the narrative / visual information concerning an unfolding ideas process, a more abstract version of this is the mood board. Using the wall as an encompassing narrative space, I can capture and arrange the essence of my ideas. Research professor, Corrie van der Lelie (2005) states “The activity of making storyboards encourages the designer to consider situations, atmospheres, feelings, interactions and context in relation to the product’s intended use” (p. 160). Creating visual narratives on this ad-hoc storyboard is integral to the prototyping stage; it acts as a reference to remind me of the contexts that situate my work. This visual aid precedes the tangible, reflective ideas that the maker has not yet become familiarised with. A non-linear formation of collaging

and layering – creating storylines. This method enables a creative state of constantly becoming – because it promotes the rearranging of exploration to reflect the most current thought process. As my practice has developed, I have begun to see a substitution from the visual aids that reference my research to my knitted samples and photos. As Lellie (2005) suggests, a storyboard is a narrative within itself, a curated surface that precedes the prototyping.



⑩

Moodboards documented throughout my practice.



## PROTOTYPING

Prototyping is an important method when engaging with a practice-led research project. Prototyping often provokes thoughts on the maker's intention or the purpose of the artefact. Engineering professor, Maria Yang (2004) claims that function (operation), look and feel (form and appearance) and the role (usability) can be realised through the action of prototyping. This iterative process stimulates a reflective dialogue between the object and the designer. Poet, Joseph Brodsky shares how a maker does not know whether their process is of making or creating "... the first, the second, and the last reality for him is the work itself, the very process of working. The process takes precedence over its result, if only because the latter is impossible without the former" (1995, p. 301). Prototyping is more crucial than the outcome; it is the materialisation of thought and documents the fruition of my brief.



⑪

Knitted text prototype.

## NARRATIVE VOICE ILLUSTRATION AND FORM

Both the contents and the form of my knitted textiles represent a personal narrative. The execution, the textual choice of line, colour and form represents a physical manifestation of my own lived experience and memories. The everyday stories surrounding personal routines, I am referencing the behaviours and materials that occupy my reality. The objects produced reflect my experiences; they are subjective interpretations of my life. I have adopted an aesthetic based on the potential and limitations of the Shima Seiki knitting machine. Sharing a narrative voice through textiles acknowledges that a surface communicates a maker's experience or thought through touch, sight and sensation. According to Mitchell (1996), art historians recognise pictures as material objects but they engage with the picture as thought it had will, consciousness, agency and desire.



12

Apartment building jacquard knit.



13

Mini bag prototype.

KNITTING TERMINOLOGY



14

Above: Jacquard knit is a knitting method which incorporates several colours into the panel. Jacquard types labelled accordingly in its section which is available on automatic software. Below: The reverse side of the previous figure.



15

Intarsia knit is a knitting method where several colours are used. However, intarsia knit uses a different yarn carrier to knit each area. This is a sample of intarsia knit. Each colour represents a separate carrier used to knit the section.

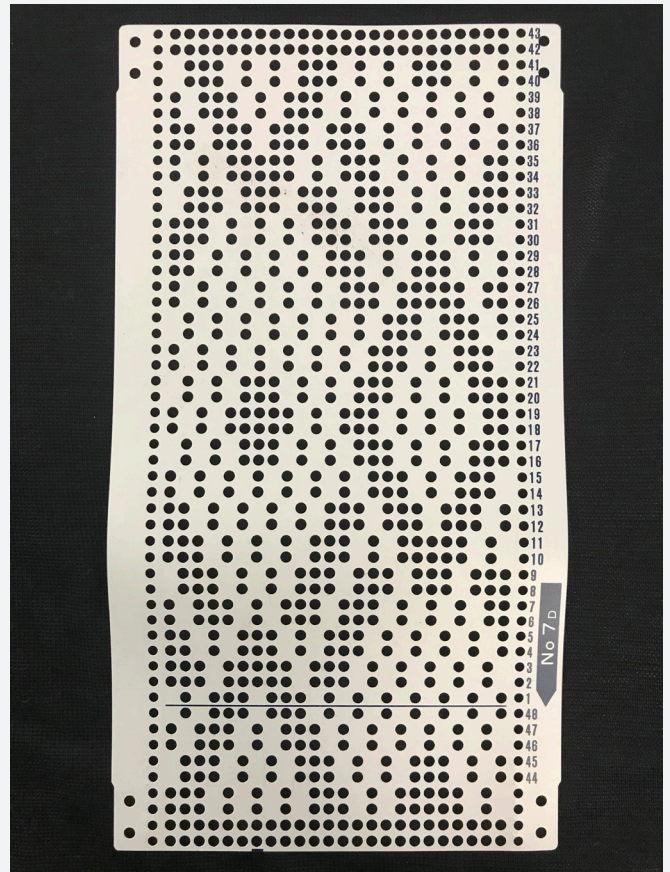


①6

Intarsia Jacquard is a knitting method that utilises both intarsia and jacquard knitting styles. This is a sample of intarsia jacquard knit. This style differs from intarsia as it has two layers instead of one as it uses a tubular jacquard form.

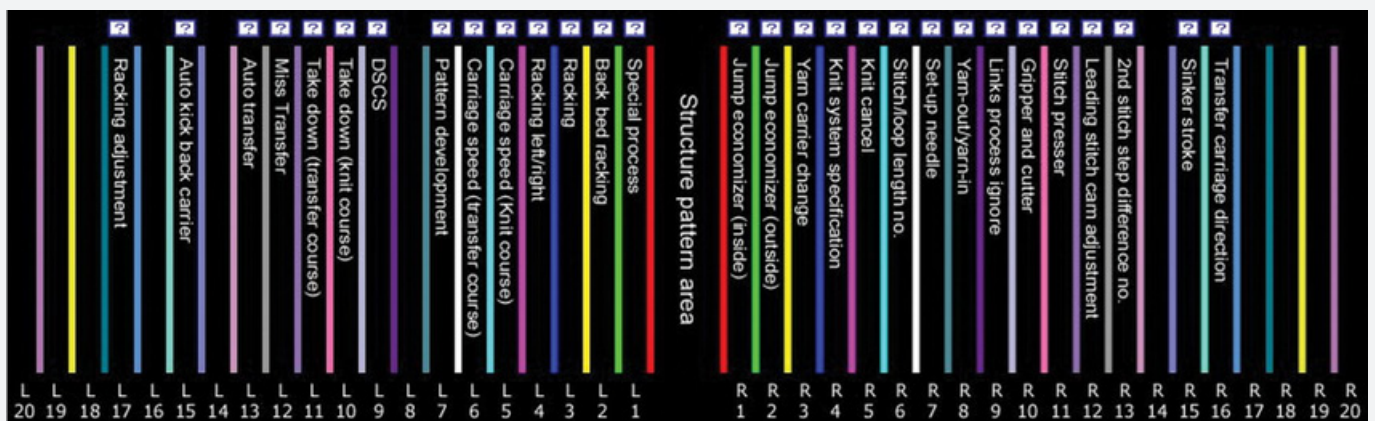
KNITTING LANGUAGE: CODING

Early on in my practice, it became evident that I had to learn and explore new languages within my practice to converse with the tools I've chosen to use. Building a relationship with mechanised craft required understanding the established knitting machine vernacular, code. Automated software presets for computerised knitting, have significant limitations but are useful for simulations. Whereas learning to code the machines myself has enabled me to explore the malleability of automatic and manual software. Manual software allows for self-programming, which means as a designer, I am liberated from the technical confines of automatic software. The process of coding with the Shima Seiki programme is an advancement of the 19th-century invention of jacquard textiles. Artist, Annika Ekdahl (Jane Theau, 2015) tapestry work references the invention of the jacquard loom and how it relied on the presence and absence of a patterned card to facilitate the manufacturing of an image, the holes and solid areas being the precursor to the use of 0s and 1s in computer programming. Colour is a significant art of this language as it relies on the user's ability to identify the correct colours necessary for functional programming. If a square composition is not correctly empty of filled with precise colour, my design falters or strays from the desired outcome. This glitching can also be part of the intentional design process, enabling a conversation to occur between the designer and the machine, which is not predetermined.



(18)

Example of a domestic knitting machine pattern card.



(17)

Screenshot of option line functions. Each row of knit can have a different setting that changes the physical production of the knit structure. For example, the position of the yarn carrier.

## ITERATIVE PRACTICES

Using a human-object study is a reciprocal and re-iterative process. *Research for Designers*, a text written by Gjoko Muratovski (2016) explains how material culture is the study of human-object relationships and by researching textiles as an emotional and social material, it can provide insight of how people attach meaning to physical objects. My process is circular in its iterative exploration, constantly re-informing itself as it goes through the stages of production and ideation.

An architect, Renzo Piano explains:

You start by sketching, then you do a drawing, then you make a model, and then you go to reality – you go to the site – and then you go back to the drawing. You build up a kind of circularity between drawing and making and back again (Sennett, 1995, p. 40).

I am not exclusively conversing with a finished object, but as a maker, I am intimately interacting with each step leading up to it.



EMOTION AS INKLING:  
SERENDIPITY THROUGH  
BOREDOM AND INTUITION

Unable to visualise the outcome of my research, I have relied on the unconscious process of making, where a mixture of process and narrative became the root of new thought processes. When your research project reaches a point of stalemate due to limitations in technology or a moment of exhaustion or boredom, this method provides the maker with a way to remove all reflective thought in relation to research and mindlessly practice the craft of making. Norwegian philosopher, Lars Svendsen (1999) believes the extent to which objects and actions come to us fully coded, boredom derives from a lack of personal meaning. This mindless crafting is not necessarily careless, wasted time but unconscious manipulation can emerge from allowing existing skills and explorative processes to take over. This method is comparable to the inherent knowledge that enables you to perform a task mindlessly such as making the bed or folding clothes, these banal tasks can still create a sense of accomplishment evidenced visually and sensually. Mindless crafting allowed the element of play to amuse the occasional sterility of inherent knowledge in my practice.

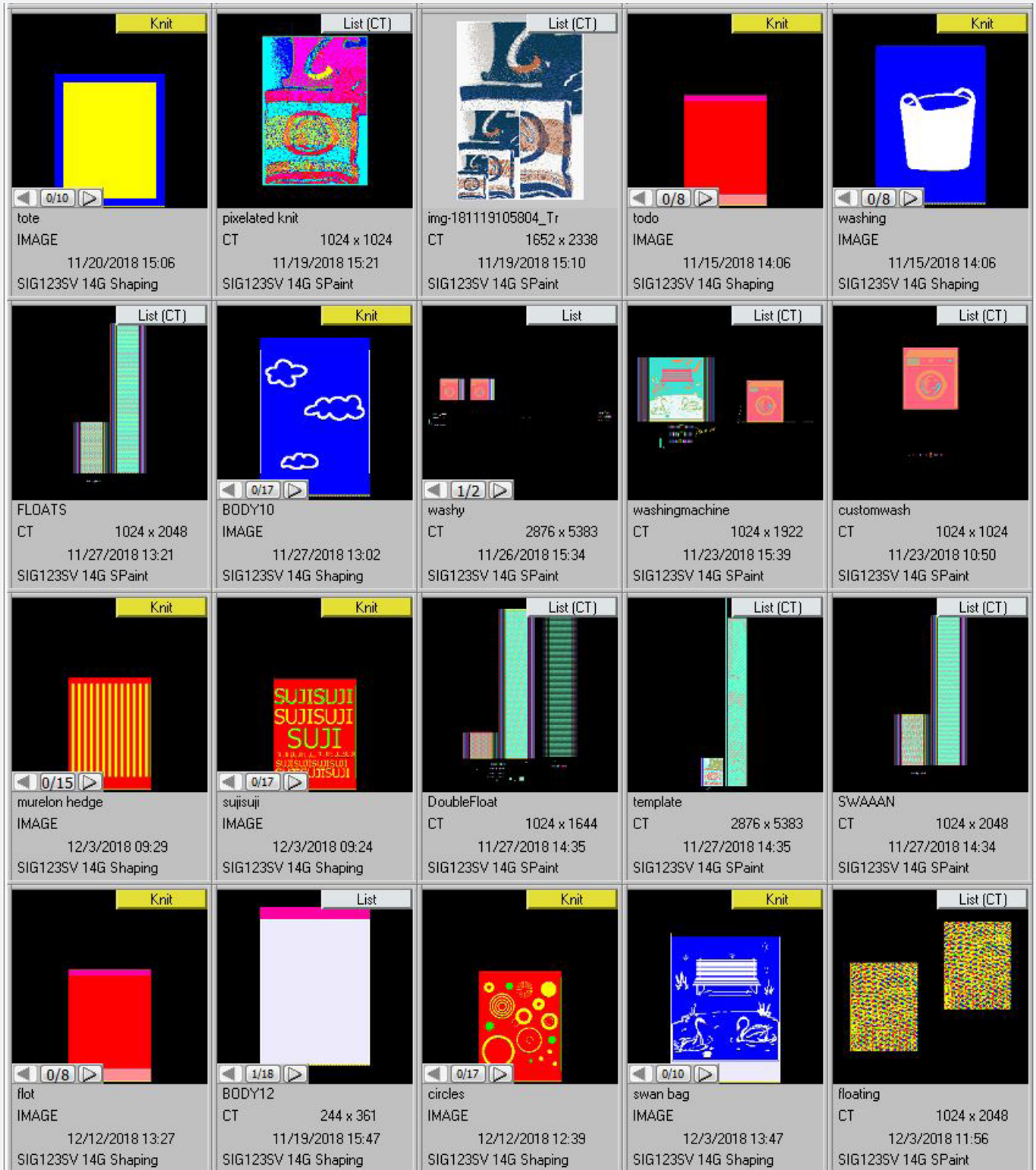


②0

Mini Twister.



