Hands on

Portfolio of Practice

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December 2022

Reading Volume 2

This portfolio shows the design process of engagement with the design task Tabeer and the insights that were gathered as a result. The design process is shown chronologically from careful planning to a design and development phase. This portfolio presents the interpretation of the Tabeer pattern through traditional and digital weaving processes. The interpretation of the pattern design and craft processes produced experimental results that redefined the role of digital technology in my practice. A knowledge of material, processes and skills and practical experience of craft combined with a craft minded approach to making informed the design opportunities and decisions. Weaving is a method of production that is instinctive, responsive and reflective rather than carefully planned (Nimkulrat, 2016). The Portfolio begins by detailing the role of the weaver in this reflective-practitioner portfolio. The second chapter consists of design experiments that are broken down into six steps and annotated with practitioner reflections. The third chapter concludes the practitioners findings. The fourth chapter is a section titled ‘A weaver reflects’ and has four practitioner reflections during the year long research project that address my baked in biases and the change in perception.

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1: Introduction

1.1 Introduction

Wearing two hats, this practice-based action research combines the research project (thesis) with my craft practice as a weaving practitioner (Portfolio of Practice). The artefacts woven for this research are central in generating better understandings; they are tangible representations of the theory and act as comparators for interaction and interpretation.

The pattern from Tabeer was used as a starting point; drawn on a squared paper and then woven with paper, on a frame loom, dobby loom and a Jacquard loom to compare and contrast the possibilities and limitations. The steps of the portfolio research are demonstrated in Figure 1.

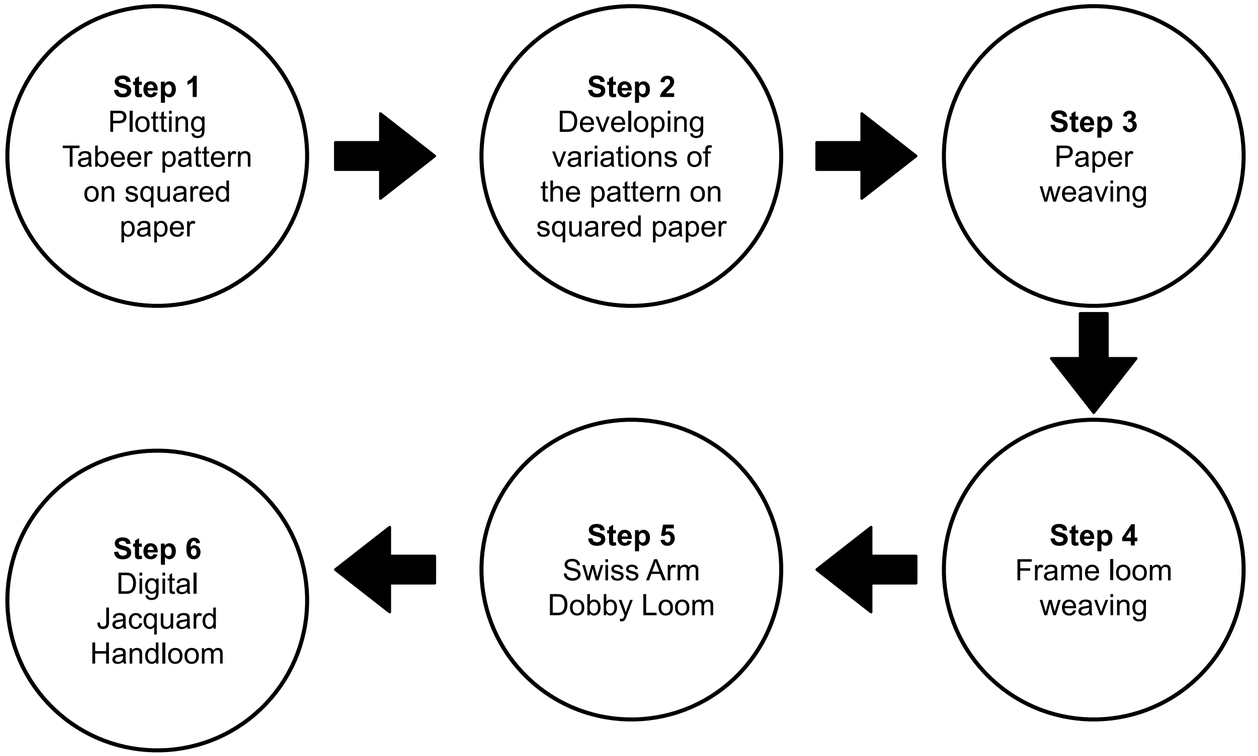


Figure 1: Steps (Author's own, 2022)

1.2 Role of the weaver

Weaving is a craft. Weaving is art. Weaving is my passion. Weaving is the craft of two interlacing yarns that makes a fabric. Weaving is the art of narrating the weaver's dreams, aspirations and thoughts into tangible textile form. I am a weaver. Putting my mind, body and soul into the rhythmic actions of weaving allows me to completely immerse myself in the moment of time. Combining the visual, tactile and functional aspect of weaving with the irregularities of the hand attracted me towards it. I weave silk scarves and wool rugs on a computerised 32 shaft loom. The technology aspect of the loom acts as an enabler; a facilitator that supports the weaving of complex patterns.

"There is a fluidity in the practice, design and art of woven textiles that enables textiles to fit easily with contemporary technology" (Dormer, 1997, page 168)

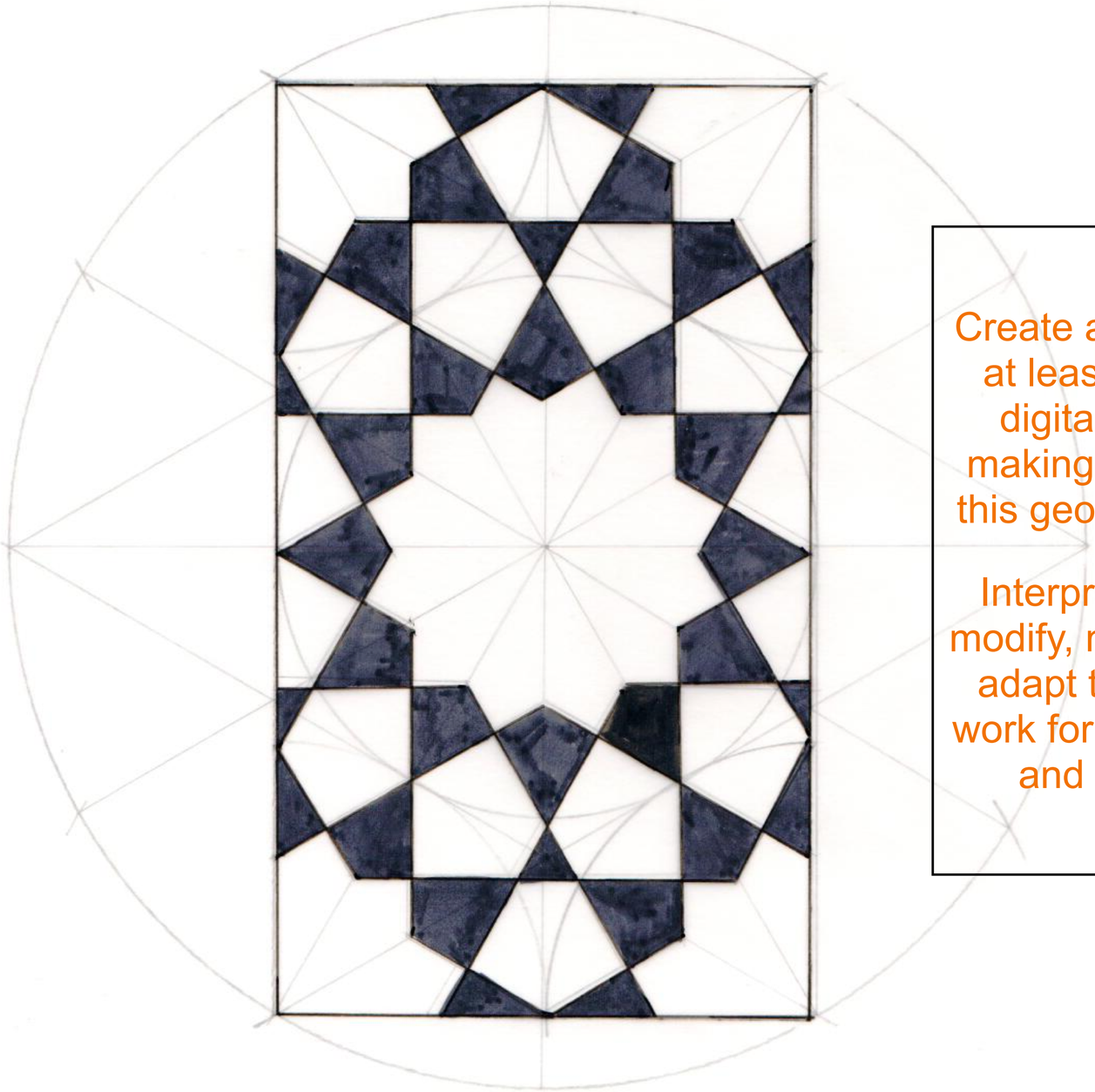
The connection between textiles and technology has been discussed extensively by craftspeople and scholars like Dormer (1997) and Nimkulrat (2016). This reflective practitioner Portfolio aims to investigate the role of digital technology in weaving on four looms and testing the possibilities offered by digital technology. The looms are not a production method, they are integral in the design experimentation and innovation. The woven samples become knowledge artefacts for this research.



Figure 2: Mariam Syed (Photo Courtesy: Tom Barr, 2020)

1.3 Tabeer

The initial response to the Tabeer pattern was to transform it into blocks or squares that can be plotted onto a squared paper. Two variations of the squared paper pattern were designed. The graph paper design can be woven in paper to test the durability of the pattern.



Create an object using at least one form of digital technology making methods with this geometric pattern.

Interpret, elaborate, modify, manipulate and adapt this pattern to work for your materials and processes.

Figure 3: Tabeer Design kit (Author's own, 2022)

1.4 The pattern interpreted and drawn on squared paper

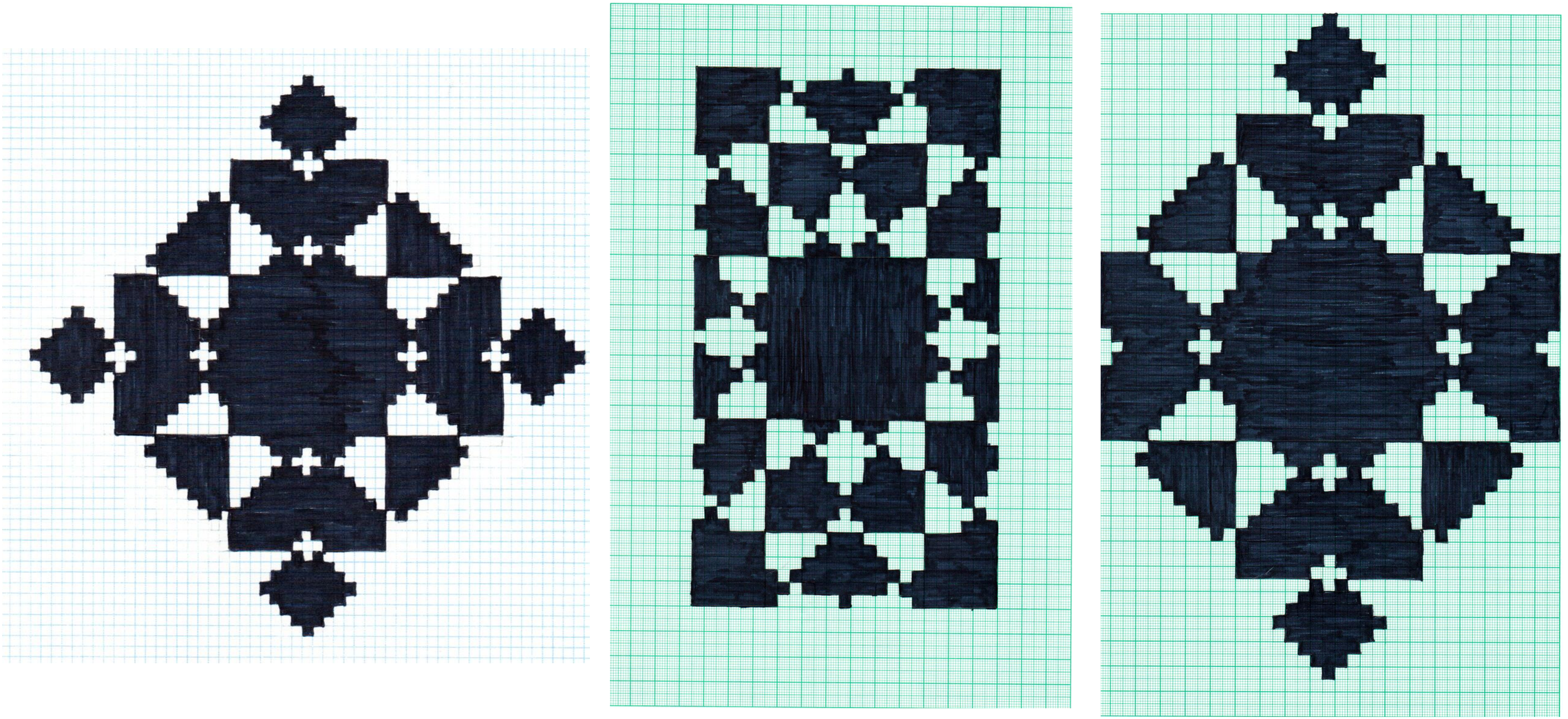


Figure 4: Tabeer interpreted on squared paper

2: Paper Weave

2.1 Paper weave to test pattern

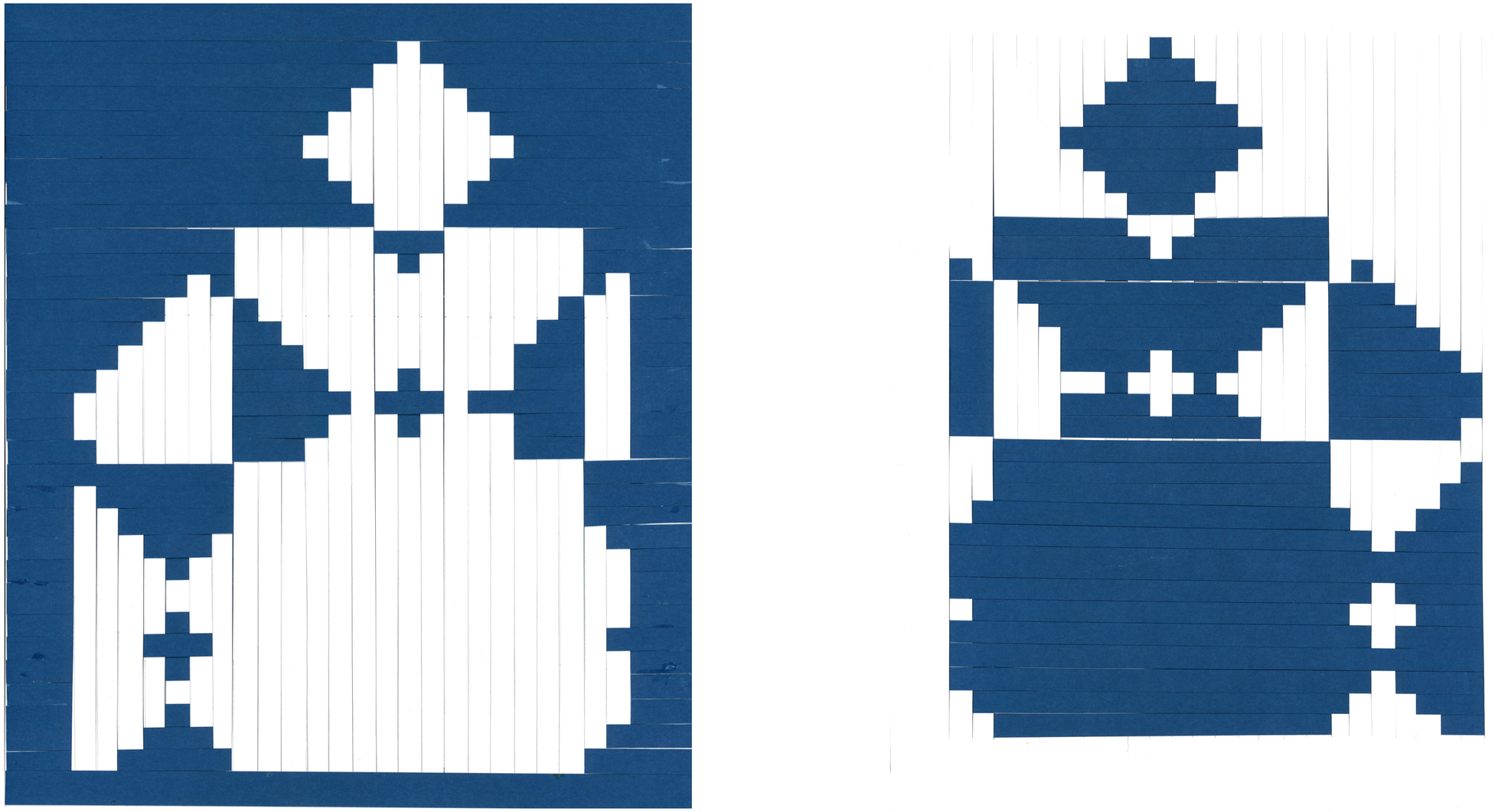


Figure 5: Front and back of the paper weave

3: Frame Loom

Frame loom weaving

Weaving on the frame loom did not go as planned. The pattern was not visible even though two different thicknesses of yarns were used and the weave construction was loose meaning the woven sample was not strong. The reason for this is the gap between the warp yarns which makes the weft yarn floats bigger distorting the pattern. I was able to comprehend the issue of the large floats because of the tacit knowledge I posses (Volume 1, 2.4).





