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MEDIA
TECHNOLOGY

MASTER THESIS PROJECTS
2020-2021

KTH Royal Institute of Technology

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This catalog presents a collection of master thesis projects from students pursuing Media Technology Master's Degrees at KTH, presented in 2020 and early 2021.

You will find projects from students in the master's in Interactive Media Technology, Media Management and EIT Digital (Human-Computer Interaction and Design).

Enjoy!

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Stockholm, Sweden

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Contents

Total cost of ownership of electric cars as a tool for the public

Sustainability and the role of battery electric vehicles (BEVs) in the shift to more sustainable transportation are gaining more and more attention in society today. However, only 4.3% of new passenger car registrations in Sweden were BEVs in 2019. High purchase prices are considered a major barrier to BEV purchases. But the purchase price alone does not reflect what the consumer pays for owning a vehicle. Previous research shows that BEVs could be cheaper compared to conventional vehicles such as internal combustion engine vehicles (ICEVs) from a Total Cost of Ownership (TCO) perspective. Lack of knowledge about TCO can lead to uneconomical purchase decisions. Moreover, lower adoption rates of BEVs, although BEVs can be more cost-effective and better for the environment in the long run.

This paper reports on an exploratory research process including the development and user study of a TCO tool aimed for the public. The purpose is to better understand how a TCO tool influences peoples' inclination towards purchasing a BEV. Based on an iterative design process, a web application was developed to help car consumers calculate and visualize TCO of new passenger cars. The web application was then used in a user study consisting of think-aloud evaluations and semi-structured interviews with car consumers about the prototype.

The conclusion point towards an interesting direction for a TCO tool moving forward. This study suggests that a TCO tool can make users aware of the cost benefits of owning a BEV. However, more research is needed to understand if this realisation is enough to have an effect on BEV purchases.

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Sustainability at Work: How Can Persuasive Design And User-Centered Methods be Used To Conciliate Sustainable Behavior and Work Goals?

Economic activity has a significant impact on the environment, which causes many issues. To reduce this impact, they must adopt more sustainable behaviors. Yet, environmental objectives often oppose their own goals. This thesis studies how companies can use designs thinking to meet their sustainability objectives and conciliate them with the personal goals of the company's employees. Through a case study, I analyzed action taken by two companies as well as literature on this topic. Based on this information, I used user-centered design and persuasive design to define guidelines to help companies solve the contradiction between sustainability and their own goals. These guidelines were implemented and tested through an interactive prototype. This thesis studies how vital context awareness and adaptability are, when trying to influence the employees' behavior to become more sustainable in complex workplace environments.

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Investigating presence in remote meetings; a case study testing extended reality (XR) technology

During times with global pandemics and climate change, the need for companies to be able to conduct their business without travelling is essential. Upholding social distancing and complying to restrictions on travel both globally and nationally have not only forced everyone to conduct their business from home but to do so regardless of technological maturity. While also doing so for an unforeseeable future. In times of change, resilience is key. Having more durable and resilient teams and workers are essential now, tomorrow, and most likely in the future too. Improving the usability of remote collaboration has never been as important.

Disregarding the fact that this has been a forced act of measure from the government, the aftermath of this for many companies will surely include reduced costs for travel, improved efficiency and reduced environmental impact. Undoubtedly, there is incentive from a business perspective, but what are the effects from the user's perspective? Derived from previous literature on presence, video communication, quality of experience (QoE) and interaction, this case study set out to examine the following research questions; What current factors influence the remote meetings of employees in a telecommunication company? In what way can extended reality (XR) technology potentially improve their experience? Extended reality (XR) technology refers to all real-and-virtual combined environments including augmented reality (AR), mixed reality (MR) and virtual reality (VR) and other areas that exist among them.
With obtained data from interviews and a series of tests, the results indicate that factors from every category; human, system and context factors influence the QoE. Additionally, in its current state, XR technology does not provide enough, especially in terms of quality, to significantly improve anything for these employees. The XR technology has potential to heighten the experience in respects such as mobility, but for presence and social context it did not gain much attraction.

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SENSITIV – Mapping Design of Movement Data to Sound Parameters when Creating a Sonic Interaction Design Tool for Interactive Dance

Technology has during the last decades been adopted into the dance art form which has appeared as interactive dance. Many studies and performances have been conducted investigating this merging of dance and technology and the mapping of the motion data to other modalities. But none have previously explored how the introduction of technology affects the mutually interdependent relationship, the co-play, between a dancer and a live musician in a completely live setting. This thesis specifically explores this novel setting by investigating which sound parameters of a live drummer's sound a dancer should be able to manipulate, through the usage of motion tracking sensors, to alter the dancer's experience positively in comparison of without the usage of the tool. For this purpose, two studies have been conducted. First, a development study to create a prototype from the first-person perspective of a professional dancer and choreographer. Second, an evaluative study was conducted to evaluate the applicability of the prototype and the experience of the manipulation of the sound parameters chosen, on a larger group of professional dancers. The studies showed that the sound parameters of delay and pitch altered a dance experience most positively. This thesis further shows that it is important for the user to get enough time to truly get to know the interactions allowed by the system, to actually be able to evaluate experience of the sound parameters.

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Competition or Cooperation? - Using push notifications to increase user engagement in a gamified smartphone application for reducing personal CO2-emissions

A helpful tool in forming, breaking, and maintaining habits and behaviors is a digital behavior change intervention (DBCI). These are interventions that leverage digital technologies to help their users to either take on or avoid certain behaviors. A common problem is a lack of user engagement with the interventions' content, which is key for its effectiveness. It has however been shown that gamified content and using prompts—such as push notifications—may have the effect of increasing user engagement, for both DBCIs and other applications. Furthermore, two commonly occurring game concepts are competition and cooperation, each with different influences on engagement which in turn may vary depending on the context and the user. Therefore, this thesis set out to examine how push notifications can be used to increase user engagement with a gamified DBCI by making its gamified elements more salient. Additionally, it will investigate if there is any difference in influence on engagement of notifications that either promote competition or cooperation. This was evaluated by deploying two different push notification strategies on Deedster—a gamified mobile DBCI with the aim to get its users to reduce their personal CO2-emissions—and tracking user behavior. The results of the evaluation showed that users who received push notifications were more engaged—started more sessions and spent more time—with the application than users who did not receive any. They also performed a significantly higher amount of target behaviors. There was no difference in the influence on performed target behaviors between the notifications promoting competition or cooperation, and only one significant difference—usage of intervention features—regarding user engagement. The gender of the user was also found to be a considerable factor in the influence of the push notifications. Competition increased engagement more than cooperation for male users, but not for female users.

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eTRIO Dashboard

COMPULSORY			COMPULSORY		
~8min	~4min	~4min	~5min	~13min	~8min
INTRODUCTION	GUIDELINE 1	GUIDELINE 2	GUIDELINE 3	GUIDELINE 4	GUIDELINE 5
Introduction to eTRIO	Family inclusive practices	Encouraging family attendance	Building rapport	Patient privacy & confidentiality	Observing family relationships
Review	Begin	Continue	Review	Begin	Begin

COMPULSORY
~5min
GUIDELINE 6
Emotional & informational needs
Begin

			COMPULSORY		
~5min	~4min	~4min	~15min	~8min	~14min
GUIDELINE 7	GUIDELINE 8	GUIDELINE 9	GUIDELINE 10	GUIDELINE 11	GUIDELINE 12

An usability evaluation of TRIO's e- learning modules enhancing the communication between cancer patients, clinicians and carers

The involvement of carers in oncology is important for the health of people diagnosed with cancer as well as carers themselves. To improve their involvement, three groups; patients, their carers, and clinicians should maintain good communication. The e- learning interface, eTRIO, has a learning module for each of these three groups. The design of eTRIO is based on research from psycho-oncologists. This study aims to answer the question; What are the strengths and weaknesses of the eTRIO interfaces for clinicians, carers, and patients in terms of their usability? Heuristic evaluation and think-alouds have been conducted to answer this. The results of this study show that interactive activities, as well as neatly presented content, are engaging the user, buttons and content should have clear purposes. The eTRIO interface will enhance carers' involvement with good usability, making it easy for users to retain important information. Strengths and areas for improvement will be presented in this study.

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The diagram contains the following labels: aguity, The future of SVT broadcast, Other drivers, SVT Play function, SVT Play position, Reaching young adults, istribution-TV convergence, News position on SVT Play, Further mergers and acquisitions, Broadcast on SVT Play, Always a challenge, International streamers, Reasons of this challenge, Local streamers, Addressing this challenge, n SVT's model, More subscriptions per household, Content on SVT Play

The Future of Public Service Television in Sweden

This study investigates the changing television landscape and consumption habits and the effects on the Swedish public service television(SVT). Recent shifts have amplified the ongoing decline of linear television and were marked by increasing migration of viewers to online video consumption and global streaming services. These new competitors escalate the challenges facing national broadcasters and emphasize the role of having a strong independent public service television that can remain relevant to all its audiences. SVT has been a pioneer in shifting to online and launched its video streaming service SVT Play in 2006. But the service is unable to recuperate the viewership bleeding from SVT linear channels, and reaching younger audiences has never been more challenging. The study presents a literature review and background referring to recent general trends in the television market, to put shifts and disruptions in the Swedish market in a larger context. We also present a thorough background on the Swedish television market focusing on the position of SVT and SVT Play. We discussed dynamics and drivers of recent structural and consumption shifts through in-depth interviews with key personnel from SVT as well as with other experts from different areas within the media and telecom industry. We seek to answer what future challenges and opportunities are for SVT Play and how to deal with those challenges and opportunities. The data collected were analyzed and reported in this study. The main findings indicate a new era ahead of public service heralded by the unprecedented decline of SVT broadcast and the increased consumption divergence in 2019. The study found that SVT Play has a central future role of public service television and should be further empowered to remain agile and relevant, through diverse, differentiated, and personalized offerings, but also through constant engagement with audiences and continuous learning of what they value and demand in a constantly changing media landscape.

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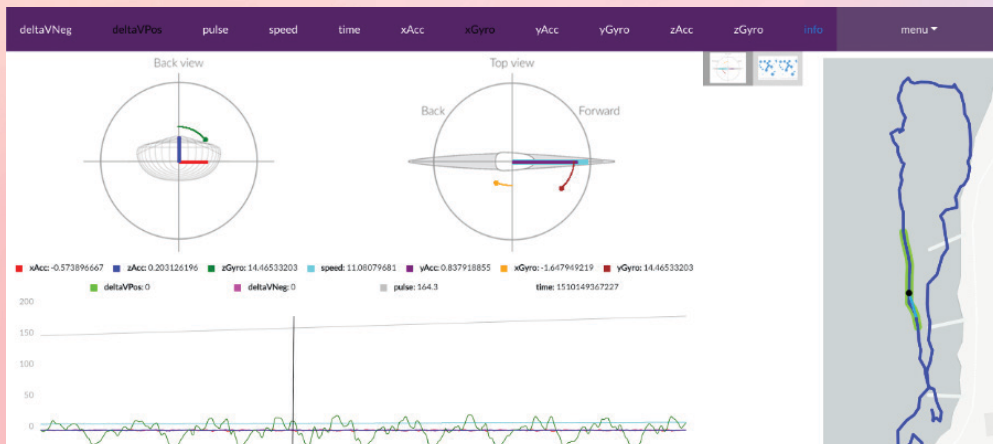
Building an interactive visualization tool for athletes' performance data

The world of competitive sports is becoming more and more interested in data analysis. Using sensors to track actions and trajectories produces large datasets that could be hard to draw conclusions from at face value. Visualizations can be used to make the process of data analysis easier and possibly allow for more advanced insights. The question is how visualizations should be implemented and what the possibilities are in doing so. Described in this paper is a project for designing an interactive visualization tool for olympic kayaking. Available research and theories of information visualization was combined with related research regarding visual data analysis for sports, and applied to the project. The process followed a problem-driven approach during a period of continuous feedback with domain experts. Qualitative data was collected throughout feedback sessions in an iterative process of developing a concept for a web-based tool. The results indicate that visualizations indeed do support and enable intuitive insight generation. In summary, the concept could improve data analysis, both making it more sophisticated and more accessible. Furthermore, it could improve collaborations between different user roles. However, needing to tailor the concept to a specific sport may affect the transferability to other sports, and the multidimensionality of the dataset produced a number of challenges to consider in future work. A number of improvements were suggested for the concept, and it was deemed promising for future research, development and implementation, which should be done in collaboration with domain experts.

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ve the news if I e the source or wspaper	If a source I trust makes an error in information I hope they would correct it and inform people	I trust big global newspapers because they are famous and have excisted for a long time	Trust in the establishment	Comfort in the old and known
a lot of faith in casters, this is rofession, so I expect things to t-checked	It's based on classic print news which makes it feel like something you already know and are comfortable with	I trust sources that I have known for a while	Annoyed and angry with fake news	Tendency to believe you are consuming the 'best' news

Investigating the impact of interactivity on the credibility of digital news media

Consuming news and defining its credibility play a large role in our everyday lives. The digitalisation of news has enabled new interactions with the medium, that have yet to be analysed in their impact on credibility. This study aims to investigate the effects interactivity has on perceived credibility and how user interactions can be applied to the digital news medium.

The analysis is done through a usercentric approach using both qualitative and quantitative methods based on design thinking. The methods used include a digital questionnaire, user interviews and prototype testing.

Using these methods we find that no strong association can be made between the frequency of use of specific digital interactions such as sharing, liking and commenting and perceived credibility. While most users see an added benefit in having more interactive elements on a digital platform, it cannot be concluded that overall higher levels of interactivity lead to higher credibility. However, if interactivity is used to enable people to voice their opinion an increase in trust can be built, which subsequently increases credibility.

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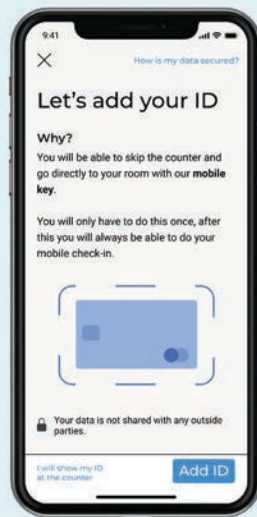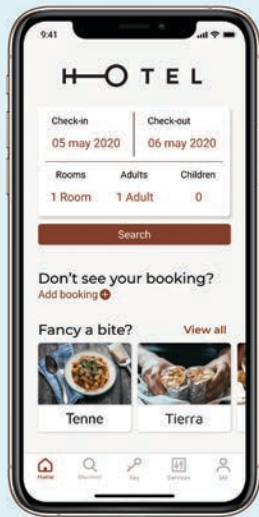
Designing a digital key for hotel applications

Although hotels have already started to implement online check-ins and digital keys in their applications, there has not been much research on the design of these prominent features. This thesis focuses on designing a digital key that is both easy to use and perceived as safe. A Research through Design approach was followed consisting of semi-structured interviews, an analysis of textual user reviews, and Lo-Fi and Hi-Fi prototyping in order to understand the needs and problems users face while receiving and using a digital key, as well as to provide further design directions for this feature. The findings showed that using a mobile phone to open a door or gate was already part of some of the participants' daily life. Still, many people do not like to rush into this digitalization. Hotel guests do not seem very worried about safety and using a digital key because the level of trust is high in the hospitality industry. The design presented in this paper serves as a starting point on how to design the receiving and using of a digital key.