CRITICAL COMMENTARY OF MACHINE KNITTING



(21)

Section of the open page from my Shima Seiki folder.

## COLOUR AS CODE

Users of Shima Seiki knitting programmes employ colour as code. The arrangement of these selected colours determines how the knitting will look.

The capabilities of each machine limit the possible design outcomes – only people who work regularly with a machine know what it can and cannot do (Claudia Eckert, 1999, p. 33).

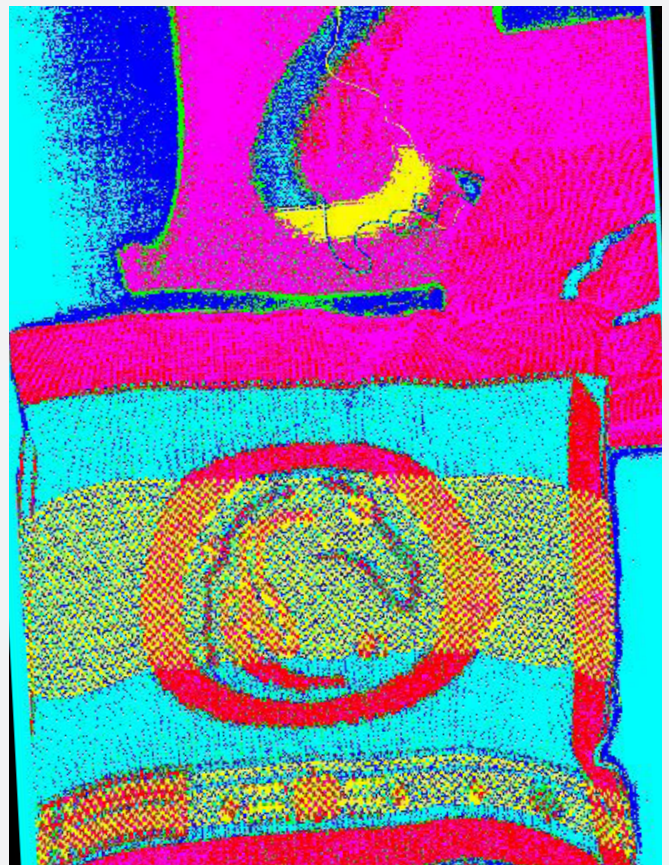
Through regular use with this knitting programme, I was able to gain tacit knowledge of the colour jargon needed for experimenting with the potential of the knitting.

Generic associations of flat colour can express the essential quality of things such as grass being green. However, modulated colour can establish a more detailed narrative, such as weather conditions or the time of day. Considering colour as coded information enables me to envisage the knitted output as an illustration (Kress and Leeuwen, 2002). Activating and engaging through colour selection, I find I tend to work with flat colours on the computer screen yet prefer modulated colours in the production of my knitted prototypes.



(22)

Scanned photo of existing knitted samples.



(23)

A scanned photo that has been designated six colours within the Shima Seiki knitting programme.



24

Six colour jacquard knit produced by the Shima Seiki knitting machine.

Over time I have developed a preference for using mercerised cotton yarns made by a New Zealand supplier, *DEA Yarns*. This yarn is generally offered in two weights, 2/20 and 2/60 which refers to the number of ply/filaments. These particular filament combinations have proved most appropriate for colour coding, cost, quality and accessibility.



25 26

Above: Yarn colour sample cards for mercerised cotton. Below: Cones of mercerised cotton yarns.

## AUTOMATIC AND MANUAL CODING

As I have used the Shima Seiki knitting programme for many years, I have developed a sound knowledge of what the automatic software for creating jacquard designs can do. During my master's research, I decided to explore using manual software for the Shima Seiki. Manually manipulating the software meant that I could use compressed packages of colour and transform them developed formulas that could manipulate features and fragments in my designs. Using trial and error as an iterative process, I discovered I was able to make one-sided, three-colour jacquard into a two-layered, six colour pattern by programming a join at the bottom and top of the fabric.



(27)

Two-colour jacquard with reverse side folded over the front side.



(28)

Six-colour jacquard with seamless sides to expose the interior of the knit.

Recognizing visual codes over time, I have been able to intertwine aspects of the automatic and manual approaches to the software. Option lines in the Shima Seiki software enable the user to control aspects of each traverse of the design, such as repeating a pattern, the position of the yarn carrier and stitch length. For example, my understanding of option lines gained from using the manual software allowed me to interrupt the preset option lines in the automatic software, manually changing the automatic outcomes of knitted samples.

Using a knitting machine has made me adopt a new language exclusive to the CAD knitting system. Jacquard textiles, in reference to Ekdahl's practice (2005) has relied in the past on the presence and absence of a patterned card. Recently, the required language has become less binary, allowing greater dimension to be explored, Shima has enabled the use of more colours which produce more intricate codes. Traditionally knitted fabric has been designed for its 'right-side' surface. Experimenting with the computerised knitting software, I've been able to produce more dimensions, I've focused on exploring the reverse, the selvedge and the in-between space of the knitting loops.



(29) (30)

Above: Deliberate slits unknitted jacquard knit.  
Below: Iteration of figure 28.



31

Iteration of figure 28, to expose slits to unveil new sides.



32

Inspired by darts, a technique is fashion that allows the garment to fit the wearer more precisely.



33

Side view of six-colour jacquard knit with seamless sides to expose the interior.



34

Interior view of six-colour jacquard knit with seamless sides.



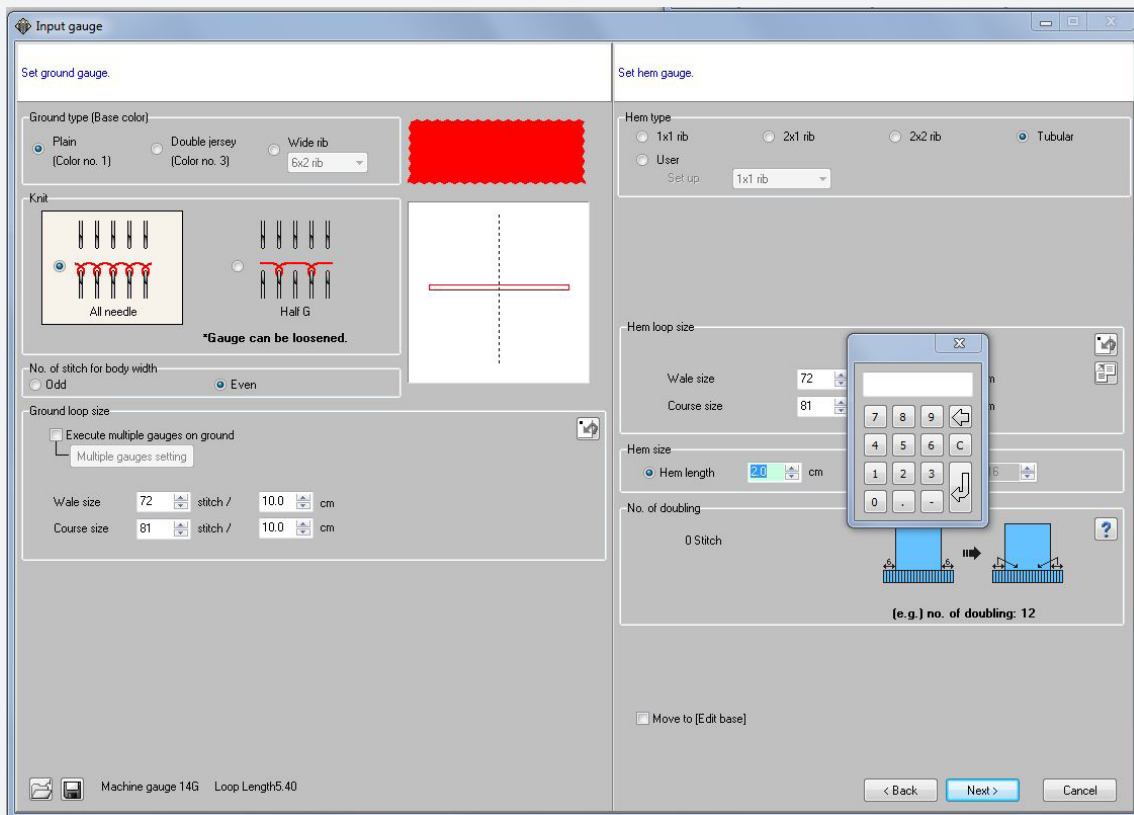
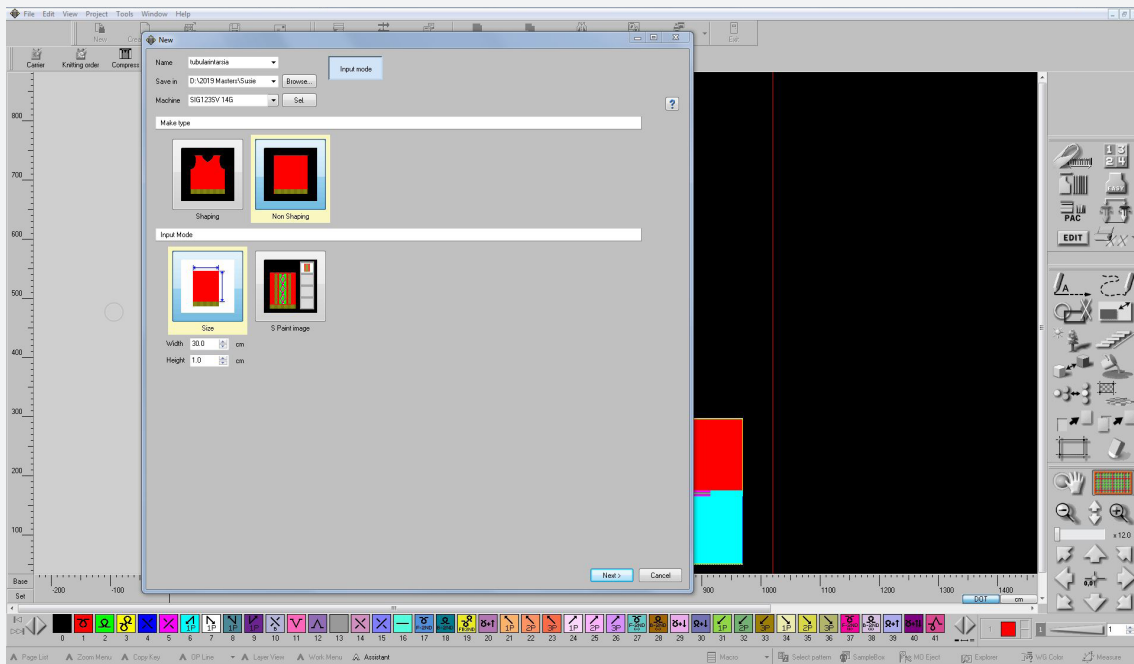
35

Exterior side view of six-colour jacquard knit with seamless sides.



