

The Magic Machine Workshops

Making Personal Design Knowledge

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ABSTRACT

New technologies emerge into an increasingly complex everyday life. How can we engage users further into material practices that explore ideas and notions of these new things? This paper proposes a set of qualities for short, intense, workshop-like experiences, created to generate strong individual commitments, and expose underlying personal desires as drivers for ideas. By making use of open-ended making to engage participants in the imagination of new things, we aim to allow a broad range of knowledge to materialise, focused on the making of work that is about technology, rather than of technology.

CCS CONCEPTS

- Human-centered computing → Participatory design; *HCI theory, concepts and models; Interaction design theory, concepts and paradigms*.

KEYWORDS

Design Research, Material Practise, Making, Magic.

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1 INTRODUCTION

The HCI and design community makes frequent use of workshops to gather input for design and research processes. As

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Figure 1: Early example of a magic machine: The Singing Translator from Transmediale 2009.

technology becomes more complex and ubiquitous, we believe it becomes increasingly important to open up the design process of new technological things.

However, workshop formats tend to look to the outcomes and participants as resources for design and research projects. This is limiting in a number of ways: It overlooks the potential of personal and individual visions and takeaways for the participants themselves, it narrows the scope of what can be addressed within the workshop process – in turn limiting the potential of the outcomes, and finally it controls the extent to which participants can take control of and reframe the focus of the overall research inquiry beyond the context of the workshop itself.

This paper describes a workshop technique, which has evolved over time to leverage artistic tradition and workshopping experience for the benefit of supporting the generation of deeply personal material by participants. This inverts the norms of existing design workshops in that it is not aimed solely at providing data for research projects, or groups of imagined users, but rather targets the participant to develop radically personal visions of a potential novel technological thing. While these visions may serve to build personal and critical positions by the individual participants, the benefit for the facilitators lies in enabling a greater diversity in the creative outcomes, vision, and sharing within the group

Alternative Presents for Dynamic Fabric

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ABSTRACT

In this paper we investigate how a combination of “speculative” design methods can be used to generate **theoretical understandings for dynamic, colour-changing fabrics for garments**. Specifically, we combine a first-person, autobiographical, research through design (RtD) approach that draws strategies from speculative design. We call this approach *alternative presents*, inspired by the work of James Auger, and explore it as a way to generate theoretical propositions for dynamic fabric that emphasize the lived experience over technological innovation. The contributions of this framing are twofold. Firstly, we offer a theoretical contribution to the literature on dynamic fabric. Secondly, we make a methodological contribution for how autobiographical design and RtD can be oriented speculatively to generate intermediate knowledge, with particular emphasis on social-technical aspects.

Author Keywords

Speculative Design; Material Speculation; Research through Design; Smart Textiles; Wearables

CSS Concepts

•Human-centered computing~Interaction design~Interaction design process and methods

INTRODUCTION

Dynamic, colour-changing fabrics have played an active role in **smart textiles and wearables** discourses in both commercial and research contexts for almost two decades. Poised as a futuristic but realisable textile, it has been suggested that colour-changing fabrics can help mitigate fast fashion [17,21], and generate new fashion expressions that combine digital and physical experiences. The fashion industry has been increasingly shifting towards digital experiences to support fashion-based activities for styling, branding and retail, though not for computationally dynamic fabrics.

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Figure 1. **Wearing dynamic fabric using a chroma-key app and green-coloured dress.**

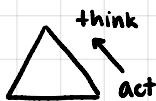
green screen?

Barriers to the adoption of wearables products and smart textiles have been attributed to a mix of technical, production-oriented, and socio-cultural challenges [21,57]. In particular, researchers coming from fashion practise are signalling a disconnect between the prevalent techno-centric approach to wearables, on the one hand, and fundamental fashion and design-related concerns on the other [43,46,66]. In the specific area of dynamic, colour-changing textiles there have been several material- and design-centric works exploring new concepts for interactive colour-changing garments [17,26,40,76], but details of their lived, everyday experience are still unknown, or based on conjecture.

