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This Portfolio is published by Mey Lean Kronemann, BA Interface Design, Fachhochschule Potsdam, as a documentation of works and projects since 2006.





*Thanks to everyone who helped!*

# ::access

I started my studies at Fachhochschule Potsdam (University of Applied Sciences) in 2003. After passing my intermediate examination in Product Design in 2005, I specialized in Interaction Design as my major subject. In the second part of my studies my projects became larger and extended outside the university context. I also started to work more professionally, that is with real clients.

In 2006/2007 I was a student at Malmö University in Sweden for one year. During my studies in their International Master's Programme Interaction Design I learned about research methods for design, like different evaluation methods and how to write research papers, but also practical methods for prototyping and user testing. In 2007, I worked as an advanced intern and freelancer at *realities:united*, a studio for art, architecture and technology.

I graduated from Fachhochschule Potsdam in 2009 with First-Class Honours. My thesis project *lumiBots* has been exhibited at various sites both in a scientific and artistic context and has been published and presented on international conferences (DIS 2010 in Århus and ICRA 2011 in Shanghai). In 2010 I was employed at Fachhochschule Potsdam as a research assistant for the project *EcoViz*.

I like to work in a team. In many projects, I was working with an interdisciplinary or international team. I have played different roles in different teams: In the *binary bridge* team I was responsible for the project management, in the *trashSet* team I worked in the wood and metal workshop with the others.

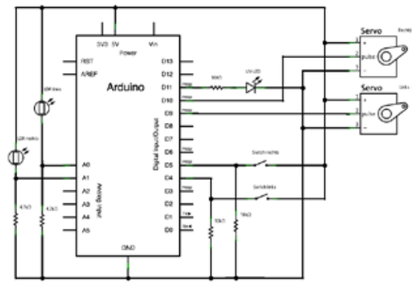
I have experience in the implementation and evaluation of prototypes for various purposes. Through the projects, I developed a basic knowledge in many fields and various skills, such as object-oriented programming with *Processing*, physical computing with *Arduino*, soldering and producing PCBs, film editing, model making, lighting, planning, and much more.

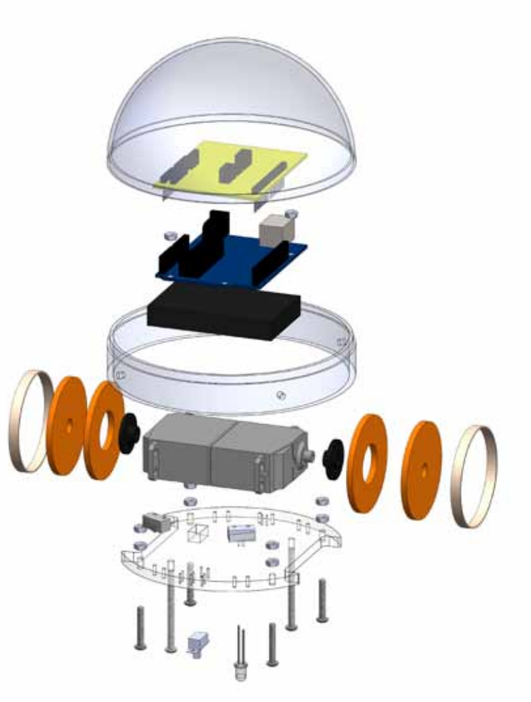
I am particularly interested in multidisciplinary projects: The collaboration between art and science, research and product development, and the common grounds with other design disciplines, such as architecture, urban planning, exhibition design, theatre, …

# lumiBots

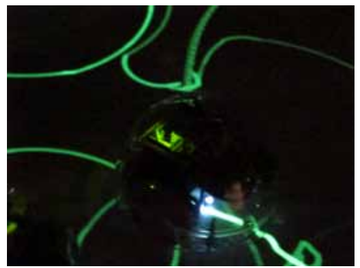
The lumiBots are a small swarm of autonomous, mobile robots that react to light. They can leave glowing traces which slowly fade away, so that older, darker trails are visible as well as newer, brighter ones. This way, images that consistently change are generated. The robots can follow the lines with their light sensors, and amplify them whilst preferring brighter (newer) and broader (more often used) trails.

Partners: Dr. Verena V. Hafner, Cognitive Robotics HU Berlin, Schwarmlabor (TU / UdK / T-Labs), ORAFOL
Supervisors: Reto Wettach, Jörg Hundertpfund







How can the phenomenon of Emergence be made graspable? From this theoretical starting point I developed the lumiBots.