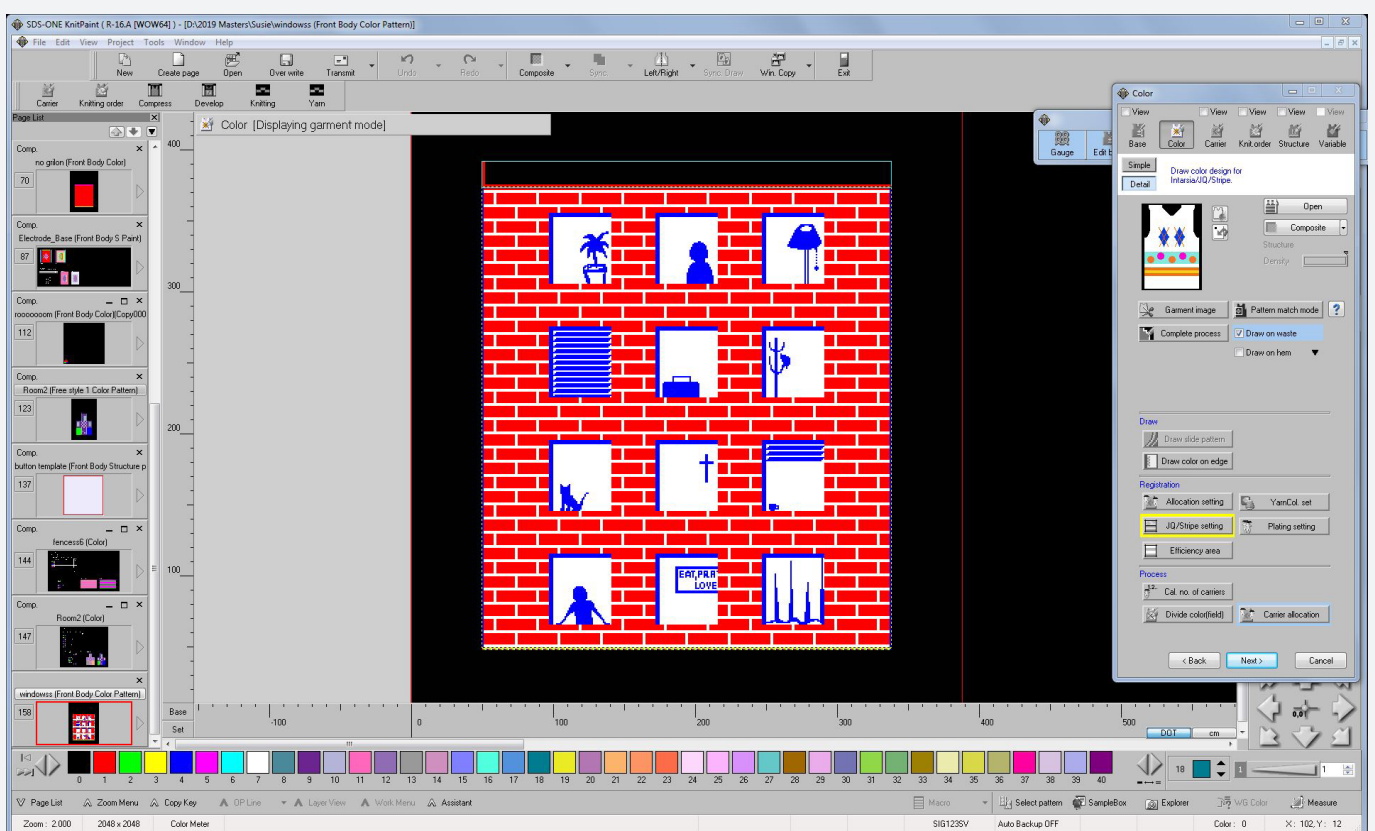
36

Distant photo of a LOADING... selvedge knit in my studio.



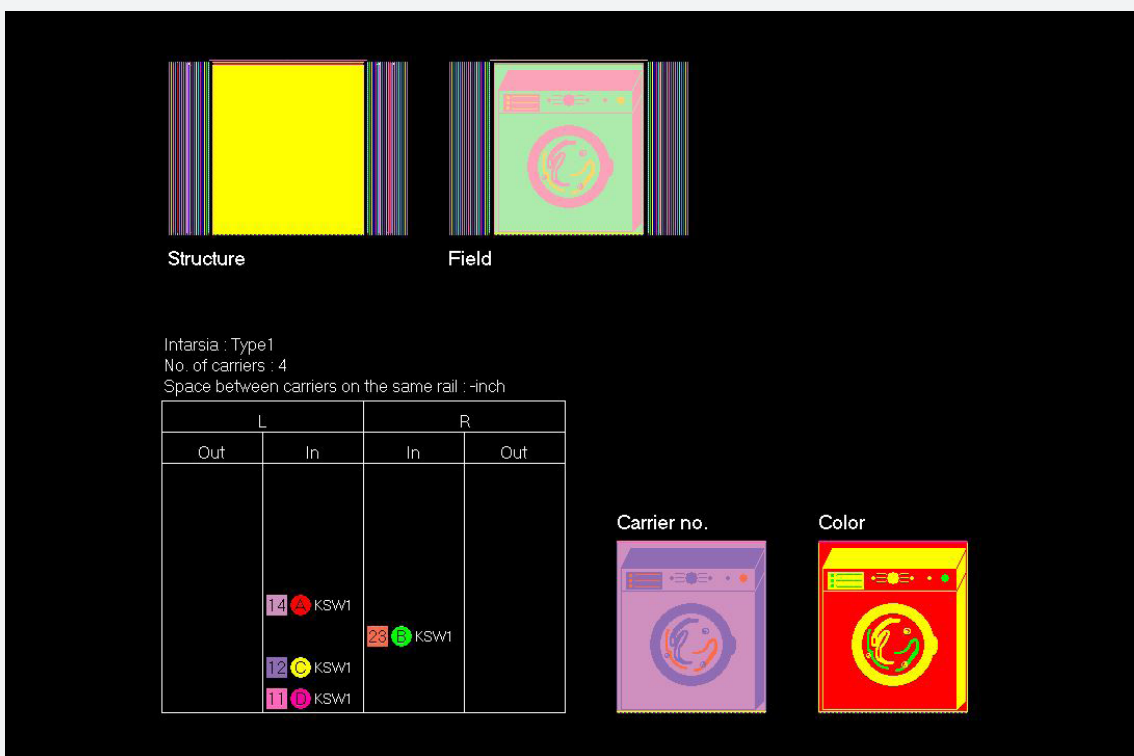
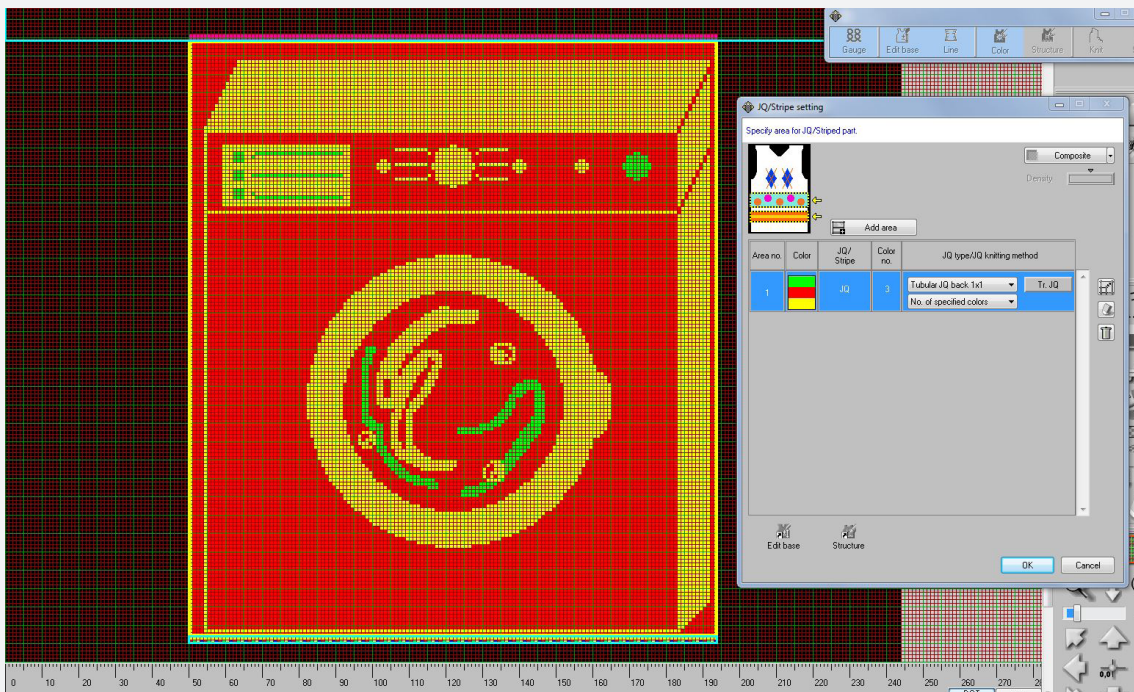
37 38

Above: Screenshot of the first step in Shima Seiki Automatic software. Below: Screenshot of the following step to determine measurements, sizing of stitch and trims.



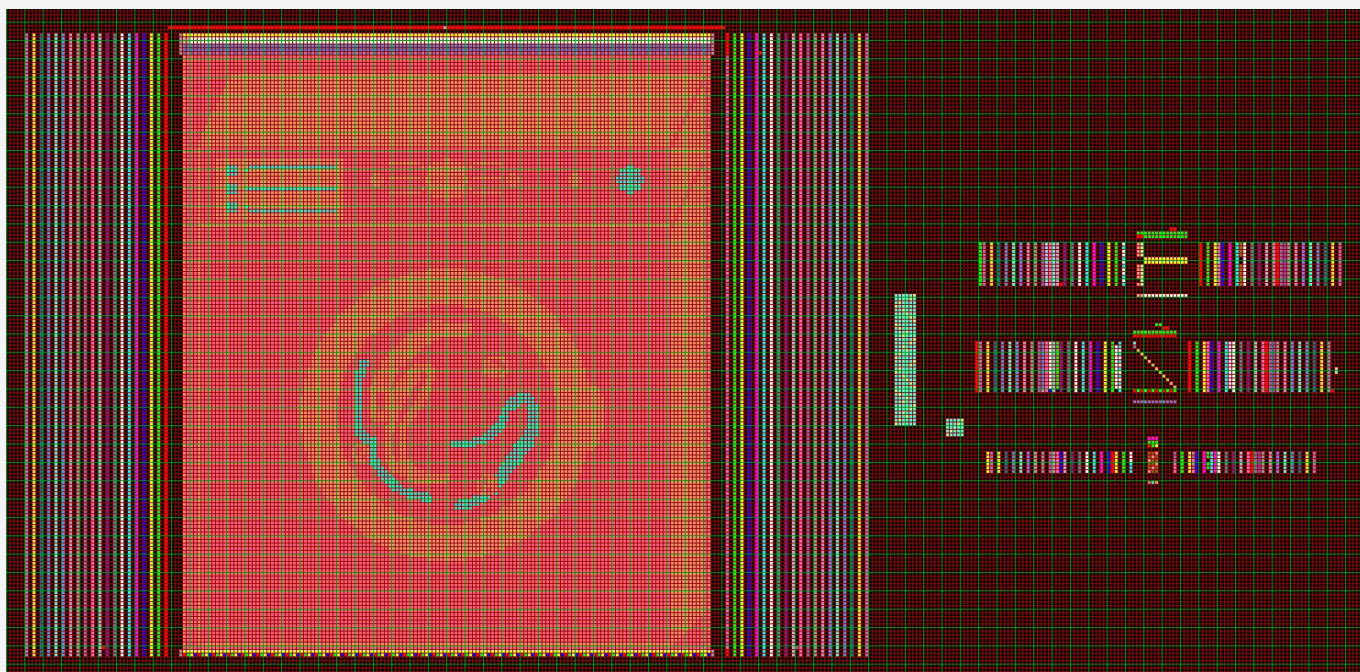
39

Screenshot of a typical working page, the array of colours at the bottom are preset colours for the user to pick in accordance with their design.



