

Then Try This • Algorithmic Pattern Salon

Velvet Values

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ABSTRACT

Velvet Values is an enquiry into how the intangible, emotional patternings that occur during the velvet hand-weaving process may be identified and externalised. It seeks to merge historic handcraft with contemporary digitisation methods to find new ways of communicating the slow, tactile, intimate knowledge that is intertwined into the woven process. As the project has only recently begun, this paper presents *Velvet Values* in its current state. This includes a presentation of the project's overarching theme and goals, along with the initial results of wooden bobbin carving and two attempts to visualise the internalised experiences of myself as a weaver during this process: the Hour(less)glass and the Grain Store. It goes on to detail planned further work in the form of developing hand-woven velvet sensor cloth, and reflects on how conductive fibres may be used in conjunction with velvet-weaving to generate textiles which echo back their embedded intangible patterns.

Abstract

Velvet Values is an enquiry into how the intangible, emotional patternings that occur during the velvet hand-weaving process may be identified and externalised. It seeks to merge historic handcraft with contemporary digitisation methods to find new ways of communicating the slow, tactile, intimate knowledge that is intertwined into the woven process. As the project has only recently begun, this paper presents *Velvet Values* in its current state. This includes a presentation of the project's overarching theme and goals, along with the initial results of wooden bobbin carving and two attempts to visualise the internalised experiences of myself as a weaver during this process: the Hour(less)glass and the Grain Store. It goes on to detail planned further work in the form of developing hand-woven velvet sensor cloth, and reflects on how conductive fibres may be used in conjunction with velvet-weaving to generate textiles which echo back their embedded intangible patterns.

1. Introduction

The act of hand-weaving follows a pattern. The weaver creates an imagining of cloth, broken down into threading plans and weave structures, drafted in grids filled by the weaver's mark of choice: a cross, a carefully-filled square, a hurried scribble. Analogue looms translate these through handles, pegs or punchcards and computerised looms use software to convert these illustrations into digitised formats. The weaver's body falls into a rhythmic pattern and the final result is cloth: a three-dimensional, tangible culmination of the steps which came before.

This act of weaving is shareable. A cloth's construction can be reverse-engineered, a hand-drawn threading plan can be copied, a digitised weave structure can be transferred, and the weaver replicates their motions. Yet running as an undercurrent is a sequence of emotional experiences which are not transferred due to their internalised nature. Key to understanding this is the acknowledgement that the *process* of weaving is more than the *act* of weaving. It is the sum of many parts: the shifting of weight on the bench, the creaking of the loom,

the rhythm of breath, the pauses for cups of tea, background chatter, and silent contemplation. These moments are embedded in the final cloth unnoticeable to all except the weaver.

Velvet Values is a three-year artistic research project which attempts to communicate the internalised emotional patterning of hand-weaving. It seeks to bridge the separation between *act* and *process* by merging heritage hand-weaving velvet techniques with digitisation methods and conductive fibres to create new velvet sensor cloth, tracking the internalised experience of the weaver throughout an extended process and sharing the unseen patterns hidden within the folds of woven cloth.

2. Background

2.1. What is velvet?

Velvet is a cut-pile warp-faced cloth constructed from two intertwining warps. Evidence of the first pile-woven fabrics can be traced as far back as the 11th Dynasty of Mentuhotep II in 2000 BC[1], and the technique was refined over the millennia from China in 400 BC along the Silk Road to the Middle East, before evolving into the silk velvets of the Italian Renaissance (*Fig. 1*)[2]. When hand-weaving velvet, a silk ground warp is wound around a single beam. Behind the back of the loom a wooden creel holds wooden bobbins, each lightly weighted and wound with a thicker, low-twist silk (*Fig. 2*)[3]. The weaver weaves a few picks (rows) of the ground warp before lifting up the bobbin silk and looping it around a thin metal rod placed in the open shed. After the loops have been secured through the pressure of enough successive picks, the weaver runs a blade across a groove in the rod, causing the velvet to tuft open, freeing the metal rod and covering any visible ground warp.



Fig. 1
15th-century Venetian velvet from
the Cosprop historical collection in
London, UK

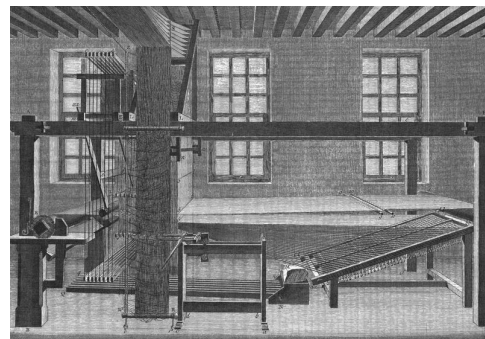


Fig. 2
Etched plate of a loom with a velvet
creel (Diderot & d'Alembert 1751-
1780)

This notoriously labour-intensive and complex weaving practice underwent a drastic change with the industrialisation of textile production and the development of synthetic silk (rayon) and as a result the

knowledge required to hand-weave velvet has diminished greatly. Venice, once a bastion of velvet-weaving, now houses only 18 operational velvet looms in a single workshop, a mere fragment of the 6,000 looms the city once held[4]. In Florence, the Fondazione Lisio dedicates a portion of its resources to preserving the hand-woven velvet’s intricate knowledge[5].