The lumiBots demonstrate how complexity evolves from simple rules and the interaction between the components of a system, a phenomenon referred to as emergence. The lumiBots make emergent effects tangible, such as the so-called Ant Colony Optimization algorithms, by visualising the principle of pheromone trails in the form of glowing trails. The lines fade away with time, just like real ant trails do.

The lumiBots trace their path with a UV LED on phosphorescent paper. In their immersive beauty, they resemble a swarm of jellyfish, as well as in their limited cognitive capabilities. The robots do not have a memory chip, nor do they learn anything, but the glowing trails can be seen as some kind of external memory. The lumiBots' behaviour is not pre-programmed and not predictable: It emerges from the interaction between the robots, the simple rules they follow, and influences from the surrounding. With the lumiBots, I delved deeper into the topics of Emergence, swarm behaviour and artificial life that I have touched with *schüchterne lichter* (timid lights) in 2006: An artificial swarm that evolves emergent effects and evokes reactions in the visitors similar to those towards a living creature.

I have developed, designed and produced the robot platform myself, with the assistance of Philipp Urbanz (TU Berlin). It is based on the Arduino microcontroller, modular and expandable.

The lumiBots have been internationally exhibited and presented both in a science context as in an art context. Together with Prof. Dr. Verena V. Hafner who is leading the Cognitive Robotics Group at HU Berlin, I wrote a paper about the lumiBots which was published in 2010 by the ACM DIS conference in Aarhus, Denmark.

# trashSet

Xenon is a new tv channel run and produced by students from Berlin and Brandenburg.

The different programs did not have a set design yet. We offered to design and implement a mobile tv set in the course *Set Design for TV Formats*. Our seven-person team decided to design and realise the set for the moderation.

Team: Jacob Brinck, Antje Cantzler, Susanne Hu, Tinka Molkenthin, Felix Nolze, Julia Tödt
Supervisor: Hermann Weizenegger



Xenon sees itself as a tv channel at the intersection between station and programme. The moderation functions as a transition between the different contributions and formats. Our aim was to design a fresh and unique set for this young and unusual channel which catches the zapping watcher's attention.

We started by a research about tv sets and studios: What kinds of studios already exist? What defines a studio? How is space and light treated? We noticed that the designs of different studios were extremely similar: Some colours kept repeating over and over, like "emotional" yellow for talkshows and "matter-of-factly" blue for news broadcasts. Back-lit colour transitions and semicircular lounges are also very popular.

Before our first meeting with the Xenon team we developed a broad range of design concepts. The moderation team requested the set to be portable since the moderation was to take place on varying sites. Since there were no further specifications we shortlisted two concepts to be further developed and presented them to the executive board.

The concept TrashSet by Felix Nolze was selected for implementation because "the wild and rebellious low-budget design matches the channel's identity".

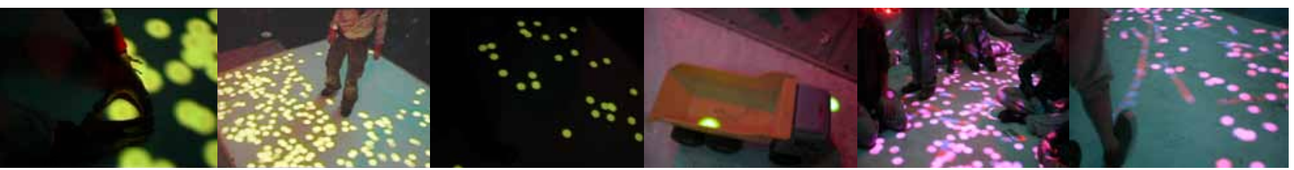
We obtained a truckload of old furniture from the local waste management which we redesigned, remixed and branded to match Xenon's Corporate Identity.

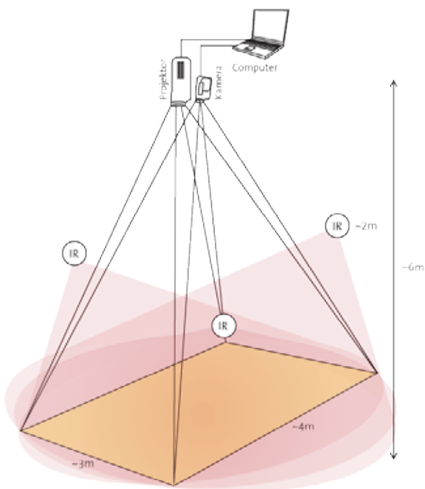
# schüchterne lichter

*timid lights*
Interactive installation for Fusion Festival ‘06

Shivering light points that react to movement are projected on the floor. When “touched”, they escape in the opposite direction. Vehement movement will upset the whole swarm. When nobody is playing with the installation, the lights slowly calm down.