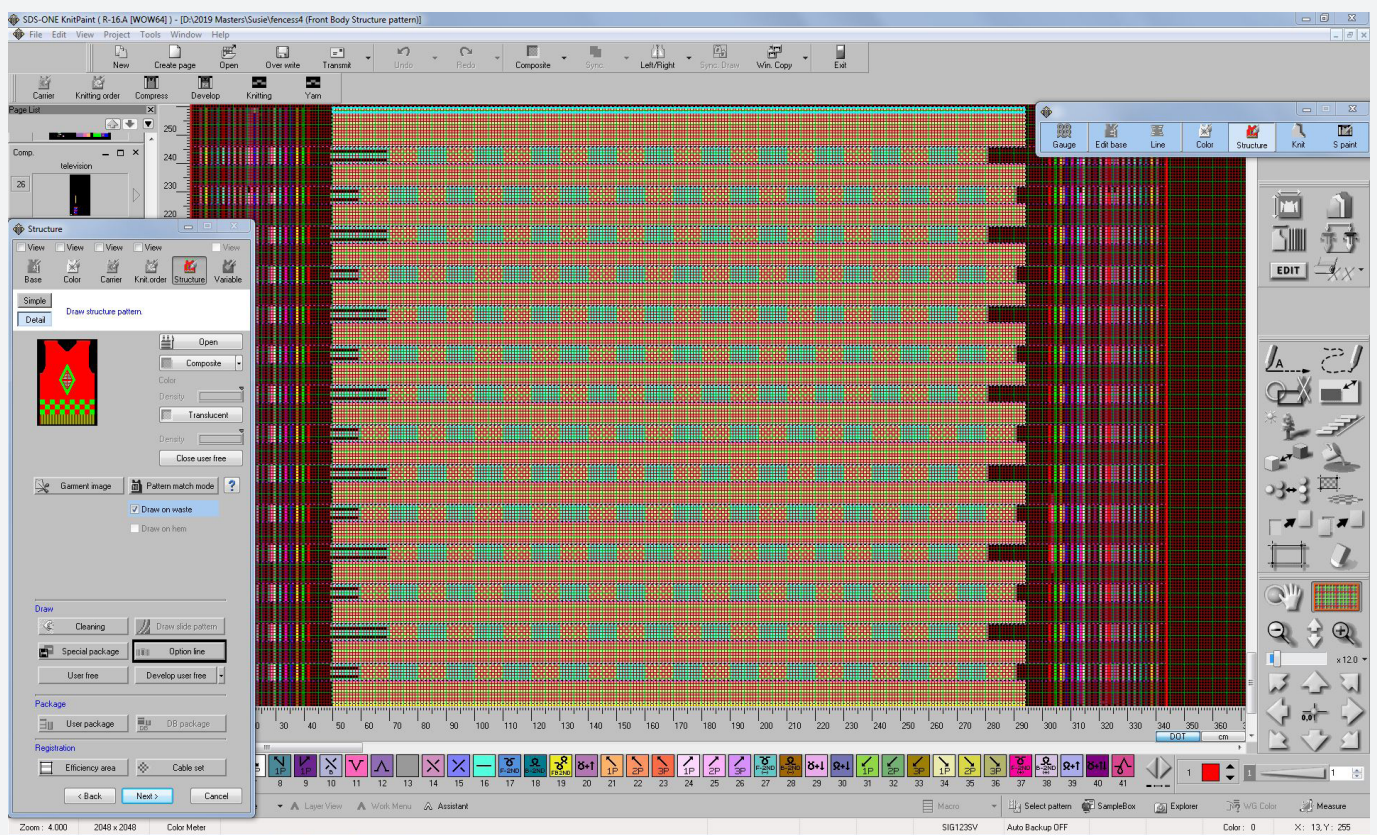
40 41

Above: Screenshot of the Automatic software working page. Below: Screenshot of an Automatic software page that depicts colours allocated for a particular function of the overall design.



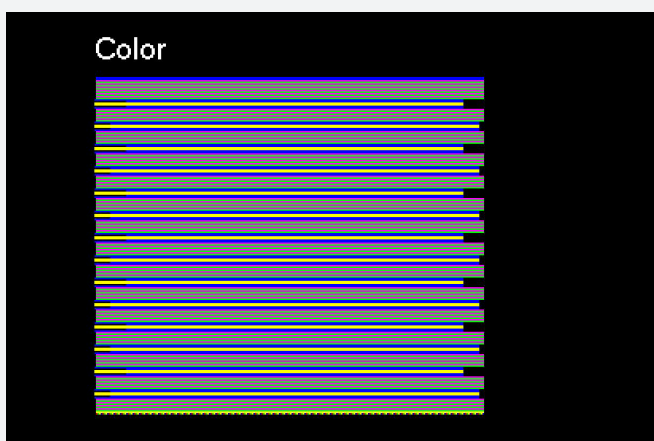
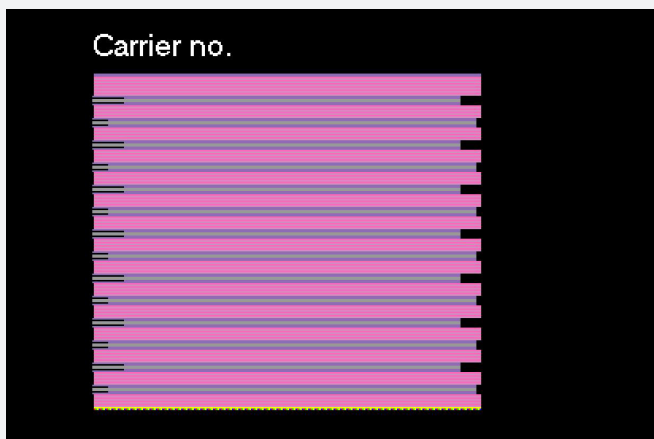
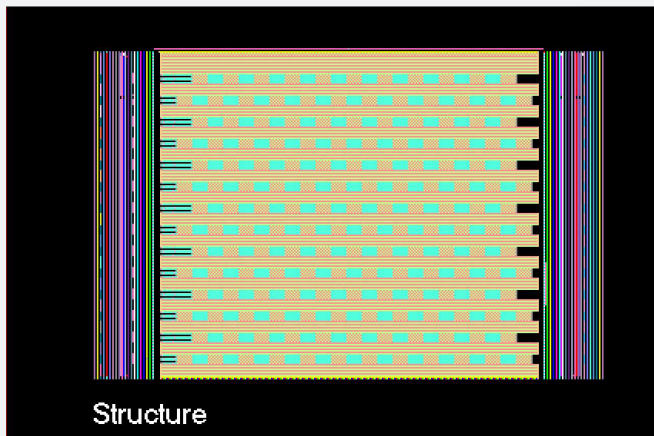
④

Screenshot of the Manual software working page, note the isolated difference from the Automatic software. Each colour in the structure represents a different code. On the right I explored the manual version of a tubular three-colour jacquard from automatic software.



43

Screenshot of Automatic software which appropriates understanding of manual techniques by interrupting the preset option lines – adding in specific instructions to manipulate the design.



④④ ④⑤ ④⑥

Top: Example of colour codes in the structure page that refer to its tubular design with repetitive tucks in between intentional holes. Middle: The colours of the carrier section identify which carriers need to be threaded on the knit machine. Bottom: This section shows how many *feeders* the design will require.

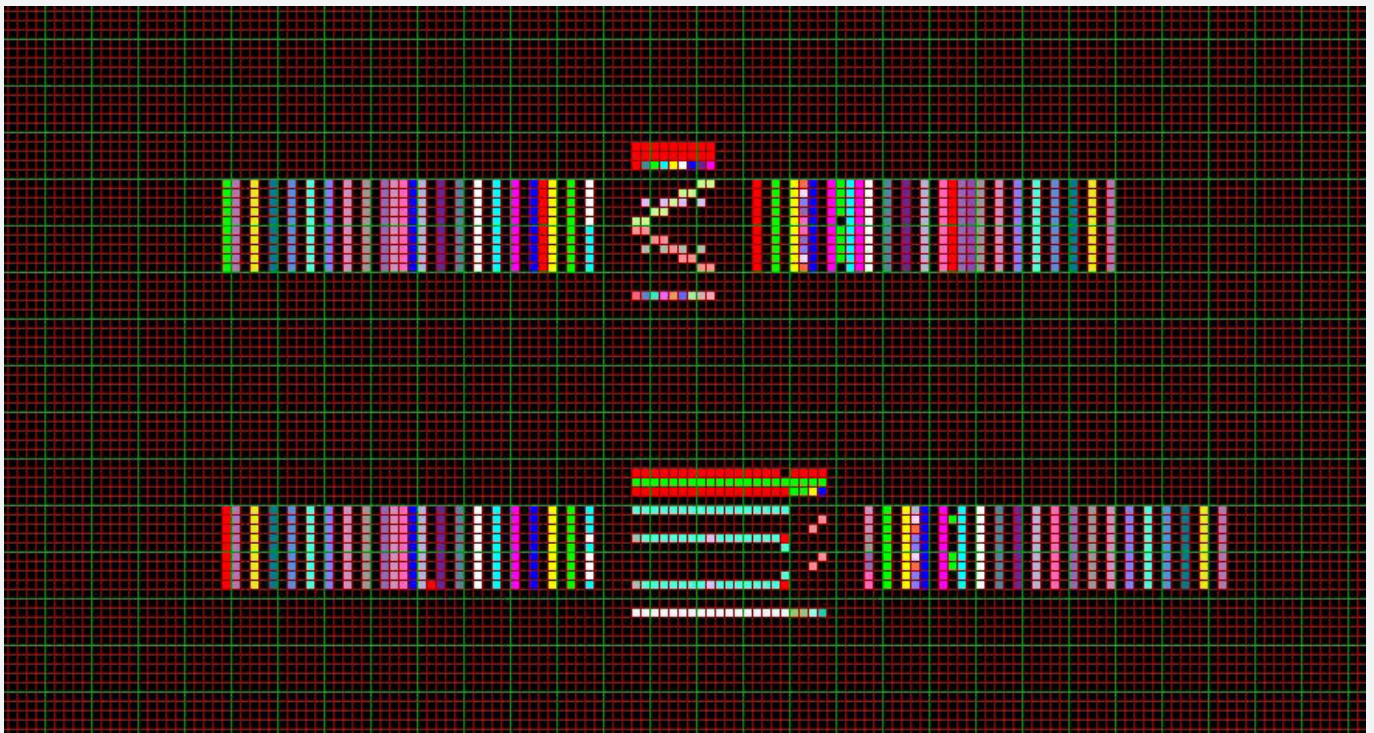
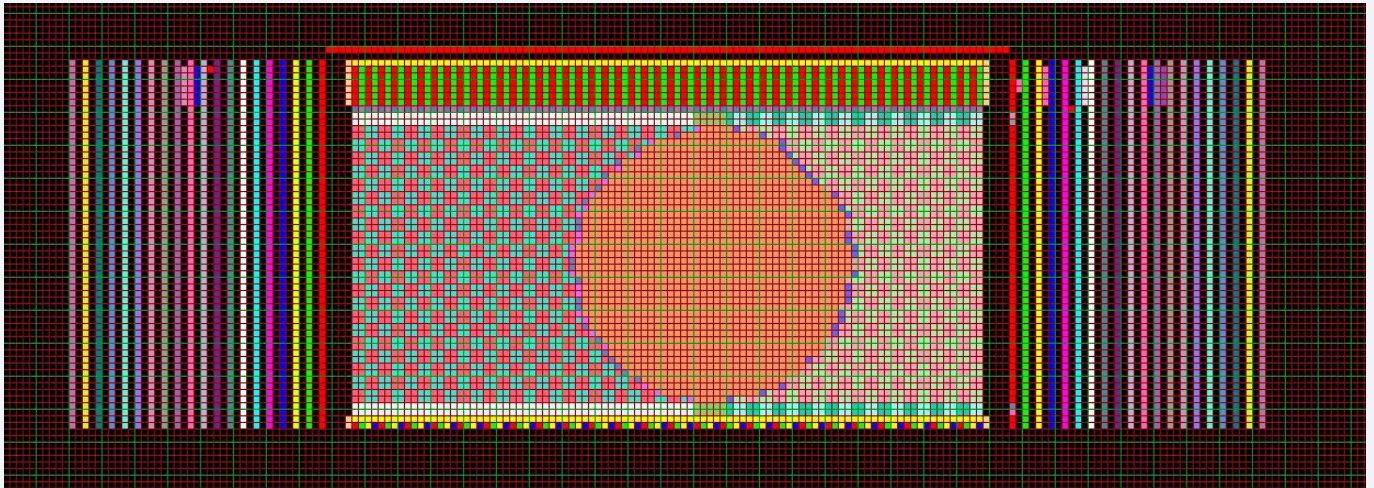
## FAILURE

With the adoption of manual coding, I anticipated recurring failures and what this would mean for my making processes. One result has been that some storylines have not been developed but have instead, informed the coding and the making process. The accumulating 'unintentional' outcomes have been collated as evidence of time spent researching and improvement of my knit knowledge. It turned out that the more I tried to use manual software and failed, the more I created narratives that incorporated disrupting the automatic software because I had a sound knowledge of what the outcome would be and could control the knitting process with greater accuracy. This to-ing and fro-ing between languages allowed me to expand my knowledge and expertise, as well as my creative relationship with the machine. My notion of perfection was challenged once digital glitches and failures offered new dimensions to be explored.