In this paper we introduce *alternative presents*, an autobiographical, research through design (RtD) approach that draws from speculative design. Through living and designing with a simulated version of dynamic fabric over a long period of time, we examine, not the *imagining* of a speculative future, but the *experiencing* of a speculative present. Up until this point it has been an underlying assumption that once a high-fidelity prototype or commercially-viable fabric has been developed, design considerations can be more thoroughly examined in its context of use [17], that is, as a wearable garment. However, we invert this assumption through an RtD, speculative engagement with the concept that lets the lived experience and design activities of one researcher co-generate the fabric experientially, with minimal concerns for its underlying technology or technological development.

To summarise, the first author of this paper wore and worked with **real-time, wearable greenscreen garments over three**

How can we externalise ideas?



shift

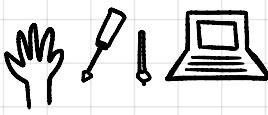
collaboration with others

biggest challenge as a designer is to externalise these thoughts

THOUGHTS IN HEAD → outside to create space



Brain



practical

1PP = First Person Perspective Exploring alternative presents **Now** to change the **FUTURE**

Involving ourselves in the process - involving others, humans & non-humans

1PP Research through Design

- A way of acting
- A way of looking through things
- A way of being involved

} Humans no longer as numbers / data
but rather entities / living beings
+ gain responsibility over our work

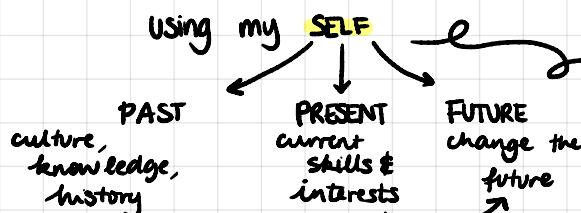
our current production methods do
not take into account that

MATERIALS ARE FINITE.

working with the things we have at hand
= limiting but more sustainable

profit → people, wellbeing, ecosystems

A SHIFT IN MINDSET



Generative & Performative

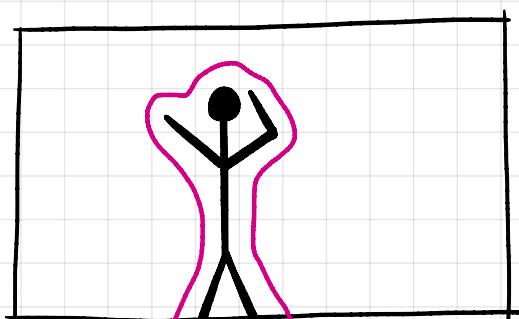
not hypothesis + validation
but a set of possibilities
↳ keep learning & developing

Positioning our selves

↳ understanding where we are
to understand what we can do

IDEA!

Interactive "performance"
projection on touchdesigner
where digital drawing
meets physical drawing



Digital + Physical
Drawing

Playful engagements which involves the body in the practice.

INDUSTRIAL DESIGN: "what else can machines do?"

first, you build the machine, then it tells you what it's for.

Industry 4.0 - how can we work with or against machines?

Designers orchestrate change - reflecting on our own experience
helps make our designs resonate with others
→ not ego-centric but instead self-reflective

Creative interventions for technologies

Shifting away from a human-centered world - sameness, ease
↳ making things a bit harder makes us
more creative, satisfied & purposeful.

Can we design things that do more?

Orin Hardy - Bamboo U University

School trip: possibly in Bali end of term 2 - start of term 3

COVID = hopefully an end to MASS TOURISM



most \$ goes to agency + other countries

Chinese tourism and Australian tourism

= detrimental to local economy + culture

→ Local tourism + more meaningful

Bamboo U involving community: more locals than foreigners

BAMBOO DESIGN - people with privilege who will have an impact in their own country.



are these people coming from areas where bamboo is native & sustainable?

→ because is it really sustainable to use these materials if they are invasive?

A combination of pre-industrial culture which prioritizes agriculture & frugality
+ younger generations that have mobile phones & internet
→ stuck in capitalist system without living capitalist lifestyle
↳ Western influence

A system of enjoying work - emotional & spiritual connection
= contrast in Western mindset of efficiency

Where is the place for meaningful + enjoyable yet "inefficient" / "unproductive" work?