Partner: ortvision Berlin
Supervisor: Mattias Ljungström






What if one could influence the light points reflected by a mirror ball that fly across walls and floor? What if they hid like little creatures, and then, after a while, if you did not move, come back and dance around you?

Fusion Festival is an alternative festival for music, art, theatre and performance taking place on an old military airport in Northeast Germany every year. Andor Rothämel from Ortvision has designed and organized the *Outback Hangar* since a couple of years. He knows some of my previous work and asked me if I could develop and produce an interactive installation for the hangar.

Requirements
- the installation must blend into the space
- the installation should be integrated into the time concept of the festival and the hangar

Exhibition at Fusion '06 – social interaction
- Several people can interact with the installation at the same time, and also with each other.
- The visitors immediately invented own games: Like, chasing all the lights into one corner, or trapping them in a circle of people, or trying to catch a single light.
- The simplicity of the installation makes it accessible for children and grown-ups, open for own ideas, as an interactive game and as a decorative ambient projection.

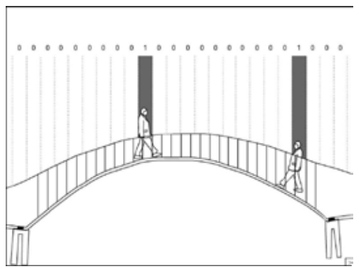
The installation invites the visitors to play with it. The lights were deliberately designed to be simple and universal in order to leave more room for the visitor's creativity. They are a game without rules and offer more than only one way of interacting with them.
The lights´ behaviour as a swarm is more complex than the code that controls them (this effect is referred to as emergence).

*schüchterne lichter* has won a Honorary Mention by the *digital sparks Award* and was exhibited at *lab.30* Media Art Festival in Augsburg in 2008.

# binary bridge

*binary bridge* is a place-specific, temporary, interactive light installation on a pedestrian bridge in Malmö. Twelve motion sensors that are mounted on the railing register when a person is crossing the bridge. Each sensor represents a digit in binary code. The number generated from the sensor data which constantly changes as people are moving on the bridge is visualised as the (RGB) colour in which the bridge is illuminated.

Team: Helge Fischer, Neda Hajmomeni, Freddie Eksteen
Partner: Malmö Högskola, Malmö Stad, Citytunneln
Supervisor: Jörn Messeter



Making a place interactive might change people's behaviour, but as well allows people to change their surroundings. In modern urban life, humans are normally not able (or allowed) to make big changes in their physical surroundings. Offering large scale interactive edu- or entertainment can thus be very attracting. Most light installations are aesthetic and pretty to look at, but they do not offer the possibility of taking influence, or of playing with them. By embodying technology in a location, people can somehow become digitally connected to their physical environment.

Winters in Sweden are long and dark, so light installations can be very impressive. We opted for the wooden bridge that connects the Malmö Högskola Orkanen building and Central Station as our place. We chose the bridge because it is situated in an exciting and rapidly changing place that is full of friction: the old harbour area.
The bridge is not only a place of transit and transition, but also situated in a place that transforms, and that always has been a symbol for transport (of goods, of people, of information). It connects past and future, old and new buildings, the analog and the digital era. The bridge itself, however, evokes no excitement. Hundreds of people are crossing it every day, only noticing it as an annoyance or not at all. The bridge is not a place to stay, especially not in winter. It might even not be a "place" at all – but just a connection. A conductor between the University buildings and the Central Station: for people, but maybe also for information. People carry information from the library, from university to their homes, and vice versa.

Our goal was to make crossing the bridge a joyful, playful *experience* and highlight the tension that spans the bridge.

The people crossing the bridge represent the bits traveling in a data line and are visualised in the colour of a "giant pixel" at the bridge endings. In this way, a connection is made between the digital and the physical. When nobody is on the bridge the spotlights are turned off. When the bridge is crowded, the spotlights will add to the colour white. Thus, the colour also visualises how busy the bridge is.