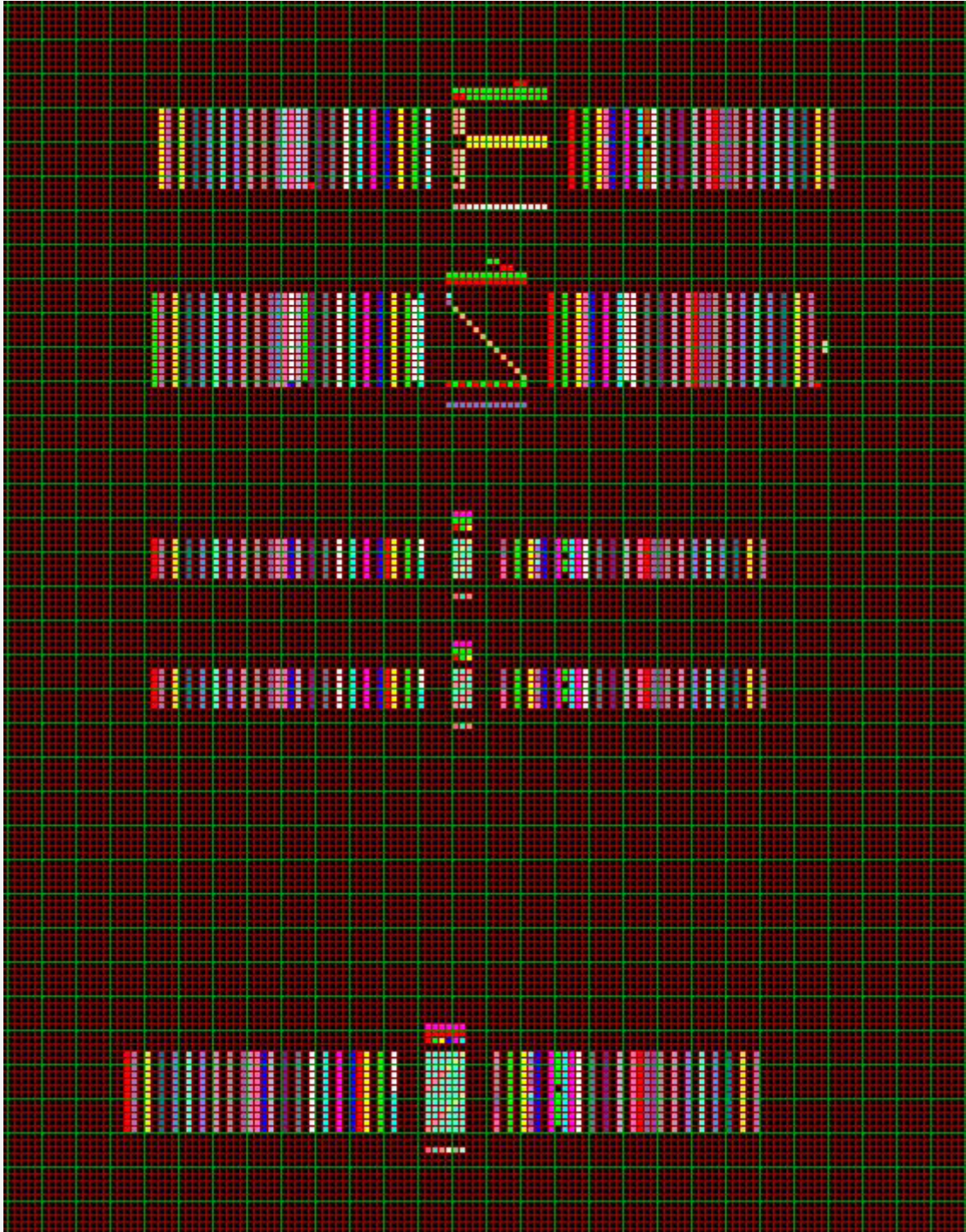
(47)

Screenshot of manual software to produce double-sided jacquard with two different designs. Refer to figure 80 and 81.



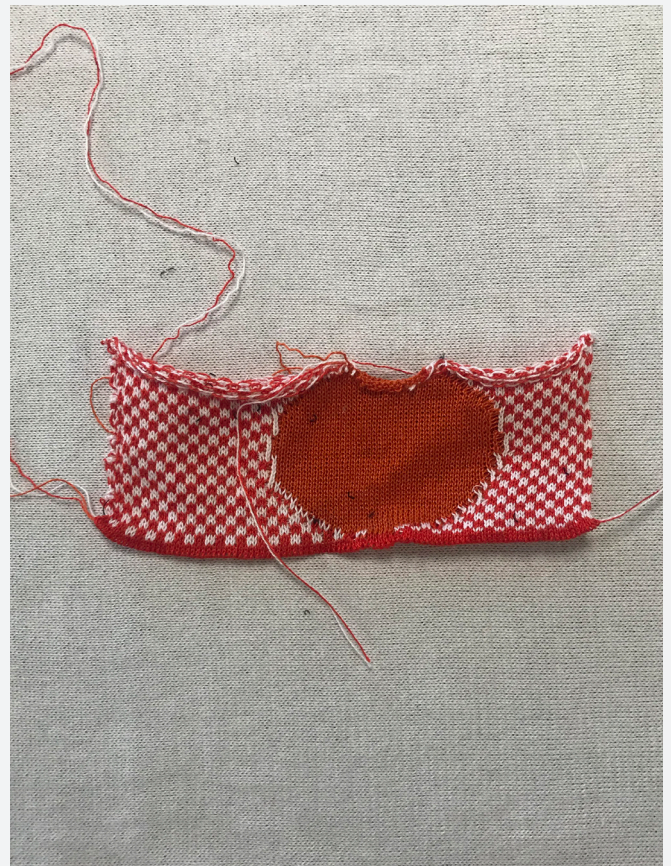
48 49

Above: The knitting machine I use limits how many stitches there will be in a jacquard design, however, to allocate the circle as an intarsia design avoiding the jacquard programming constraints. Below: Manually configured package to achieve a smoother transition from a linear structure to a circular design for previous figure.



50

Developing manual codes for a four-colour jacquard *with* a bind-off.



51 52

Above: An initial prototype of circle jacquard/ intarsia design. Below: The following prototype with no holes on the main surface of the design and a tighter stitch to connect the intarsia and jacquard section.

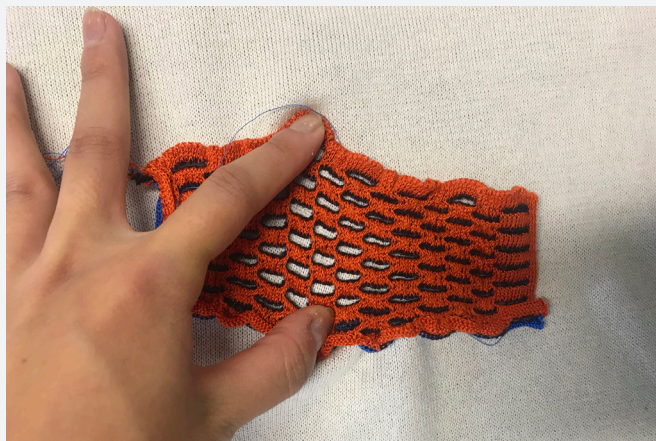
The knitting style I typically use is tubular, meaning that the inside can open up, like a sock. A recurring fault with manual programming was that a hole was produced; this led me to consider the potential of the unintended pocket. A hole or rip then became a design feature to be further explored. In this way, the failed knit sample became a successful narrative shortcut. An accidental hole could become instead, a buttonhole, and rip could become an opening for a hand or head.

... once the barrier between art and technology had been broken down, a new perspective opened up within which one could rate more and more perfect designs, escape one's circumstances more and more, live more and more artistically (beautifully). (Flusser, 1991, p. 20).



53

Mesh fence meets brick wall jacquard knit. This sample shows the interior surface of the double-sided knit because I forgot to programme binding on the side, this is an excellent example of a failure that resulted in me reframing my understanding of the limitations of the knit – opening up dimensions I had hitherto not explored.



54

My misunderstanding of scaling within the computer process led to realising a method of creating buttonholes within a design.



55

My misunderstanding of stitch limitations for this manually coding jacquard. The interior of this sample has loose black threads that have transferred to its exterior.



56

The first prototype for a tote bag. Some aspects of the design did not close off a seam. However, this led to the idea of creating pockets within the next prototype.



TIME:  
MACHINE KNITTING SUBVERTED THE  
DOMESTIC, CRAFT-BASED ARTEFACT

Japanese avant-garde artist, Akira Kanayama produced paintings with a remote-controlled toy car, mimicking the aesthetic of Jackson Pollock's drip paintings ("Time and Space" 2016). The artwork was performative despite the absence of the artist. Time moderated the production of the work, the slowly moving car mimicking a paintbrush. In my case, I removed myself from the handmade knitting process, opting instead to employ a machine. It is the machine that performs the act of giving birth to the fabric through its internal framework. The domestic, female practice of knitting by hand is subsumed into by the sterile body of a machine.

As artist Rebecca Horn explains:

I like my machines to tire, they are more than objects. These are not cars or washing machines. They rest, they reflect, they wait (Winterson, 2005).

Time has been recast by the automation of the act of crafting the knitted artefact; however, as Horn suggests, the machine is personified through the process of knitting. To me, the subversion of the handmade by technology was paralleled by my personal stories, being translated through the machine into knitted artefacts.



57

Size reference for each knitted stripe.



58

Knitted jacquard stripes.



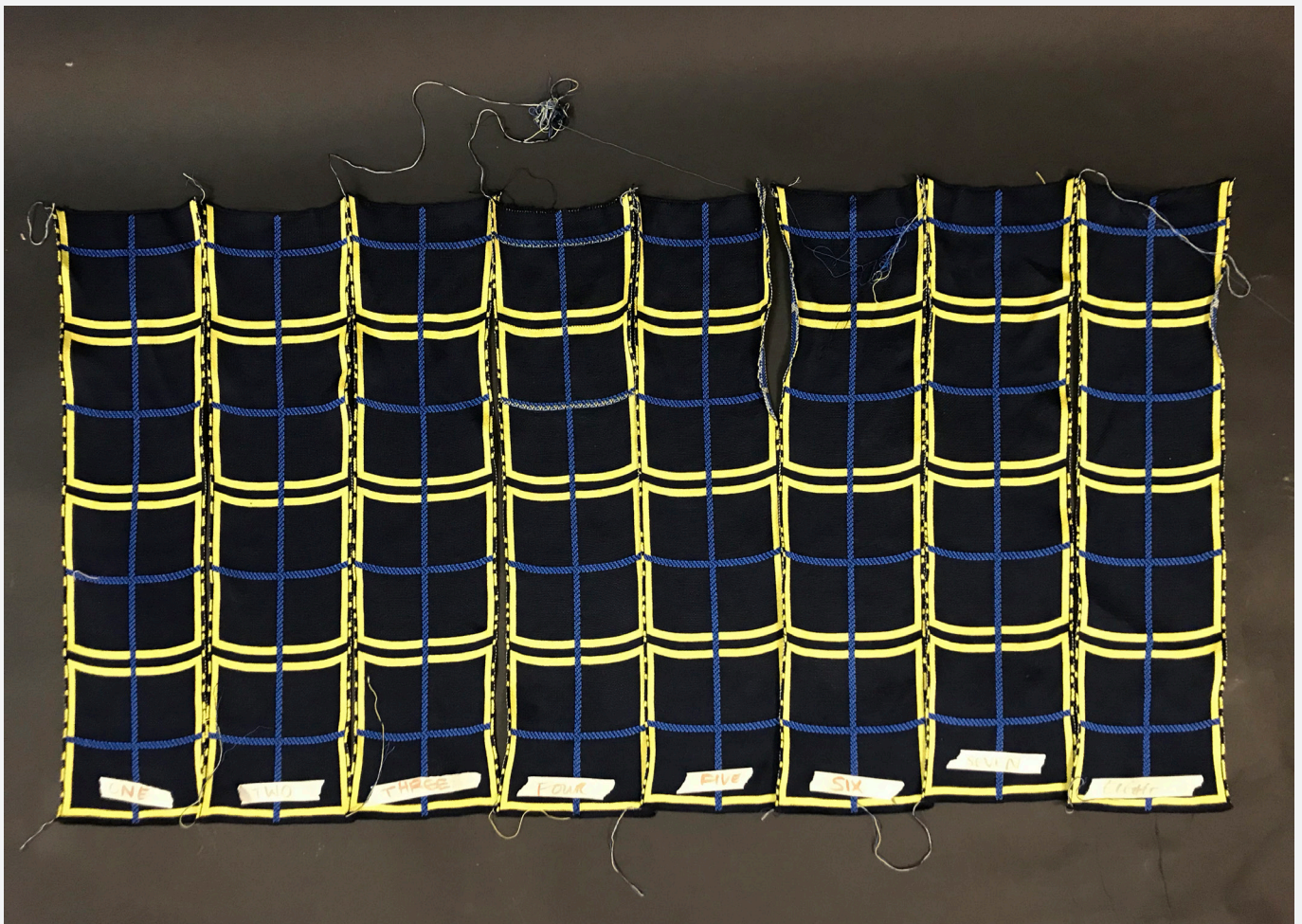
59

Stripes stacked in numerical order can be read –  
the words selvedge image are legible.



60

A prototype of stacked knits to create a knitted 'screen' in a simulation of the loading message on a computer. The downside of the selvedge edge knits is that they require a lot of time and materials to produce.



61

Blanket selvedge prototype, mimicking aeroplane pattern.