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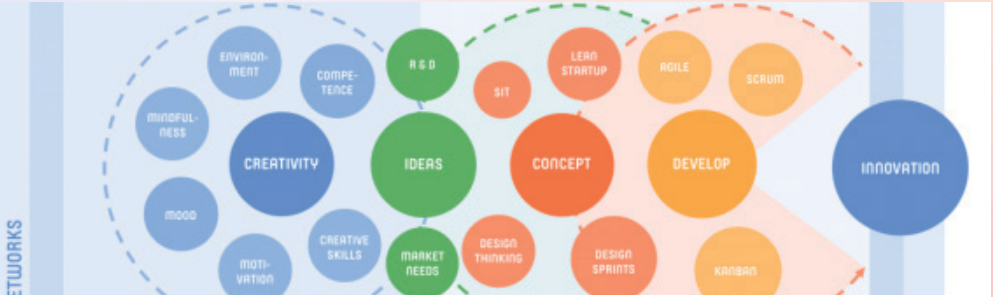
What are the advantages and disadvantages for digital B2C service companies when working with innovation in an agile way?

This paper investigates advantages and disadvantages of working agile in an innovation process. Both agile and innovation are two words that can be seen as buzzwords. However, they are two words that in one way or another can make a company successful.

The research question was tackled from three different angles; academic theory, expert interviews within the topic, and interviews with employees of a market research and marketing consultancy company that helps their clients with different kinds of innovation processes. The market research and marketing consultancy company in question was also where the practical part of the paper took place. The paper deals with theories from various academic articles that all center around agile, innovation or both. However, additional insights from books, blogs and web- sites are used. The method used includes semi-structured online interviews.

The paper concludes with several advantages and disadvantages of agile working in an innovation project and also puts forward three recommendations: "Continue to recommend the agile way of working in innovation pro- jects", "Make sure the clients involve and prioritize their customers in their innovation process" and "The digital B2C service companies' management should provide and prioritize its designated team a clear guideline". The recommendations are meant for the company where the practical part took place. However, the recommendations are written and analysed to be valuable for digital B2C Service companies in general as well. This is since recom- mendations are based on academic theories and expert interviews, which both deal with the research question from a general point of view

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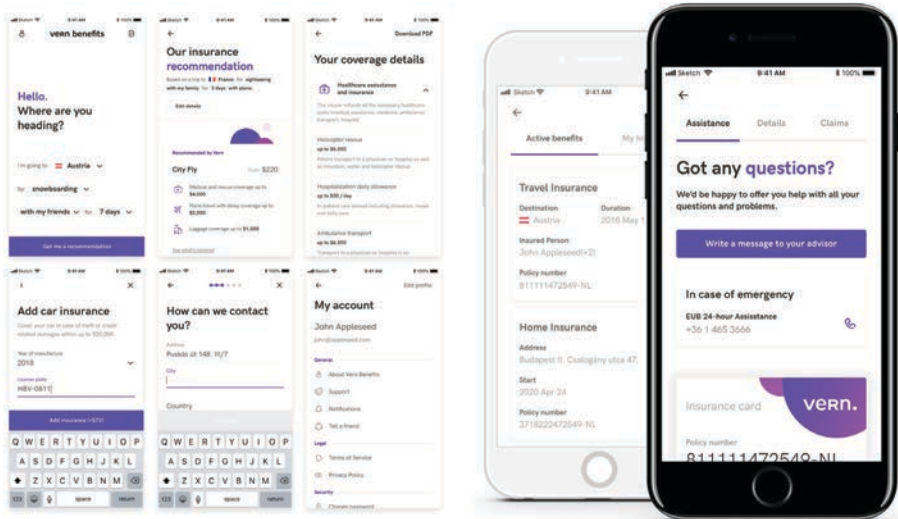
The digitalisation of worksite benefits programs from a product development perspective

This research presents a way for digitalising worksite bene"ts programs. The related work analysis and results of user interviews showed the important role of bene"ts programs in the wellbeing of employees, and as a result in company performance and employer branding. However shortcomings were discovered in the current format of worksite programs and suggested that digital transformation might help to address these shortcomings. The research used semi-structured interviews and analysis, user journey mapping, prototyping, and heuristic evaluation methods to deliver the concept of an employee insurance wallet. Furthermore, the research stepped beyond product design and presented a comprehensive framework for developing, monitoring, and operating such digital worksite bene"t product. The framework incorporates stakeholder needs to ensure business success and user-centred design methodology to embrace usability and engagement principles. According to the research results, the real-life version of the product was developed.

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Principles of a Gamification Concept in a Museum Using AR for Enhancing the Engagement in Children

Museums are not only public repositories of culture but also educational institutions striving to emotionally stimulate visitors with an explorative educational experience. However, it is stated knowledge that museums can be considered boring, especially by the younger visitors. The purpose of this study was to investigate how a museum exhibition can become more engaging by combining gamification with the museum's course of action to enhance visitor engagement in children. The goal was to identify distinct principles in the dimensions of gamification, the museum context, the target group of 10-13 year olds, and Augmented Reality. With a Research Through Design approach, a concept study and design study was conducted, and a prototype was developed as a representation of the principal findings. The prototype was evaluated in a user study conducted with participants within the target group. The result of the user study indicated that the gamification concept was engaging but due to few participants as well as lack of usability data, the concept could not be fully validated to enhance visitor engagement in a museum. However, evaluation of the findings and the defined distinct principles of the dimensions can serve as guidelines for other research conducted within the same dimensions or with similar conditions.

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Designing podcast listening history visualizations on mobile screens - A design study investigating visual representations of temporal data

As listening to podcasts have increased in most western countries, podcast applications need to become more exciting both content-wise, functionally, and visually as well as contain original features, to differentiate them- selves from the competition. One such feature is data visualization, which is in this study argued to deliver additional value for users. This design study investigated the possibility of visually representing personal listening history from podcasts into a mobile application through focusing on the following question: How can visualization of podcast listening history give additional value to the user-experience on a mobile screen? Research on visualization of temporal data and user experience was used as the foundational theory, with additional information from state-of-the-art products. Using a variant of the design process, described in Design Study Methodology, a final design was developed iteratively, with focus groups and usability tests. After designing and implementing a proposed solution, usability tests were conducted remotely, using videos of a hi-fidelity prototype. Concluding the research, one finding is that a successful data visualization of podcast listening history on mobile screens should include only meaningful animations and interactions and separation between visual elements and filtering options. To fully understand the best implementation strategy, more refined and expansive studies are required, with more test participants. User tests in this study were limited due to the Covid-outbreak.

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Exploring electromagnetic induction as a power source for interactive humanpowered devices

In the last decade, we have seen an increasing interest in the designing of interactive technology that is limited in energy usage to our bodily capabilities. This field is commonly referred to as Human-Power Interaction (HPI). The aim of HPI is to create battery-free devices that are powered solely from human interactions. Therefore, it is important that power generation and interactivity are aligned and not separated tasks. In this paper, a novel way of providing human power to interactive devices has been investigated using electromagnetic induction.

The focus has been to explore and play with the fundamental principles of electromagnetic induction with the intention of evaluating its potential as a new type of interactive power generation. With the help of a physical prototype and an application to demonstrate its capabilities, the results show that electromagnetic induction could potentially be considered as a relatively easy way to build human-powered sources for interactive devices using this principle.

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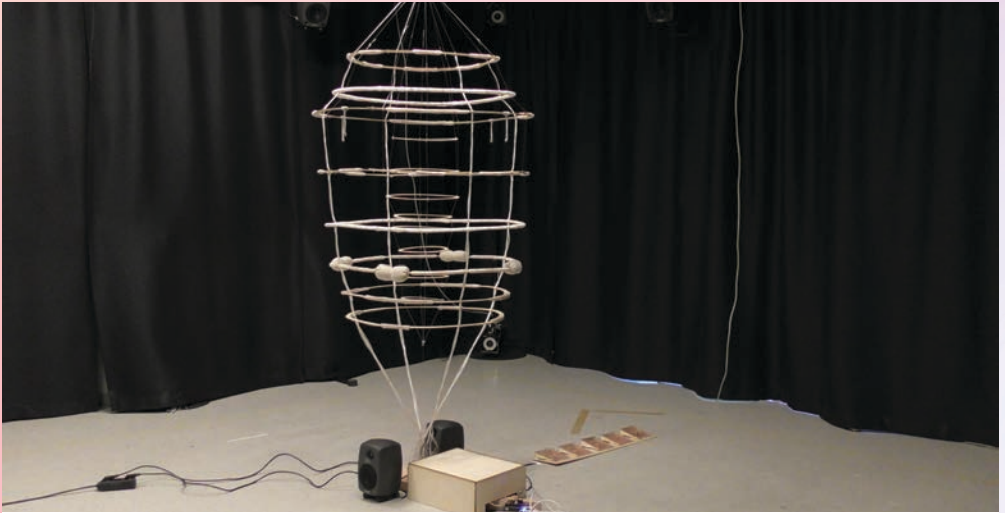
Designing for Musical Bodies: An Exploration of the Musician–Instrument Relationship

Drawing on phenomenology and the theory of embodied music cognition, and the idea that music is movement and the way we experience music is related to movement and to our bodies, the design and conception of a musical instrument is carried out through a soma design process, with the non-dualistic body at center. In addition to the use of design fiction as a means to imagine new design possibilities, practical somaesthetics are a part of the design process through the bodily practices of Dalcroze eurhythmics and instrument defamiliarisation. These continuous bodily practices provide space for explorations of musical, aesthetic sensitivities and contribute to the designer's attuning to their own body and discoveries of musical sensitivities therein.

The experiential qualities of music--movement related rhythm and repetition are identified, and reflected in the design of the musical instrument. While interacting with the instrument does not necessarily provide direct immersion into those experiential qualities, nor an intimate musician--instrument relationship, it might however, open up a fertile breeding ground for new design directions and make space for new experiences. The design process itself, leading up to the instrument, was a great contribution to making room for exploring interactions with the body, movement and music.

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Public knowledge of digital cookies: Exploring the design of cookie consent forms

Forms for consent regarding the use of digital cookies are currently used by websites to convey the information about the use of digital cookies on the visited website. However, the design of these consent forms is not entirely right according to the directives of the General Data Protection Regulation and also not optimal seen from a user's perspective. They often lack options and the informational text is often too brief within the form. As a user, that might make it difficult to understand what it is you accept and what the consequences could be for your personal data.

Based on the directives given for the digital cookie consent form, it becomes clear that many do not meet the requirements. The question therefore arise, which factors make a cookie consent form successful, concerning how well a user understands the content and is aware of his/her choice of action? To answer that question, a quantitative- and a qualitative study was conducted. The quantitative study examined people's current understanding and perception about digital cookie forms. The results of that study were then used in the qualitative study to develop prototypes producing new cookie consent forms which were then examined with a usability test.

The study presents five factors that contribute to a cookie consent form to be considered successful from the user's perspective in understanding the content and making an active choice. These factors are text, options, full-page consent form, active choice and trustworthiness. These five factors can independently increase the user experience of a form, although, all should be accounted for for better results. The various factors together contribute to a form that complies with different directives and laws, but above all, helps users get a better experience of understanding what they approve of and the feeling of making an active choice.

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Pick a network type

We'll set the environment that matches your expected architecture :)

Multi Layer Perceptors   **Convolutional Neural Network**   Long Short-Term Memory

Convolutional Neural Netwok applies convolutional preprocessing to compress input nodes before generating conventional fully-connected layers.

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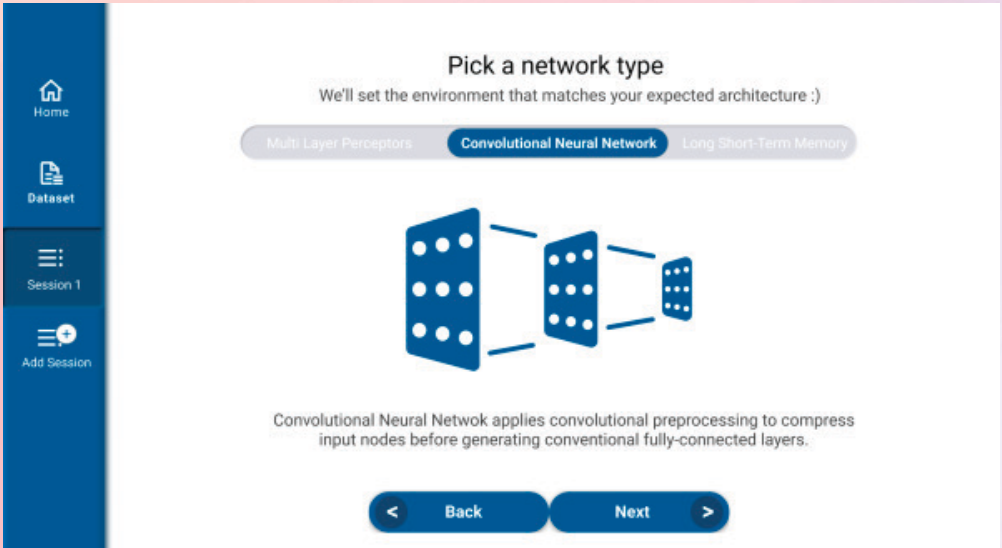
User-centred Design for Input Interface of a Machine Learning Platform

Although its applications have spread beyond computer science field, the process of machine learning still has some challenges for both expert and novice users. Machine learning platform aims to automate and accelerate the delivery cycle of using machine learning techniques. The objective of this degree project is to generate a user-centred design for an input interface of a machine-learning platform. To answer the research question, there are three methods conducted sequentially: 1) interviews; 2) prototyping; and 3) design evaluation.

From the initial interview, we concluded users' problems and expectations into 11 initial design requirements that should be incorporated into our future platform. The prototype testing focused on checking and improving the functionalities, rather than the visual appearance of the product. Finally, in the design evaluation method, the research delivered design recommendations consisting of five implications: 1) start with a clear definition of the specific machine learning goal; 2) present states of machine learning with a straight-forward flow that promotes learning-opportunity; 3) enable two-way transitions between all states; 4) accommodate different users' goals with multiple scenarios; and 5) provide expert users with more control to customize the models.

Student: Aditya Gianto Hadiwijaya
Supervisor: Charles Windlin

My favorites ♡

Categories

Waffles

Vegetarian

Våfflor med citronsmak och vispad mascarpone

🕐 30 min ♥

Ingredients

125 g Smör

4 dl Vetemjöl

1 tsk Bakpulver
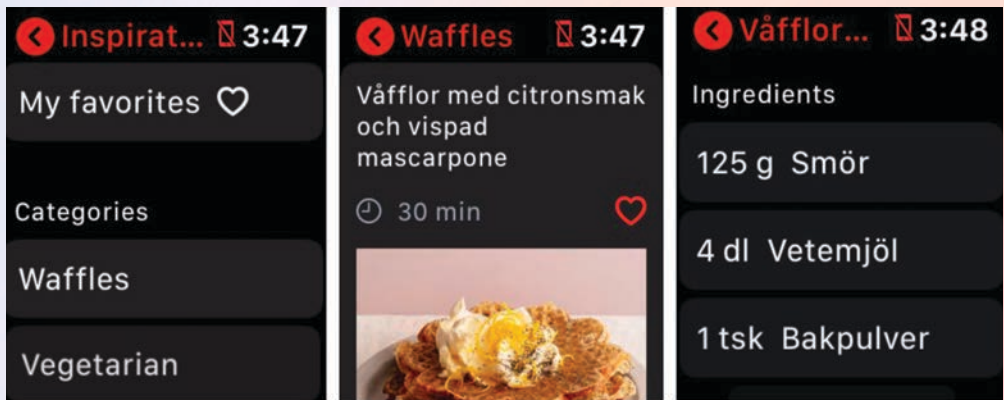
Affordances and challenges when creating a digital experience for people using smart watches with the intent of purchasing groceries

New technology is revolutionizing the retail industry by providing new conditions and questioning the traditional way of shopping. Wearable devices have gained popularity lately and smartwatches are one of the most popular among them [12]. However, little research has been made in the area of creating experiences for grocery retail purchases using smartwatches, which is where this study aims to contribute. Through establishing what affordances and challenges there might be when creating a digital experience for people using smart watches with the intent of purchasing groceries. With the support from CompanyX, one of the leading companies with their core business in grocery retail, the study was built around Apple Watch users as the target group. An experience-centered design method was used to incorporate the end user at each stage of the design process. A high fidelity prototype was created based on the decoded material from the semi-structured interviews performed. The prototype was then evaluated in a remote setup using both in-depth test sessions and a broader evaluation questionnaire. The results showed that the prototype proposed added value for the user by providing an experience that would encourage a more structured and inspirational way of purchasing groceries. The attitude towards the prototype was positive. However, further improvements are suggested and discussed aiming to suit the limited interaction options of a smartwatch, better. The study provides insights in what the attitude looks towards different types of functionalities aiming to create an enhanced grocery shopping experience among Apple Watch users.