Creating bamboo structures for rich people rather than poor people
→ it's the rich people who need to be more sustainable
and learn these processes

Changing scale → Amplifying our actions

Designers often dissociate their practice from their ethics, but we need to stop doing that

FIRST PERSON DESIGN & EXPERIENCE ↗

Magic Machines - materialising our ideas/thoughts

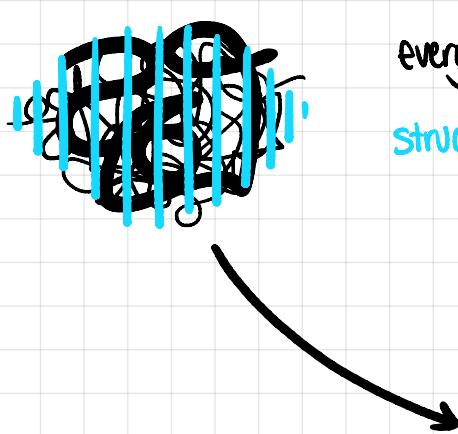
Now - Experience our ideas / thoughts

Embedding our work into every facet of our lives.

How can we take action on an area of interest in a brave way?

How can you continue to probe the topic of your design space through first person exploration?

Can you create a situation that may teach you something about yourself?



everyday chaos
+
structured routine

} more your ideas from the structured routine into our everyday chaos in order to generate new ideas.

Living with your own ideas

Getting Started

What can you do?

How can you **take action** on your topic in a **BRAVE way**?
(Brave = stepping outside your comfort zone; doing something that might make you vulnerable, look silly, or disrupt your current lifestyle.)

Can you **make** some small piece of your idea and live with it?

How can you probe the design space **through an embodied / first-person exploration**?

Can you **create a situation** that might reveal something new?

Thursday's task.

Exercise to help start the process:

1. Write down all the questions you have surrounding your topic.
2. Is there ONE question you could try to answer through a first-person exploration? (like: What does it feel like to track my own energy consumption? OR What happens if I lived nomadically? OR What would a toothbrush look like in this world?)
3. Try to answer this question by doing something or experiencing something.
 - how can you **experience some aspect** of this topic?
 - **where** can you go?
 - what can you **enact**?
 - is there a **small part** of your topic that you could isolate and explore?
4. **Recommendation:** Keep brief notes on things that happen or how you feel.

TIP: TRUST THE PROCESS. TRUST YOURSELF.

You are not supposed to know what will happen in advance. That's the point.

FRIDAY'S ASSIGNMENT (deliverables)

Deliverables for *Living with your own ideas*

Friday presentation: 2-min video vignette of your experience.

"Rules" for this video:

Begin your video with **one or two slides** that briefly explains the context of your exploration (questions you were asking and what you did).

For example:

What would be like to eat food prepared by robots?

For one day I ate food only offered to me by machines with no human contact (e.g. the microwave, vending machines, etc.)

After this slide, show us what happened. **Note:** We do not want the video-making to *get in the way* of the personal experience of your 1-day exploration. Therefore, we ask that you to not spend a lot of time editing the video by adding a lot of text and music, etc. Instead, think of it as a "glimpse" into your experience where you show us some of the sights, sounds, and action taken. We just want to see some of what happened.

This could be done in the following ways:

1. picking a 2 minute moment and recording it, OR
2. recording 10-second moments several times throughout the day, and stitching them together into 2 minutes, OR
3. some other formulation of 1. and 2. (six 20-second videos, four 30 second videos, etc...).

We will provide some discussion time in the class to further discuss the output of your work.

Sunday: Guided reflection. Try to answer some of the following questions:

- What did you make? And why did it matter?
- What happens when you involve yourself?
- How have your ideas changed about your topic?
- What happens when you use yourself as an instrument?
- Did anything change about your way of working?
- What does it mean for your future work?

These interventions won't make sense unless you analyze them.

Expectations: I think I may get sick of coming up with new ideas unless I have a variety of ways to achieve or create them.

Will I feel like a hyperproductive capitalist or a satisfied creative?

