PDP Maas Goudswaard FMP project.

Vision (start of the semester, new one in portfolio)

In society, we are increasingly delegating designing and making activities to machines. Digital systems facilitate design choices, simulate designs, shape form and create toolpaths. These digital processes and interfaces are very well versed at generating precise, repeatable and predictable results, and hugely increase what we can make at scale. However, I believe that in this engineering centric approach to manufacturing we lose the individuality that making, and design can foster.

Cue the rise of digital manufacturing machines, like 3D printers, that promised ultra-personalized products, however, are mainly used to generate functional parts which have visible layer lines. The manufacturing process allows for much more expression, which is underutilized because of the complexity in design. Deep understanding of toolpath programming, machine knowledge and coding skills are necessary to make the 3D printed things that we are all mesmerized by.

The changing design challenges to facilitate different manufacturing methods can naturally induce friction, however this does not mean that we should not take on these challenges. Personally, I see that most of these challenges are solved with engineering-oriented approaches, making prints more repeatable, organized and reliable.

There is however another area where 3D printing can be very valuable; design and manufacturing expressive and unique parts. This is however difficult with the complexity built into the 3D printing configuration. I aim to break and experiment with alternative configurations of manufacturing machines, to explore and facilitate designerly engagements with manufacturing. This on one side from a more philosophical perspective, and on the other hand from a practical perspective.

Identity (start of the semester, new one in portfolio)

As a designer I've always had an interest for the making of things, manual work, using tools or fully automated. Eager to learn different techniques and approaches motivated me to start designing, I've learned especially that the process of making is not something fully controlled by me, but rather a collaboration between me, the tools and materials used in the process.

This interest in physical making and making processes has formed the basis for my interest in digital manufacturing. The process of designing code and printing it, with numerous complex and rich potential really sparked my passion for designing with digital and manual processes.

From there I worked at Signify 3D printing and developed multiple projects with digital manufacturing at the core. Which informed me about how these processes are setup, and especially how to hack your way around the standard paradigm. The act of working within and outside the boundaries of the available software and hardware gives me deep insight into the potential of the technology, however also the current restrictions that designers face.

This is what led me to work on more fundamental contributions, where I do not investigate a specific technique or behavior, but where I explore alternative manufacturing paradigms. I do this by hacking and making new interactional interfaces that facilitate different approaches to 3D printing.

As a designer I aim to break the engineer-centric approach to digital manufacturing and aim to inspire and enable designers and artists to collaborate more creatively and freely with the digital manufacturing machines.

Goals;

Do my reading

Throughout my studies I've always had an academic orientation for my work. Over the years I've increasingly focused on working towards more philosophical contributions of my work, and I've always found myself feeling a bit out of place in this new area. I've always been good with technical papers, understanding how they work and relate to each other, however philosophically oriented papers are a bit more challenging to understand without the prior knowledge.

Thus I want to develop my basics, on making, hylomorphism and the history of technology. I will read two books: "Making" by Tim Ingold, and "Forces of production" by David Noble [5,6]. I aim to apply this in my work, by reading more specific papers again that apply the themes in case studies like: "Being the machine" and "Probing the potential of post-anthropocentric 3D printing" by Laura Devendorf [1,2]

I aim to apply and use this work extensively to frame my work more accurately and get confident in the wording surrounding the philosophy of making.

Project outward

As a second goal I want to reach out with my work. I tend to just make stuff quietly in a corner and writing about it, and I want to break out of that. I think that I have an interesting angle on digital manufacturing, and that my machines allow me to project that angle in an interesting way.

I have two main goals in mind; first I will be presenting my M2.1 project at Dutch Design Week, where I can expose my work to a broad audience. This opportunity is also where I can speak to a lot of people about my work, and experience other makers perspective on the matters of determinism in 3D printing, agency and creativity.

Secondly, I will, together with a companion, kick of a podcast series where we will talk to experts in digital manufacturing. And explore the designer-machine-material relationship. I want to not only have conversations with experts in the field of making for myself, but I would like to create a community of creative makers. That feel the same way about making as I do.

With these goals I aim to create an understanding of others peoples perspectives and opinions on craftmanship, and actively prompt makers to reflect on their own practices.

Find my practice

In previous projects I've always struggled to get the thoughts and reflections out of my head and onto paper in cohesive, concise and transferable ways. Previously I've always relied on the argument that the "travelers approach" is complex and insights arrive from the materials [3]. However the more philosophical contributions are difficult to materialize physically, as such I want to develop my practice, and find a way to document and analyze that works for me.

To do this I will collect field notes (as I always do), in the form of a workbook, and use sample templates to capture my physical making [4]. However next to that I will explore ways to

evaluate and analyze my work from a first person perspective. Using my field notes as "raw data", and generating the insights from the notes, not from memory.

I hope finding an approach that works with me can help be gain structured and rigor in my research practice. And it helps me get my thoughts out of my head and on to paper.

References

1. Laura Devendorf, Abigail De Kosnik, Kate Mattingly, and Kimiko Ryokai. 2016. Probing the Potential of Post-Anthropocentric 3D Printing. In Proceedings of the 2016 ACM Conference on Designing Interactive Systems, 170–181. https://doi.org/10.1145/2901790.2901879
2. Laura Devendorf and Kimiko Ryokai. 2015. Being the Machine: Reconfiguring Agency and Control in Hybrid Fabrication. In Proceedings of the 33rd Annual ACM Conference on Human Factors in Computing Systems, 2477–2486. https://doi.org/10.1145/2702123.2702547
3. Bruna Goveia Da Rocha and Kristina Andersen. 2020. Becoming Travelers: Enabling the Material Drift. In Companion Publication of the 2020 ACM Designing Interactive Systems Conference, 215–219. https://doi.org/10.1145/3393914.3395881
4. Bruna Goveia Da Rocha, Kristina Andersen, and Oscar Tomico. 2022. Portfolio of Loose Ends. In Designing Interactive Systems Conference, 527–540. https://doi.org/10.1145/3532106.3533516
5. Tim Ingold. 2013. Making: anthropology, archaeology, art and architecture. Routledge, London ; New York.
6. David F. Noble. 2011. Forces of production: a social history of industrial automation. Transaction Publishers, New Brunswick, N.J.