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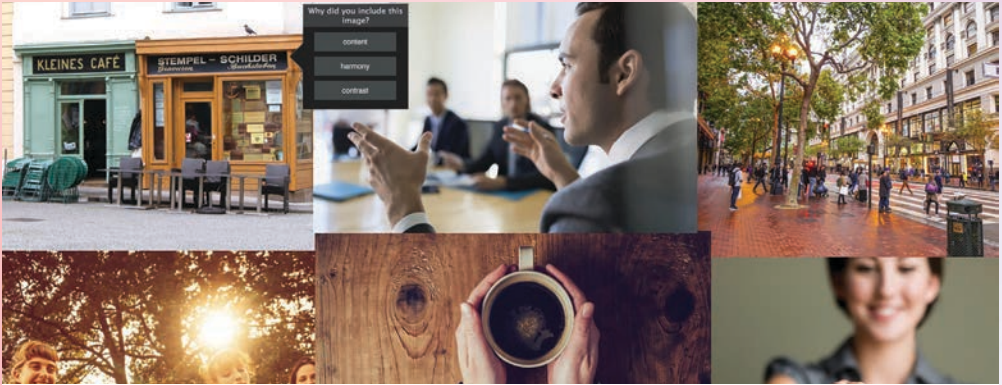
Reciprocal Explanations: An Explanation Technique for Human-AI Partnership in Design Ideation

Advancements in creative artificial intelligence (AI) are leading to systems that can actively work together with designers in tasks such as ideation, i.e. the creation, development, and communication of ideas. In human group work, making suggestions and explaining the reasoning behind them as well as comprehending other group member's explanations aids reflection, trust, alignment of goals and inspiration through diverse perspectives. Despite their ability to inspire through independent suggestions, state-of-the-art creative AI systems do not leverage these advantages of group work due to missing or one-sided explanations. For other use cases, AI systems that explain their reasoning are already gathering wide research interest. However, there is a knowledge gap on the effects of explanations on creativity. Furthermore, it is unknown whether a user can benefit from also explaining their contributions to an AI system. This thesis investigates whether reciprocal explanations, a novel technique which combines explanations from and to an AI system, improve the designers' and AI's joint exploration of ideas. I integrated reciprocal explanations into an AI aided tool for mood board design, a common method for ideation. In our implementation, the AI system uses text to explain which features of its suggestions match or complement the current mood board. Occasionally, it asks for user explanations providing several options for answers that it reacts to by aligning its strategy. A study was conducted with 16 professional designers who used the tool to create mood boards followed by presentations and semi-structured interviews. The study emphasized a need for explanations that make the principles of the system transparent and showed that alignment of goals motivated participants to provide explanations to the system. Also, enabling users to explain their contributions to the AI system facilitated reflection on their own reasons.

Student: Lena Hegemann
Supervisor: Marianela Ciolfi Felice

Creation	Spread
Who's making stories on disinformation and why?	How does it spread across social media?

Stop spreading the news! How disinformation spreads on social media and what politicians are doing about it

Following the rise of social media, the world has found itself in a hyperconnected state. Through the press of a button, it is today possible to reach every corner of the world. This has brought opportunities for freedom and liberation, but in the past years it has also become a danger for these ideas. The rise of disinformation has been declared a major threat to democracy and our society by several major institutions, one of them being the European Union. They have also made it clear that the tech companies, through whose products disinformation primarily spreads, not only inadequately prevent it, but also question if they have enough incentive to do so. The executive branch of the EU, the European Commission, has therefore put forth an action plan in which they outline their work going forward in mitigating the crisis. Comparing with previous research on the vital parts of disinformation, there are heavy indications that the EU's work will focus on reactionary measures; discovery and sharing of data on ongoing disinformation campaigns between neighbouring and Member States, as well as societal media literacy efforts. For now, due to what seems to be a fear of over-regulating freedom of expression, the responsibility to battle creation and spread is left to the Code of Practice on Disinformation, a plan created by tech companies that hold the platforms that are center in the spread of disinformation. After a first year-assessment, the EU indicates that the results of this Code of Practice is unsatisfactory, and further action might be needed.

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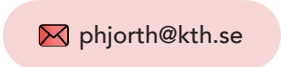
Exploring the effect of using vibrate-type haptic glove in the VR industrial training task

Is it a dream came true for you to experience a Virtual Reality (VR) and be able to touch virtual objects and manipulate them with your bare hands? The recent growth of the Virtual Reality market resulted in an intensification of the development of the haptics gloves technology. The newly haptics gloves, Bebop gloves launched and commercialized recently which will use for this study. Earlier research has explored a range of haptics effects mainly on VR surgery or gaming. Yet, VR industrial training has gradually received attention in recent years. Creating multiple scenarios in the virtual scene is not only cost-effective but also increases safety and reduces training time. However, not many research studies have explored using haptic gloves in the VR industrial training environment. This study tries to complement earlier research by investigating usability and user performance using bebop vibration gloves in VR industrial training. The purposes were to provide a usability review of bebop gloves and explored the effect of haptics in VR industrial training. Three different haptics settings (Non-haptics, Partial haptics, and Full-haptics) were being set up. Eighteen users were then recruited to try randomly two haptics settings. Each user had to complete a five steps VR industrial training task while "thinking aloud", followed by questionnaire and interviews after the task. The error and time recorded for each training step. These results confirmed several conclusions drawn in earlier research about how the haptics affect user performance in the VR environment, as well as how the behavior changes when using the haptics gloves in a VR environment. Last but not least the results also pointed to the importance of vibration haptics benefits in small-scale actions and provide the user with an interpersonal confirmation.

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Non-anthropocentric Design Thinking - Shifting focus to earthling needs through speculative contextualization, continuous re-evaluation and a focus on long-term service-based relationships, supported by PaaS viability.

In a world where halting climate breakdown is becoming more and more urgent by the minute, so too does the media industry need to deliver its contribution to change. Especially since innovation - a carrier of change - is seen as one of the main pillars of this field. Even more since anthropocentrism – a mind-set of particular harm towards the current Earth crisis – still seems to prevail this pillar. In an ambition to contribute to the urgent and necessary need to halt climate breakdown, this research delves into design thinking, one of the currently popular and established innovation processes, and investigates how it can become non-anthropocentric. Insights are drawn from observations and interviews with several designers who have engaged in the journey to move themselves, their practise and their results towards non-anthropocentrism. Analysing these, it becomes clear that non-anthropocentric design is about embodying an entanglement of species. This is achieved through understanding that we are entangled, by acting in collaboration with diverse fields and through being humble. Moreover, the paper suggests design thinking can become nonanthropocentric - shifting its focus from human to earthling needs - through thickening its current converging phases with speculative scenarios. These should highlight the additional needs of and implications for a diverse set of earthlings. In this manner the scenarios manifest the entanglement. The exercise is done best in collaboration with stakeholders from a diverse set of fields and with help from posthumanist perspectives, realworld entanglement examples, surprise and unifying language. Also, doing justice to the complexity of the entanglement and the challenging nature of this exercise, the scenarios need to be continuously re-evaluated. This demands design thinking to move away from its focus on processes within the scope of a project towards a focus on long-term service-based relationships within the scope of the on-going entanglement. Product-as-a-service business models could potentially make this viable.

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«Give me a little happiness

Rich Content in Digital News Stories - An investigation of how rich content can enhance digital news stories and widen the audience

The way digital news are being created today is very different from traditional printed methods. The digital news vvformat has possibilities that printed versions do not have. For example, they can use animations, video, audio, and interactivity, referred to with a collective name as rich content in this study. The problem is that there is little knowledge about rich content, how it is being used and the reasons for using it. By interviewing journalists and content creators, this study aims to answer the following questions: How can rich content help convey a digital news story to the reader in a more engaging way than traditional methods? How can rich content help widen the audience of digital news stories? Through semi-structured interviews, the author explored how rich content is used, and how people think when creating it. Ten employees at the media house Schibsted, all working at different norwegian newspapers, participated to this study. The results indicate that rich content in digital news articles can help convey a news story's main points by delivering complex things in an easy and understandable way. As a result, rich content seems to encourage more readers to finish the whole article. This study has also found that rich content can be used to widen the audience, since it can make the promotion of an article more interesting and make more people eager to share the article on their own social media accounts. Furthermore, targeting news articles towards different user groups could help widen the audience even further. Strengths and weaknesses are discussed, and the future work section show potential in further investigating how different user groups are affected by rich content, and what types of articles can benefit the most by using rich content.

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User-centered evaluation of the CERO simulation tool

The proliferation of competitive systems in the market is constantly raising the bar for both usability and UX (hedonic & pragmatic view) in the field of HCI. However, many of today's technologies lack the essence of usability and UX due to the gap between the practice and the literature. This study explores how the usability of an existing tool, namely the CERO simulation tool can be improved through usercentered design. A pre-study consisting of semi-structured interviews were executed to gather user requirements that gave a premise to base the design choices on. Thereafter, a redesign of the tool in the form of an interactive prototype was developed using the gathered information from the pre-study and literature review. Finally, the developed redesigned prototype was evaluated through a "thinkaloud" exercise, together with semi-structured interviews. The result of this study indicates the usability of a product can be improved through a balance between focusing the user's preferences and the organization's vision. Further studies on a live version of the final design based on the recommendations from this thesis is proposed, as well as that the system takes the hedonic view of the UX into account.

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Bridging Business and Design - A Business Thinking and DesignOps Centralization Approach

Creating and communicating the business value of design is a complex task. This case study set out to bridge the fields of business and design by investigating how design consultants can communicate the value of design to their clients. More specifically, the study investigates (1) how desirability can be linked to viability by using Strategy Maps and Conditional Statements, (2) how to quantify design output by calculating Return on Investment of Retention and (3) how to verbally and visually communicate design through relevant terminology and communication techniques. To do this, a Business Thinking approach by Rumsey (2020) was applied.

A first research phase consisting of 12 interviews were conducted, focusing on understanding the work environment of design consultants at the digital consultancy firm Futurice and how they collaborate with their current project clients. The results were used as a blueprint for the second research phase, consisting of one-on-one co-creation workshop sessions between design consultants and their current clients. The sessions were evaluated in Business Thinking experiments and interviews.

Physical co-creation canvases were implemented and used in the workshops. The experiments demonstrate that tools and methods inherited from Business Design and Business Thinking can be integrated without disrupting the existing DesignOps at Futurice. Further, the results indicate that the Business Thinking approach can be applied both to the design process of individual design consultants and into DesignOps management, which encourages application beyond the case of Futurice. To what extent is profoundly dependent on the design maturity of the individual designer and the organization. This is assessed and discussed based on the Design Ladder by Kretzschmar (2003).

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Reciprocal sound transformations for computer supported collaborative jamming

Collaborative jamming with digital musical instruments(DMI) exposes a need for output synchronization. While temporal solutions have been established, a better understanding of how live sound transformations could be balanced across instruments is required. In this work, a technology probe for reciprocal sound transformations was designed and developed by networking the instruments of four musicians and employing layered mapping between a shared interface, high level sound attributes, and the sound synthesis parameters of each instrument. The probe was designed and used during a series of participatory design workshops, where seven high-level attributes were constructed according to the spectromorphology framework. The analysis, where the notion of sonic narrative and the concept of flow were applied, reveals how live controlling reciprocal sound transformations facilitates collaboration by supporting role-taking, motivating the ensemble, and directing the focus of its members. While generality of the implemented attributes cannot be claimed, challenges of the chosen mapping strategy and requirements for the user interface were identified.

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Using Augmented-Reality for Visualizing a Social Robot's Internal State

Humans are very good at conveying when something is lost or misinterpreted in communication by using social cues like facial expressions or changes in prosody. However, these methods are usually not applicable for most robots, which are appearance constrained and vocality constrained. This is also one of the key factors that restrain the efficiency of Human-Robot Interaction (HRI). In this project, we explore a novel paradigm for enhancing the perception of the robot's internal states using augmented reality (AR). A series of visualization interfaces augmenting either the environment, robot, or target object are implemented and evaluated through a user study. We found that AR visualization improved efficiency and motion predictability over a control group in which there is no visualization. The project shows not only the potential of AR visualizing as a bridge coordinating human and robot, but also a promising future of applications visualising robot's internal states.

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Understanding and responding to algorithm: How different age groups reflect and respond to problematic aspects of YouTube's algorithm

YouTube is a global video sharing platform, affecting millions of users daily with its algorithm. With the lack of research on users' perspectives this study explored: *How different age groups reflect and respond to problematic aspects of the YouTube algorithm.*

Two different age groups were interviewed to probe their perspectives and test any following shifts in attitudes or behavior. Using the lens of the Transtheoretical behavior change model ("Stages of Change"), these two groups were taxonomised and revealed differing affective perceptions and dynamics towards intentions to change. The younger generations proved to be more rigid, while the older indicated more flexibility to change. These and other perception dimensions such as: self-assessment, level of trust, responsibility issues and engagement practices were explored and compared between two age groups.

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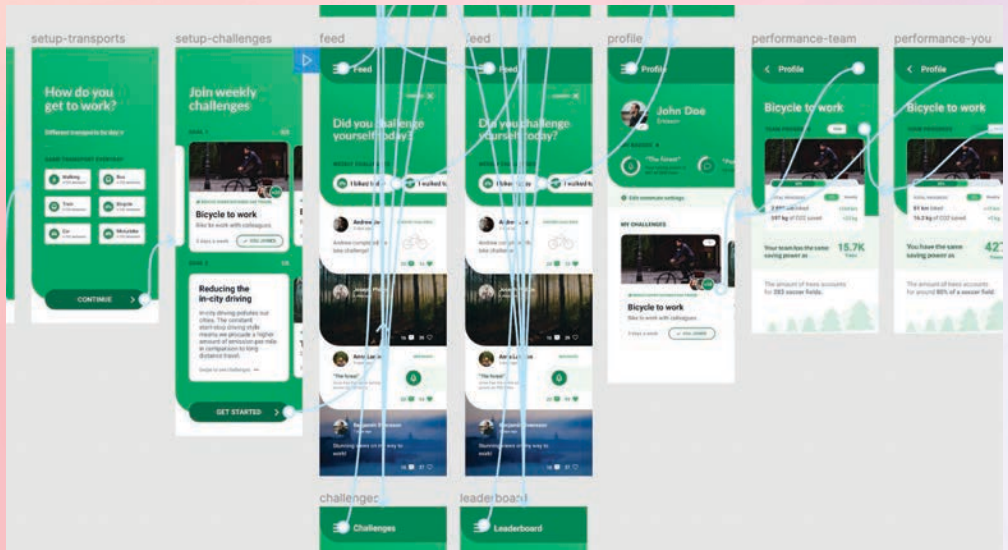
Designing With Gamification in Behavior-Changing Applications Focused on Self-Transcendence Values

There are enormous amounts of applications available today, which makes the market highly competitive. Some applications are more essential than others, and some might even affect how we live in the future. This study explores how user engagement can be increased in behavior-changing applications that not only help the enhancement of the individual but rather for a higher purpose. First, gamification was incorporated in an application based on a literature review that focuses on improving its users' commuting habits. After that, the application was evaluated using semi-structured interviews with sustainability-conscious stakeholders who are working in the industry. The study results indicated that the user experience of behavior-changing applications focused on a higher purpose could be improved in multiple aspects by using the gamification strategy. Therefore, the study suggests a set of guidelines for use when gamification is incorporated in behavior-changing applications focused on higher purposes; however, further research is needed to validate the guidelines. Additionally, two different studies are suggested to take the exploration of the topic further.