# year abroad (K3)

From August 2006 until June 2007 I studied at the School of Arts and Communication (*K3*) at Malmö University, Sweden. There, I completed the first year of the two-years international Master's programme in Interaction design, and additionally the one-semester-course Fashion and Technology.

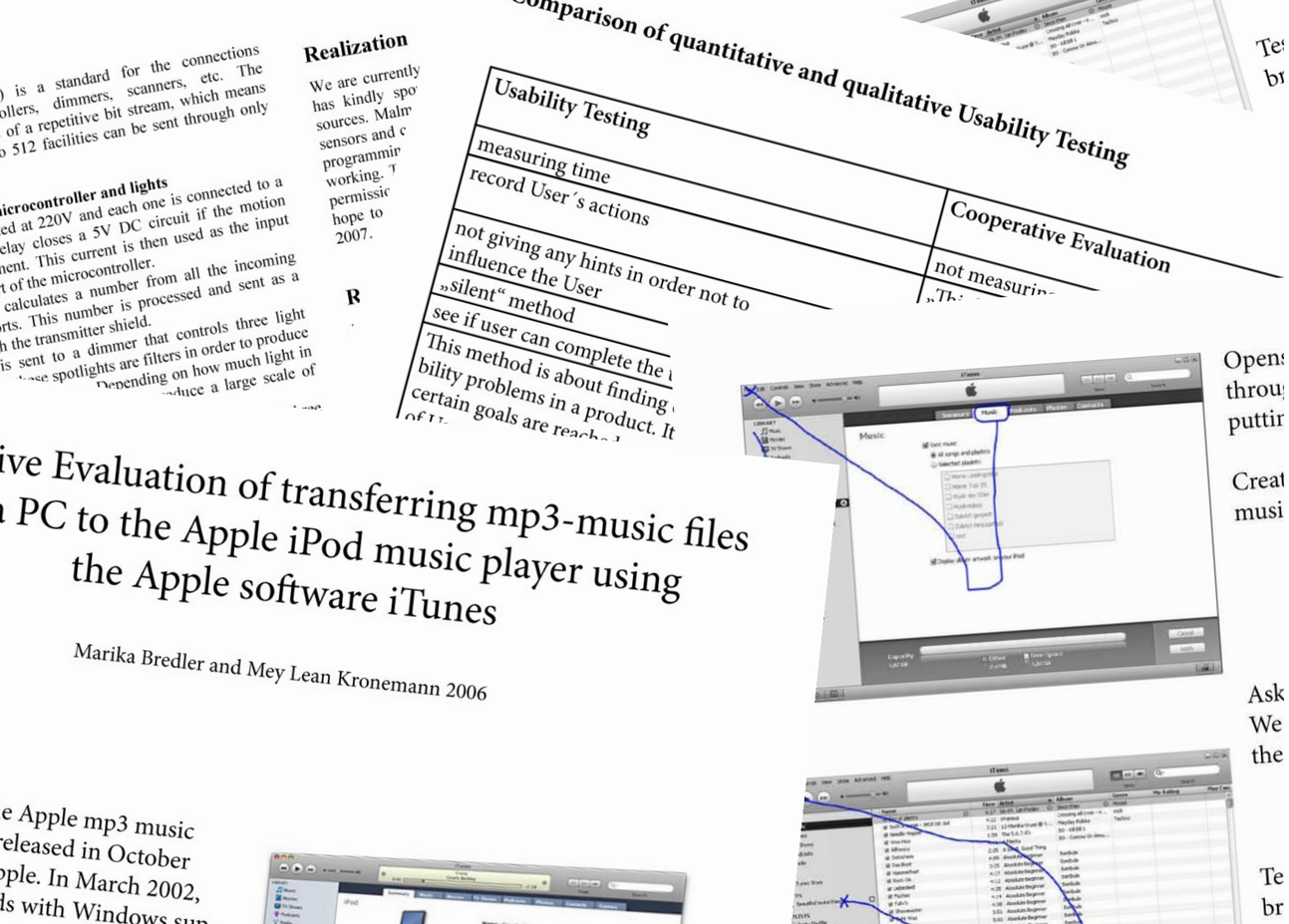
The Interaction Design Programmme in Malmö is particularly famous for its Physical Computing Lab led by David Cuartielles, but also for its academic publications (e.g. Jonas Löwgren). The programme focuses on "social" appliances that help people socialise. A lot of research is also done in the field of mobile services.