Figure 6: Front and back of the frame loom (Author's own, 2022)

4: Swiss Arm Loom

4.1 Swiss Arm Loom

Swiss Arm looms are Dobby looms with an interface to a computer. A digital file of the weaving pattern made on weaving software Pointcare is sent to the loom and the mechanised interface lifts the shafts accordingly. The shafts are the frames that hold the warp yarns. A shaft is a simple frame, like the frame loom, but with heddles of Texsolv nylon strings suspended between the two horizontal bars.The heddles have an eye in the middle through which the way yarns are threaded according to the weaving draft. The shafts rise sequentially (according to the peg plan) to allow the weft to pass. The interlacement of the warp and weft creates the pattern. Pointcare allows me to see the results of my ideas on screen. While I have to manually set up the loom, just by clicking onto Pointcare the Swiss Arm loom comes to life. I wove a total of 7 samples on the Swiss Arm Loom that are displayed in the next few sections. The digital design is placed next to the woven sample to give an idea of the capabilities of Pointcare in predicting what the final design wold look like. The weft speculations are provided in a table on the page as well.

Swiss Arm Loom	Warp Yarn	Ends per inch	Reed	Total no. of yarns
	2/12 Cotton	30	15	288

Figure 7: Swiss Arm Loom warp details (Author's own, 2022)



Figure 8: Swiss Arm Loom (Author's own, 2022)

4.2 Preparing the Swiss Arm Loom



Warping



Stretching the warp



Brushing the warp

Figure 9: Preparing the warp (Author's own, 2022)

The preparation of the loom is a slow manual process; its about carefully planning the properties and characteristics of materials, the warp-weft tension and setting the loom. It took me ten hours from warping to dressing the loom.



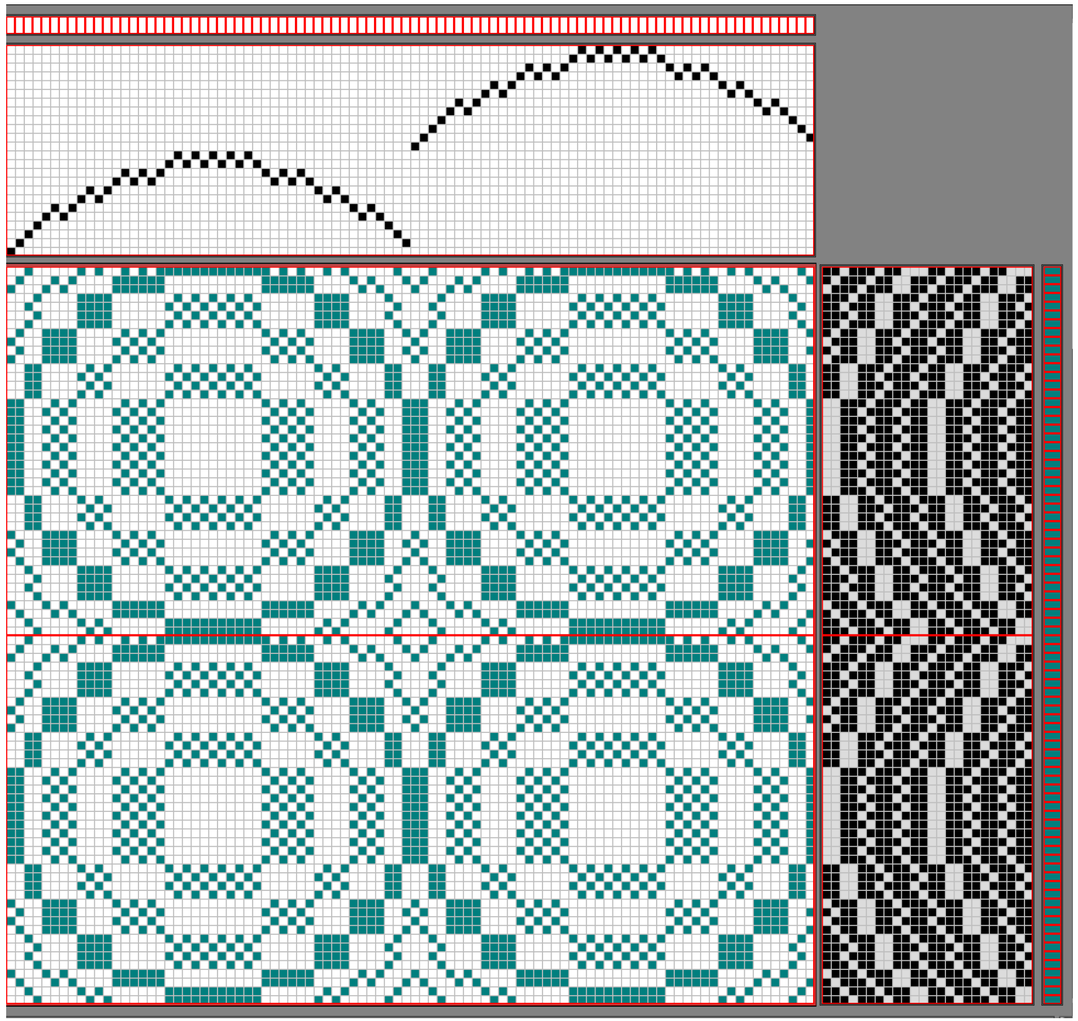
Heddling, Threading the warp yarns through the heddles according to the draft pattern.



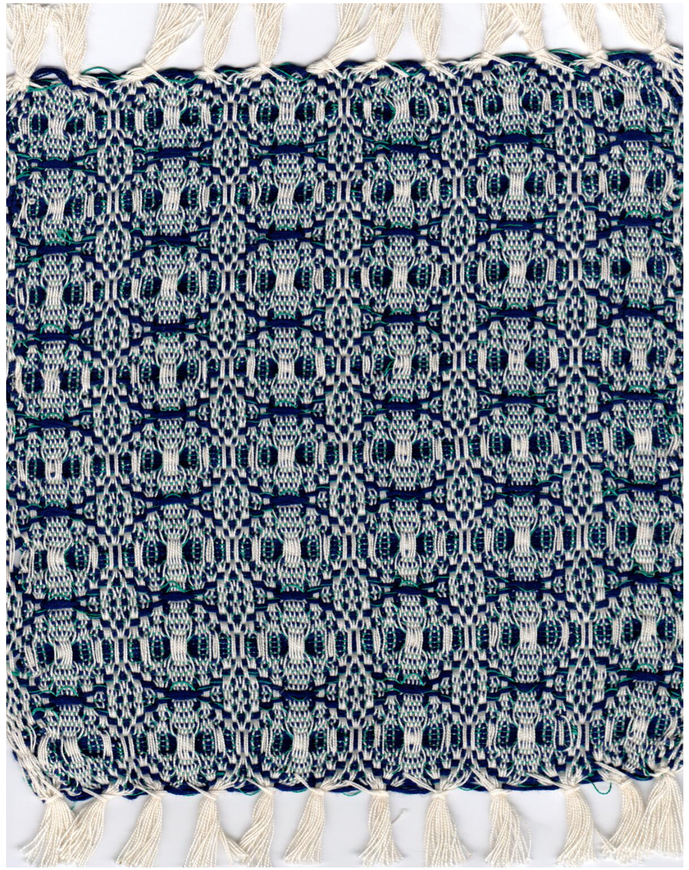
Reeding, Pulling 2 warp yarns through each dent in the reed as the pattern has 30 ends per inch and the reed has 15 dents in one inch.

Figure 10: Dressing the Loom (Author's own, 2022)

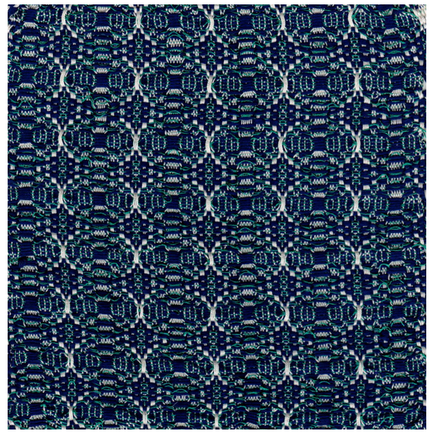
4.3 Overshot Pattern



Overshot digital design



Front



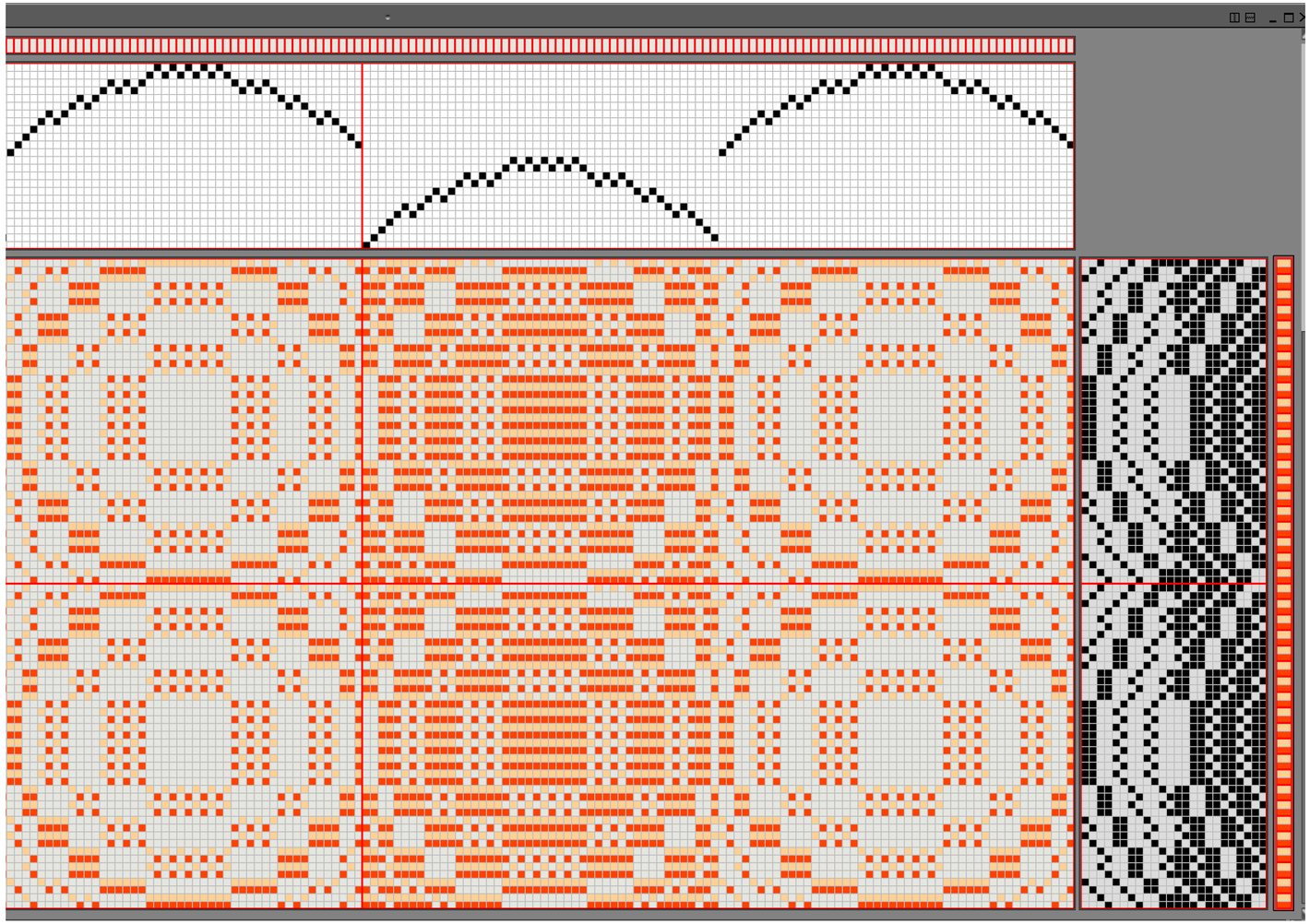
Back

Overshot Pattern	Yarn swatch	Yarn	Colour
Weft 1		Rayon thread	Sea green
Weft 2		2.5 ne Bamboo	Navy 806

Figure 11: Overshot Pattern, weft specs and woven samples (Author's own, 2022)

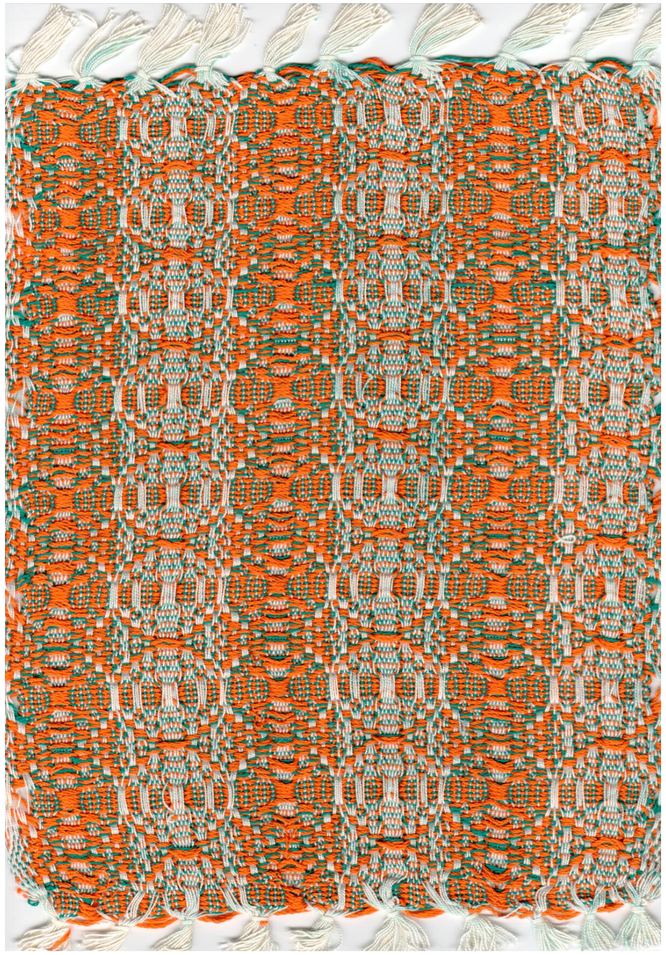


4.4 Pattern variation 1: Line



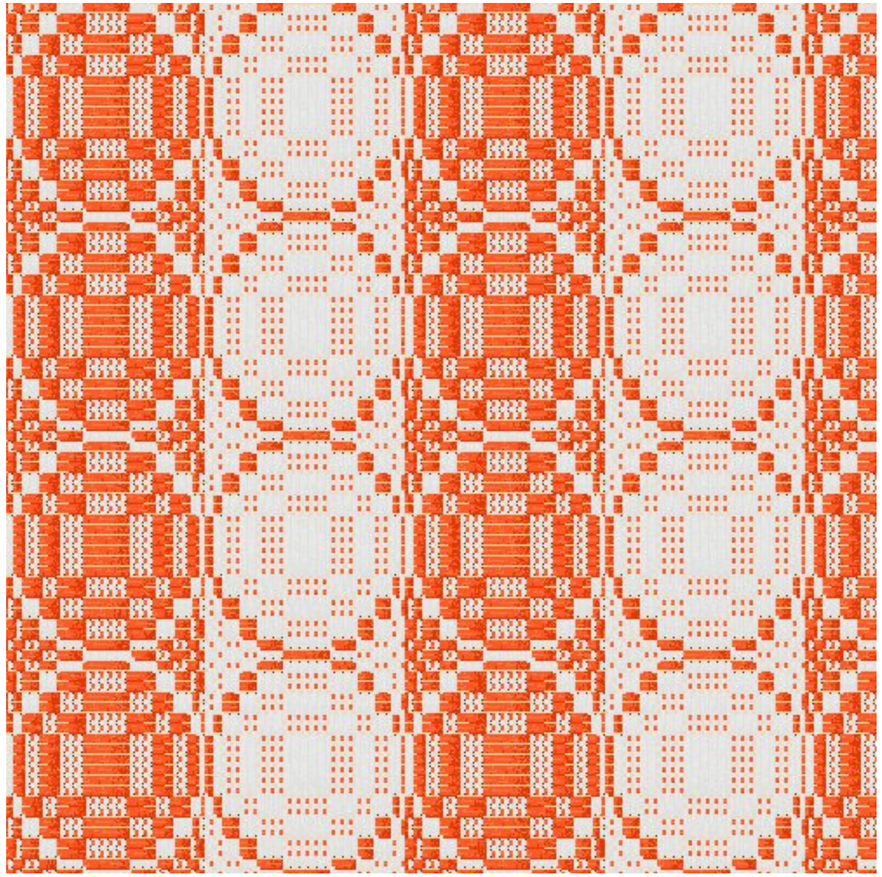
Line digital design

Figure 12: Line, weft specs and woven samples (Author's own, 2022)



The front and back of this variation is the same.