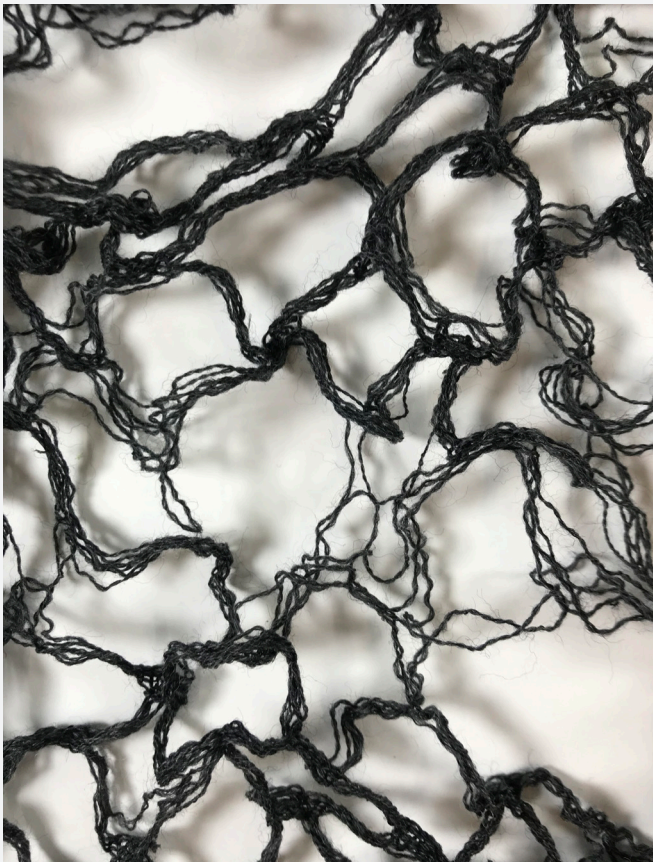


62

Blanket selvedge prototype, exploring the idea of folding and layering components to unveil a message on the sides.

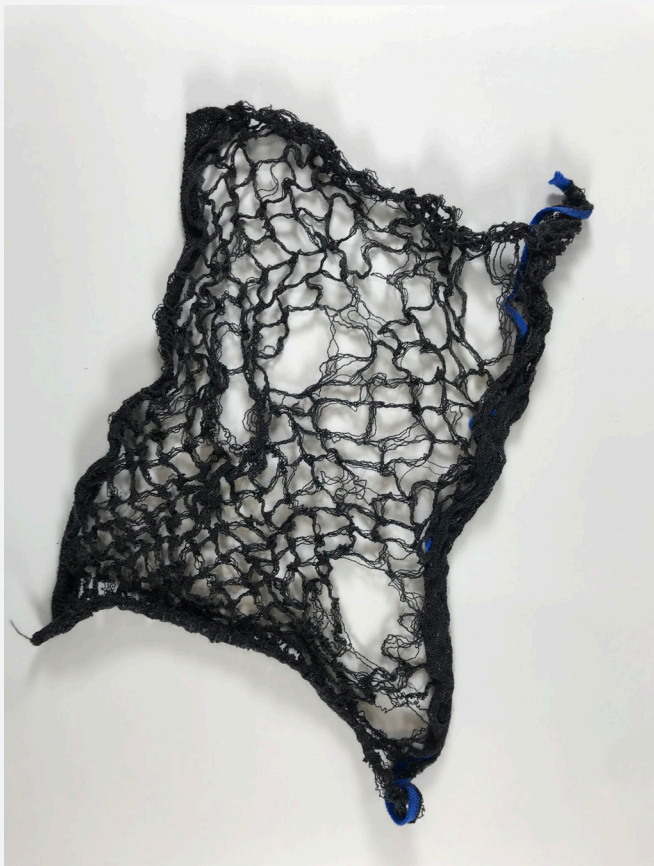
ILLUSTRATIVE AESTHETIC  
DETERMINED BY A KNITTING MACHINE

While I employ 2D illustrative elements and patterns, such as grids, English text and silhouettes of domestic inhabitants such as cats and doors, my illustrations are not exclusively 2-dimensional. Thinking past the flat surface of the traditional pictorial jacquard, I was able to explore dimensionality and interaction. Knitted textures became activated through 'other' machines, such as the steam press that melted the knitting creating holes or a bind-off. By mixing and recombining the samples, I was able to develop narratives through patch-working, collaging, layering and folding. Mitchell (1996) discussed material objects as having the will, consciousness, agency and desire to talk and act. Through juxtaposition, I engaged the samples with one another, together they created multidimensional narratives.



63

Close-ups of a fence-like structure prototype.





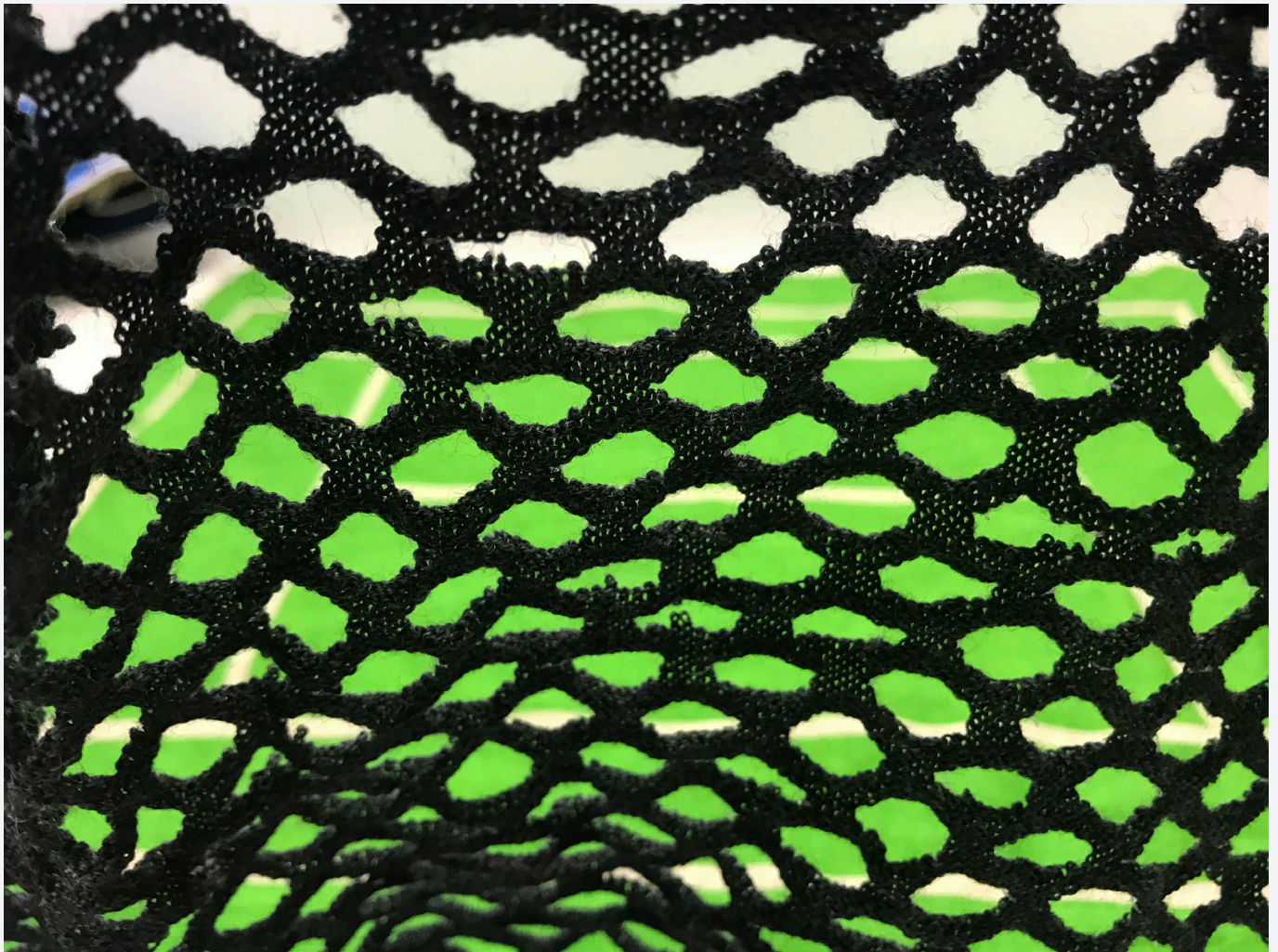
64

Developed fence knit placed over a knitted simulation of a tennis court.



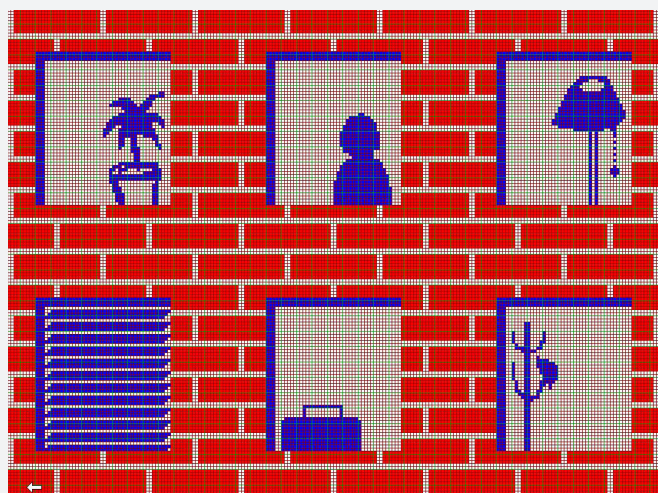
65

Close up of developed fence knit structure.



66

View through the knitted fence to a knitted tennis court.



67 68

Left: Screenshot of apartment building jacquard.

Right: Tubular jacquard of apartment building.



69

Iteration of juxtaposing narrative through a garment with contrasting pieces.



70

Layering a knitted window to simulate an opened window in a knitted building.



MAKING ABSTRACT:  
REPURPOSING PERSONAL NARRATIVES



71

Cross-shaped jacquards that explore notions of the wall, flooring and the domestic space.

COMPUTATIONAL PARAPHRASING:  
ON GHOSTLY IMAGES

Like people, pictures don't know what they want; they have to be helped to recollect it through a dialogue with others. (W. J. T. Mitchell, 1996)

Each of my knitted samples carries its own unique visual text. However, the legibility of the texts has become abstracted through my exploration of the surface. When jacquard knit is designed, the exterior face of the fabric becomes the surface that you see. Over time, I began to reconsider my tendency to regulate the main surface of the jacquard knit, after all, a tubular structure offers multiple points of entry and observation.



72

Knitted frame. This was achieved by untucking the vertical interior composition.



73

Process of making a knitted frame.

In a conventional computerised knitting practice, the designer tends to prioritise the look of the front surface produced by the machines. During the programming process, I discovered that if I did not allocate a colour to the front image, the would miraculously be reconfigured on the reverse. I was intrigued by this alternative narrative - the computers paraphrasing of my initial design. This ghost image became an autonomous alternative, allowing the viewer to interpret and experience the design in different ways. I realised that the reverse side of jacquard knit could reveal an alternative narrative – loops of wool became more than just floating excess yarns. Instead, they were the stripes of a moiré pattern or the mottled surrogate to solid sections of colour.