Studying at Malmö University is different to studying at Fachhochschule Potsdam in many ways: Almost all courses are team projects. It is not always possible to chose the team members and not appreciated to always work with the same team. Thus, the team spirit is more important than the individual performance. The courses are usually short and intensive (only a couple of weeks). The design focus lies on scientific grounding rather than appearance.
In the MA programme there is a fixed schedule. The students work on campus most of the time, but the teachers are at uni every day as well.

In Malmö I realised only few projects but acquired many skills. There were workshops about different methods and tools, like Physical Computing, Paper Prototyping, programming in *Flash*, creating Personas, making video scenarios and much more.
In addition to the MA programme I attended the Fashion and Technology class in the second semester.

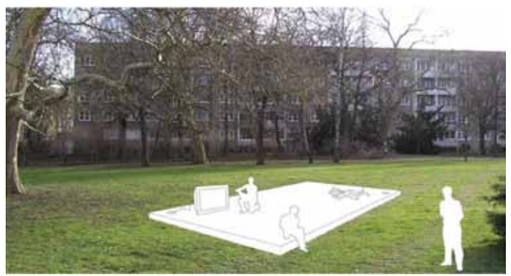
In the Master's programme I learned how to work academically in the field of Interaction Design. I learned about different evaluation methods for products and services, such as quantitative and qualitative Usability Testing, and Cooperative Evaluation. For every method, I have written and presented a survey in team work. I have learned how to write papers in the ACM format, how to research references for concepts, and how a good argumentation is structured.

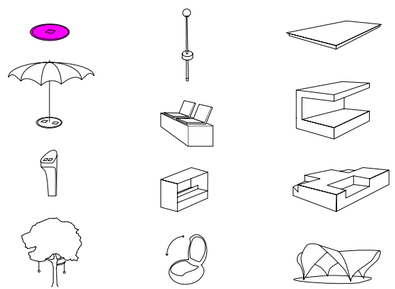
Last but not least, my English has improved a lot.

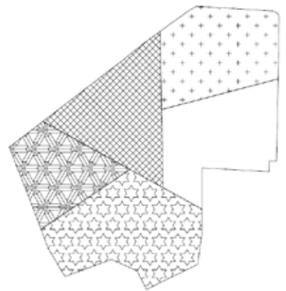


# realities:united

I worked as an advanced intern at *realities:united* from June until mid-October 2007. *realities:united*, a studio for art, architecture and technology was founded by the brothers Jan and Tim Edler. During my internship I worked on the same project from conception stage to prototype implementation: A safety concept for the Dessau City Park.









The studio *realities:united* is mainly known for its media facades, like the monumental *BIX* neon tube display which covers the skin of the Kunsthaus Art Museum in Graz. I met Tim Edler at the *Innovationsforum Interaktionsdesign* conference, where he gave a deeply interesting talk, and asked him about an internship. I liked *realities:united*'s experimental, critical approach and their graphical use of light.

In the three months of my advanced internship I worked on a project for the Federal Research Programme for Experimental Housing and Urban Development (*ExWoSt*), the "Intercultural Park of Generations". *realities:united* was commissioned to research and design a concept for the innovative improvement of safety in the Dessau City Park by means of technology.