Line	Yarn Swatch	Yarn	Colour
Weft 1		30/2 nm silk	Blue green 45572
Weft 2		3x2/16 ne cotton	Orange 1268



Cloth simulation in Pointcarre

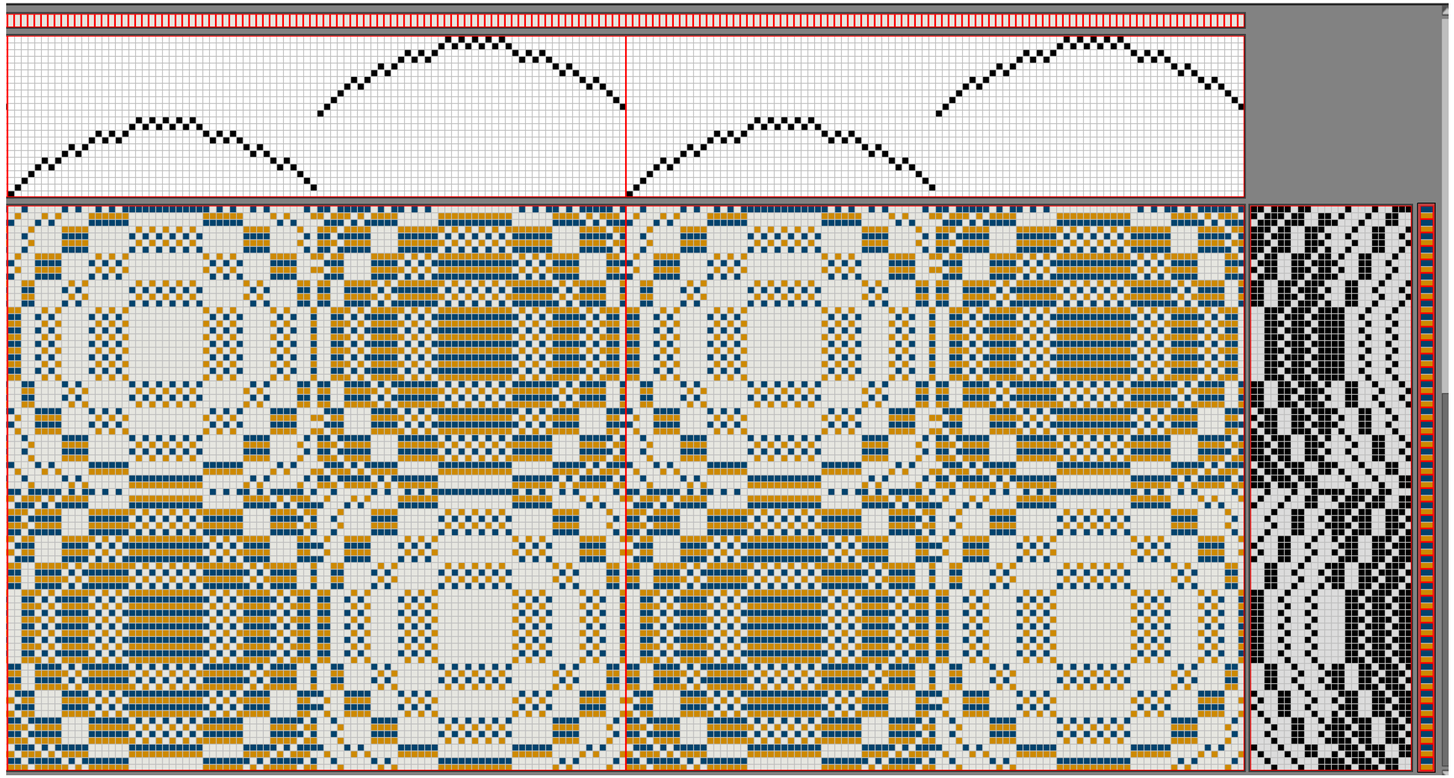


Physical sample of the pattern

The cloth simulation of the pattern was quite accurate. By looking at the virtual fabric, I was able to check the weft floats on the fabric and to decide which yarns to use for my physical technical sampling.
However this simulation is not always helpful as I experienced in the Hopscotch variation of my pattern.

Figure 13: Digital simulation and physical cloth (Author's own, 2022)

4.5 Pattern variation 2: Hopscotch



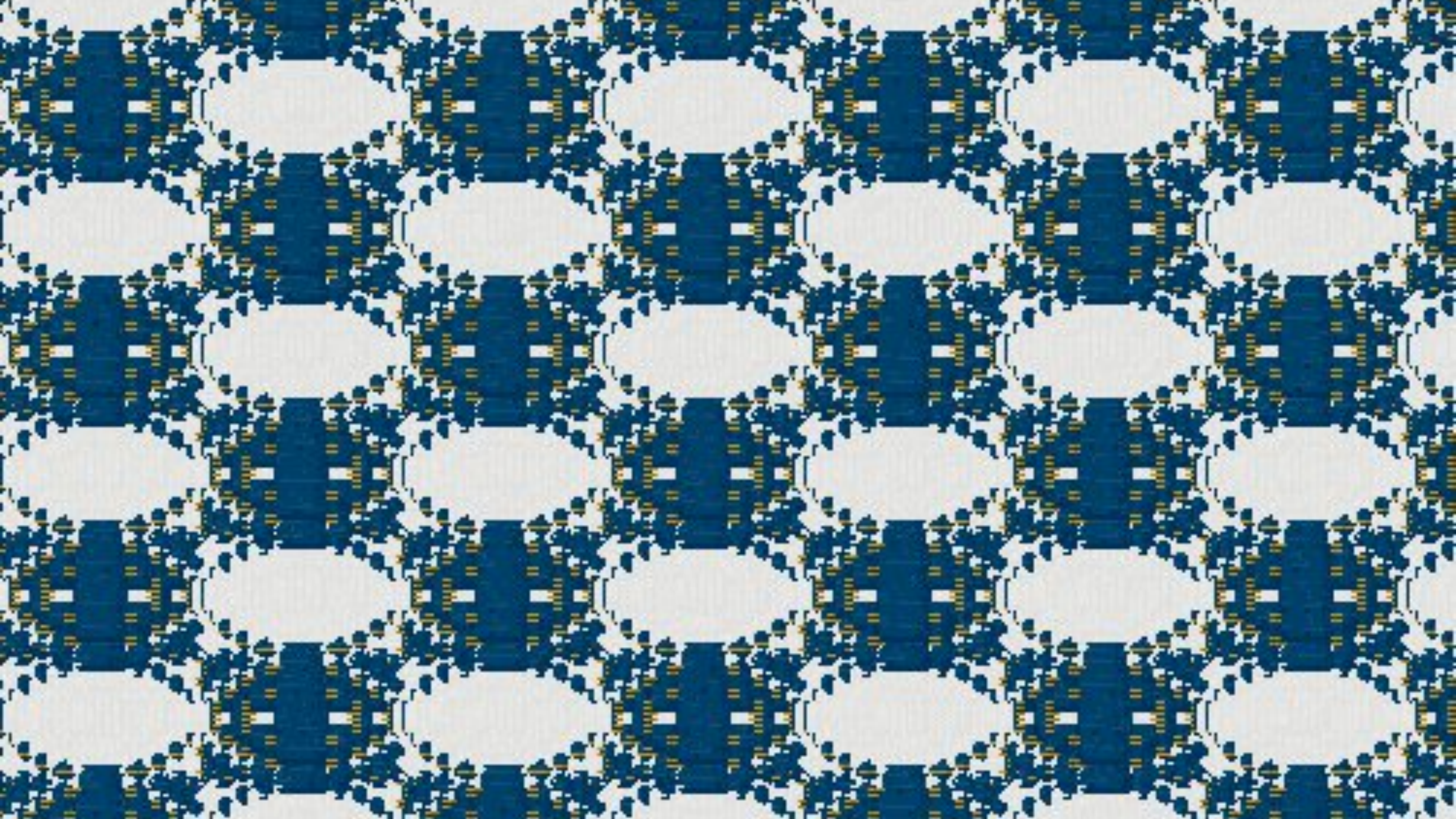
Hopscotch digital design



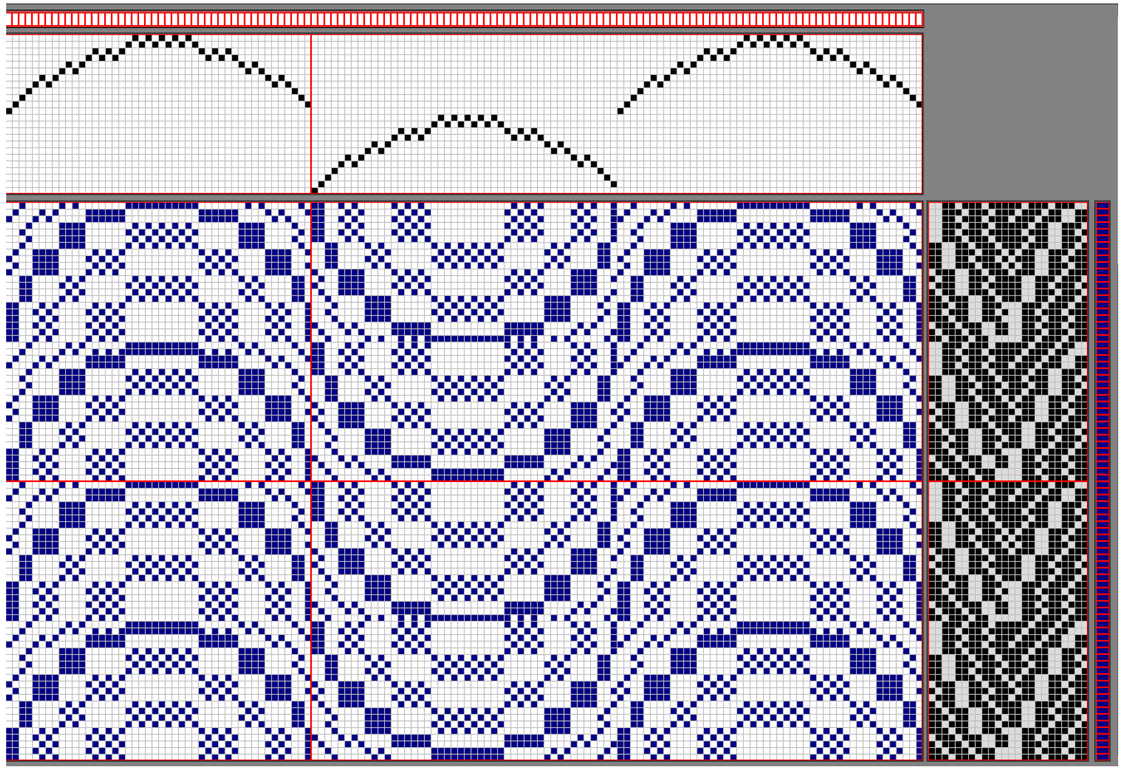
The front and back of this variation is the same.

Figure 14: Hopscotch, weft specs and woven samples (Author's own, 2022)

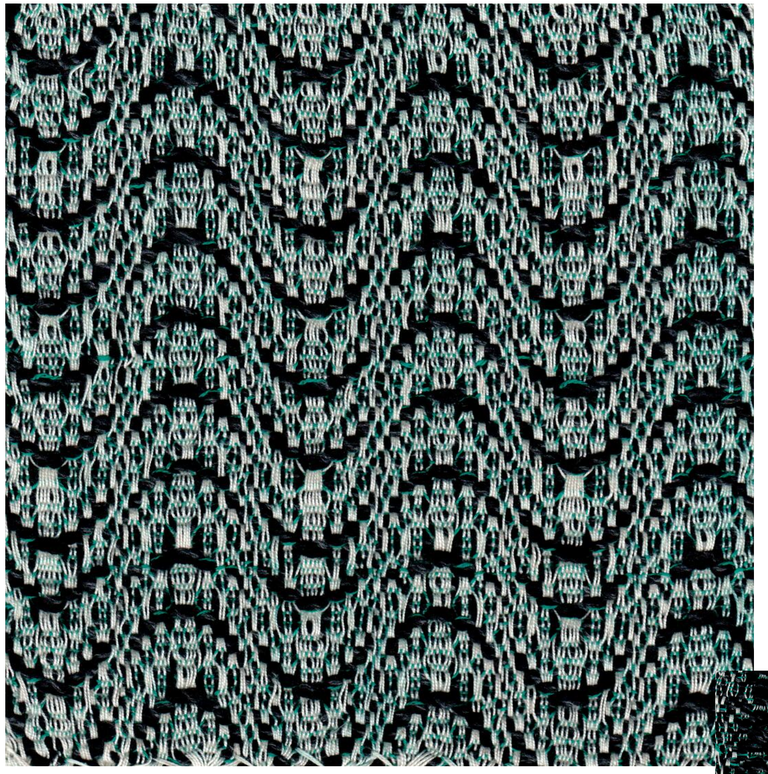
Hopscotch	Yarn swatch	Yarn	Colour
Weft 1		Silk Bart Francis	Brown
Weft 2		2.5 ne Bamboo	Navy 806