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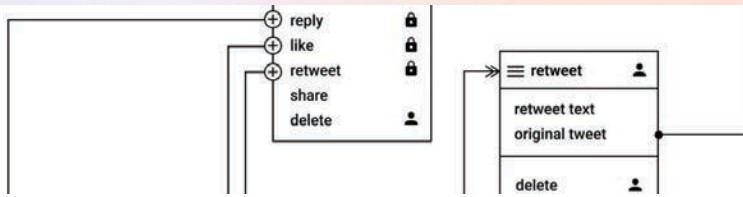
Visual Framework for Cross-Disciplinary Specification of Digital Products

A more integrated collaboration between different disciplines and stakeholders in the process of software development affects the quality of the end product and its user experience. The diversity of methodologies across the disciplines creates a need for an aligned set of practices, such as Agile User-Centered Design (AUCD), which is a cross-disciplinary integration of the Agile and User-Centered Design (UCD) methodologies.

The initial research part of this work focuses on identifying the main challenges and needs of cross-disciplinary teams, particularly in AUCD. The research methodology is based on a systematic review of the latest academic publications in the area, complemented by surveying the digital industry practitioners from multiple disciplines.

The identified challenges and needs are then addressed by proposing a solution: Digital Product Mapping Framework for the documentation of a holistic digital product specification in a visual way. The framework outcome is a design artifact that can be used as a communication medium for both designers, developers, and other stakeholders. The validation of design artifacts showcased its high readability rate among first-time users. Additionally, empirical user tests proved that such documentation of the digital product specification can facilitate the collaboration of cross-disciplinary teams and support such software development activities as maintaining a shared vision and estimation of project cost and scope.

This research work presents the following methodologies that can be valuable for both further academic research and for industry practitioners: synthesis and validation of the challenges and needs of cross-disciplinary teams; a set of recommendations for the specification documentation practices for AUCD; design principles for a solution to address the identified challenges and meet the needs of the cross-disciplinary teams. Moreover, an improved version of the proposed framework can potentially lead to a form of documentation that can be applied in AUCD practices.

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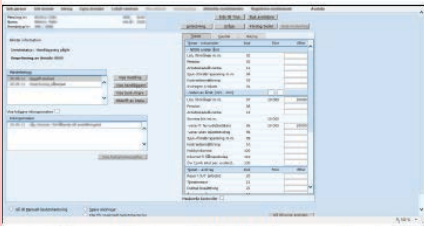
Figure 4: STA System X - view of fields that the caseworker shall fill in. There is no possibility to open an external file within the system and still able to view the fields.
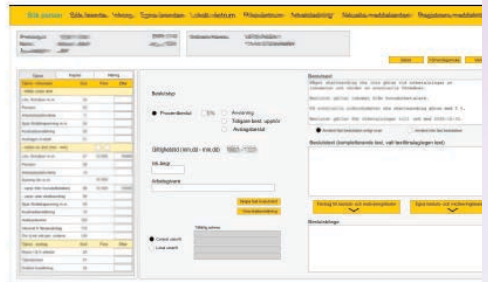
Figure 7: Prototype - the data have been added to the left in the view. It makes it easier for the caseworker to decide while being able to see the data.

Procurement of a new system, merging public agency aspects and system users - A design case study at the Swedish Tax Agency

The objective with this study was to find what limitations and challenges there are when creating a new development and design on internal systems at a governmental agency. Developing a system within a governmental agency is dependent on defined requirements to develop an approved system. The "Regleringsbrev", required aspects and the government constitutes the decision support at an agency. A governmental agency offered to be part of the inquiry of this thesis with a system utilized by caseworkers that was investigated. The method used was a concept study and a design study which included a survey of the agency's requirements and a User-Centered Design approach to merge users in the design process. Based on the results from the concept study a prototype was created and evaluated. The prototype had four functions that would satisfy both the users and the agency's requirements; handling submitted paper applications, viewing tax percentage data when making a decision, text proposals, and the number of clicks. The study provides insight of the process in making a development within a governmental agency. Suggestions to the appointed problem shows potential in further investigating the system, and also how other agencies cope with developing new systems.

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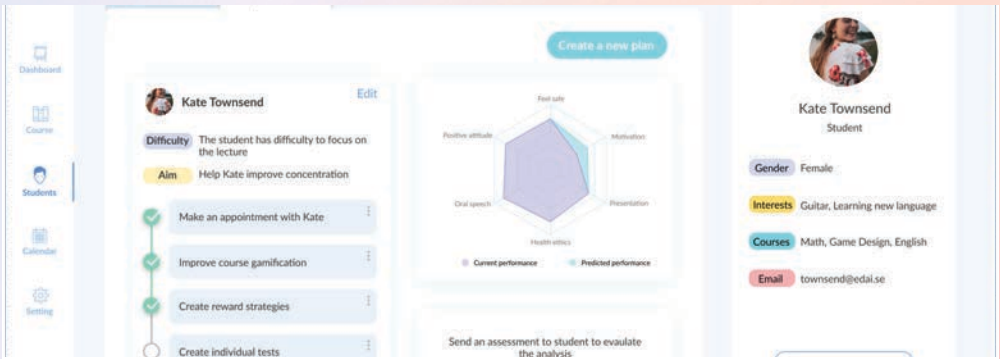
Designing a post activity learning analytics dashboard through information visualization methods

Rapid developments in the educational system significantly facilitate the popularisation of education, making education more accessible. The learning process should be systematically analyzed to assist teaching, however, traditional learning systems provide limited support for educators. The learning analytics dashboard is, therefore, becoming a popular tool to provide insights into the learning process by analyzing and interpreting the collected data with effective visualizations. With the purpose of improving pedagogical decision-making, it is of importance to provide a comprehensive overview and informative feedback for the learning process.

This study aims to explore the affordances and challenges of designing a comprehensive learning analytics dashboard for educators to support personalized learning and adaptive teaching. A large amount of research on the learning analytics dashboard was reviewed as the theoretical foundation. The prototype of the dashboard was developed based on the obtained theories. To examine the prototype, a user study with user experience designers was conducted to evaluate the clarity of the visualization and the effectiveness of the dashboard. The results summarised from the thematic analysis indicated that the dashboard could serve as a potentially valuable tool with overall clear interaction to support educators, and the visualization was considered intuitive to understand the connection of multiple data points. Suggestions for designing a learning analytics dashboard are discussed in terms of visualization, consistency, conception, navigation, interaction, information via text, visual appearance, functionality, and privacy. To further improve the affordances of the dashboard, future research with educators is of importance to conduct.

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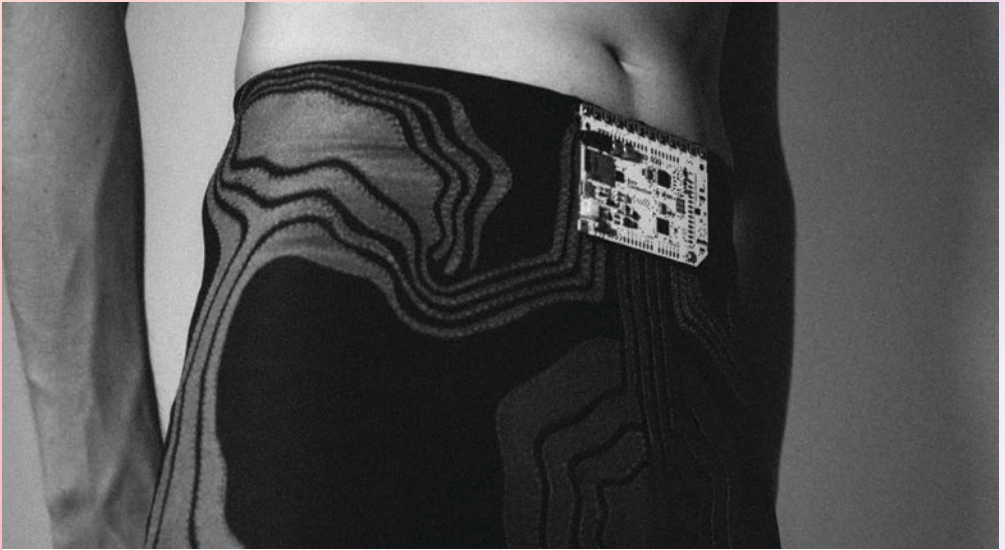
Touch yourself with Bäcka! Exploring the stigma of the pelvic floor

This paper explores the pelvic floor and the social stigmas around it, which risks hindering knowledge about intimate health in our society. Working from an autobiographical soma design process, expanded by using both a male and a female participant, relevant experiential qualities were identified and built upon in order to create a speculative design prototype. This resulted in Bäcka, an interactive experience that aids self-exploration of the pelvic floor through intimate touch, mediated by an interactive garment and interconnected soundscape. By doing this it aims to prompt discussion about the pelvic floor between participants, playing with the boundaries of normative dichotomies that reinforces a rigidity around this stigma. Thus highlighting these boundaries and subsequently providing an opportunity for participants to question them.

With this speculative method, the creation of Bäcka touches on questions for which there are no clear answers, but which tells a story of how we can work to question such social stigmas in intimate health.

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Designing an e-learning approach for UX designers about AI - A workplace e-learning perspective

Organizations need to stay on edge by taking advantage of the opportunities offered by emerging technologies such as Artificial Intelligence (AI). Modern software with AI-features is efficient when the user experience (UX) is not omitted. To generate better user-centered AI-features in software, UX designers need to be more knowledgeable about relevant AI-techniques and take advantage of their affordances. Currently, many UX designers lack such knowledge, and this thesis aims to fill this gap by suggesting a novel e-learning approach focusing on developing UX designers' knowledge about human-centered AI.

The proposed e-learning approach was developed as well as evaluated in close collaboration with the software company Visma. The overall methodological approach that has been used is Design Science Research (DSR). The proposed approach and relevant e-learning materials have been developed based on the state-of-the-art analysis and semi-structured interviews with six AI-experts at Visma. The designed e-learning approach was evaluated through a Technology Acceptance Model (TAM), measuring the UX designers' behavioral intention to use the novel approach.
The results show that they intended to use the e-learning approach for learning about AI-techniques in the near future. The e-learning approach was tested at two different times, and the design was refined, withholding more graphical elements after the feedback from the first test. After the final test, the behavioral intention to use the e-learning approach increased from the first evaluation. This study contributes with a novel e-learning approach for organizations' transition into having a more proficient workforce within AI. Future research should focus on empowering other job-roles in learning about AI.

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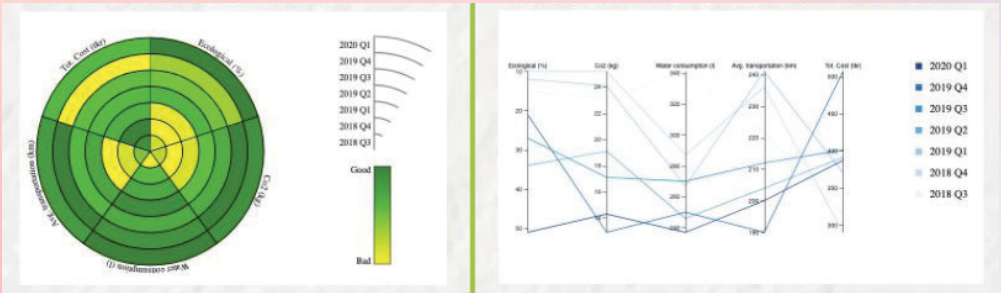
Visualizing multidimensional data over time to affect behaviour change - A case study of visualizing grocery data for large-scale consumers

With increasing awareness to climate change, there is an increasing desire to minimize one's impact on the environment. Looking to the food industry, this thesis targets companies making large scale grocery purchases to aid them in decreasing their negative impact through consumption.

Using research in behaviour change is was deemed most promising to give feedback on previous purchases in order to affect behaviour to make future purchases reflect the company's values further. With visualizations as an effective tool to communicate information; both implementations found in literature and new developments was considered. The visualization method called Circle View was most prominent in literature and was hence evaluated against a newly developed prototype. Based on a parallel coordinate system, the developed visualization featured a monochrome colour scale for different time periods and entities. While parallel coordinates are commonly used for large datasets, this use-case had much fewer entities and an ordered dataset which therefore, needed evaluation in its effectiveness.

Through participants using both visualizations to complete information gathering tasks a comparative evaluation was done. While having different strengths and weaknesses, the newly developed visualization was perceived to be most effective in communicating the information. Furthermore, when directly comparing the two, a vast majority preferred the monochrome parallel coordinate visualization. With enhancements and ideas on how to extend the visualization, such as further interaction, the monochrome parallel coordinate system could be suggested as an effective visualization for this and similar chronological multidimensional datasets.

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3D Representation of Eye Tracking Data: An Implementation in Automotive Perceived Quality Analysis

The importance of perceived quality within the automotive industry has been rapidly increasing these years. Since judgments concerning perceived quality is a highly subjective process, eye-tracking technology is one of the best approaches to extract customers' subconscious visual activity during interaction with the product. This thesis aims to find an appropriate solution for representing 3D eye-tracking data for further improvements in the validity and verification efficiency of perceived quality analysis, attempting to answer the question:

How can eye-tracking data be presented and integrated into 3D automobile design workflow as a material that allows designers to understand their customers better?

In the study, a prototype system was built for car-interior inspection in the virtual reality (VR) showroom through an explorative research process including investigations in the acquisition of gaze data in VR, classification of eye movement from the collected gaze data, and the visualizations for the classified eye movements. The prototype system was then evaluated through comparisons between algorithms and feedbacks from the engineers who participated in the pilot study.

As a result, a method combining I-VT (identification with velocity threshold) and DBSCAN (density-based spatial clustering of application with noise) was implemented as the optimum algorithm for eye movement classification. A modified heat map, a cluster plot, a convex hull plot, together with textual information, were used to construct the complete visualization of the eye-tracking data. The prototype system has enabled car designers and engineers to examine both the customers' and their own visual behavior in the 3D virtual showroom during a car inspection, followed by the extraction and visualization of the collected gaze data. This paper presents the research process, including the introduction to relevant theory, the implementation of the prototype system, and its results. Eventually, strengths and weaknesses, as well as the future work in both the prototype solution itself and potential experimental use cases, are discussed.

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Defining guidelines on how should a voice interface in a smartphone app interact with drivers

The use of smartphones in cars is a common practice that can result in distracted drivers and accidents. Research has shown that using voice to interact with the devices is the least dangerous solution for users, but its implementation is limited and sub-optimal. Other techniques like proactivity have shown positive results but its presence in products is reduced.

This study aims to define, through the synthesis and combination of previous research, a set of guidelines for the implementation of voice interfaces in smartphone apps that can safely offer relevant content to car drivers. Based on a review of the literature on testing for driving solutions, a series of online user evaluations were conducted across potential car drivers. The evaluations consisted of different behavioural scripts for the voice interface, which implemented diverse techniques to interact with drivers, and on the users' thoughts and impressions.

Analysis on the gathered data demonstrates that interacting with drivers through a voice interface and focusing on conciseness, politeness, proactiveness, offering relevant content and transparency of intent are fundamental to keep interactions engaging and relevant, as well as giving a sensation of assurance to the users. Further research is needed to validate the adequacy and safety of these guidelines in a real car environment.