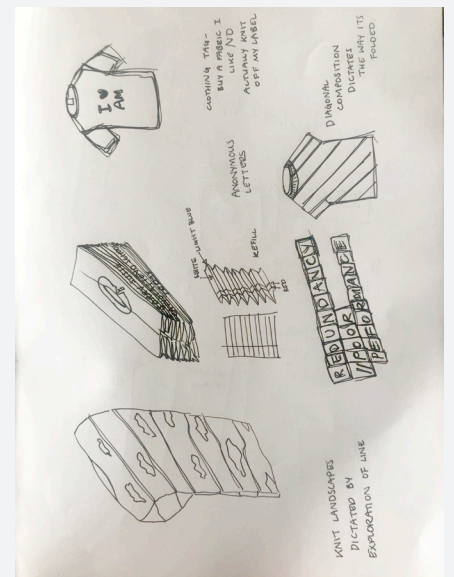
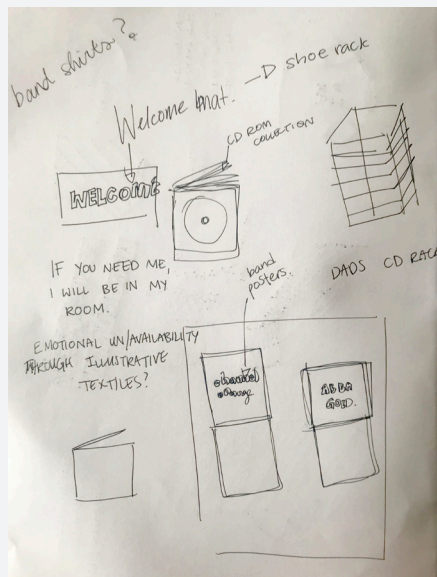
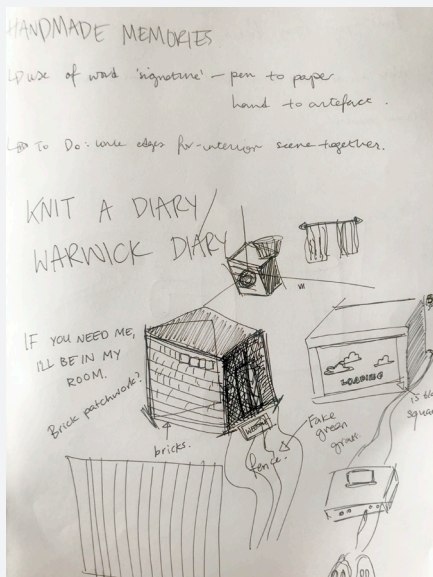
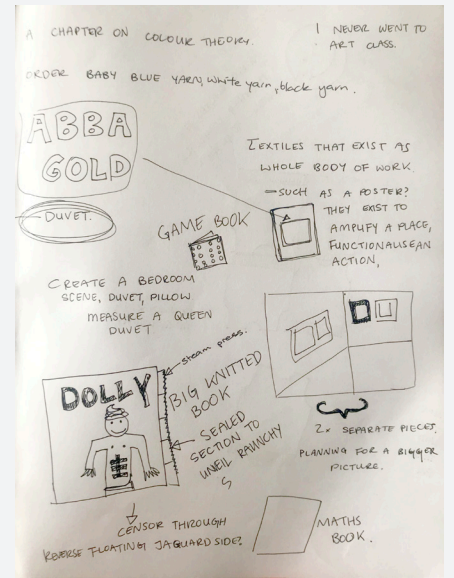
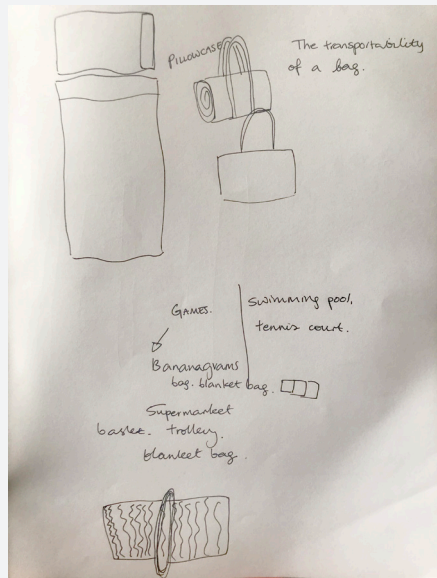
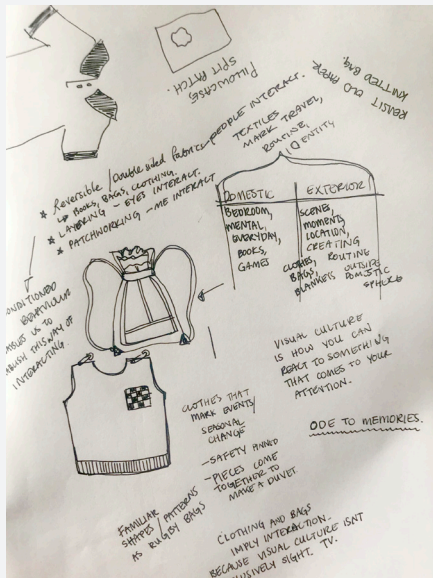
Despite this realisation, I continued to question the purpose of making so many samples based on abstracted narratives. Often the process appeared automatic – a mindless activity, evidenced by the expanding mound of unresolved samples. My growing body of work often seemed pointless. However, I knew that refashioning the pieces would require a personal intuitive approach, that sensing required a return to touch.

Being surrounded by a bounteous number of samples strewn across my studio desk, wall and floors, I was confronted daily with a mixture of serendipitous or intentional knitted samples. Revisiting these often unresolved swatches provided a knitted framework, that informed the interactive narrative that developed later on in my research. A failed prototype did not need to be resolved, it represented a fragment in my journey. For me, the sample was akin to the more easily recognisable device – the sketchbook or the diary. A single page of these books can often be nonsensical or displace the readers understanding, even when a drawing or outline might trace a fully developed idea.



(74)

Intuitively interacting with a knitted sample that has vertical and horizontal slits.



Collected sketchbook drawings of concepts to explore.

A TEA TOWEL AND A WASHING MACHINE:  
MY MOTHERS INFLUENCE

Domestic spaces connote gendered conversations.

The idea that space is gendered is exemplified in the works of artists such as Trockel (1985-1988) and Robins (2002). Settling into a new life in New Zealand, my mother had to make personal adjustments within her everyday existence, as a stay at home mum. She transitioned from handwashing the bulk of laundry in Korea to using a washing machine in New Zealand. However, she still refuses to use a dishwasher, and I often wonder how much her actions have influenced me, as I too prefer to wash the dishes by hand. Consequently, a tea towel and washing machine became key subjects in my unspooling personal narratives.

The hand versus the machine occupies in the interior of my domestic life. Simple tasks are done by hand, but machines carry out the labour intensive ones, in a parallel to my practice, which challenges the notion of knitting as something crafted by hand. Instead, I use a machine. Repetition is a chore, and a chore is a burden, especially in domestic settings. Trockel and Robins reframed methods of crafting, in particular, knitting. The historically intended function of knitting was to produce useful artefacts for domestic consumption; however, situated within the context of art knitting was transformed into a symbol of gendered practices.



76

Knitted tea towel.



77

Washing machine knits – an exploration of manual coding to alter the reverse side of the image and the limitations of the three-colour jacquard style.



77





77

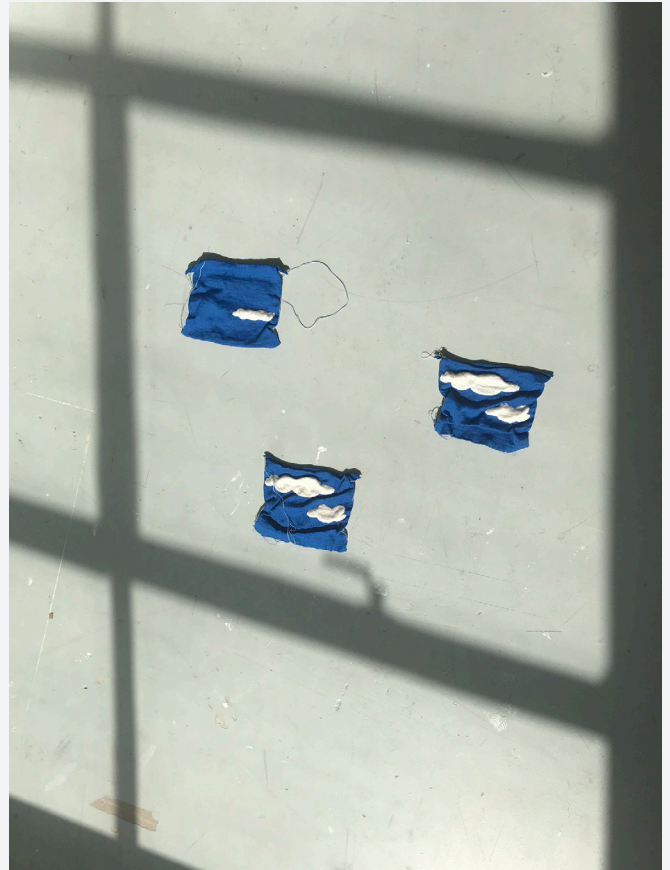




### NINTENDO AESTHETIC: MY SEARCH FOR A PERFECT CIRCLE

Feelings of anticipation were common during the iterative making process, as it was, initially, my intention to perfect the technical limitations of machine knitted structures. However, through repeated failure, I began to reframe my narrative, opting for a more abstract interpretation, fashioned by rips from yarn strain, broken needles, unravelling yarns, machine malfunctions and incomprehensible programme packages.

A perfect circle could never be achieved on a knitting machine because of the drawing grid composition, instead what was revealed was the clumsy transitions between smooth lines. I realised that the images I produced on the Shima Seiki embraced the aesthetic of 8-bit computerised drawing. I repeatedly used clouds as subject matter throughout my prototyping phase, but depicting pillowy clouds was out of the question because of the pixel-like imagery produced by the machine's software. I settled, happily, for ones that resembled the clouds in the background of the Super Mario 64 Nintendo game I played as a child.



78

Knitted clouds.

The limitations of producing imagery on the surfaces of my knitted fragments celebrated the familiar territory of the pixelated computer-generated images of memory. The visual aesthetics of games I'd owned and played by myself or with my family - chess, twister and Nintendo became default canvases that evoked my childhood.

THE WARWICK 1J5:  
READING BOTH SIDES

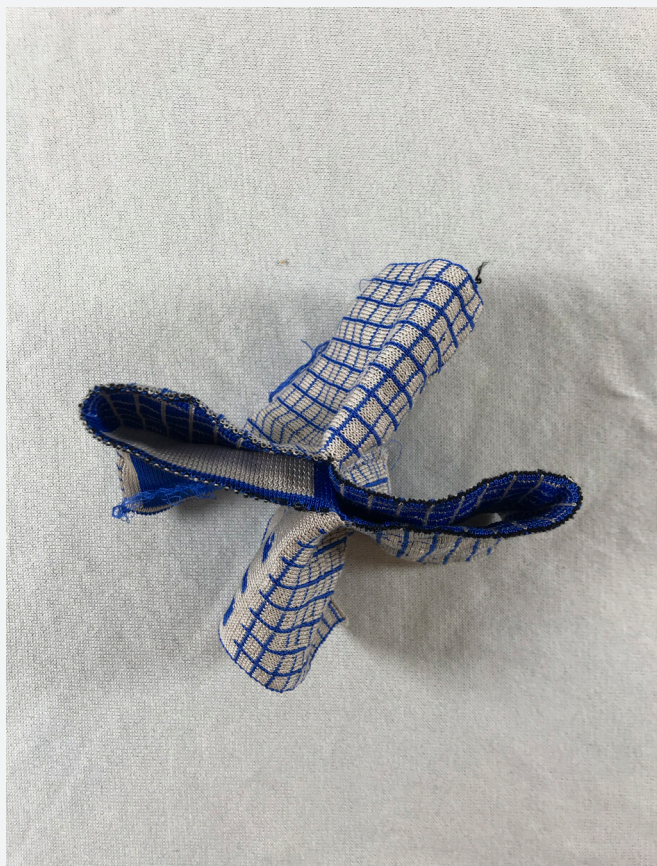
I have varied the subject matter I've drawn on from everyday experiences. A 1J5 Warwick workbook appeared repetitively throughout my primary school years in Christchurch, this book was probably standard issue throughout New Zealand for my generation of school children. As I was working within the pixelated compositional world of Shima Seiki programming, I could not help but wonder if there was an alternative, more transportable method of experimenting with knit designs. The software for the Shima Seiki is expensive and requires learning a complicated process. Essentially, I needed a uniform grid of squares which my naked sketchbook did not offer. This led me to revisit the 1J5 Warwick workbooks for composition inspiration.

This guided me toward exploring the interactive behaviours camouflaged by the illustrative nature of textile narratives. This brought to mind books that could be folded from my primary school craft classes. I developed a technique that enabled me to apply these memories to the knitting machine programme, inserting a melting yarn, grilon, to create a slit in the middle of a knit sample, reminding me of these everyday childhood materials. Other examples of childhood paper-based paraphernalia I've knitted are refill pads, and paper dice cutouts.



79

Knitted samples that explore the drawing grid compositions of the Warwick 1J5 and the Shima Seiki software.

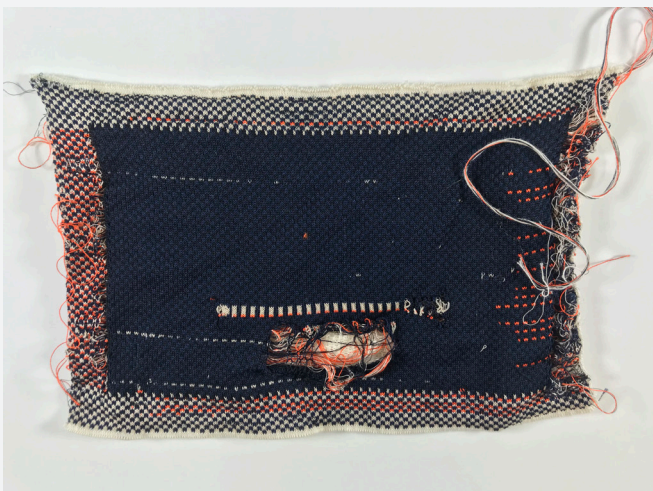


80

Knitted Warwick 1J5 book.

Personal memory is a marvellous and unique source of information for autoethnographers. It taps into the reservoir of data to which other ethnographers have no access (Chang, 2016, p.55).

