User System Interaction
Eindhoven University of Technology
Industrial projects 2012
3TU. School for Technological Design, Stan Ackermans Institute offers two-year postgraduate technological designer programmes. This institute is a joint initiative of the three technological universities of the Netherlands: Delft University of Technology, Eindhoven University of Technology and University of Twente. For more information please visit: www.3tu.nl/sai.
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Professionals in User System Interaction Design
The User-System Interaction programme (USI) started in 1998 with 19 students as one of the design programmes offered by the Stan Ackermans Institute at the Technische Universiteit Eindhoven. Since the start of the programme we have established a solid reputation. Our students (USI’s) and graduates are in high regard as professionals. They distribute and pass on the knowledge and experience that is required to really understand how people can and want to be served by technology. The USI programme strikes the balance between challenging technological developments, exploiting design opportunities and fulfilling the needs and desires of people.

USI graduates are trained to improve the interaction between people and systems and to make technology truly accessible and beneficial for all. They are prepared to work on challenging problems, in multidisciplinary projects and in international environments. USI’s work on solutions and services for people in their home, work and social environments by employing user-centered design methodologies, accounting for the benefits for stakeholders and users, and balancing between system functionality and user experience. The programme is organised in modules that are taught by specialists in the domain, who bring in their international experience from universities and industries.

The USI design programme is characterised by its:

- Focus on design – Students are positioned as designers throughout the programme, that is, as intermediate between market demand and technical possibilities, between user needs and product satisfaction.
- Focus on Industry – Students work in their second year on a project in industry or government supervised by university staff and the host organisation.
- Focus on applicability – Students work on assignments and case studies throughout the programme.
- Teamwork – Students with backgrounds in the engineering, behavioral and physical sciences work in small interdisciplinary teams.
- Cross-cultural and international orientation – Students with different national and cultural backgrounds work together.

A very important part of the USI programme is the nine-month industrial assignment, which is carried out in the second year of the curriculum. The general requirements for this assignment are, amongst others, a conceptually challenging problem, participation in a multidisciplinary team, and a strong design and evaluation orientation. We would like to thank the companies and coaches for their support and effort to make these projects into a success. The results of these projects are summarised in this booklet.

We wish the graduates of the year 2012 success in pursuing their professional careers.

5 October 2012

Prof. dr. Panos Markopoulos and Drs. Mia Jelsma
User System Interaction Programme
Hello, I am Prina Bajracharya, and I am an Interaction Designer. Talking about myself, I obtained my Bachelor’s degree in Computer Engineering from Nepal Engineering College (NEC), Nepal and Master’s degree in Information Management from Asian Institute of Technology (AIT), Thailand.

Since October 2010, I am enrolled as an Interaction Design trainee in the User System Interaction Program (USI) at the Eindhoven University of Technology (TU/e) pursuing a PDEng degree (Professional Doctorate in Engineering). Currently, I am doing my final year internship as interaction designer in the project “Validation of robot scenario: Training children with autism (ASD) social and collaborative skills” in collaboration with faculty of Industrial Design (TU/e), and Dr Leo Kannerhuis (one of the leading clinics on autism in the Netherlands).

What next am I looking forward to...

“Graduating in October 2012, finding a job and starting to be great at the job. Hoping to have a challenging and exciting future.”

Recently, more attention is being given towards developing and validating technology-based intervention such as Human Robot Interaction (HRI) for training children with Autism Spectrum Disorder (ASD). While interaction with a person can be complex and intimidating for a child with ASD both in terms of verbal and nonverbal behavior, interaction with a robot companion is simpler, more consistent and predictable.

The main aim of this project is to teach children with ASD collaborative skills by using a robot as a social-mediator, which encourages children to get engaged in simple playful interactions. The training sessions will be conducted in 3 stages, (a) multiple baseline sessions to understand the social and collaborative level of children; (b) robot intervention sessions where children are prompted by the robot to share things, take turns, & collaborate to execute certain tasks; (c) Post-intervention sessions which will be exactly like the baseline sessions to check the learning curve of children with ASD throughout the sessions. For evaluation, baseline will be compared with post-intervention to see if there is any improvement in children’s behavior after robot intervention. Training sessions will be recorded and analyzed in 10 sec time interval using an observational protocol designed for the experiment.