4.6 Pattern variation 3: Waves



Waves digital design



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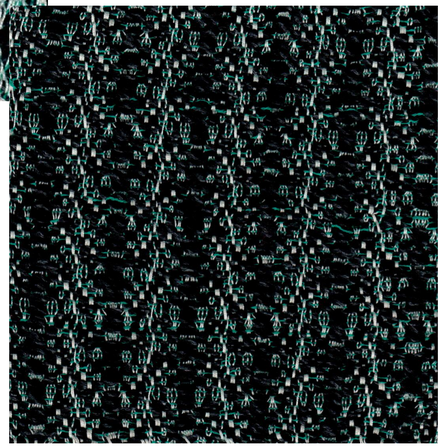
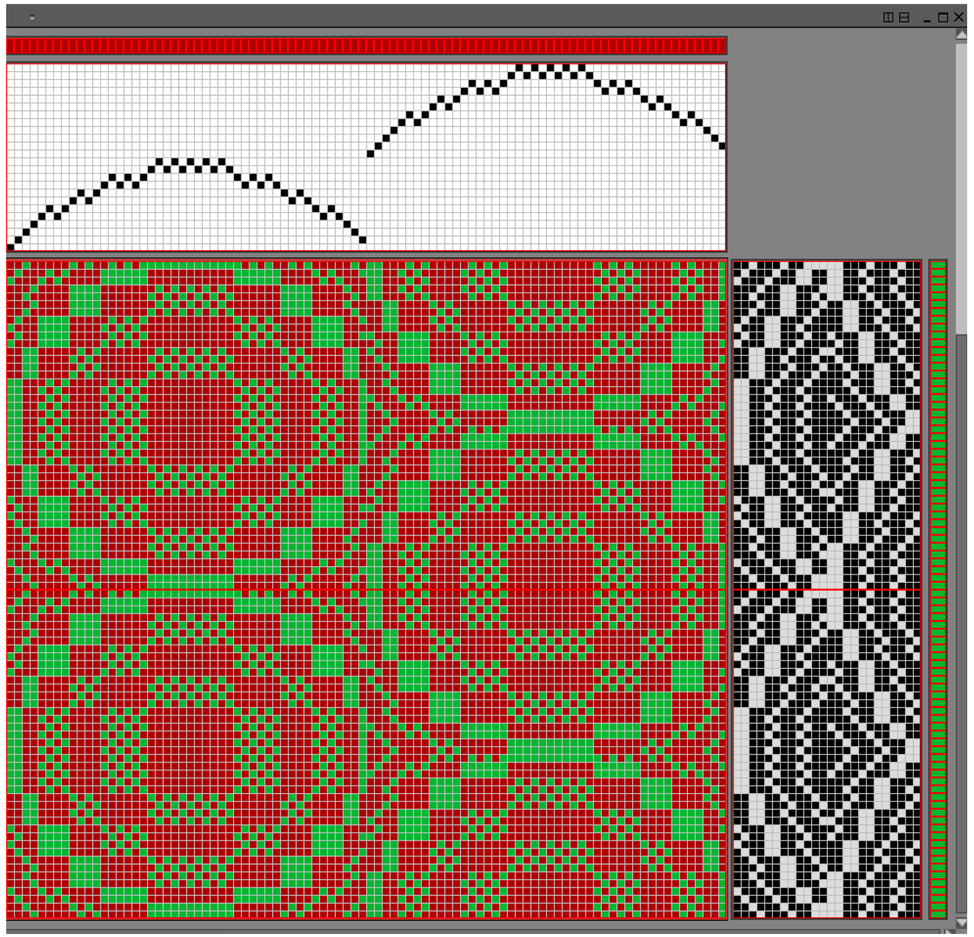


Back

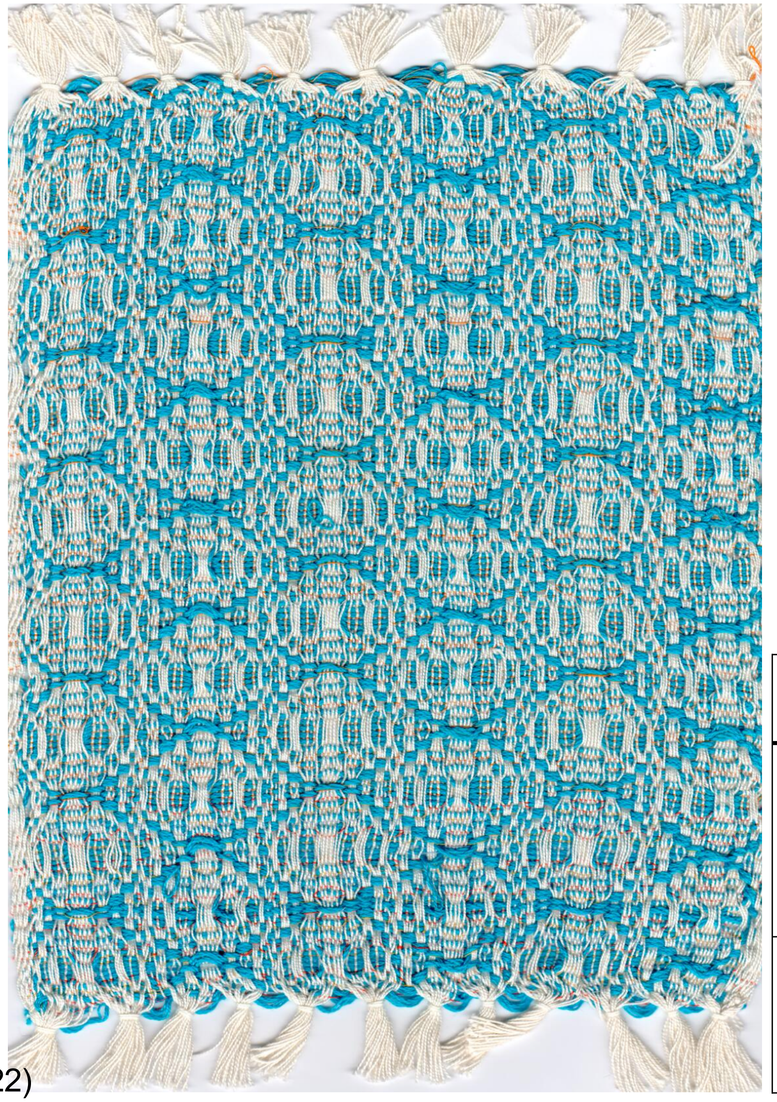
Figure 15: Waves, weft specs and woven samples (Author's own, 2022)

Waves	Yarn Swatch	Yarn	Colour
Weft 1		30/2 nm silk	Blue green 45572
Weft 2		12/28 Nm 100% Cashmere	Coal marl

4.7 Pattern variation 4: Half drop



Half drop digital design



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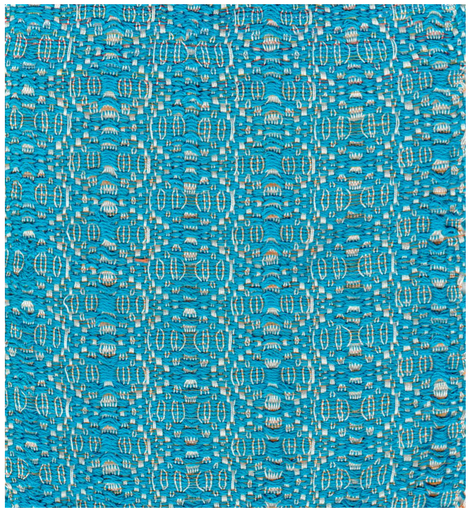

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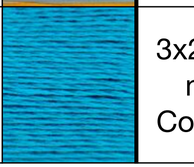
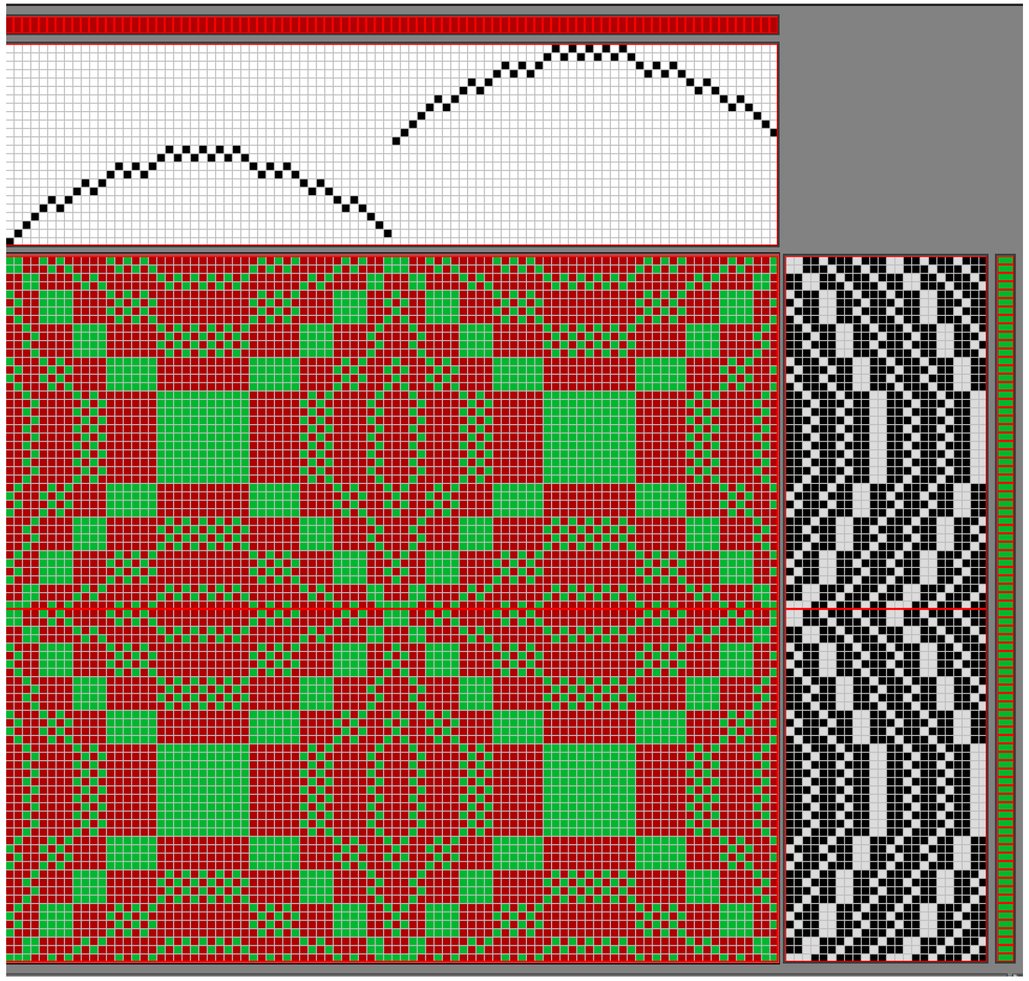
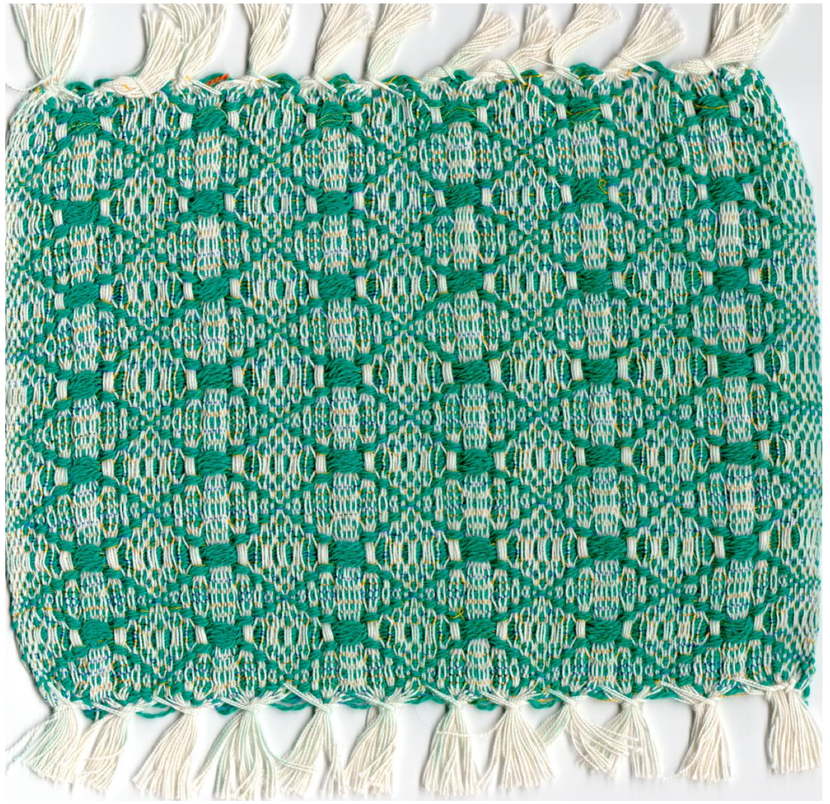
Half drop	Yarn swatch	Yarn	Colour
Weft 1		100% Viscose Rayon (Madeira)	2142
Weft 2		3x2/16 ne Cotton	New Turquoise 1225

Figure 16: Half drop, weft specs and woven samples (Author's own, 2022)

4.8 Pattern variation 5: Clover



Clover digital design



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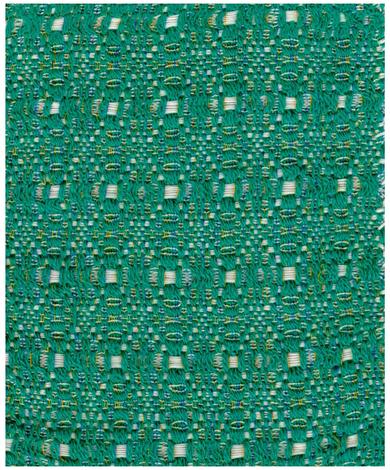


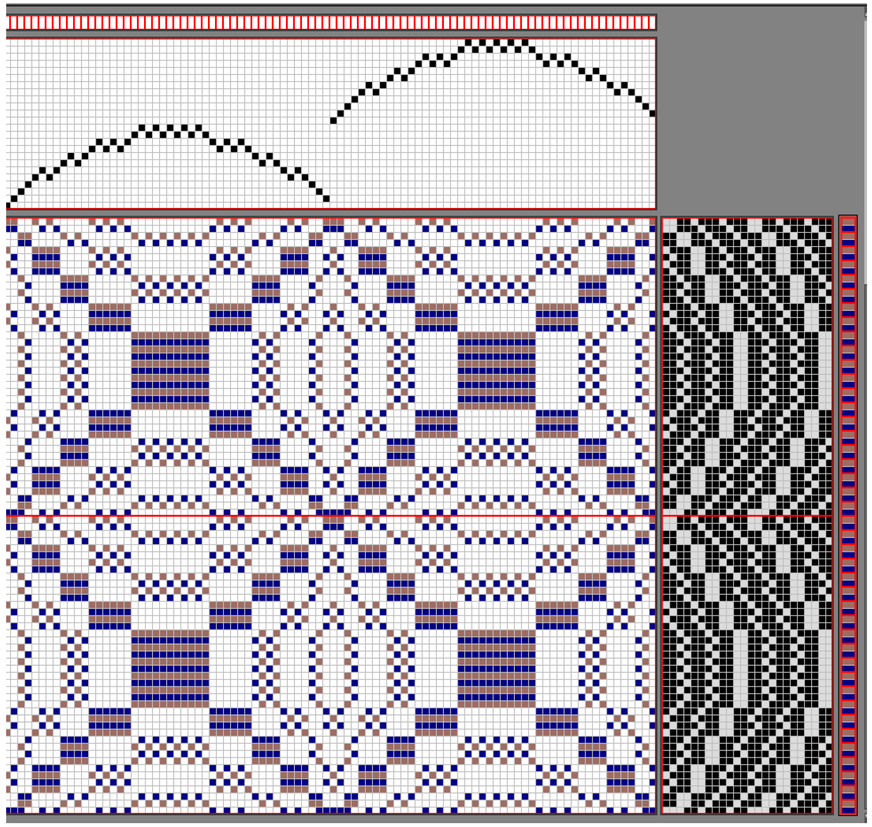
Back

Figure 17: Clover, weft specs and woven samples (Author's own, 2022)