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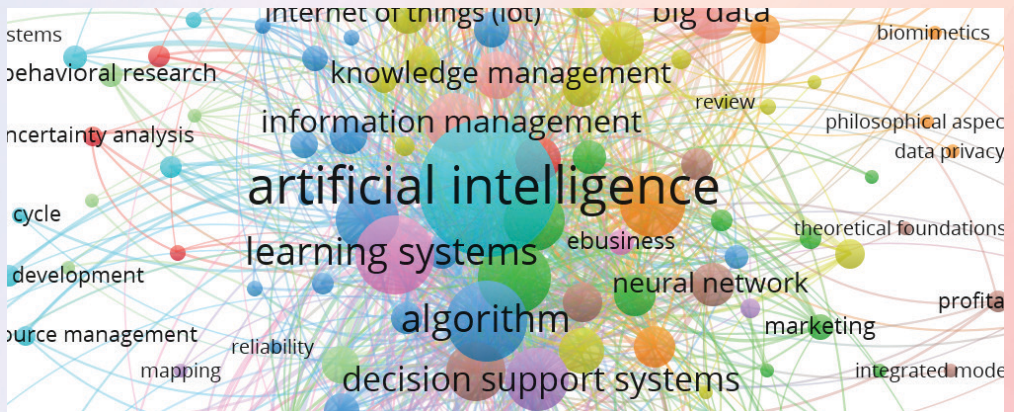
Literature Exploration on the Correlation between Value, Business Model and AI Technology: A Case Study on Urban Green

Value has received an increasing focus in business, meanwhile, under the background of industry 4.0, where the intelligent technologies are significantly reshaping the development of business model and accelerating the innovation. Understanding the correlations between value, business model, and intelligent technology can guide practitioners to create new competitiveness. There're numerous articles concerning business and technology in recent years. However, few studies touch upon the value's utilization and impact. The primary purpose of this paper is to explore the value concept adoption in business model under the effect of intelligent technology. A systematic literature study is developed in five steps: 1) reviewed abstracts of 392 publications; 2) extracted keywords and mapped terms; 3) analyzed mapping clusters in twofold groups: business and technology; 4) recorded major theories of each paper, analyzed in the corresponding category; 5) corpus analysis in value aspect for a deeper gap study. Furthermore, to illustrate the benefits of the findings, the urban green field is selected for the theoretical application. Urban green is studied by a similar literature study process to prepare for the application. The chosen urban green service - HUGSI is comprehensively analyzed. The primary result demonstrates the gap in value compared to business and technology, the barrier of systematically and equally handling value. The paper explores the status of existing studies related to the three areas, maps the inner correlations and points out the lack of focus on value. The result serves as a base for further literature study, contributing to a shift from business or technology-focused to value-focused in both theory and practice.

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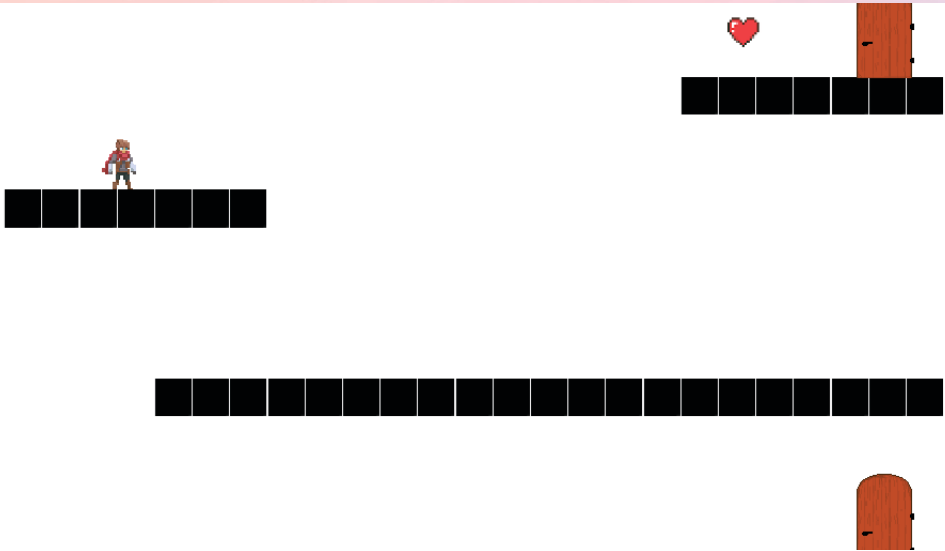
The Player as a Conductor: Utilizing an Expressive Performance System to Create an Interactive Video Game Soundtrack

Music is commonly applied in art and entertainment to enhance the emotional experience. In video-games and other non-linear mediums this task must be achieved dynamically at run-time, as the timeline of events is unknown in advance. Different techniques have been developed to solve this issue, but most commercial applications still rely on pre-rendered audio. In this study, I investigate using a Computer System for Expressive Music Performance (CSEMP) to dynamically shape a computer performance of a pre-composed track to a small platforming game. A prototype environment utilising the KTH Rule System was built and evaluated through semi-structured interviews and observations with 7 participants. The results suggest that changes in the musical performance can successfully reflect smaller changes in the experience such as character movement, and are less effective for sound effects and more dramatic changes, such as when the player is engaging in combat or when the player loses. All participants preferred the interactive soundtrack over a non-interactive version of the same soundtrack.

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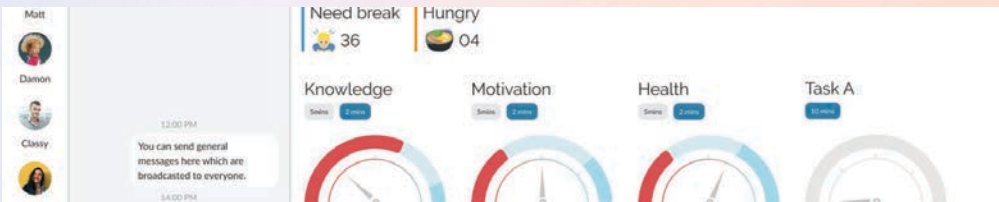
Supporting K-12 Teachers' Decision Making through Interactive Visualizations - A case study to improve the usability of a real-time analytic dashboard

Recent research have been focusing on supporting teachers in the classroom. Such support has been shown to benefit from the development and employment of teacher-facing analytic dashboards to help them to make fast and effective decisions in regard to the in-class student learning activities. The evolving interest in this field has facilitated the emergence of the Teaching Analytics area of practice and research. However, current research efforts have indicated that the use of such dashboards usually adds another layer to the already dynamic and complex situation for teachers, which can divert their attention and can often be experienced as a disturbing factor in the class. Therefore, it is highly important to examine how such teacher-facing dashboards can be improved from the user experience perspective, in a way that would allow teachers to grasp student learning activities easily and with good perceived usability. The aim of this study is to understand how we can better design teacher-facing dashboards to more adequately support K-12 teachers in their decisions that would provide relevant in-time and student support.

The study applies Nielsen's three-round iterative design approach to understand the existing usability problems and further develop the dashboard, originally designed by the company. In order to investigate users' perceived attitude towards the redesigned dashboard, the final prototype has been evaluated through a Technology Acceptance Model questionnaire and semi-structured interviews with nine participants.

As a result, the redesigned teacher-faced dashboard was proven to have a high potential to support teachers' decisions. The efficiency of the Technology Acceptance Model was verified and put into general context on how tools for teachers should be designed for the usage in the classroom. Additionally, some major challenges for teachers with using external tools during class were discovered and are discussed in the context of a newly designed dashboard.

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Turnover of Digital Advertising in Sweden
2013-2018

MSEK

9315 (2013)
10796 (2014)
12976 (2015)
15801 (2016)
19052 (2017)
21423 (2018)

Year

Source: IRM
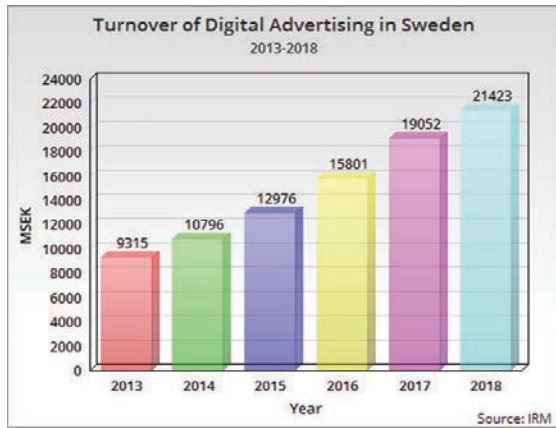
Consumption Behavior Of Online Video And The Perception Of Digital Advertisements Among Swedish Millennials

Media convergence has led to the integration of different technology and given birth to various OTT services. Audiences have continued to watch more video content online, simultaneously watching less broadcast television. The audiences have embraced OTT services especially because they can watch video content according to their convenience. With the help of flow theory, we are able to understand certain factors that lead to the user's acceptance of a new OTT service. The decrease in broadcast viewership has resulted in a decrease in profits earned from broadcast advertising which has led to many brands advertising digitally. But the increase of advertising clutter is leading to the audience feeling intruded. This results in the audience avoiding the advertising by using ad blocks or opting to not to use streaming platforms with advertisements. In the current changing digital landscape the advertisers need to innovate to find alternative ways to reach targeted audiences with innovative methods.

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You
7 days ago

Stunning views on my way to work!

Incorporating social features in an application through a user engagement-centered design

Online social interactions have become commonplace in the way we interact with one another. The way these interactions can be incorporated into an otherwise social-less application is explored in this study. By designing features based on user engagement design and inspired by theories of user needs, motivations, and social dynamics an application concept was created. Social features were incorporated into the concept in the form of a social feed that allows users to create and react to others' content within the platform. The concept was then realized through a high-fidelity interactive prototype and evaluated with stakeholders of the application in an unstructured interview process. The views, feedback, and design critique of the participants were then addressed and discussed. Recommendations and guidelines about how to design and implement social features are drawn from this evaluation. Further studies are proposed to take into account the end-users of the platform and to explore how the concept might behave in a real-life scenario through a working application.

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Animism and Anthropomorphism in Living Spaces - Designing for 'Life' in spatial interactions

Integrating animism and anthropomorphism into technology and our interactions with said technology allows for the design of better affordances, easier comprehension, and more intricate interactions between humans and technological artefacts. This study seeks to understand the circumstances and contexts under which humans tend to form emotional bonds with non- human entities and ascribe life-like or human-like qualities to them, through qualitative research. It also seeks to investigate whether animism and anthropomorphism apply to abstract entities such as a space, through 'constructive design-based research' and 'thing-centered design' methodologies. The investigations yield several insights in general, that are useful to designers attempting to incorporate animism and anthropomorphism into their work. The prototyping led to the creation of a prototype space that can serve as the foundation for future research.

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See real-life examples of where your music has been used

Examples from Youtube
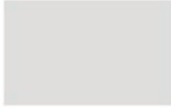
Statistics on downloads
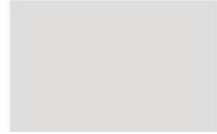
Exploring whether insights about users can inspire musicians in the creation of production music for a highly curated library

Today, many musicians depend on distributing their music and earning an income in different ways than before. A relatively new way to have a reliable income as a musician is to sell music to a company who provides a production music library. The company takes over the musicians' copyright of the songs and makes the music available in a highly curated library where other people can download the music and use it in their media creations.

In this paper, an investigation has been done to provide a better understand- ing of how musicians perceive working with a production music library and how they can be inspired by the end-users of the library. A qualitative approach was chosen and semi-structured interviews were held with musicians working for a production music library company. In addition, the musicians were shown real-life examples of media creations where their music had been used. To analyse the interviews, a thematic analysis was conducted. Three main themes emerged related to the framework, inspiration and control. All participants responded positively to seeing real-life examples where their music was featured, and several participants expressed that they would make changes to their music if they knew more about how their music is used. These results indicate that gathering insights about end-users can indeed inspire musicians in the creation of production music for a highly curated library. An additional outcome was that the feeling of control over their work was something important for the musicians to feel inspired to write music. Finally, the thesis presents an initial idea of a new functionality for the music library that could be introduced to meet the needs of the musicians.

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Mia and the Orb - using multi-modal interaction design for an intimate UTI home-based test experience

Medical technologies are increasingly moving into the home-setting, and they need to take potential users' experiences into account doing so. This paper explores how interactive point-of-care medical technologies can support and reassure potential users in their waiting during nighttime. Using Research through Design, it presents Mia & the Orb, an interactive home-based for detecting Urinary Tract Infections (UTI). Orbiting around moments of impatient and agonising waiting, the interactive test incubator guides the user's breathing and provides warmth. Using Participatory Design Fiction to unravel user values and a material directed design approach on the physical prototyping phase shows that making medical technologies soft, warm, and comforting opens up new opportunities to help during distressing helpless waiting moments.

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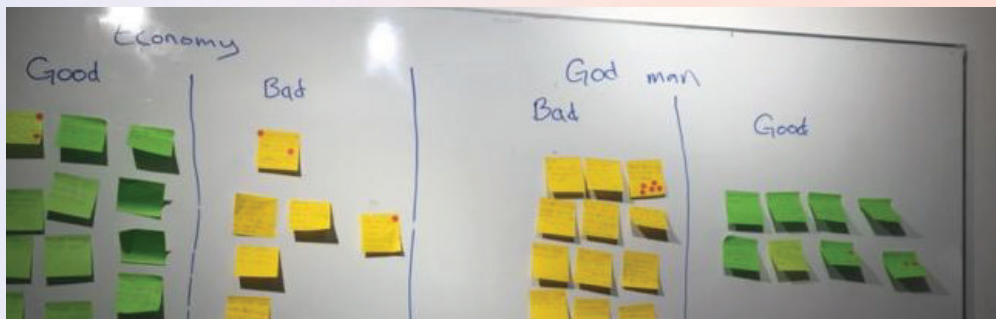
God man i fickan: Involving people with cognitive impairments in participatory design activities

Technology can provide efficient and accessible solutions to manage private economy, taking into account user needs and experiences. People with disability are most likely to encounter challenges related to financial literacy and lack of access to their own money. The project God man i fickan in Sweden aims to develop an accessible application that supports people with difficulties handling their private economy. The purpose of this study was to investigate basic functions and interactions in a digital tool used by people who cannot manage their own economy without some kind of assistance.

Participatory design activities involving people with cognitive impairments were utilized. The qualitative data collection included discussions, storyboarding and an online design session. Due to COVID-19 we had to modify one workshop for online environments. The collected data was analyzed with a content theme analysis which then was visualized and refined iteratively through wireframes and a lo-fi prototype.

The study revealed a number of user values, reflecting user needs, and a number of key features that should be supported by the application. A heuristic evaluation of the lo-fi prototype showed that using a provocative object engaged the participants in critical reflections and discussions. By involving people with cognitive impairments in the design process through participatory design activities, the methodology used in this study allowed them to control the design and application functionalities.

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Measuring Complexity of Built Environments: The impact of traffic lights and load of traffic levels on how drivers perceive stress

To understand which factors affect the perception of stress while driving is interesting since it would help us to get closer to comprehending how the street network design can avoid putting stress on the drivers. Earlier research has measured drivers' perception of safety under different street conditions by using video clips of real street environments. This study, that is carried out in cooperation with ITRL and it forms part of the MERGEN project, aims to introduce HCI techniques in order to prove that these techniques can bring valuable and credible results when substituting the conventional means of carrying out experiments. The study focuses on how the level of car traffic and the presence or not of traffic signs and lights affect how the drivers' perceive stress emotion. To extract relevant information, a perceptual experiment was conducted in which 29 subjects were exposed to stimuli that represented four different virtual street scenarios. Each scenario comprised a unique case that combined the two factors under examination. In order to measure the levels of the perceived stress, the subjects of the experiment were asked to answer questions on how they perceive the following four aspects: confidence, comfort, route information and manageability of traffic load. It was concluded that the presence of traffic signs and automated traffic lights has a big impact on every aspect that was examined since a significant difference on the responses given was measured. It was also concluded that the level of car traffic does not play a very significant role when it alters in street scenarios where traffic signs and traffic lights are present. Nevertheless, the level of car traffic becomes a factor on how drivers perceive stress when the street scenario does not include presence of traffic signs and lights. The use of HCI techniques with the goal to extract information on how drivers perceive emotions managed to give back descriptive results, something that can enhance the use of this kind of methods in the evaluation of not only street network designs but any Built Environment design in general. The study is conducted using virtual scenarios but is meant to help better understand emotions in real situations.