→ I feel, in comparison to the rest of the class, that I don't have as much experience, especially hands-on

↓
young, educated in covid times,
no "real" job

↳ create my own experience + reflection

→ What is the question? Find the inquiry behind the activity to give it purpose.

Ideas: Change yourself

Start a new routine

Do something you always wanted to

Challenge yourself

Collaborate with things

Extreme reflection

Amplify your current habits

Imagining yourself in the future

My ideas: Draw every time I want to use phone / devices

Something related to art

Using my body in my art
↳ breaking the boundary of art/artist + digital / physical
→ making it my own

Allows me to explore various mediums { A timer every hour that tells me to create something

I've decided the theme! Wahoo!

HOW TO DETERMINE WHEN TO STOP

When is a project or creation complete? How do I determine when enough is enough? What do those feelings look like?

Shift from consumer → creator question: do we need to consume so many things if we don't manage to create as much
= Global view

9AM - 9PM: Alarm every hour which will force me to create something → what? → that isn't defined yet.
+
video editing after 9PM

REQUIREMENTS: Set an alarm each hour. Create something each time. Document what made you stop each creative process. Observe patterns, observe feelings. Document the process.

CURIOSITIES: Will there be an observable trend amongst my creations?
i.e. similarity in nature or process?

Will there ever be an overlap in timing, where I haven't completed one task before the next timer goes off?

Will each hour feel like too much? Will I have enough time to do other things too?

Will I feel worn out & exhausted or full of new inspiring ideas? Will it be a metaphor for our society focused on efficiency and hyperproduction, leading to a burn out?

Will the camera (documentation) interfere with the process?
Will I be the creator or the creation?

What feelings will come up as I try to define what leads to concluding these processes?

WHEN IS IT TIME TO STOP?

HOW DO YOU PUT AN END TO A PROCESS?

WHEN IS IT ENOUGH?

WHAT - probably now.

+ businessman

+ researcher

An artist's dilemma

+ designer

+ writer

+ creative + perfectionist

INSPIRED BY MY MAGIC MACHINE

Set an alarm each hour. Draw something each time.
Write down what made you stop.
Observe patterns, observe feelings. Document the process.

QUESTIONS

- Will I feel exhausted or full of new, inspiring ideas?
- Will each hour feel like too much?
- Will there be a timing overlap?
- Will there be a trend amongst my drawings?
- How will I decide to conclude the process?

the night before

the first alarm

(pieces of text for the video → handwritten + sketch aesthetic)

CONCLUSIONS

the means influences the result

↳ Bus ride: instead of fighting against the shakiness, I painted the cloudy sunset which allowed me to have a nice result

having a better-defined idea feels easier than feeling forced to generate something out of nothing

↳ ex. WASH YOUR HANDS vs LETS GET THIS OVER WITH.

OTHERS' WORK THAT INTERESTED ME

Bussi - Accessibility & mobility : no stairs
+ 3D scans

Borka - very creative idea! + super interesting to view the city through a new lens.

Rei - where are things coming & going?

Joaquin - really enjoyed & appreciated the act of displaying music as matter.

Chris - very funny but also raises questions about AI, plants & feelings

QUESTIONS FOR THE REFLECTION

Boundaries - what are the boundaries of this work?

→ paper, pen, colours & 12 hours context. Every 60 minutes combined with a usual day.

Authenticity - how is my authenticity displayed in the final video

→ didn't change my routine, simply integrated it in a normal day despite any frustrations/stress which may have arised.

Plausibility / Scholarship - how does this work contribute to certain research } can be even small

→ balance creative practices & learning the signs of feeling overworked or burnout or lack of inspiration

Criticality - did your action help you imagine new ways of doing things or thinking / acting differently?

↳ hyperproductivity + always wondering what time it was

Self-revealing communication - how did we include these things in the video & what did I leave out?
→ how to tell a story?

Ethnographic material with - how much is relevant vs how much is personal?

confessional content → since mine was a personal quest, the whole video seemed very personal too.

Generalizability - how can this relate to others or be meaningful for others?

→ very relevant in Busi & Angel projects