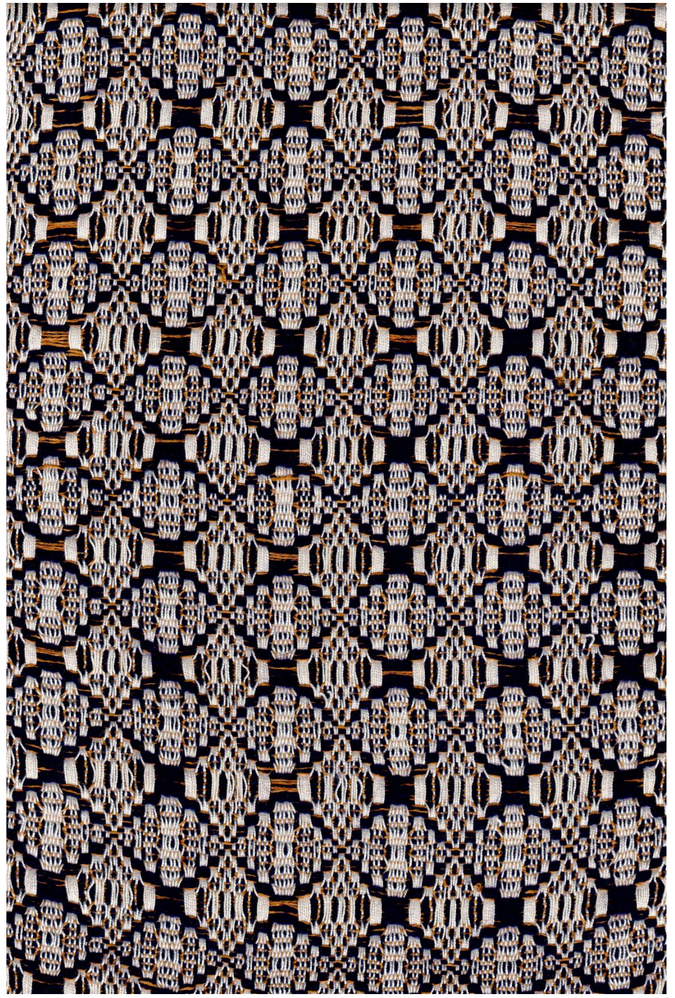
Clover	Yarn swatch	Yarn	Colour
Weft 1		100% Viscose Rayon (Madeira)	2146
Weft 2		2/8 Unmercerised Cotton	Kingfisher 533



4.9 Pattern variation 5: Clover in Navy



Clover (Navy) Digital design



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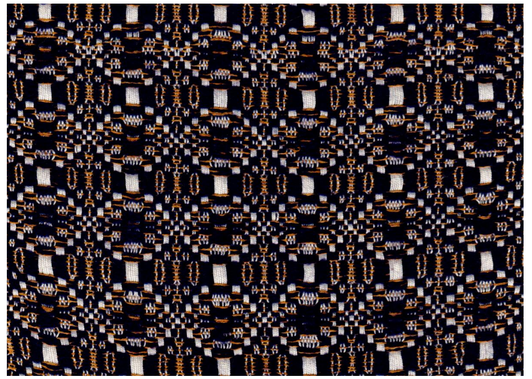
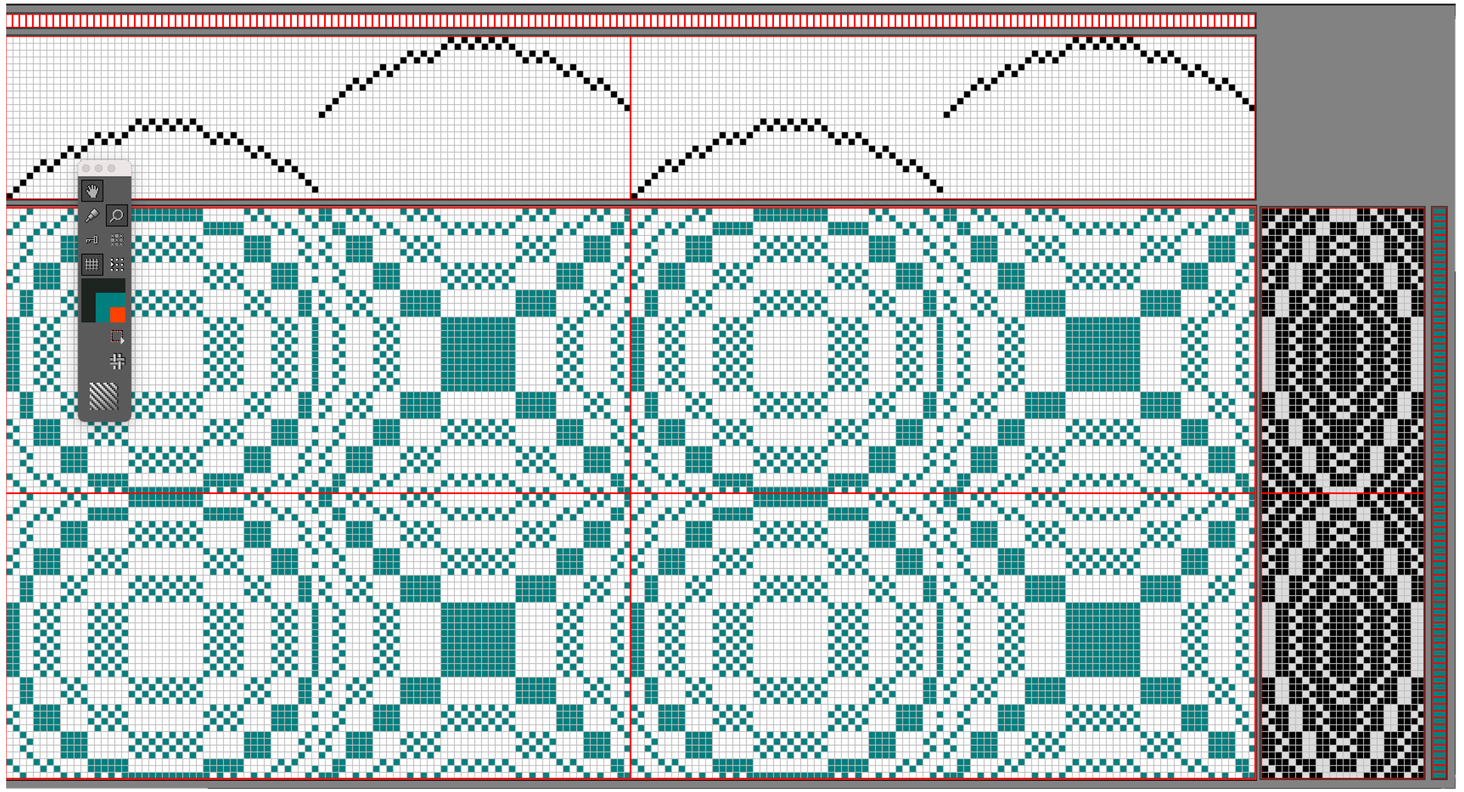


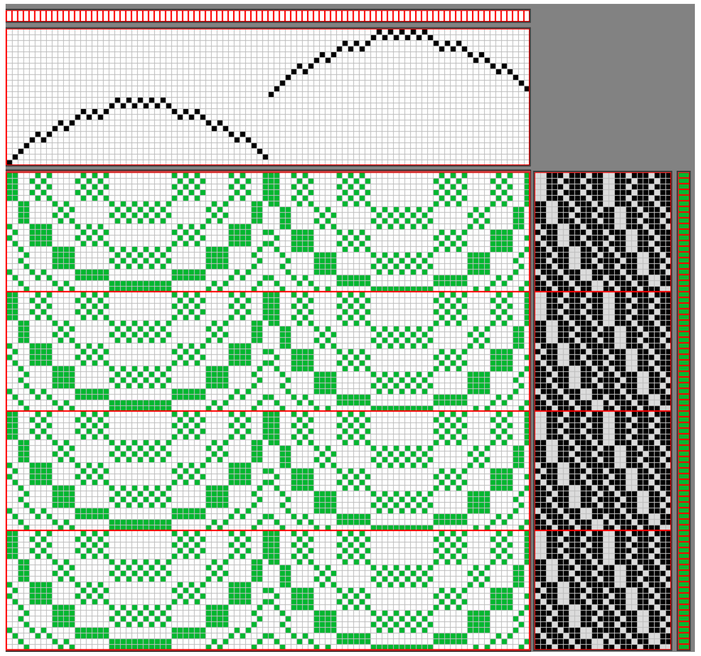
Back

Clover in navy	Yarn swatch	Yarn	Colour
Weft 1		Silk Bart Francis	Brown
Weft 2		Wool (Recycled Yarn- Specs Unknown)	Navy

Figure 18: Clover in Navy, weft specs and woven samples (Author's own, 2022)

4.10 More digital variations of the pattern





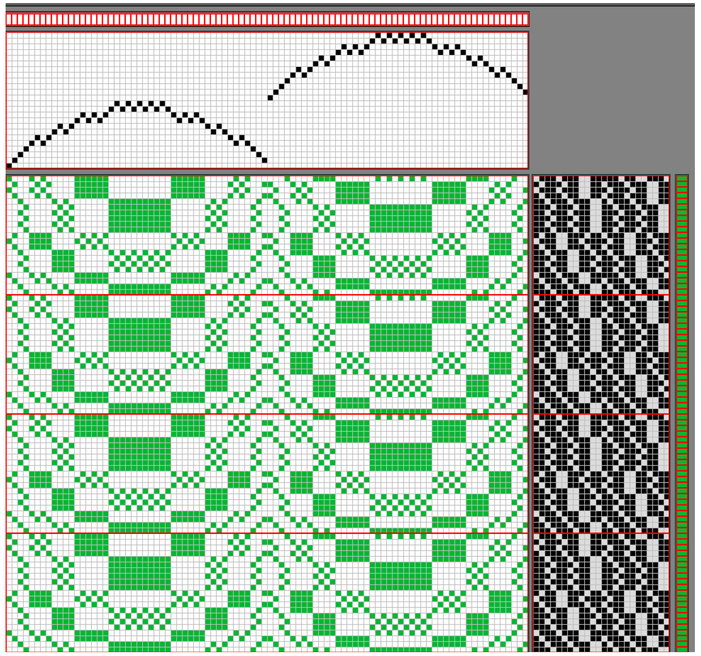


Figure 19: Explorations (Author's own, 2022)

These are some design possibilities explored on Pointcarre that could not be physically woven due to time constraints.

4.11 Emerging insights from weaving on the Swiss Arm loom

The digital Pointcarre software enabled me to experiment with the peg plan and develop variations of the pattern resulting in six more technical samples, much like CorelDraw in Talaash (Volume 1, 4.3) .

This experimentation of the pattern would have been possible without the support of the software but would have taken time, effort and resources. In this aspect, digital technology is a more sustainable solution to weaving.

I always felt in control of the process (Volume 1, 4.6) . My tacit knowledge and material sensibilities empowered me to take informed decisions like choosing a thicker yarn for weft 2 and a finer yarn for weft 1 in order to bring out the pattern. The embodied knowledge and expertise I brought to the design task allowed me to take charge of digital technology proving Dormer's theory (Volume 1, 2.4)



Figure 20: Weaving on the Swiss Arm Loom (Author's own, 2022)

5 Digital Jacquard Handloom

5.1 The Digital Jacquard handloom

The Jacquard loom enables the weaving of patterns with a large or no repeat; allowing a freedom of expression that is not bound by technical restrictions. The warp ends can be lifted independently from each other and are controlled by a computer. It allows the weaver to control the process fully as there are no limitations of shafts or treadles making even figurative and organic shapes possible.

After uploading the Tabeer pattern onto the Pointcarre software, I began by cleaning the image to remove marks made by the hand. The two colours of the pattern were each assigned a weave structure. I experimented with different weave structures to see which ones would work best and wove 8 samples in total. For design 7 and 8, I deliberately left the marks from the original drawing of the Tabeer pattern as I wanted it to retain the human mistakes of my hand drawing.

The width of the Jacquard handloom allowed me to weave two samples simultaneously reducing time.

Loom number	Warp Yarn	Ends per inch	Reed	Total no. of yarns
TC-2	40/2 Polyester	75	15/5	2200

Jacquard Warp details



Figure 21: Digital Jacquard Loom (Author's own, 2022)

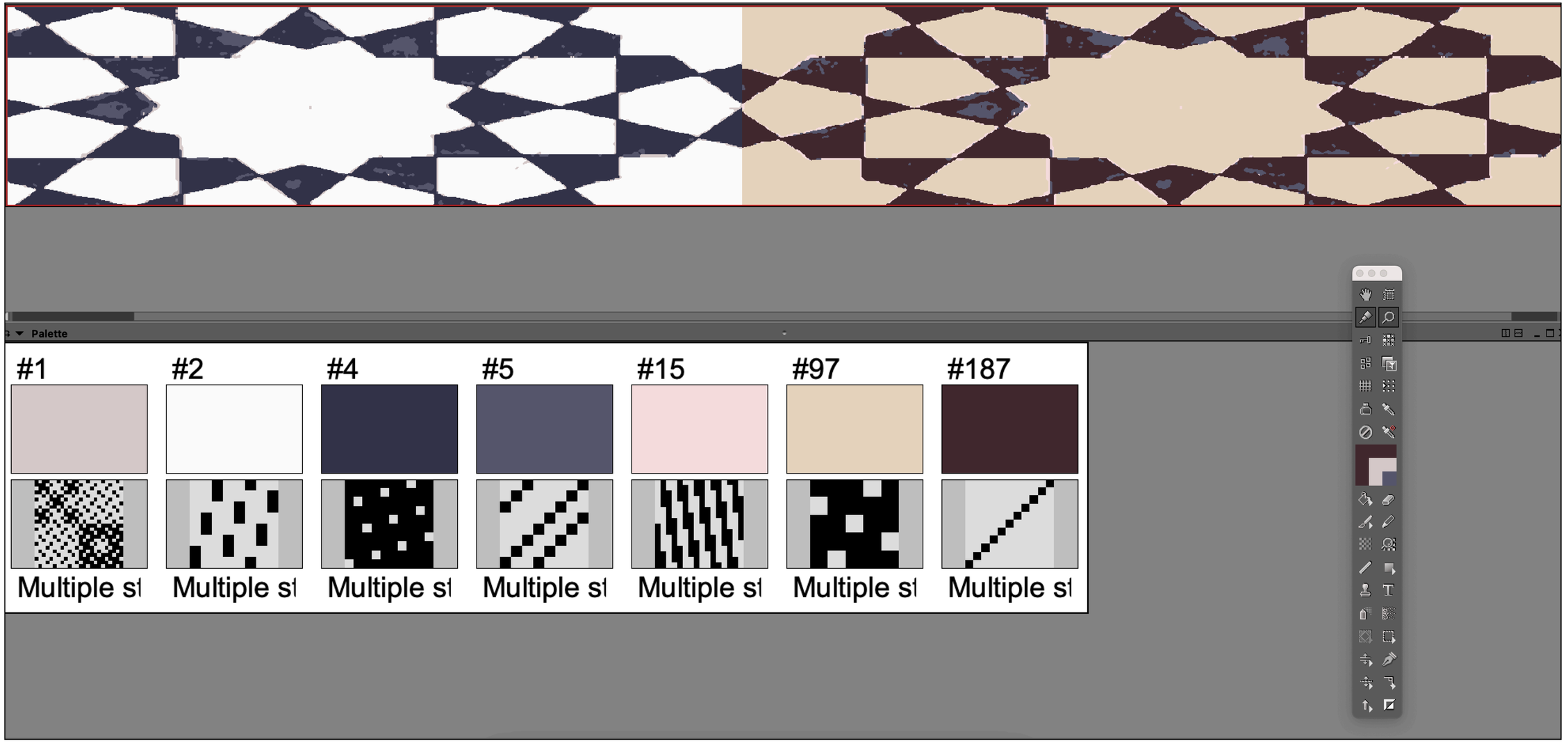
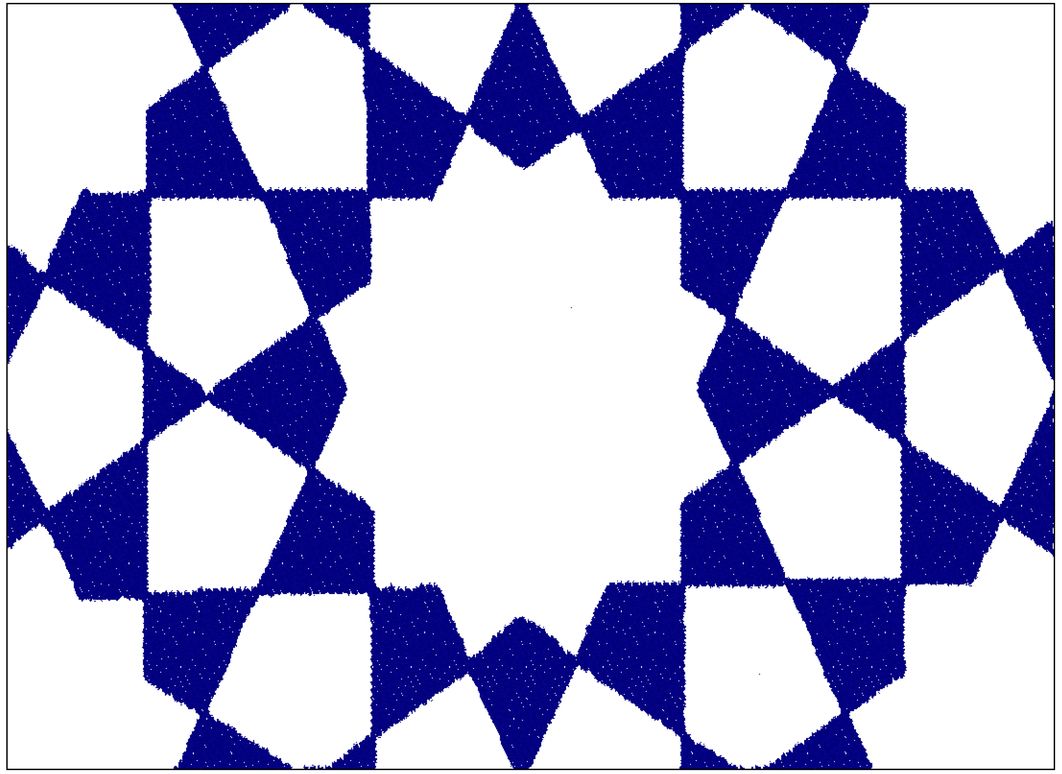
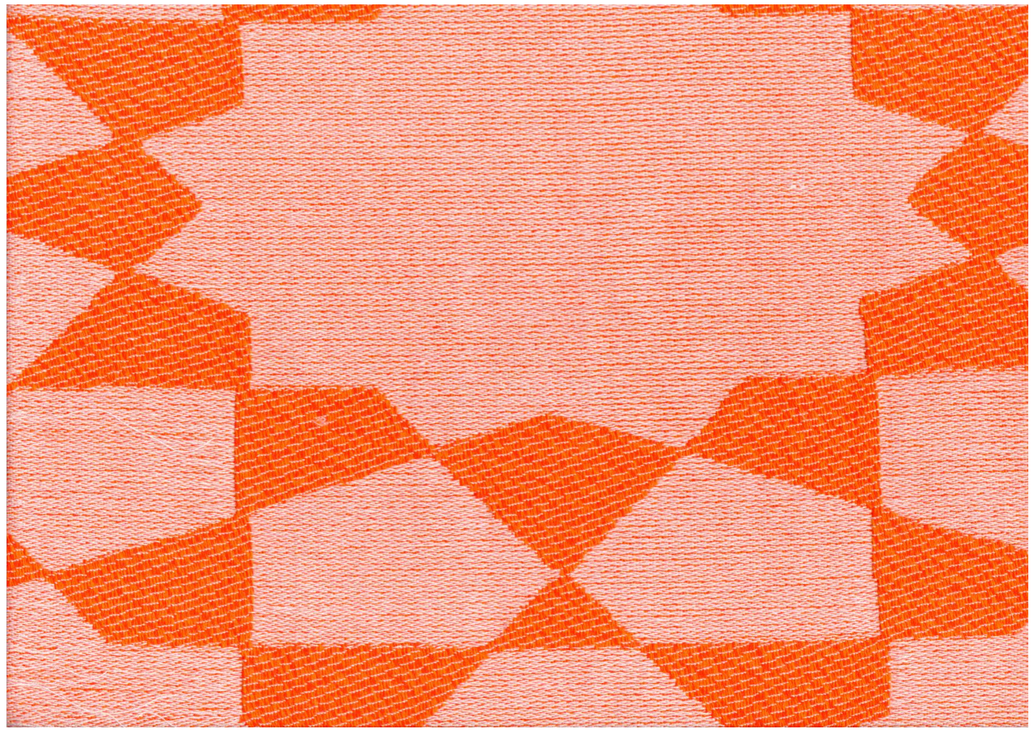