2.2. Velvet weave notations

The binary black-and-white squares of traditional weaving notation do not provide a comprehensive overview of the multi-layered sequence of velvet-weaving. The raising of ground and pile warp threads is split into independent, simultaneous and split-level stages, and the weave structure is adapted to suit.

In Watson’s 1913 guide to compound weaving[6], he details these three stages of woven motion in a basic plain-weave velvet structure (*Fig. 3*). Small dots represent the lifting of the fine ground warp. Crosses mark the lifting of the pile ends without the insertion of a velvet rod, and solid black squares indicate the lifting of the velvet ends with the insertion of a rod. Watson clarifies his notations by marking the pile ends as “P” and the rod insertions with “W” (for “wire”). The weave structure is further supplemented with an illustrated cross-section, guiding the weaver through how ground warp, pile warp, picks and rods intertwine.

As velvet cloth becomes more complex, so does the system of notation. In two structures for two-shot, four-pile velvet cloth (*Fig. 4*), the multi-layered dimensionality of cloth is brought to life in the cross-sections before being split apart and sorted into grid configurations. By using different symbols to identify not only the ground and pile ends, but also which parts of the loom they are connected to, a sense of layering is communicated through the two-dimensional grid structure.

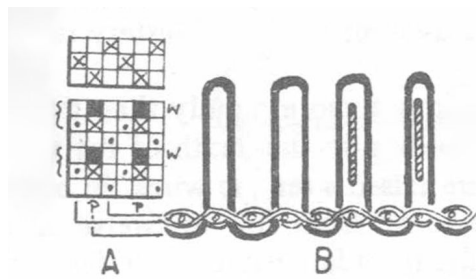


Fig. 3
Plain-weave velvet structure (Watson 1913)

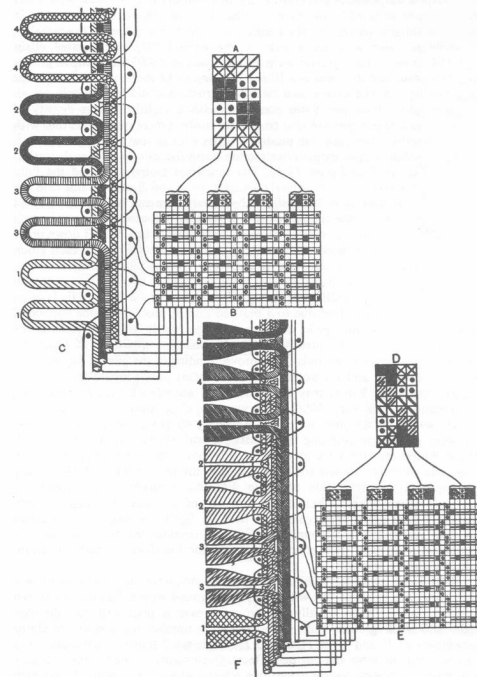


Fig. 4
Breakdown of a weave structure for a multi-coloured pile weave (Watson 1913)

2.2. Weaving and e-textiles

In today's field of electronic textiles (e-textiles), textiles and their processes are often used to give tactile realness to digital technologies and demonstrate how practitioners can use their experiences to design new systems, patterns and objects. Kobakant demonstrate the strengths of this approach using hacker-style techniques to demystify both textile and digital technologies[7], whilst Posch & Kurbak speculate on alternative narratives for the design of digital technologies through gold-thread hand-embroidery[8]. The PENELOPE project is an in-depth look at how the nature of weaving is inherently intertwined into digital technologies[9]. The Unstable Design Lab reimagines computational design tools through the eyes of the weaver with “AdaCAD”, a software that allows cloth and circuit to be designed concurrently[10]. More recently, Devendorf, Wu & Friske reflect on how one can embrace the nature of hand-weaving to develop a fully-collaborative approach in the design of new CAD systems[11]. Such inherent links between weaving and computing make it the ideal arena to seek out new digitised expressions of internalised process.