Another trapping from my everyday life was my laptop, this formed a theme in my narrative designs - an interesting aspect of trying to knit the laptop was that I found myself considering both the front and back sides in my technical exploration. Through the prototype is missing its ubiquitous Apple logo on the lid due, strangely, to a malfunction in the programming.



81 82

Above: An attempt at a MacBook laptop lid. Below: An attempt at a MacBook laptop loading screen.



93

Unsuccessful prototype for the body of a jumper.



84

Exploring an interactive laptop narrative by engaging two unsuccessful prototypes.



85

Exploring the narrative of an open laptop top.





97

Refill pad jacquard knit.



88

A prototype of dice knit.

FROM THE INSIDE:  
THE JOURNEY AS AN EMBODIED FRAGMENT

It was never my intention that the textiles I produced through this research should become complacent pictorial frames. While making my mood board arrangements, they occupied the wall, however, pinning the textile fragments to the wall restricted my potential to explore them haptically. Repositioning my notion of the knitted pieces as default canvases required me to consider the multiplicity of interactions that had opened up in the knitted surface. Exposing dimension on a knitted form encouraged a more inquisitive pictorial and sensory engagement with the objects as haptic artefacts. While the pieces weren't wearable, yet, I was fascinated by Bruno's (2002) description of fashion as a reverse interior map that leaves a trace of emotional habitus in a two-fold projection. The inside of a garment being of equal importance as the exterior. The unseen surfaces of my textiles became spaces of inquiry.

The contrasting surfaces of colour, texture and scale mimicked and celebrated my intention to convey an essence and journey rather than a definitive solution. From the start I was interested in the blanket as a useful object but also a narrative device – similarly, I was curious about the European tradition of the *Peggy Square* and the Korean *Pojagi* patchwork quilt or curtain, both of which are made from scraps or fragments. These domestic crafts use materials from leftover yarns or fabrics, which I found suited my desire for a more sustainable and practical approach to practice (knit yarn being expensive). Additionally, their compositions rely on techniques such as collaging, patching and layering – the idea of composing a narrative that might also have a functional purpose had captured me.



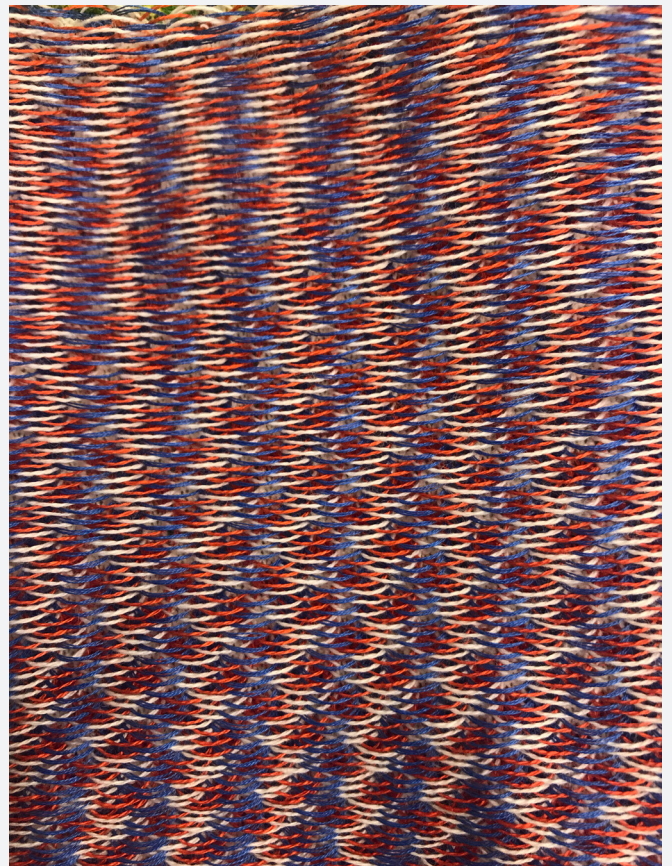
89

Knitted paper bag from undergraduate degree. Cho, S. 2016.



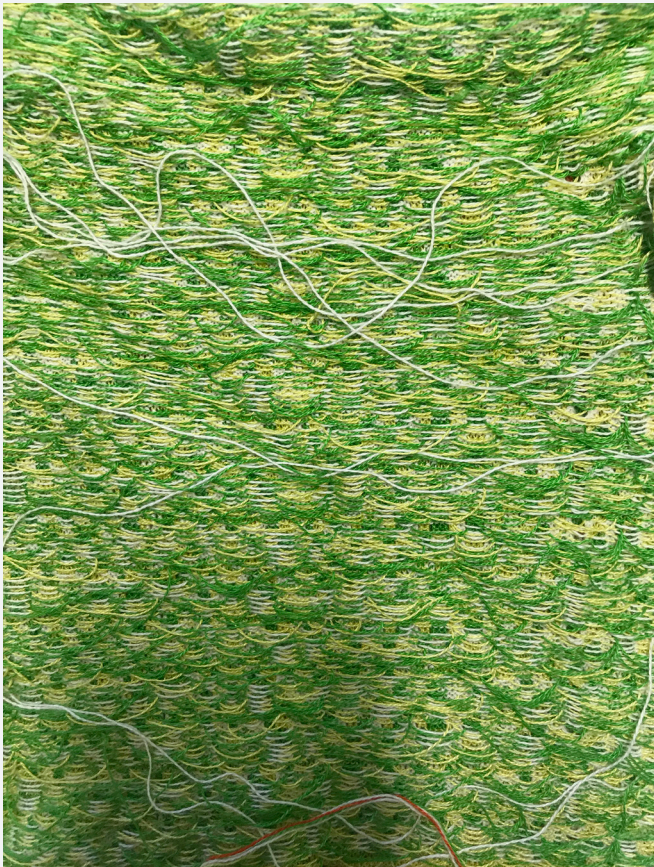
90

Wall hanging of large-scale tea towel knit.

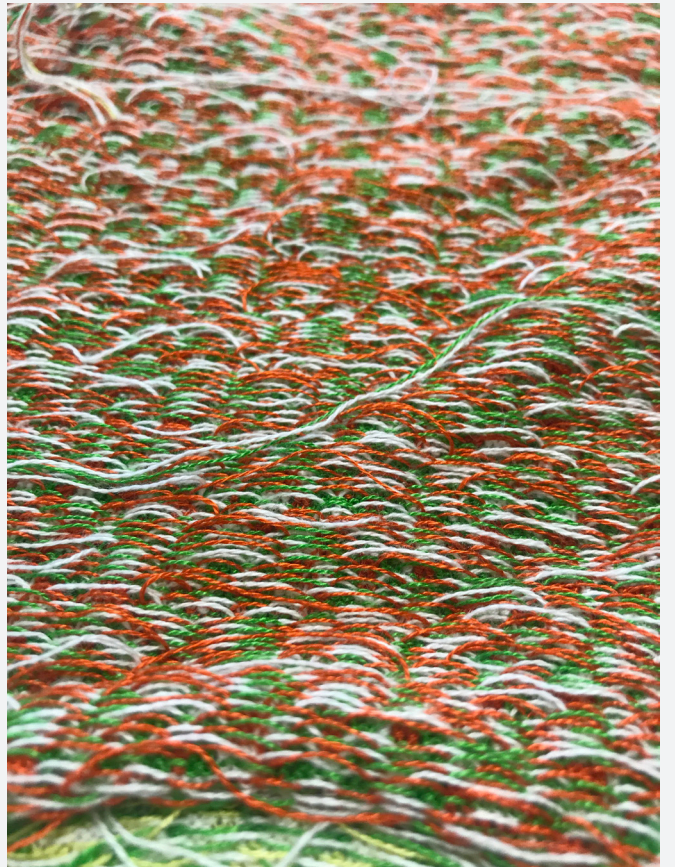


91

Textures of jacquard knit that reveal unconventional aesthetics.



91





92

Close-up photo of one of my mood board collages.



93

Exploration of the density of jacquard knit.



94

Close-up photos of abstract knitted surfaces.





95

Simulation of a mattress.

Like a film, the bedroom map retains and explores “folds” of experience. It charts the private inner fabric of our mental landscape. The mattress-map is a complex narrative: a nocturnal chronicle, an erotic fantasy, an account of the flesh. (Bruno 2002).

### INTERIORITY AND CORRESPONDENCE: MY LIFE AS AN ARTEFACT

Reframing the default canvas is into a wearable artefact. The blanket that evolved into an artefact, which was then reframed as an extension of the body.

Through intensive sampling, it became evident to me that the more effective narratives were interactive, however, working with a 2D machine practice, this could not be achieved unless I collaged the knitted samples after production. The flat surface of the default canvas needed to be re-evaluated. How could I make these surfaces into a wearable collage? The canvases operated as slithers of visual narrative, sample images drawn from my experiences, their forms invited a candid correspondence between the interpreter and the artefact.

I began with simple silhouettes such as tops or bags to produce basic outlines of textiles that might be functional. Holes, slits, fastenings and reference to the body were especially crucial to my exploration during this transition phase from 2D to 3D artworks.

Marketta Luutonen (2008) discusses in her essay, *Handmade Memories* that clothing is an explicit conveyor of meaning, they can express what we would never voice orally or in writing. Creating something wearable, though not always traditionally recognised as clothing, allowed me to extend my interest in knitting personal narratives. The Korean Italy cloth birthed a little sibling, the Cetaphil jumper. The skinship series of knitted tops documents milestones in my personal skincare routine throughout the years. These wearable pieces fashioned from icons from my daily regimes were knitted narratives and artefacts.

Tote bags were another area of exploration, their cavity, a place for contents for all those 'things' that speak to humans, books, money, keys, etc. Garments and accessories, such as belts, buttons, sashes, slits and pockets, are activated through interactions between the body and 'things' that attach themselves to us. My notion of the default canvas, as a knitted 2D creative narrative had evolved into a 3D extension of the body. The walls where my knitted illustrations had hung, were replaced by the skin of moving bodies. The interiority of the blanket, bag or garment now touched the body.

Wearing denotes a more intimate correspondence between oneself and the artefact. These knitted objects, like maps, trace the body on its travels. A form of transportable domestic memory, which when worn, steps outside into the world alongside the wearer and returns, put back into a private closet.

...People themselves become places, marks and markers of our living map, just as our faces, decorated with the lines of memory, become the map of our passing. (Bruno 2002, p. 240).



(96)

Blanket stitch tote bag.



97

Examples of generic silhouettes of knitted tops.



98

Wearable default canvas.



99

Photo of immersive chessboard environment.



100

Korean Italy towel top.



101

Cetaphil jumper.



102

Experimental photos of exploring the abstract form of the tote bag.





103

A prototype of a knitted tote bag. The green section in the middle can be melted off using a steam press.



104

A prototype of a tote bag that had to be taken off the machine due to yarn rippage.



105

The second attempt at a previously failed prototype. The ratio of this form seems better equipped to be a top rather than a tote bag.



106

Exploring potential bases of wearable collages.



107

Initial prototype for wearable collage. Showcases reversability of double-sided narratives.







110

Collage of complimentary colours.



111

Figure 107 and 108 lying on table.



112

Exploring the dimensional and interactive potential of pockets.

## CONCLUSION

I have collected up the routines that unravel with the progression of days, these seemingly insignificant events and 'things' create the narratives that have unfolded in my practice, they have become enmeshed as illustrations in the surface designs of my textiles.

Scale, form, and colours all contribute to the narrative and haptic interactions that activate my designs. Although this research is presented as intensely technical, the investigation of text, patterns, and forms was infused with an intuitive, creative process. My decision making was informed by collaging post-production artefacts on the table or wall, mixing them up and trying to make sense of the snippets of knitted memory, at times the samples looked more like a jigsaw puzzle than finished work. The juxtapositions of conscious and unconscious design thinking exemplified the contrast of mathematics in knitting machine design versus the abstraction and interpretation of memory.

Pallasmaa (2009) embraces the metaphorical mindscape, accepting the nonsensical iteration of failed prototypes. A realistic representation of my mindscape would be hard to recreate in a material form, however, through deconstructed forms such as a sketch or other textual forms, I attempted to capture its essence. The informality with which my practice manifests is intended to highlight the assembled nature of the experience of making in correspondence to a machine. This relational investigation invites vulnerability, it is important to me that the viewer enters the disenfranchised world of the machine knit and in return, I offer a new world, perhaps one that the viewer cannot readily make-sense-of, however, maybe everything does not need to make sense, some 'things' are nothing more than traces, tokens fastened from the everyday.



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113

*Television bib with interchangeable screens.*



114

*Television bib.*



115

*Dishwashing bib with interchangeable screens.*







118

*Laptop bib with interchangeable screens.*



119

*Building bib.*





121

*Levi Strauss bib.*