Figure 22: Choosing weave structures for the pattern in Pointcarre (Author's own, 2022)

5.2 Jacquard design 1



Digital cloth simulation of weave structures in Pointcare of design 1



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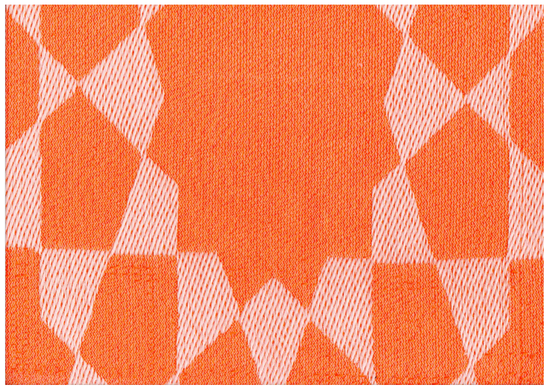

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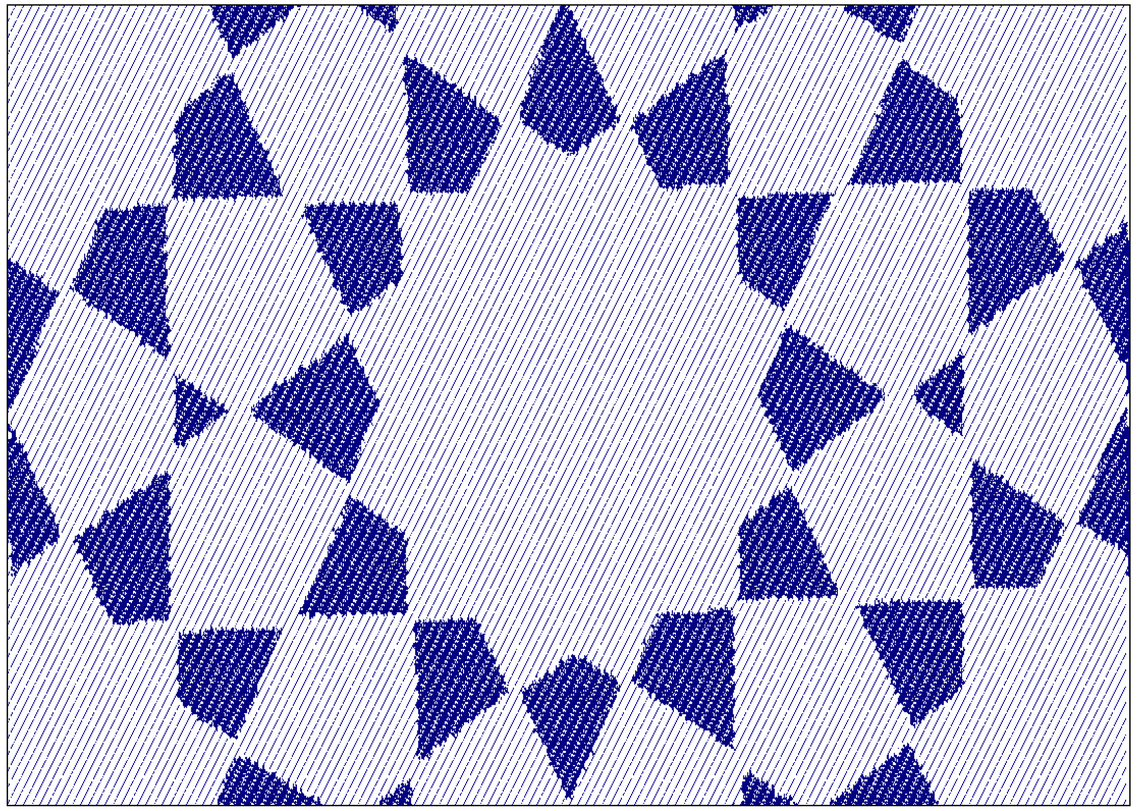
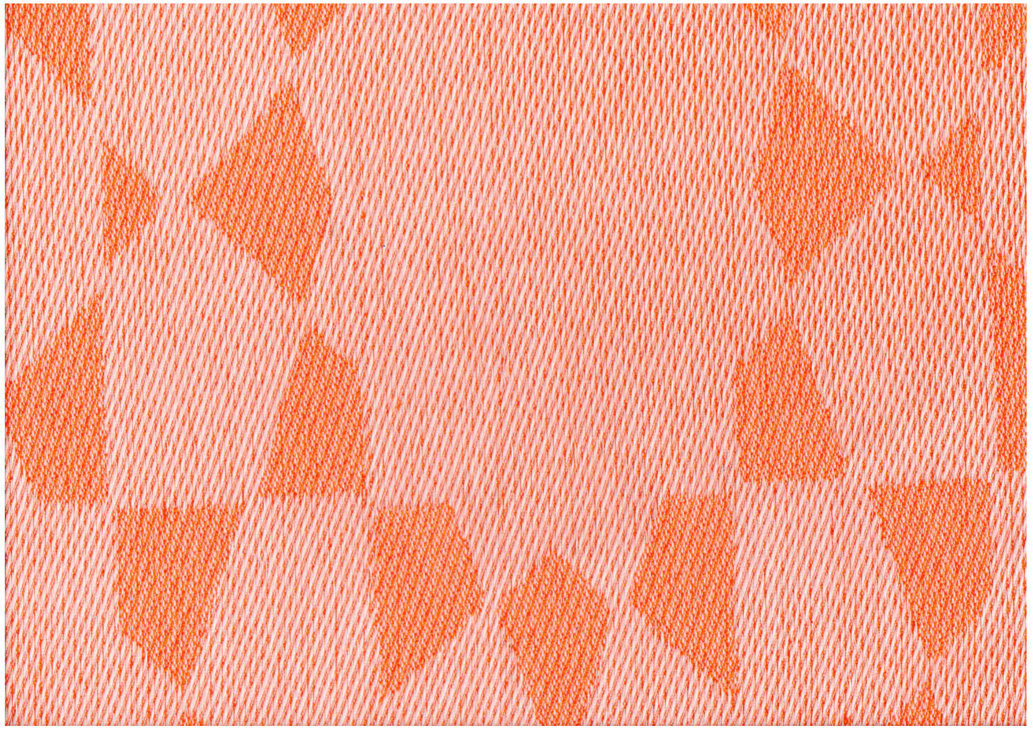
Figure 23: Jacquard Design 1 (Author's own, 2022)

Design 1	Yarn Swatch	Yarn	Colour
Weft		1/9.3 Nm Arran Light	New orange

5.3 Jacquard design 2



Digital cloth simulation of weave structures in Pointcare of design 2



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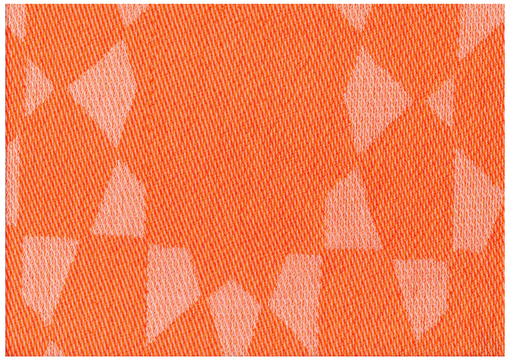

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Figure 24: Jacquard Design 2 (Author's own, 2022)

Design 2	Yarn Swatch	Yarn	Colour
Weft		1/9.3 Nm Arran Light	New orange


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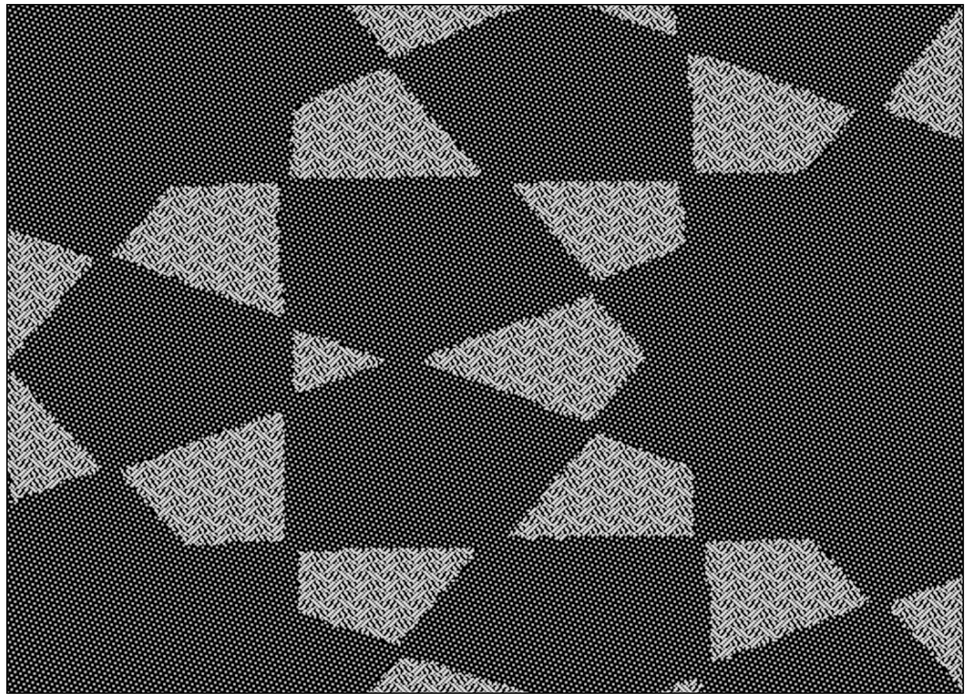
5.4 Jacquard design 3



Digital cloth simulation of weave structures in Pointcare of design

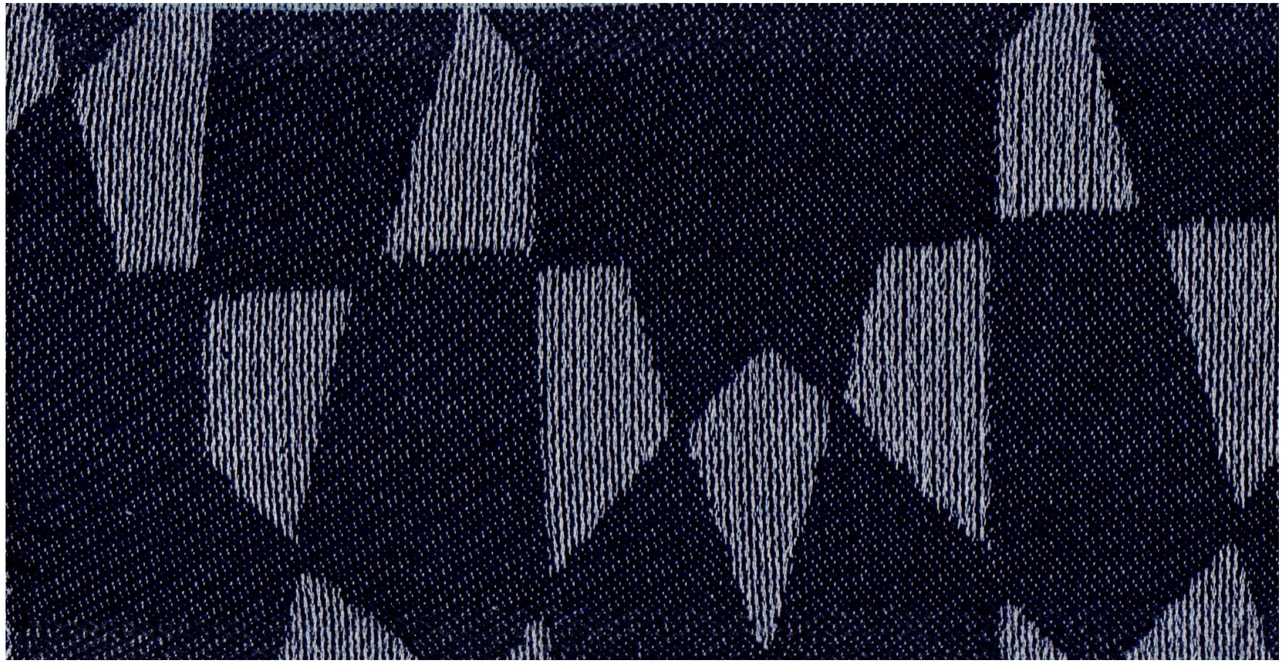


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Figure 25: Jacquard Design 3 (Author's own, 2022)