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Effort Expectancy

Hedonic Motivation

Performance Expectancy

Facilitating Conditions

Price Value

Social Influence

Habit

H1-1
H1-2
H1-3
H1-4
H1-5
H1-6
H1-7

Behavior Intention of using Online Music Service

H2-1
H2-2
H2-3
H2-4
H2-5
H2-6
H2-7

Customer Satisfaction

H3

Repurchase Intention
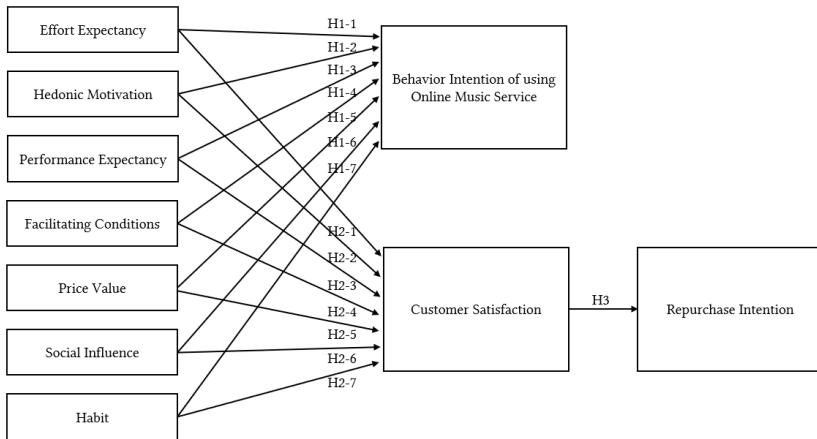
Factors Affecting Consumers' Intention to Use Online Music Service and Customer Satisfaction in South Korea

This study aims to investigate factors that affect consumers' behavioral intentions to use online music services and the extent to which users of these services are satisfied with their experience. It also seeks to clarify the relationship between customer satisfaction and repurchase intention. The research framework of this thesis is built from the extended united theory of acceptance and use of technology (UTAUT2), and the data from an online survey in South Korea was analyzed using SPSS. The study suggests that the most important factors among users of these services are usefulness, hedonic pleasure, and price value. Customers will be satisfied with the service if they believe that it provides useful functions and amusement, and satisfied customers are likely to purchase the service again. It should be possible to efficiently use the results of this research to establish consumer-centric and efficient marketing strategies within aspects of the online music business and to better understand the behavior of consumers when using these services.

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Design and development of a graphical user interface for the monitoring process of an automated guided vehicle fleet

Many different autonomously driving mobile robots are used for industrial transports of materials or goods in the context of internal logistic processes because of different use cases. The problem for the users that need to monitor the robots is that each manufacturer provides its own graphical user interface (GUI) with different operating modes and visual designs, which requires different trainings and constant switching between software. Therefore, this paper shows the design and development process of a graphical user interface in the form of a web application for the monitoring process of a fleet of automated guided vehicles from different manufacturers and answers the following question: "What are the main criteria when designing a graphical user interface with high usability for the monitoring process of manufacturer-independent automated guided vehicle fleets?" To answer the question, existing graphical user interfaces from different manufacturers were analyzed and interviews with developers and end-users of the GUIs were conducted. Requirements were then derived, on whose basis sketching, wireframing and high-fidelity prototyping have been performed. Usability testing and a heuristic evaluation were chosen to improve the application and its usability continually. As a result, the following six main criteria could be derived that summarize the most essential points to consider when designing such a GUI: administrability, adaptiveness, observability, analyzability, robot and job awareness, and intervention.

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The diagram shows a service blueprint with the following rows and columns:

Selection	**Selection**	Analysis	Calculation	Communication	Creation

Line of Interactions –

| **User Front stage Actions** | Collect numbers previous graph of historical order and supplies | Gather event briefs that are going to happen in the future (e.g weather, salary, etc) | Analyzes historical data and external features factors | Compute the number of forecasted demand | Notify team regarding the forecast number | Creating Schedule Hours |

| **Technology Interface** | Grafana Tools, Looker Tools | Search engine, website, event calendars, internal messaging | Google Cloud Storage, Google/Excel spreadsheets | Google/ Excel spreadheet | Email, Internal Messaging | OpsTool - Scheduled Hour Creation |

Line of Visibility –

| **Backstage contact actions** | Gather historical data from the system | | | | | Manage Schedul Hour Booking System |

Designing a Demand Forecasting Service in a Food-delivery Platform

This thesis presents a preliminary design of a demand forecasting service using a service design approach. The service aims to provide a better user experience when forecasting demands for the Operational Managers (OM) in an online food-delivery platform. Based on the internal user interviews, demand forecasting is essential to plan the right yet efficient balance between order demand and delivery supply. However, some limitations were discovered in the existing process that creates unnecessary manual work, and therefore less time productivity. This thesis explores whether to create a better digital and centralized forecasting service and can be introduced to reduce the manual tasks as much as possible using Machine Learning models. The research methodologies used in this thesis are the user-centric design methods, for example, semi-structured interviews, Affinity diagrams, Stakeholder Mapping, Persona, User Journey Mapping, and Service Blueprint. Moreover, the research highlights the current gaps in the forecasting process and presents comprehensive suggestions in designing the forecasting service. The results also combined the stakeholder aspirations to ensure operational efficiency and user-centric design methods to solve those gaps.

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Designing Informative Art visualizations to explore invisible software processes in the web browser

The Internet has become an essential tool for today's' society. With its growth over the years, it is important to ask about the influence of the internet browser on individuals and how it modifies the pace and behavior of people's affairs. This study describes the design and development of l3-37, a custom browser whose purpose is to prompt the user to reflect on the browser's hidden software processes and to gather valuable insights. To support this, l3-37 includes two informative art visualizations designed to encourage the user to explore the HTML Cookies and the DOM tree. The two high-fidelity prototypes were developed based on Research Through Design and Autobiographical Design methods. Additionally, to address the affordances and limits of this work, a Think Aloud study was conducted to examine how the participants reflected on the hidden data and the insights they obtained. The study discusses the insights and lessons learned from the entire process and proposes directions for designing an informative art visualization in browser-art to prompt user reflection. Informative art in the web browser proved to be able to support different levels of reflection and reveal valuable insights.

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Analysis of digital health solutions and the most significant challenges for rural areas

The problem of insufficient healthcare is particularly noticeable in rural regions. Despite this, there is still little research on the digital transformation of healthcare in rural areas. This thesis aims to bridge the gap between the two research fields of "digital health" and "rural development" to find out the most significant challenges for rural areas when implementing and using digital health solutions. "Rural areas" in this work are referring to areas with low population density and small settlements in the industrialised EU countries.

First of all, a "Digital Health Ecosystem" was developed based on a research review, which served as an overview of the most important factors and stakeholders regarding digital health in general. The "Digital Health Ecosystem" was used as part of the qualitative research method and interview guide to identify the challenges in transferring the overview to rural areas. An interview study was conducted with eight experts from the field of digital health with different backgrounds like technology, economics, social sciences, healthcare systems and smart village.

The results show that digital health in general involves many barriers, which also apply to rural areas. The specific challenges for rural areas could be divided into four main categories: broadband and mobile networks; structural barriers; digital acceptance & competence; rural innovation. The findings reveal that the smart village concept and rural initiatives are still in their early stages and digital strategies and networks will have to spread more widely across the entire countries. Furthermore, services must be better targeted to the specific problems of rural communities. In particular, because the need for digital health solutions is very great in rural areas, where they can counteract problems like lack of healthcare providers and poor healthcare. In this context, all the general and specific challenges should not be considered separately, because the complexity of the ecosystem can only be understood by connecting all the different fields of action.

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Charlie asks if Alex has a
ndom/dental dam.

Alex doesn't stop Charlie from
touching them sexually.

Alex takes their clothes off.

"Yes."

Alex follows Charlie.

Using Gameplay, Storytelling and Pastiche Scenarios in Interaction Design to Improve Adolescent Knowledge on Sexual Consent

In this paper I evaluate how storytelling and gameplay in interaction design can be used to broaden the view on consent communication among adolescents. There are varying definitions of how sexual consent should be communicated. Among them are the advocacy model, "no means no", and affirmative consent, "yes means yes". However, research shows that people use non-verbal communication cues more often than verbal ones. Thus, I created the design probe, 'Nosy Neighbours', that displays a wider range of communication cues. The design probe does this by using storytelling and gameplay. To incorporate the perspective of adolescents during the design process pastiche scenarios were used. Since the use of pastiche scenarios in HCI design is relatively unstudied, this paper also examines how pastiche scenarios can be used as a design tool. Additionally, the paper explores how pastiche scenarios can be used in evaluating a design with users. The study found that using gameplay to explore intimate topics like consent can be a good tool to start conversations among adolescents, according to those working with youth. 'Nosy Neighbours' provided a neutral way to bring up the topic of consent. The storytelling aspect was found to be able to add a realistic element for the users to become more engaged with the material. When using pastiche scenarios to evaluate a design, participants that are familiar with the work the pastiche is based on will use the entire context of the work in their evaluation, while participants unfamiliar with the original work are restricted to the pastiche scenario. Both cases, however, bring valuable data for design evaluation. Finally, as a designer, using pastiche scenarios that are based on familiar works, is a formidable tool to incorporate user perspectives throughout the process.

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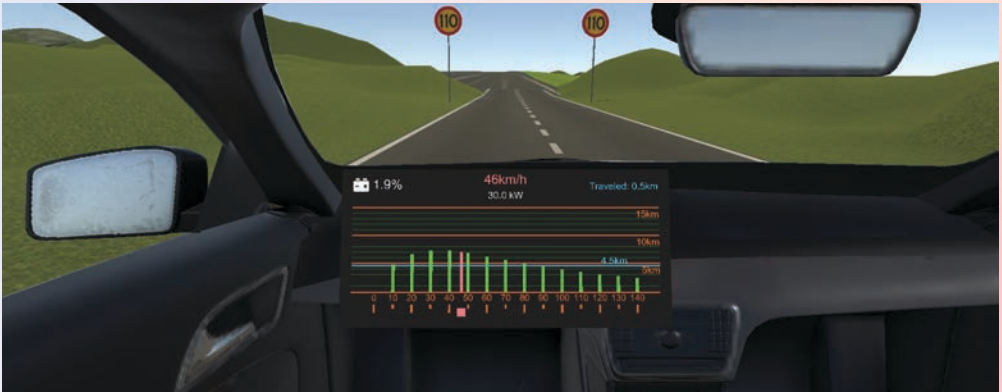
How do battery electric vehicle drivers behave in a range critical situation in VR when using a "guess-o-meter" vs a novel range management tool?

Battery electric vehicles are becoming more common but still fall behind combustion engine cars in terms of driving range and charging time. The displayed driving range in electric vehicles' dashboard can be a volatile parameter suddenly dropping by 10-20\% , for instance when speed is increased. Which can result in a condition referred to as range anxiety. Hence it is interesting to observe more in detail how drivers behave and think in scenarios where range is important and the cars' available range can change drastically depending on the drivers driving style. Such scenarios are problematic to test in real traffic for practical and ethical reasons. In this article, without putting anyone at risk, we present a study using a VR driving simulator in a critical scenario with a substantial risk of running out of battery. Two separate groups (N=10) each drove on the same test track using two different range displays. One group had a typical range display showing the distance left to empty (out of battery) and the other group a novel and more transparent display. The novel display shows how speed is affecting the range. Both displays allow the driver to set a target driving range.

The results indicate that the novel display allows for a more agile and adaptive driving style by changing between specific speeds rather than searching and "guessing" which speed is the most optimal as with typical range displays. Although, it can hide other affecting factors, such as acceleration and road height. Which was more prevalent amongst drivers who had to search and guess.

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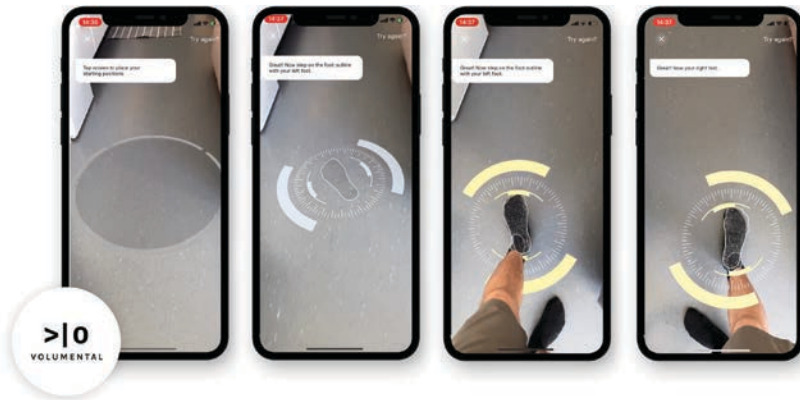
User-centered Evaluation of a Mobile AR Product in an Agile Environment

Recent advances in mobile Augmented Reality (AR) create promising opportunities for novel, engaging, intuitive, and potentially scalable, interactive products. However, evaluating the usability and UX of mobile AR can be tricky given that the interface is highly adaptable, often ambiguous, and varies depending on context. This project will recount the evaluation of a foot scanner that is guided via mobile AR interaction, in doing so offering one way to approach mobile AR evaluation. Some themes that will be discussed are the importance of iterative in-situ evaluation and the benefits of both in-lab and remote usability testing, as well as how to identify user insights given the perceptual complexity and technical ambiguity of mobile AR interaction. Furthemore, design implications to enhance the usability and experiential aspects for mobile AR will be proposed, including how to guide and instruct users, techniques for movement-based interaction design, and how to utilize the various input types in mobile AR. Lastly, an overview of inserting mobile AR user-evaluation in an Agile product environment, including iterative lo-fi testing, insight communication, team collaboration, and the use of evaluation measures, will be discussed. The hopes of this project is to provide a valuable resource to help push future mobile AR designers and evaluators in the right direction.

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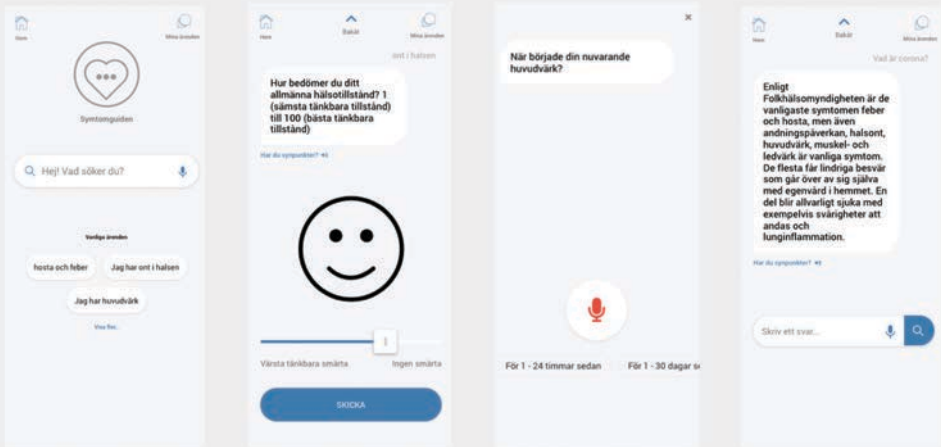
Designing conversational AI for digital healthcare in regards to accessibility

The area of Conversational AI in healthcare is gaining traction, especially in this rapid and global spread of COVID-19. An increased number of digital services have emerged in order to tackle this pandemic. Conversational AI is an example found in this study that can be used to quickly get information about symptoms and help the individual in their self-assessment. Users can quickly and easily can get in touch with healthcare professionals in ways that work for the individual, who no longer has to rely solely on phone calls. In this study, a proof-of-concept is designed and evaluated together with three participants with cognitive disabilities and an experienced project manager. The method used is participatory design where participants were invited to contribute to the design process during four workshops. The results show that conversational AI can make healthcare more accessible for people with disabilities, which is confirmed by the literature as well as in the user tests conducted. The paper results in four important factors when designing Conversational AI in digital healthcare: Be consistent, use clear and understandable language, provide alternative ways of interaction and test with real users.