2.3. Craft, practitioner and practice

Critical reflections on personal connections between craftsperson and tool have long-since been explored, with Pye's questioning of where human body and experiences end and tools begin[12] and Adamson's

encouragement to think *through* rather than *about* craft, in both its physical and metaphorical layers[13]. Such sentiments can be traced further back to the writings of the weavers of the Bauhaus, where Albers and Stölz argued the intertwining nature of weaving made it more deeply embodied and substantial than the conventionally-valued mediums of painting and sculpture[14]. This is echoed in Smith's theoretical analysis on the impact of the medium of weaving[15], and within the weaving community itself, as Ligon's short essays reveal the intimacy of her experiences as a weaver[16].

3. Methods and initial results

Throughout *Velvet Values*, I am intentionally slowing-down and stretching out the process of hand-weaving velvet to create a canvas of information broad enough to identify the personal patterns formed within myself as I weave. This section presents the planned methods (both current and future) to achieve this overall goal, along with the early results that have been obtained so far.

3.1. 1,000 bobbins

In preparation to weave, I am adapting a loom for velvet by carving bobbins and building a creel to house them. A traditional velvet creel can hold 1,000 wooden bobbins, weighted individually so the weaver may play with pattern and pile height whilst maintaining a uniform tension. As velvet is now typically woven in industrial settings these bobbins cannot be readily purchased. With this in mind, my need to make the bobbins is borne out of necessity; the choice to carve each individually allows me to be fully immersed within their process.

I carve visions of the future into each bobbin. As it turns on the lathe (*Fig. 5*), I imagine its life, similarly to how a weaver begins by imagining cloth. As the bobbins start to take form I anticipate holding and winding them, and how they might dance in harmony on the creel during weaving. I am repeating each step in preparing the bobbins a thousand times, giving space to nurture the internal experiences of carving, sanding, staining, labelling, winding, and weighting. I have chosen cherry wood as the material of choice, not only for its relative ease of carving, but also for how the wood deepens and reddens over time. As I add to and examine my growing library of bobbins, I can see markers of time and experience in the evolving cherry tones (*Fig. 6*).



Fig. 5
Bobbin being carved on the
lathe



Fig. 6
Carved bobbins

3.2. The Hour(less)glass and Grain Store

In an early attempt to uncover internal patterning and visualise the build-up of emotional experiences within bobbin-carving, I created the Hour(less)glass and the Grain Store.

The Hour(less)glass (*Fig. 7*) is a time-tracking device built in response to my awareness of the irregularity of time as I began carving bobbins. In the creation of a single bobbin, time seemingly extends and contracts, refusing to conform to standardised minutes and seconds. I used leftover wood shavings, two glass cola bottles, and tape to create the Hour(less)glass. The shavings are too light to pass through the hourglass-shape and they instantly bottleneck. However, when mounted on the lathe the Hour(less)glass adapts to my workflow as the vibrational patterns of carving cause the encased shavings to switch between trickling down, pausing, and rushing forth, creating an externalised echoing of my internalised experience of time.

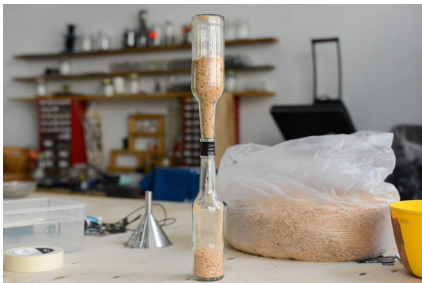


Fig. 7
The Hour(less)glass



Fig. 8
The Grain Store

Another method of logging my bobbin-based experiences is the Grain Store (*Fig. 8*). As the number of bobbins grows, so does my skill with the lathe and chisels and I can trace my progress in the smooth wood curls that fall off as I carve. I wanted to store this growth and create a tangible resource I could refer back to. The leftover wood shavings are parcelled into grain jars, labelled and shelved. The Grain Store grows in tandem

with my inner experiences, and as I work surrounded by physical representations of my process, I feel supported knowing I have a rich store of carving knowledge I can draw on when needed.

3.3. Velvet sensor cloth

Velvet is a cloth that encourages careful human interaction, and gentle gestures make it the ideal woven conduit through which to explore intuitive intangible processes. The pressure from successive picks slowly secures the looped threads in place; only when they are held firmly enough can a blade be run across the bottommost rod to release it and reveal the velvet qualities. This introduces an interestingly reflective way of working for the weaver: instead of building up pick by pick, they must consistently revisit past rows before moving forwards. As treadling is interrupted, shuttles are put down, and blades are picked up, the weaver finds a new rhythm independent of the traditional patterns of hand-weaving.

Once the bobbins are carved and the creel is built, I will begin to weave velvet, replacing the conventional silk with conductive fibres such as stainless steel, silver or gold. Following the circuitous direction of velvet-weaving will create a cloth that is metaphorically reflective and literally responsive. The resulting velvet sensors will conduct electrical current and trigger audio, visual and motion responses, all intended to evoke the velvet-weaving process. The internalised experiences that occur during my weaving will be communicated to anyone who interacts with the velvet, creating a shareable experience and adding new dimensions to an already multi-layered cloth. Experimental forms of weaving notation, inspired by Watson's historical illustrations, will explore how the intangible patterns of process can be manifested in a weave structure and integrated into the final cloth.