Design 4	Yarn Swatch	Yarn	Colour
Weft		Wool (Recycled Yarn-Specs Unknown)	Navy



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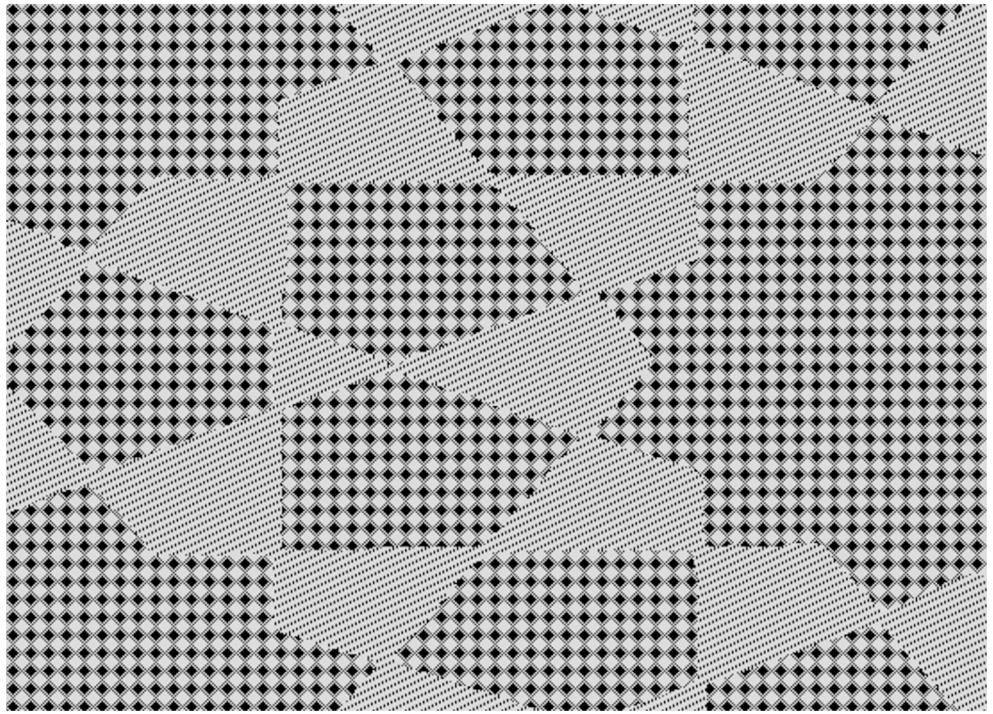
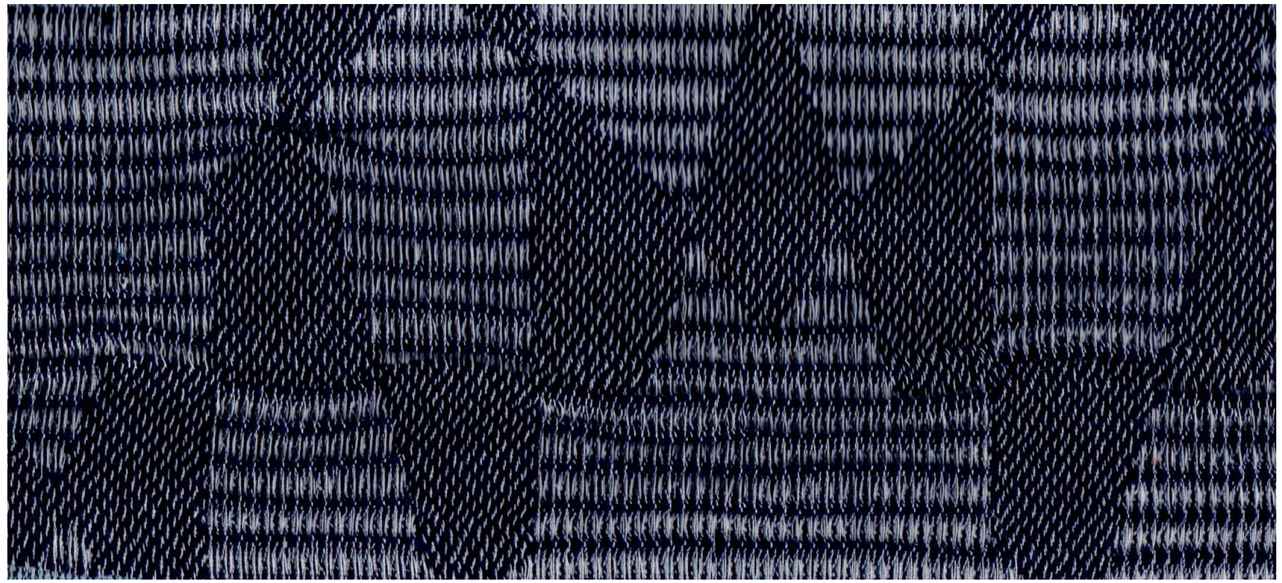
5.5 Jacquard design 4



Digital cloth simulation of weave structures in Pointcare of design 4



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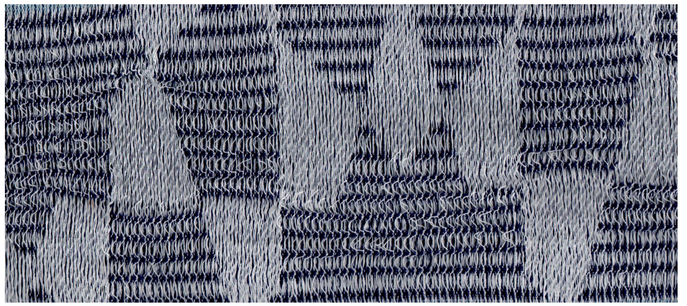

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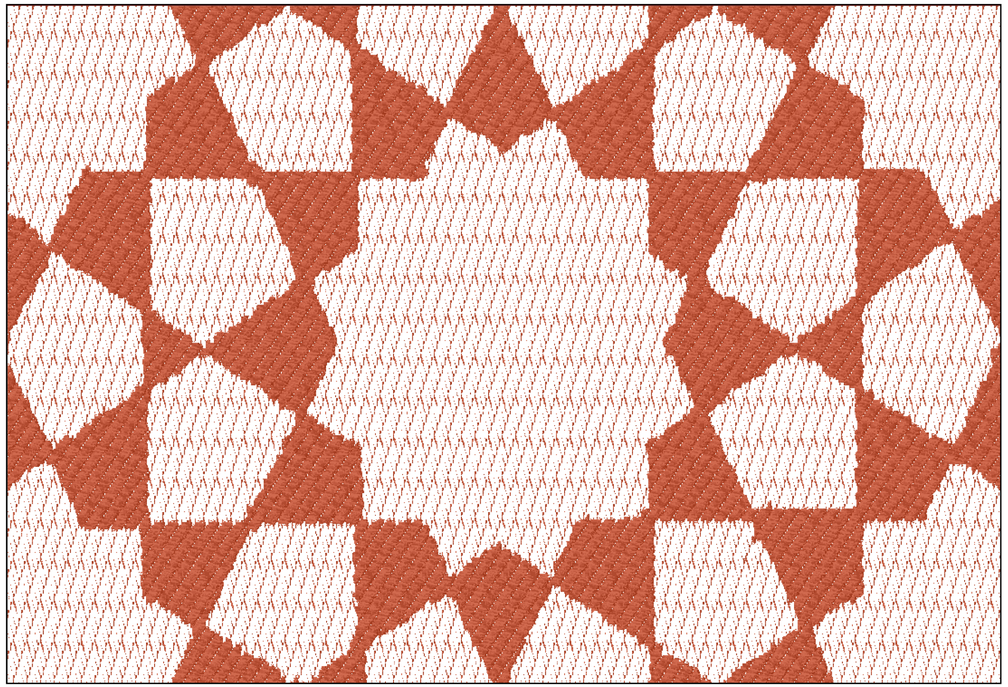
Figure 26: Jacquard Design 4 (Author's own, 2022)

Design 4	Yarn Swatch	Yarn	Colour
Weft		Wool (Recycled Yarn-Specs Unknown)	Navy

5.6 Jacquard design 5



Digital cloth simulation of weave structures in Pointcare of design 5

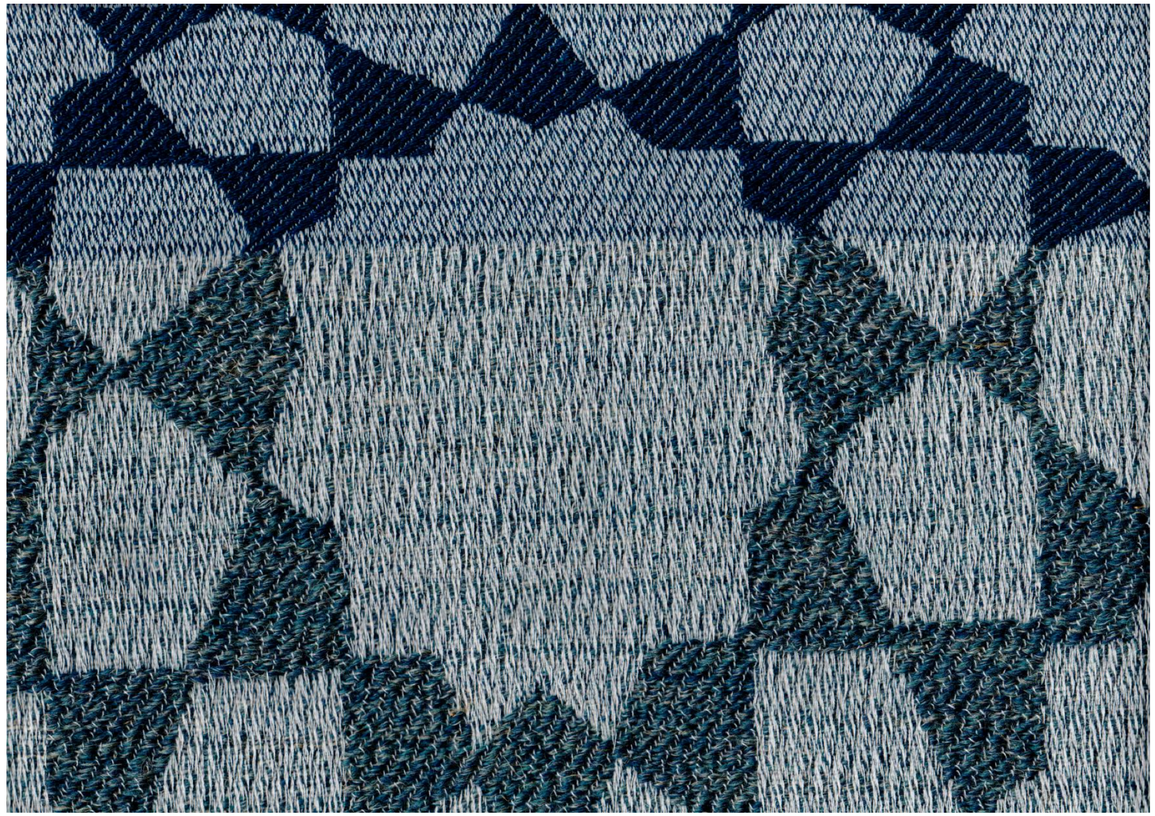


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Figure 27: Jacquard Design 5 (Author's own, 2022)

For this experiment, after pick 155, I changed the weft yarn from a thick textural mixed wool to a finer cashmere wool yarn to investigate how the weave structures would react. The pattern shortened in length and the weave structures were more visible with the finer yarn.

Design 5		Yarn	Colour
Weft 1 (1-155)		67% Wool 29% Linen & 4% Polyester	Cartagena
Weft 2 (156-250)		2/28 Nm 100% Cashmere fair Isle	SA01-744775



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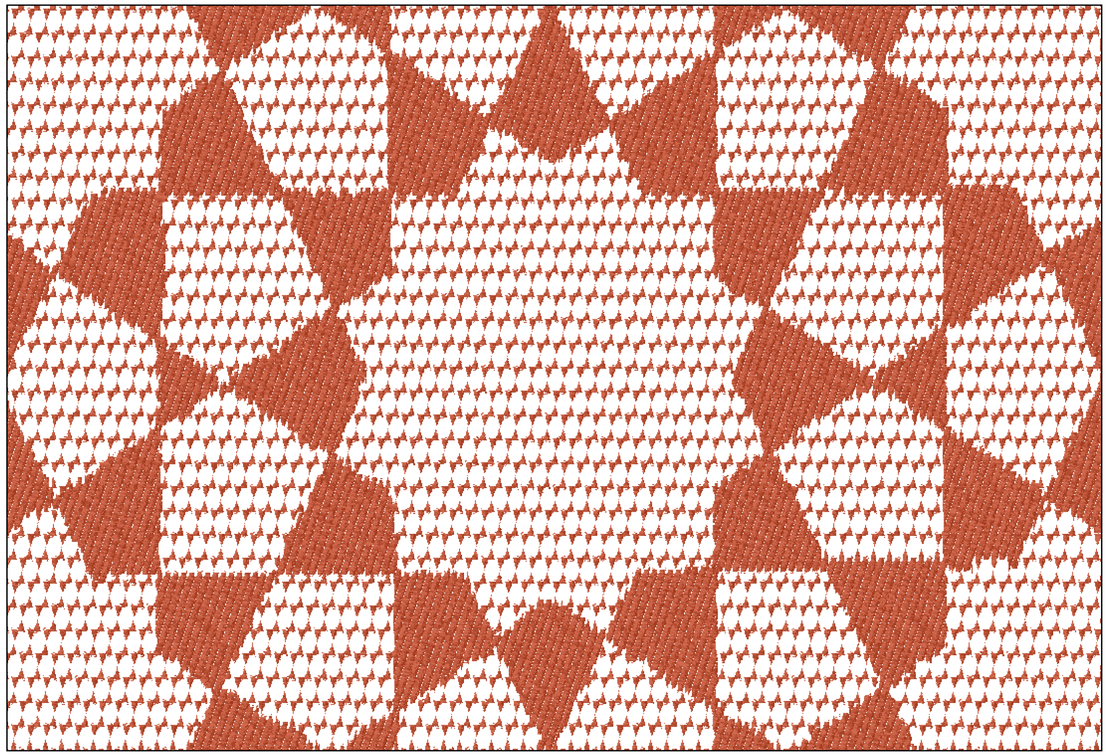
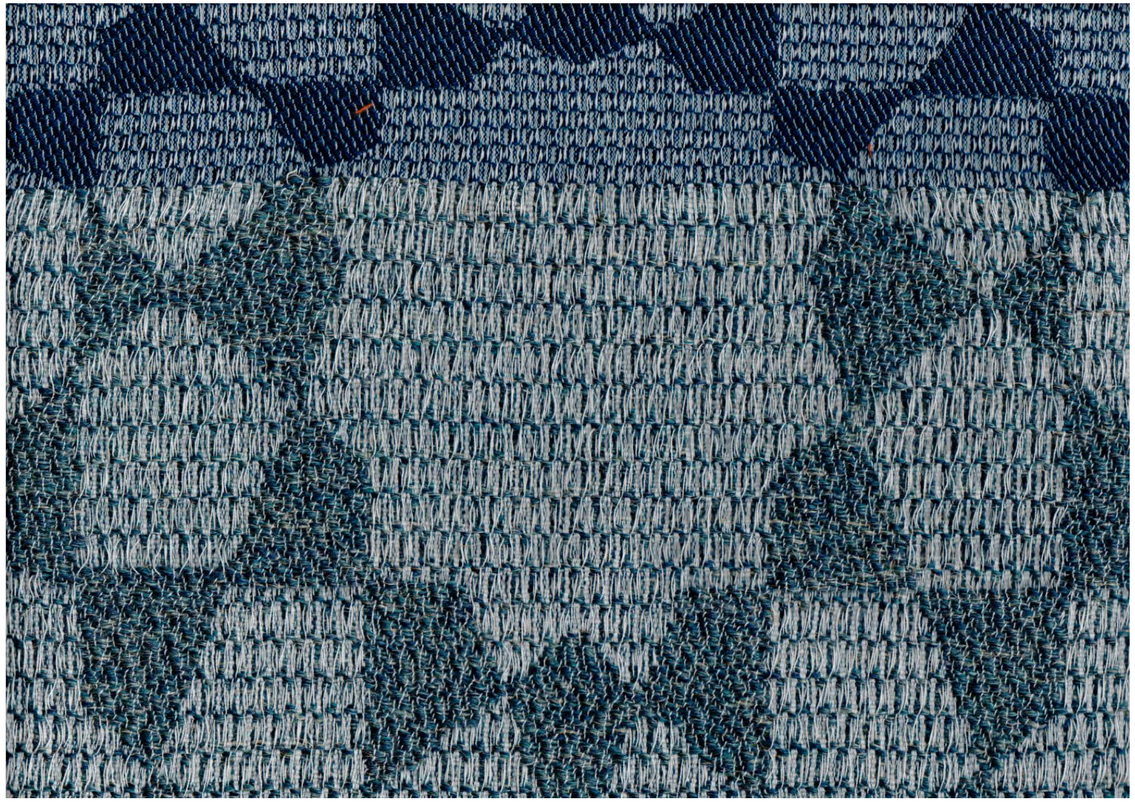
5.7 Jacquard design 6