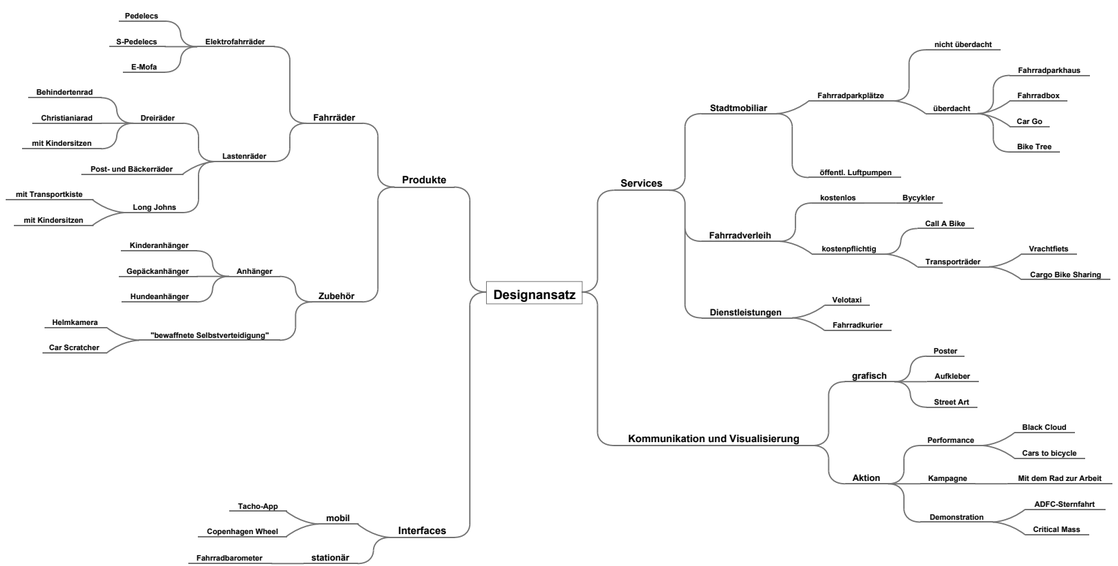
I was excited to participate in a project from the concept phase to the prototype implementation. My seniors endeavoured to give me assignments according to my skills.
I contributed both to the conceptual design and technical design. My duties included research, authoring texts, acquiring and creating graphical material, preparing presentations and communicating with clients and suppliers. I was responsible for the design and planning of the mock-up prototype. In September I travelled to Dessau to present the concept catalogue to the City of Dessau´s Workgroup Safety.

During my internship I learned a lot about the hard reality of dealing with real clients, as opposed to university assignments. I also realised that the planning phase organisation must be traceable and documented in digital form – and not as a scribble that eventually becomes lost.

# research assistance

From October till December 2010 I was employed at Fachhochschule Potsdam as a research assistant on a fixed-term part-time contract for the project *EcoViz*. The project was funded by the Federal Ministry of Education and Research (*BMBF*) and deals with sustainability, ecological awareness, energy consumption and how to change people's behaviour towards a more eco-friendly life. The project will continue until end 2011.

Head of Project: Frank Heidmann, Reto Wettach, Interaction Design Lab Fachhochschule Potsdam






How can design change people's behaviour towards a more eco-friendly life?

After looking at different topics (and finding that the field of electricity consumption visualisation is widely explored) I chose to research about cycling as the most energy-efficient means of transportation. I specified on the question of how to encourage car users to cycle instead of drive from a designer's focus.

I started my research by interviewing people of different age and gender who own both a car and a bicycle. Based on the interviews I created different personas.

From the interviews I concluded that the reasons why people prefer to take the car are all based on comfort. Thus, in order to get more people excited about going by bike, cycling must become more convenient, and driving more inconvenient.

A research is worth nothing if it is not well structured. Merely collecting examples might be time-consuming but the real work is putting the findings into context. I researched about existing projects and classified them in categories such as products, services, campaigns, graphics, and transport policy (politics as likely being the field in which design matters the most). I also added some own ideas.

I found out that a lot of concepts, projects and solutions already exist but few are widely used or spread. My conclusion was that less cars on the streets would already solve many of the problems that cyclists are facing today.

# perspective::



My main interests lie in the conception of interactive products, prototyping, and the shaping of light and space at the fringe of architecture. I focus on the fusion of shape and action. Just like in Product Design, I try to find a physical expression for activities and actions in Interaction Design – for the interactions between humans, and between human and machines. I understand Tangible Interaction Design and Physical Computing as an extension of Product Design by the temporal dimension.

I enjoy working on short-term projects because the challenges of limited time and money fit my strengths: Finding practical solutions quickly, organising, researching, improvising, hacking, implementing – temporarily and through simple means. These skills are also important for building mockups, prototypes and functional models. However, I am also experienced in the production of robust objects that have to face weather, shipping, and intensive use.

In Interaction Design I follow the guidelines of Game Design: An Interface should be both intuitive and exciting in the long term. It should offer many features and possibilities without being confusing or frustrating. The principles on which rules in (computer) games rely are essential for this: Positive and Negative Feedback, Balancing, Emergence, Immersion.

In my opinion, science and design are compatible and not conflicting: I understand Design for Research as finding creative, sensuous solutions, models and explanations for research problems.

In the long run, I can imagine to do my Master's or PhD, maybe, but not necessarily in the subject Design.

My motivation is linked directly to the creative process. I want to lure users away from mouse and screen, and motivate them to interact with their environment and with each other in a playful way.

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