4. Conclusion

This paper has framed *Velvet Values* in its current format: a project with defined objectives still in its infancy, not with a conclusion to be drawn but rather a beginning to be presented. The project questions what forms of patterning can be identified within the emotional, intangible elements of hand-craft process, and how they can be visualised to create a broader understanding of the experience of process. As demonstrated by the early results of the Hour(less)glass and the Grain Store, the initial stage of bobbin-making has demonstrated how one can create expressions of internalised process. This will further develop as the project advances to include the development of velvet sensor cloth, which will serve as a conduit for communicating these hidden patterns.

As laid out by the project's premise, hand-weaving is a deeply personal experience, but that does not require it to be an isolating one. My presentation of the project at such an early stage is intended to open an on-going dialogue between hand-craft and research communities on the nature and value of intangible experiences within process.

5. Acknowledgments

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References

1. Barber, Elizabeth J. W., and E. J. W. Barber. 1992. *Prehistoric Textiles: The Development of Cloth in the Neolithic and Bronze Ages with Special Reference to the Aegean*. 3. print., for The Princeton paperback ed., [Repr.]. Princeton, N.J.: Princeton Univ. Press. ↵
2. “A Weaver’s History of Velvet.” n.d. Accessed September 7, 2023. <https://handwovenmagazine.com/history-of-velvet/>. ↵
3. Diderot, D., and J.L.R. Alembert. 1989. *L’Encyclopédie: L’art de La Soie*. L’encyclopédie Diderot et d’Alembert, v. 35. Inter-livres. <https://books.google.co.uk/books?id=RCxuzgEACAAJ>. ↵
4. “Tessitura Luigi Bevilacqua: produzione di tessuti pregiati a Venezia.” n.d. *Tessitura Luigi Bevilacqua*. Accessed September 7, 2023. <https://www.luigi-bevilacqua.com/>. ↵
5. “Hand-Weaving Excellence in Florence.” n.d. <https://www.fondazioneisio.org/en/>. Accessed September 7, 2023. <https://www.fondazioneisio.org/en/>. ↵
6. Watson, William. 2010. *Advanced Textile Design*. Read Books. ↵
7. “HOW TO GET WHAT YOU WANT.” n.d. Accessed September 7, 2023. <https://www.kobakant.at/DIY/>. ↵
8. Posch, Irene, and Ebru Kurbak. 2016. “CRAFTED LOGIC Towards Hand-Crafting a Computer.” In *Proceedings of the 2016 CHI Conference Extended Abstracts on Human Factors in Computing Systems*, 3881–84. San Jose California USA: ACM. <https://doi.org/10.1145/2851581.2891101>. ↵
9. Fanfani, Giovanni, Dave Griffiths, Ellen Harlizius-Klück, Annapurna Mamidipudi, and Alex McLean. 2020. “(Micro-)Performing Ancient Weaving in the PENELOPE Project.” *Performance Research* 25 (3): 123–30. <https://doi.org/10.1080/13528165.2020.1807772>. ↵
10. Friske, Mikhaila, Shanel Wu, and Laura Devendorf. 2019. “AdaCAD: Crafting Software For Smart Textiles Design.” In *Proceedings of the 2019 CHI Conference on Human Factors in Computing Systems*, 1–13. Glasgow Scotland Uk: ACM. <https://doi.org/10.1145/3290605.3300575>. ↵
11. Devendorf, Laura, Shanel Wu, and Mikhaila Friske. 2023. “Making Design Tools Like a Weaver: Four Rules.” *XRDS: Crossroads, The ACM Magazine for Students* 29 (4): 54–58.

<https://doi.org/10.1145/3596929>. ↵

12. Pye, David. 1968. *The Nature and Art of Workmanship*. London: Cambridge U.P. ↵

13. Adamson, Glenn, ed. 2010. *The Craft Reader*. English ed. Oxford; New York: Berg Publishers. ↵

14. Albers, Anni, Nicholas Fox Weber, Manuel Cirauqui, and T'ai Lin Smith. 2017. *On Weaving*. New expanded edition. Princeton, New Jersey: Princeton University Press. ↵

15. Smith, T'ai. 2014. *Bauhaus Weaving Theory*. University of Minnesota Press.

<https://doi.org/10.5749/j.ctt9qh311>. ↵

16. Ligon, Linda C. 2004. *This Is How I Go When I Go like This: Weaving and Spinning as Metaphor*. Loveland, Colo: Interweave Press. ↵