Digital cloth simulation of weave structures in Pointcare of design 6



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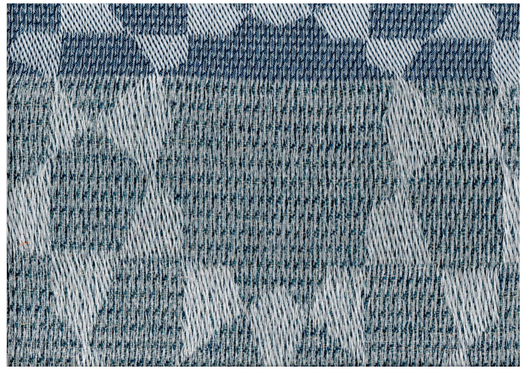

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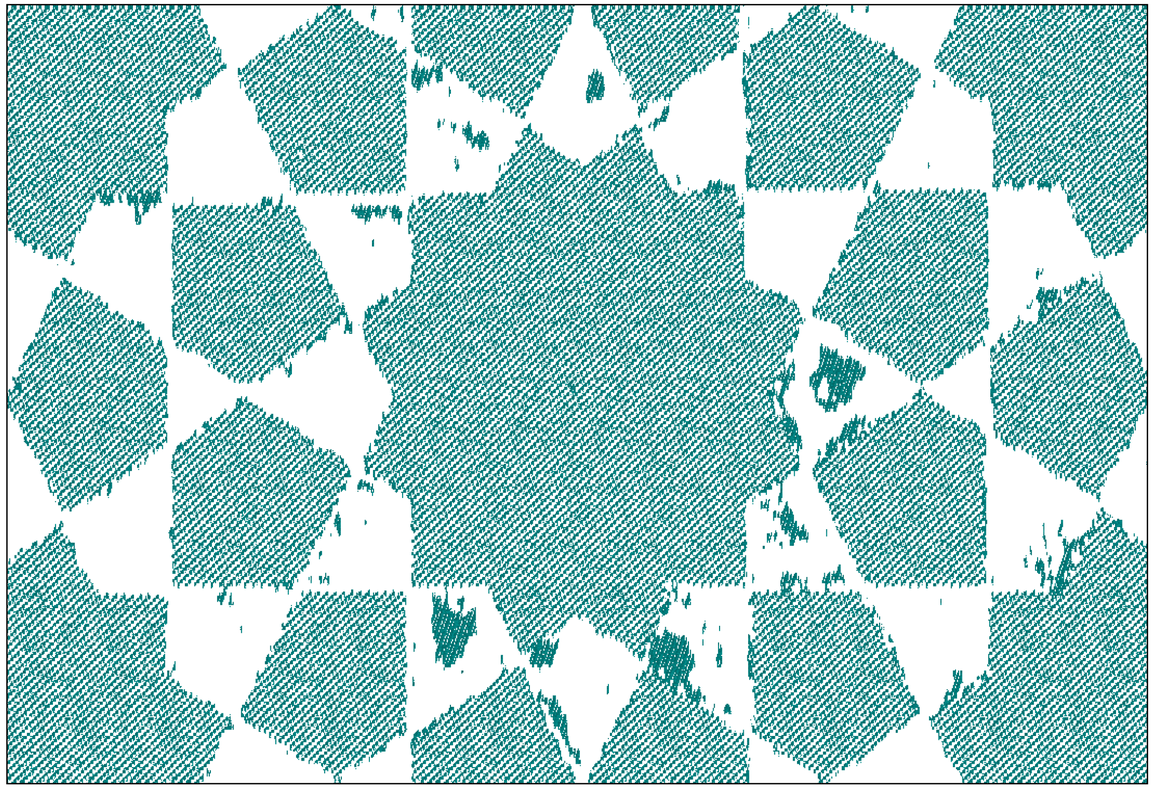
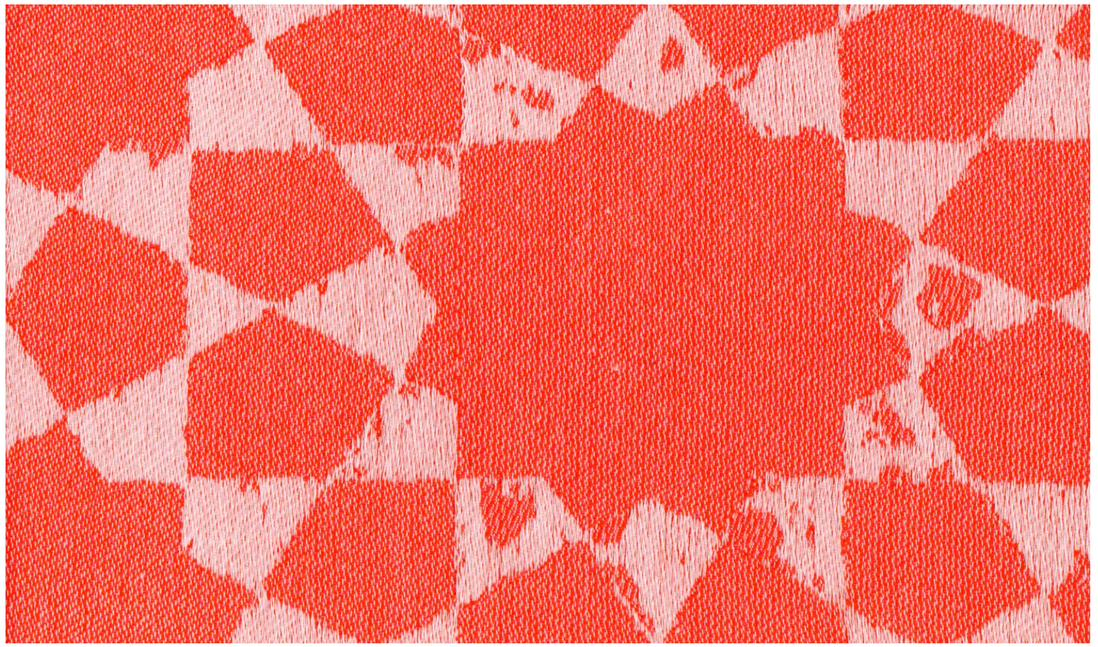
Figure 28: Jacquard Design 6 (Author's own, 2022)

Design 6		Yarn	Colour
Weft 1 (1-155)		67% Wool 29% Linen & 4% Polyester	Cartagena
Weft 2 (156-250)		2/28 Nm 100% Cashmere fair Isle	SA01-744775

5.8 Jacquard design 7



Digital cloth simulation of weave structures in Pointcare of design 7



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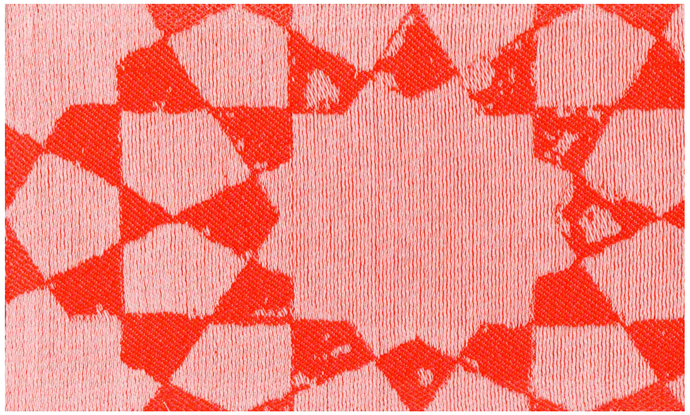

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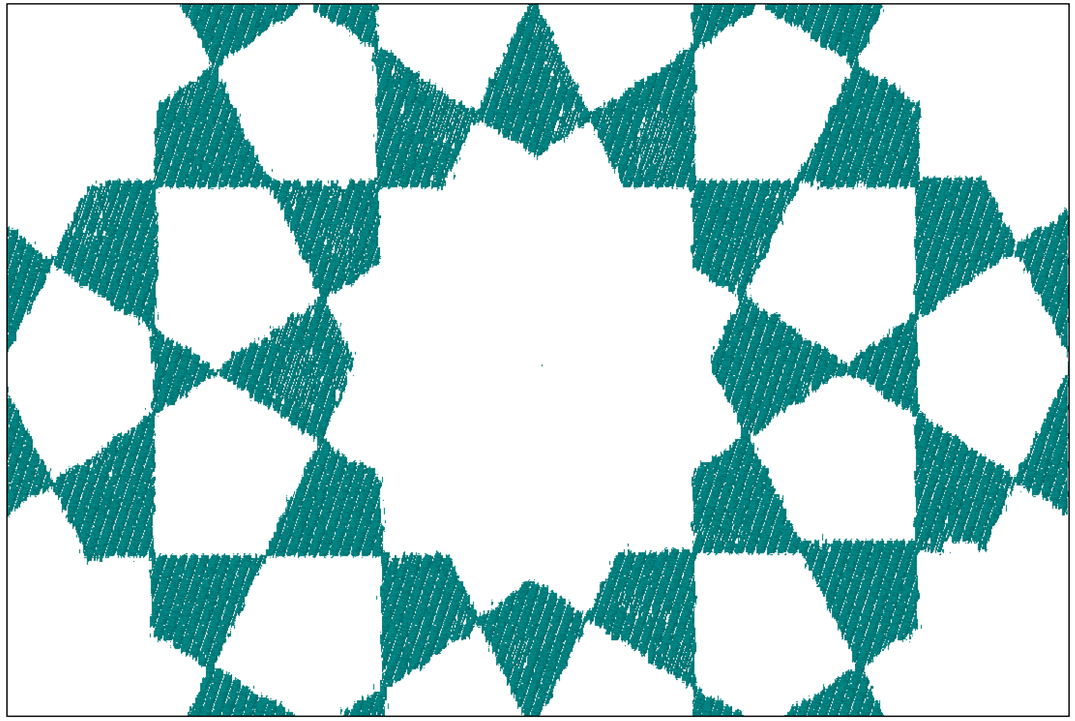
Figure 29: Jacquard Design 7 (Author's own, 2022)

Design 7	Yarn swatch	Yarn	Colour
Weft 1		3/28 Wool	New red

5.9 Jacquard design 8



Digital cloth simulation of weave structures in Pointcare of design 8

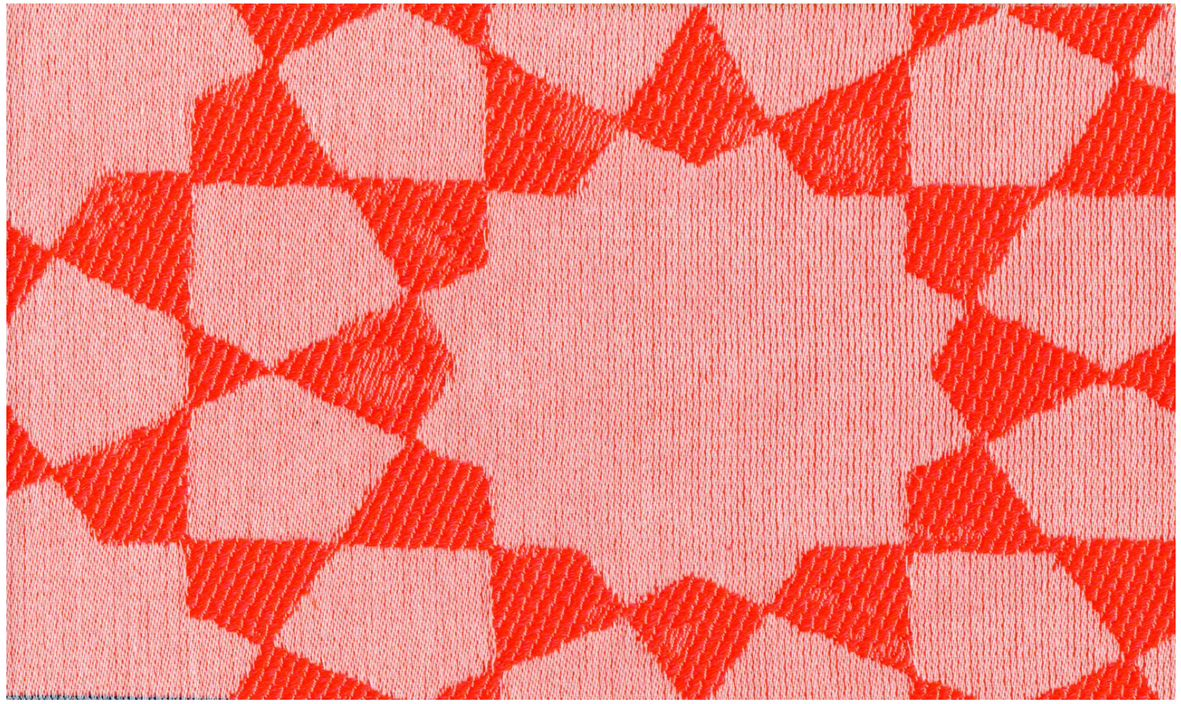


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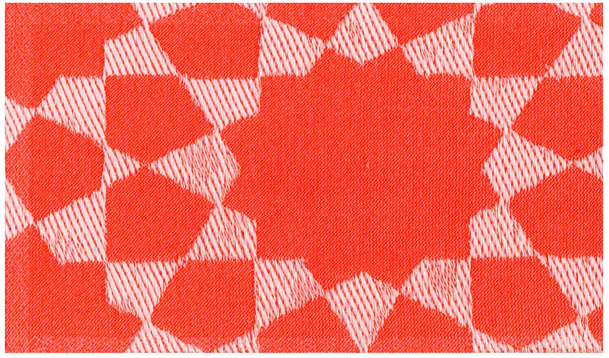
Figure 30: Jacquard Design 8 (Author's own, 2022)

Design 8	Yarn swatch	Yarn	Colour
Weft 1		3/28 Wool	New red



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6 Concluding remarks and emerging insights

Questioning the use of digital technology in weaving has created a new dialogue in my practice. While on the one hand I find the endless design possibilities offered by the Compu-dobby and the digital jacquard loom attractive, I yearn to incorporate the hand and the accidental quirks and randomness approach to my practice which Pye describes as workmanship of risk (Volume 1, 2.3). The investigation into the role of digital technologies in my practice has led me to value the craft and tacit knowledge that I possess; the know-how of materials, processes and skills that empowers me to stay in charge of my making (Volume 1, 2.4). This design task has emphasised the significance of craft and tacit knowledge as a new relevance for craft and how craft knowhow can enrich the digital making process..

The practice based action research model (Volume 1, 3.6) allowed me to document, articulate and make sense of my practice in a cyclic reflexive nature. Exploring the Tabeer pattern to understand the role of digital technology in my practice, allowed me to understand the importance of critical thinking and analytical skills as well. It enabled me to see my practice through a fresh perspective. I have explored and used digital technology in weaving since the last fifteen years but I never evaluated what it meant to my craft or how it enhanced my weaving and enabled me to weave complex designs. New definitions of craft, digital technology and digital technology within craft have emerged from this research.



Figure 31: Hybrid craft weaving (Author's own, 2022)