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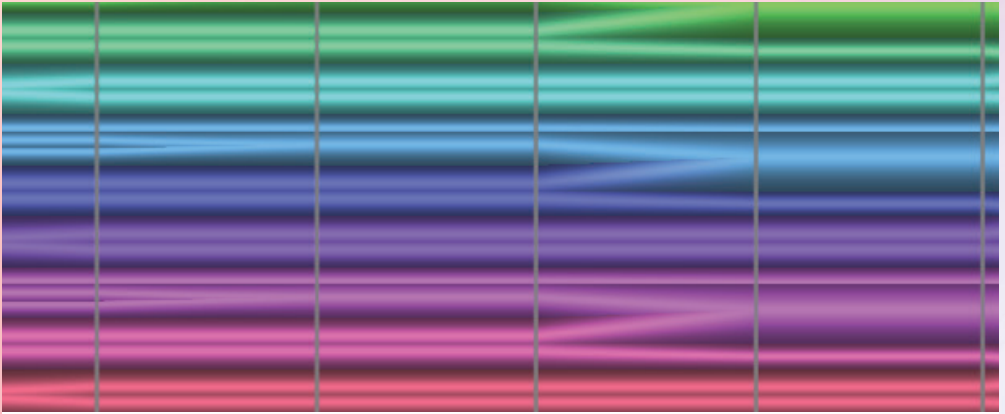
Animated 2D Visualization of Evolving Trees - A Temporal Treemap Approach

Time-dependently changing hierarchical data structures are commonly visualized with animated treemaps. Changes in the data structure produce correlated changes in the animation. While previous treemap animations exclusively consider hierarchical data where only the size of the data points are time-dependently changing, we present a novel method for animating treemaps where the hierarchy of the data structure is also evolving. A change in the hierarchy is referred to as a topological event of the animated treemap. Furthermore, animation stability is a quantitative indicator as to the visual quality of treemap animations.

With the proposed method, the stability of animated Slice-and-Dice treemaps is maximized during topological events. Thus, the method produces topologically evolving Slice-and-Dice treemap animations of high visual quality. Inspiration for the proposed method was largely drawn from Köpp and Weinkauf's recent work on the ordered visualization of time-dependently evolving nested graphs. The research question regarded whether their treemap method for spatially ordering hierarchical data could be translated to the 2D treemap space, in order to optimize the stability of animated Slice-and-Dice layouts. This study does not only report on the development of the proposed method, but also present an accompanying experimental evaluation. While evidence show that the proposed method is incapable of entirely mitigating decreasing stability scores, caused by any possible topological event in an evolving Slice-and-Dice hierarchy, the success of the proposed method has been proven for the most frequent topological events.

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SENSITIV - Designing for Interactive Dance and the Experience of Control

In the last decade, many studies and performances within the field of interactive dance have been made. Interactive dance means involving technology into the dance, which opens opportunities to execute a dance in another way than used to. The studies in the past have often involved manipulation of music, but not many studies seem to involve manipulating real-time music produced by a live musician. Hence, this study consisted of a musician and a dancer investigating in the co-play between the two artists through sensory technology in a project called SENSITIV. More specifically, the investigation focused on the input design, i.e. the placement and processing of the motion sensors, for an interactive system, and how the involvement of the sensory technology affects the dance. Inertia-based motion sensors were worn by the dancer, by which the real-time sound produced by the musician was manipulated through the movements of the dancer. This created in turn an interaction within the intermediate connection, where the dancer came to act as a co-musician. Two studies were conducted, where in the first study a prototype was developed and designed in a first-person perspective, and the second study tested the developed prototype on a larger group of dancers. The results showed that placement on the outer parts, such as wrist and ankles, were the most suitable. It was further found that for reaching a positive experience, in terms of feeling in control with dancing with sensors involved, it requires some time as having an understanding and knowledge of the system is needed.

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Gallery of Heartbeats: soma design for increasing bodily awareness and social sharing of the heart rate through sensory stimuli

Elevated heart rate is considered to be an indicator of stress. Thus, noticing one's own heartbeat can have a negative connotation. Yet, the heartbeat is simply a physiological function, neither positive nor negative in itself, that is experienced in diverse contexts, such as medical, athletic, or intimate. This study uses first-person research through design and soma design to increase awareness of the heartbeat from both an individual and social angle and examines the potential benefits of using external sensory stimuli to convey biofeedback information. It also opens up the design space around the heartbeat and sensory stimuli and reflects upon comfort and relaxation, biofeedback and digital mindfulness, the Sensiks sensory reality pod as a tool and space, and the heartbeat as a spectrum and a way of getting to know people. The study results in four deliverables: a design critique of the Sensiks sensory reality pod, a design fiction publication, a design proposal, and an experience prototype.

The study proposes the design for the Gallery of Heartbeats – a sensory experience aimed at externalising and sharing the heartbeat of self and others. The Gallery of Heartbeats supports individual reflections, providing the user with real-time numerical, graphical, and auditory biofeedback on their heart rate. It also encourages social communication of this commonly unnoticed physiological feature, allowing users to record and store their heartbeat to an archive and experience the pre-recorded heartbeats of others in a multisensory way.

The evaluation of the Gallery of Heartbeats prototype shows that the design succeeds in making people more aware of their cardiovascular activity, triggers their curiosity, and increases empathy. However, the Gallery of Heartbeats also makes the users want to control or change their heart rate which goes against the mindfulness principles of presence-in and presence-with the design was inspired by. Sensory stimuli, especially sound and visuals, are assessed as beneficial for creating feelings of immersion, whereas different representations of the biofeedback information have different effects and use cases.

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Svalbard-
hemmeligheten
ingen vil snakke om

## User Engagement Metrics in Story Focused News Articles

Story-focused news articles are a different type of news articles, containing more visual and interactive elements, developed in order to engage a younger audience for online newspapers. User engagement has been defined as the "emotional, cognitive and behavioral connection between a user and a resource", and different metrics are used to track the user engagement of the readers on these articles. However, there is no prior research on which of these metrics describe user engagement in the most accurate way.

This study therefore aims to find out what metrics to use when measuring user engagement on story-focused articles through interviewing readers of three different story-focused articles and compare their engagement levels with actual metric values tracked.

The results show that two out of the three articles can be considered engaging according to the definition, and the metrics they both have in common is high values of scroll depth, low values of bounce rate and high values of page views. The study therefore concludes that a combination of these three metrics describes user engagement in the most accurate way possible. Furthermore, both the engaging articles have a large number of images, galleries and videos compared to the non-engaging article, which indicates that visual elements in different forms are a winning concept for story-focused articles.

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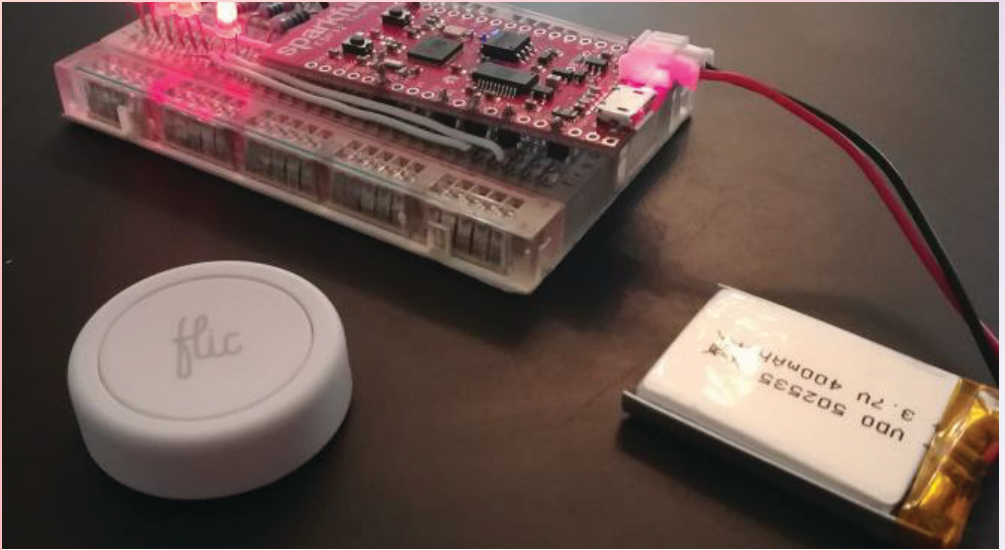
Non-intrusive social reminders for sustainable food behaviour

Developments in behaviour change theories have facilitated the design of more effective interventions in a wide range of domains. Recently, digital technologies have revolutionized behaviour change interventions, but their effects on food related behaviour, whose impact on our health and on the environment is substantial, remains relatively unexplored. We focus on a specific type of digital behaviour change interventions which use non-intrusive queues to foster change in the desired behaviour. After performing a thorough analysis of the behaviour to ensure the intervention is rooted in behaviour change theory, a device was built leveraging the behaviour change techniques identified as the most promising, and tested (to a limited extent due to the pandemic) to be evaluated. The results showed digital tools to be a promising vector for food related behaviour interventions, in terms of application of effective behaviour change techniques and practicality of the implementation. However, rigorous testing is needed to obtain quantitative data on their effectiveness.

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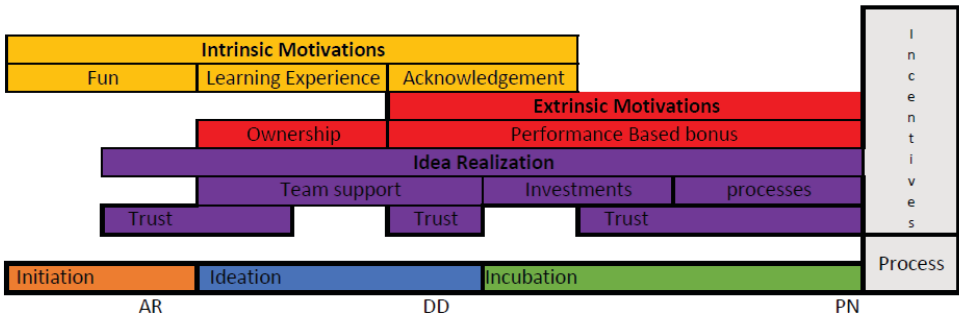
Employee engagement in internal corporate venture incubation - A case study on Ericsson ONE´s venture managers and entrepreneurs

This paper examines the pre-requisites for employees to go into corporate entrepreneurship and join an internal corporate incubator. It examines how intrinsic and extrinsic motivations relates to employees ideas on becoming corporate venture managers, and submitting innovative ideas to a corporate incubator. The research is carried out through examining a Swedish international telecom company and their employees. The focus has been on venture managers, that are driving corporate ventures in the internal corporate incubator at the moment and entrepreneurs that has been employed by the touched company, but started their own ventures or started working for startups. The research method used is qualitative interviews through online video calls. 10 employee venture managers have been interviewed and 5 entrepreneurs. The study finds that the most important thing when submitting an idea is that the venture manager believes that the idea will benefit from being developed internally and also that it is a need for a trust towards the organization and the incubator that is dependent on the organizational structure of decentralization of the corporate incubator. It has also found that venture managers change their view on what incentives that is important throughout the process, starting with intrinsic incentives going to extrinsic later in the process.

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Instagram and Millennials' identity - Perceived ideal image on Instagram in relation to perceived real identity

Majority of millennials are daily users of Instagram and in conjunction with previous studies on Instagram displaying negative effects on psychological well-being, how individuals perceive their identity in relation to their Instagram use is interesting as it could be a part of how their psychological wellbeing is affected through use. Most previous research on Instagram and psychological well-being are general and based on quantitative methods. Descriptive findings on how individuals relate to their Instagram in terms of image or identity is not yet explored. The research question of this paper is therefore to investigate if there exists a perceived ideal image on Instagram and if individuals separate their Instagram image from their perceived real identities. Semi-structured interviews with 11 participants categorized through thematic analysis indicate a perceived ideal image on Instagram exists, and majority of participants cannot separate their Instagram image from their perceived real identity. It is assumed through findings that the level of awareness when applying one's image or identity during Instagram use could indicate how risky it is for individuals to be affected negatively on their psychological well-being during usage. Increasing awareness of how one identify him- or herself based on his or her image or perceived real self could potentially decrease the risk of negative social comparison and self-discrepancy in interaction with one's Instagram use. Findings showed there exists a perceived ideal image on Instagram while there is no coherent perception among participants in how they separate their perceived image from their perceived real identity. Future research could investigate whether this 'identity incongruence' while using Instagram is part of a new way of constructing one' identity in a world where virtual and real no longer has clear borders.

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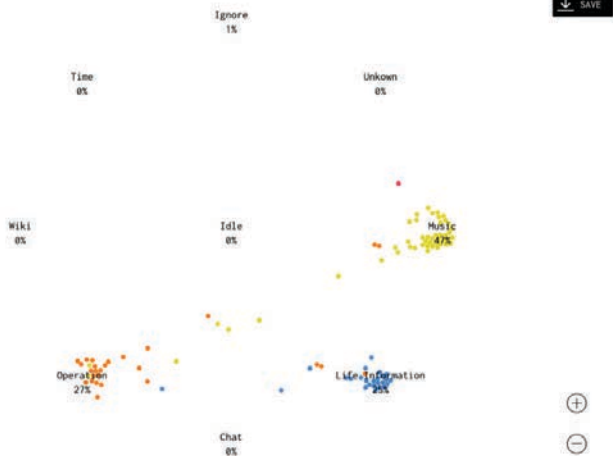
Designing and Evaluating a Visualization System for Log Data

In the engineering field, log data analysis has been conducted by most companies as it has become a significant step for discovering problems and obtaining insights into the system. Visualization which brings better comprehension of data could be used as an effective and intuitive method for data analysis. This study aims at applying a participatory design approach to develop a visualization system of log data, employed with design activities including interviews, prototyping, usability testing and questionnaires in the research process, along with a comparative study on the impacts of using narrative visualization techniques and storytelling on usability and user engagement with exploratory visualizations. The findings exposed that using storytelling and narrative visualization techniques seems to increase user engagement while it does not seem to increase usability. Definitive conclusions could not be drawn due to a low demographic diversity of participants; however, the results could be an initial insight to trigger further research on the impacts of storytelling and narrative visualization techniques on user experience. Future research is encouraged to recruit more participants in a wide diversity, pre-process log data and conduct a comparative study on selecting the best visualization for log data.

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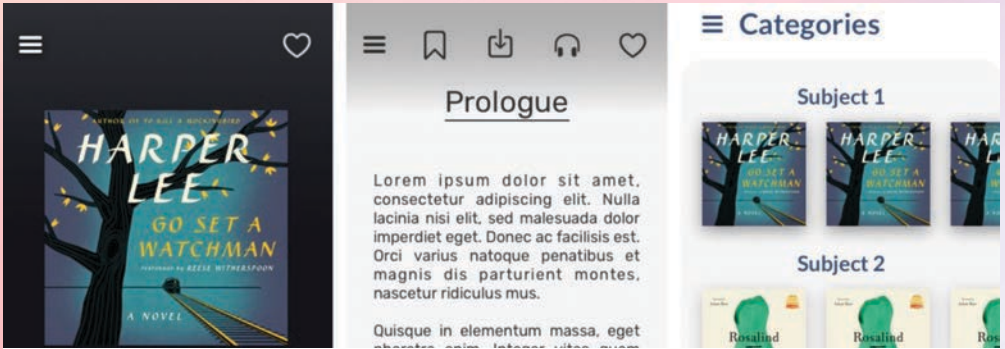
Facilitating Information Sharing Concerning Dementia - Designing the interface of an online multimedia library

There is a lack of technology that facilitates knowledge sharing in the medical sector. In several countries there is a shortage of medical staff with the proper education to take care of patients suffering from dementia. However, modern mobile and web technology pave the way for new online knowledge sharing platforms which could help remedy this problem. This study investigates how an interface of a mobile e-library, aimed at sharing dementia-related knowledge, could be created. It also examines how care workers perceive it and if they could be willing to adopt the technology in the future. This thesis project was carried out at Svenskt Demenscentrum, a non-profit organization with the purpose of disseminating and collecting knowledge concerning dementia. The prototype was designed using the double diamond process. This included an initial literature study and state-of-the-art analysis, which was followed by two workshops with professional care workers. The final design was created iteratively with feedback from a focus group. A total of four sessions with the focus group were organized. The final prototype was evaluated using the Technology Acceptance Model (TAM) model. 12 participants took part in the user tests, all had previously taken care of patients suffering from dementia. The findings of the user tests suggest that the users perceived the interface as both useful and easy to use. This finding also indicates that the users, according to the TAM model, would be willing to adopt the technology if fully developed. All of the participants found the application fitting for smartphone devices. Some suggestions regarding further implementations of the interface included the addition of an onboarding process for those less familiar with modern design conventions and the inclusion of a social forum or discussion page that would allow for a direct knowledge exchange between the users.

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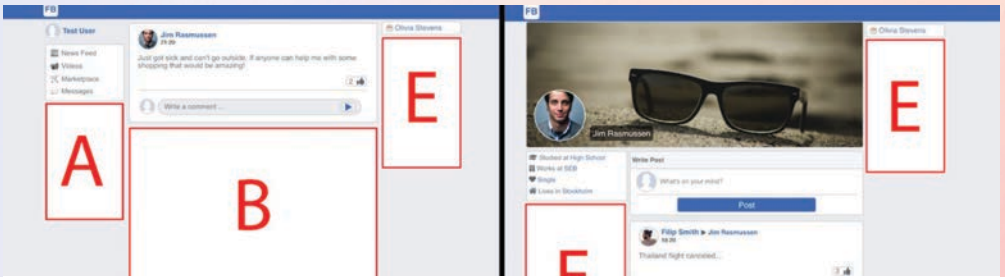
Acceptable Ads guidelines, its effect on user experience and ad-noticeability

The Acceptable Ads Standard is a set of guidelines developed by the biggest ad-blocker company AdBlock Plus as an attempt to alleviate the largest need for ad-blocking programs; ads being annoying, irrelevant, and too intrusive. The guidelines inflict rules regarding how ads can be presented in order to be acceptable, thereby not disturbing the consumer. If a website follows these guidelines, their ads will not get blocked.

The terms ad-avoidance and ad-irritation has been established by Cho et al. and Baek et al. [4]. The term ad-noticeability was added to these in order to express the behavior of seeing an ad, but not necessarily understanding what it's trying to mediate.

This study aims to examine the Acceptable Ads guidelines' effect on user experience and ad-noticeability through a quantitative and qualitative study. The two studies were conducted with the help of two specially made test suites in the form of two websites, one with acceptable and one with non-acceptable ads. All participants went through the same set of tasks on the websites. In the quantitative study, data regarding what ads the participants' had seen and what their experiences' had been like was collected. Through the qualitative study, it was possible to get more elaborate answers to why certain ads were seen or missed and to get more in-depth answers regarding the participants' experiences.

Through the study, it was found that there is a difference in ad-noticeability and the user experience of ads between websites that contain either acceptable or non-acceptable ads. The results suggest that the Acceptable Ads guidelines affect user experience positively, i.e. leading to less ad-irritation or annoyance, but also affect ad-noticeability negatively. It was also found that cognitive ad-avoidance was greatly affected by task-oriented focus, both in cases with and without ads following acceptable ads.

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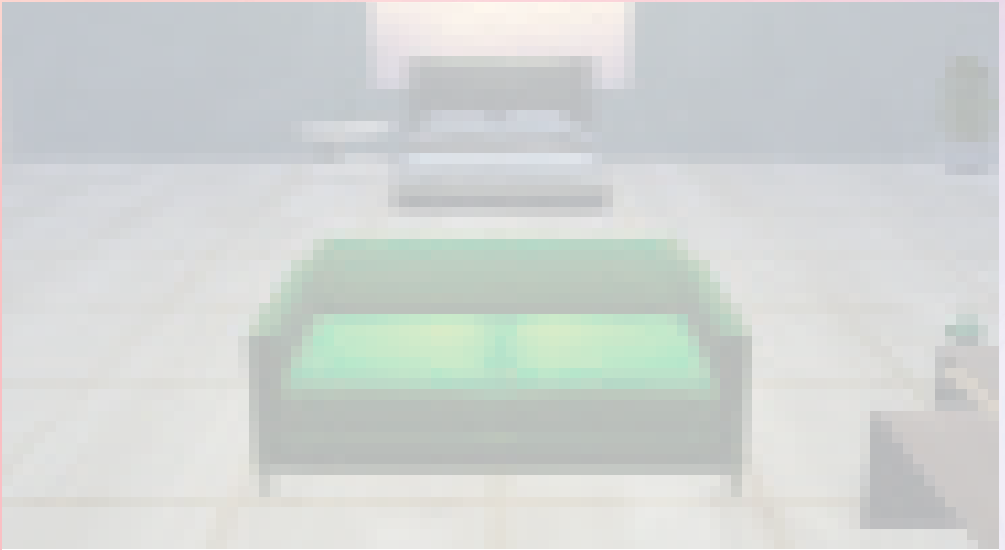
Interaction Principles of 3D World Editors in Mobile Phones with Focus on the User Experience

3D world editors are widely used in mobile applications for manipulation of the virtual world, however, there are no frameworks of design regarding the best practice interac-tion principles for 3D world editors on mobile phones. By looking at methods, concepts, and functions used in general consumer world editors, this research focused on the devel-opment and design of a prototype, which was then used to evaluate the interactions principles divided in the following use cases: selection, placement and manipulation. The results from a heuristic evaluation backed up by user evaluations proved that there is in fact a majority that prefers the following combination of interaction principles in terms of user experience: an organized and simplified shop interface for selection, grid-system over the free-system for placement of virtual objects, and a combination of tap and hold to manipulate virtual objects for the 3D world editor prototype for mobile phones created in this research.

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Pooling strategies for graph convolution neural networks and their effect on classification and explanation

With the development of graph neural networks, this novel neural network has been applied in a broader and broader range of fields. One of the thorny problems researchers face in this field is selecting suitable pooling methods for a specific research task from various existing pooling methods.

In this work, based on the existing mainstream graph pooling methods, we develop a benchmark neural network framework that can be used to compare these different graph pooling methods. By using the framework, we compare four mainstream graph pooling methods and explore their characteristics. Furthermore, we expand two methods for explaining neural network decisions for convolution neural networks to graph neural networks and compare them with the existing GNNExplainer. We run experiments on standard graph classifi- cation tasks using the developed framework and discuss the different pooling methods' distinctive characteristics. Furthermore, we verify the proposed ex- tensions of the explanation methods' correctness and measure the agreements among the produced explanations.

Finally, we explore the characteristics of different methods for explaining neural network decisions and the insights of different pooling methods by ap- plying these explanation methods.

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Sensorial Pads: Awareness of muscle and skin movements on the breast through looking and feeling

Breast awareness is a topic related to women's daily life. The purpose of this project is to explore the behaviors of knowing breasts from the perspective of women themselves, intending to design body experiences that facilitate the awareness of breast muscles and skin movements. The thesis begins with early-stage explorations of the meanings and methodologies of breast awareness and illustrates the entire process from preliminary research to prototyping procedure. Concepts and design methods of soma design are used to explore what kinds of interactions could be outlined in the breast sensing journey. The research process and design results propose new ways of interaction design for breast awareness, exploring the application of new material properties in soma design and breast knowing approaches. As the outcome, Sensorial Pads are made out of silicone, intending to emphasize skin tactile feeling and visual interaction for breast cognition.
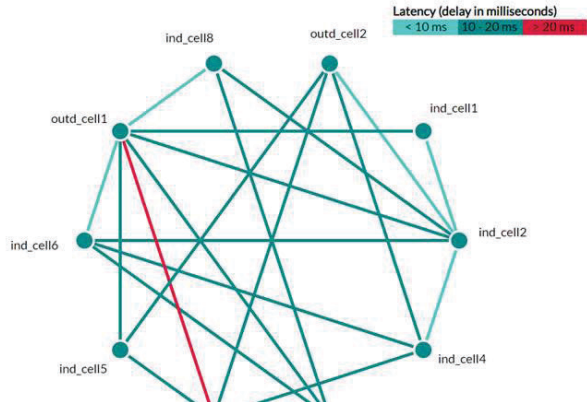
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| Throughput | Latency | Availability | Coverage + Devices |

Network latency (roundtrip delay between predefined nodes) measured daily.

Latency (delay in milliseconds)
< 10 ms | 10 - 20 ms | > 20 ms
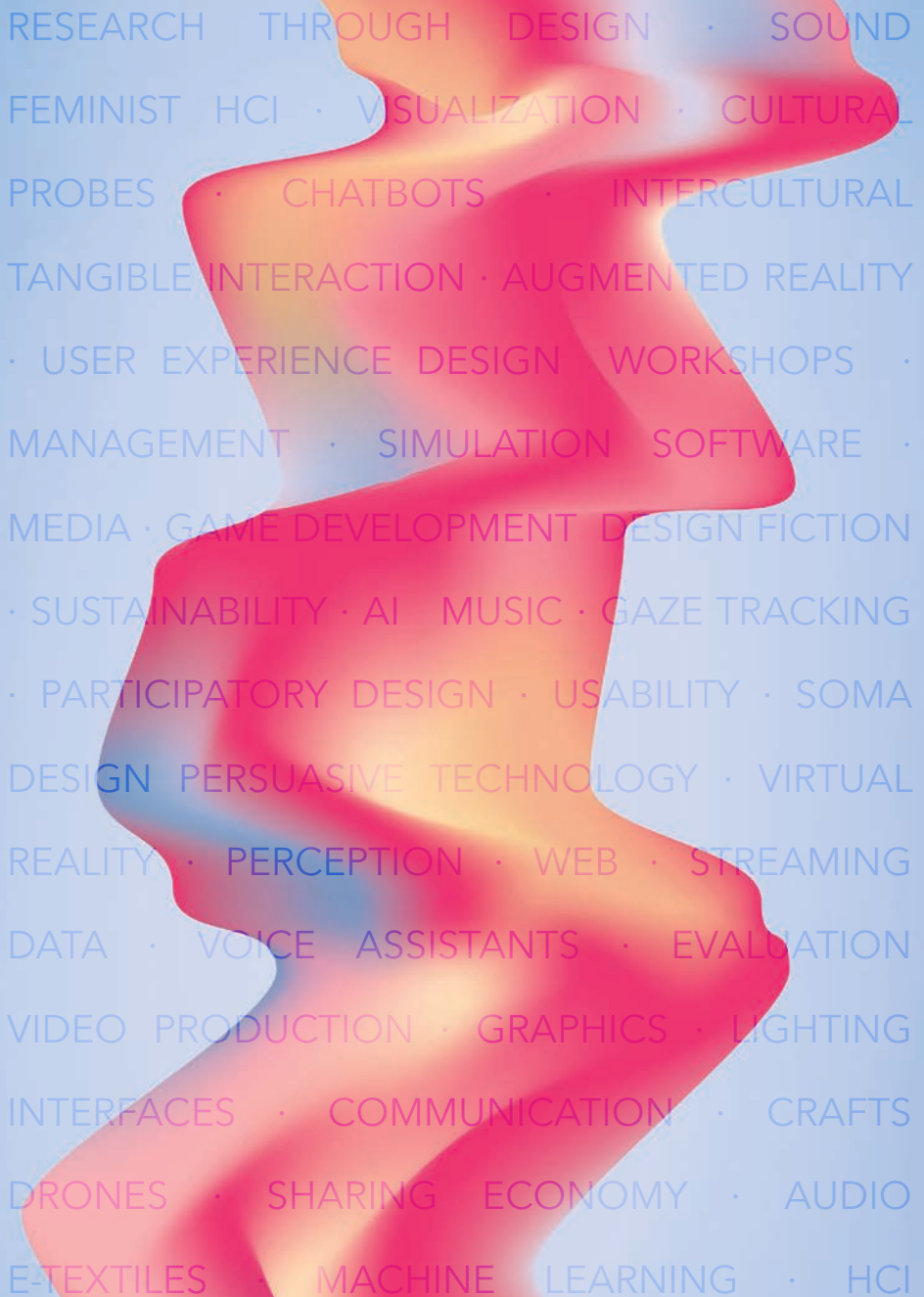
AVERAGE NETWORK LATENCY

12.87 ms

Information visualization of network parameters in private cellular network solutions

In the upcoming years, industrial enterprises are expected to undergo a major transformation, as the Internet of Things (IoT) reaches widespread adoption. A key enabler behind this transformation, known as Industry 4.0, is the 5th generation of cellular networks (5G). Through privately owned networks, enterprises will be able to utilize the 5G technology to tailor the network to meet their needs in terms of security, reliability, and quality of service. Although much of the technology is currently in place, few efforts have been dedicated to help enterprises understand and optimise the value that this new solution brings. One way of making 5G more accessible is through information visualization of its data. Dashboards are today the widely adopted tool for processing data in organisations.

This study aimed at examining the affordances and challenges of information visualization of 5G network data in such a tool, in order to make 5G more accessible. A large number of commercial network management dashboards were reviewed in relation to research on effective dashboard design, and a prototype was developed and evaluated with seven user experience experts. Results from the expert review suggests information visualization clearly aided communication of the five visualized network parameters: throughput, latency, availability, coverage, and devices. However, to fully examine the usefulness of the tool, further research on the tool's fit in an industry context needs to be conducted.

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RESEARCH   THROUGH   DESIGN   ·   SOUND
FEMINIST   HCI   ·   VISUALIZATION   ·   CULTURAL
PROBES   ·   CHATBOTS   ·   INTERCULTURAL
TANGIBLE INTERACTION · AUGMENTED REALITY
· USER EXPERIENCE DESIGN   WORKSHOPS   ·
MANAGEMENT   ·   SIMULATION   SOFTWARE   ·
MEDIA · GAME DEVELOPMENT DESIGN FICTION
· SUSTAINABILITY · AI   MUSIC · GAZE TRACKING
· PARTICIPATORY DESIGN   ·   USABILITY · SOMA
DESIGN PERSUASIVE TECHNOLOGY · VIRTUAL
REALITY   ·   PERCEPTION   ·   WEB   ·   STREAMING
DATA   ·   VOICE   ASSISTANTS   ·   EVALUATION
VIDEO PRODUCTION · GRAPHICS · LIGHTING
INTERFACES   ·   COMMUNICATION   ·   CRAFTS
DRONES   ·   SHARING   ECONOMY   ·   AUDIO
E-TEXTILES   ·   MACHINE   LEARNING   ·   HCI