This project has been supervised by Dr. Bibi Huskens (Dr. Leokannerhuis) and Dr. Emilia Barakova (TU/e).
I was born in a small town in Russia next to a big nuclear power plant. As a child I was fond of drawing spaceships, building skyscrapers from a dozen of construction sets and taking apart various devices to see what was inside. In 2001 I won an academic scholarship and went to the United States for my last year of high-school. In 2002 I came back and entered the University to study computer science and nuclear physics. During my university years I began working as a graphic designer in advertisement, then shifted my focus to web-design and later joined a large software company to design interfaces for web-applications. In 2010 I decided to join «User System Interaction» programme at TU/e as I felt that I need some actual design education to boost my career.

The goal of the project was to develop a commercially available product for clinics: an interactive table-top tangible therapy game to support children suffering from cerebral palsy. An existing game concept made by other students was chosen for further development. A group of USI students from 2009 generation during their design case developed a set of 5 games based on ESP (Edutainment Sensor Platform) technology. Games received positive feedback from therapists, but were not available as a product that could be delivered to a clinic due to a number of limitations. The design challenge for this project was to redesign the game play for a newer version of hardware platform, redesign game accessories to make them easier to manufacture and create a distribution channel for the final product. In collaboration with the company «Serious Toys», which manufactures the hardware platform, the new version of therapy games for children with cerebral palsy was developed. The final product included game software for the latest version of «TikTegel» board and a set of accessories to play the games. The existing web-site of «WikiTherapist» project was chosen as a medium to promote the new product. It was redesigned to incorporate a catalog of available therapy games and the community board to support the users and developers of the games.

This project has been supervised by Prof. dr. Panos Markopoulos (TU/e).
Duy Le

love to make | design | fly

I am Duy and I grew up in Ho Chi Minh city, southern part of Vietnam. I earned a certificate in Computer Science from the University of Cambridge (2006), a bachelor degree in Aeronautical Engineering from the Ho Chi Minh University of Technology (2008), and a master degree in Mechanical Engineering and Design, major in Micro Machining (2010). Since October 2010, I became part of USI2010 generation. I joined the Designed Intelligence group from February 2012. My research is “Computers as Social Actors”, under EIT-ICT Labs Activity 2012.

Expertise:
User Experience Design/Research
User Centered Design/Research
Contextual Design/Research
Aeronautical Engineering
Precision Engineering
Applied Physics

Blobulous as Social Actors:
Biosignal-driven visualization of social context for social connectedness

Computers are considered as a physical extension of the human body. They gradually become a mental extension of the human mind in which social computing is a trend. Especially in the field of Human Computer Interaction, yet computers can handle social tasks and tend to be treated as human (e.g. iCat, Paro the seal robot, NAO, Furhat). However, they are not designed to be social actors. We proposed a definition of social actorship which can be used as a guideline when designing computers as social actors. We also propose to use biosignals to support and enhance social actorship. Biosignals are used as a parallel input channel to help people and computers to “sense” or “feel” each other. Not only what drive social actors are important but also their appearances could have emotional and social impact on people.
To explore and try out those findings, a biosignal-driven visualisation system of social context is developed. The motivation of the system is to improve people’s health and well-being by enhancing their social connectedness. We also explore different forms of social actors (smart cup, light cube and particles) beside the conventional ones (computers, robots and agents). The Blobulous prototype is designed to improve social connectedness between people and to raise situational and social awareness of people in the environment. Blobulous is a group of abstract visuals that play roles as social actors to react on and interact with people.
Their behaviours are based on heart rates and movements. A wireless heart rate sensor is designed as a necklace. A central instance is built to receive data from sensors in order to derive behaviours for Blobulous. We believe that enabling social actorship of computers with bio-sensing contributes to the development of Computer Mediated Human Activities domain.

This project has been supervised by Dr. Mathias Funk and Dr. Jun Hu.
I started with the study of computer science and then switched to psychology. After two years of psychology I became sure that my passion lies on the edge where these fields meet. On that edge I found UX design. I wanted to specialize myself in this field, so I started the User System Interaction programme of the Stan Ackermans Institute at the TU/e. I believe user experience is a very important part in product development and is also one of the most fun and challenging aspects to work on. I would like to continue working in this field, in a function that mixes the technical and creative parts of product design while always keeping the user’s experience in mind as the main focus.

This research is part of the REPAR project that tries to resolve the paradox of user-centered design through flexible prototyping. When designing complex interactive systems the design team would like information on end user needs and values and on desired functionality in the early stages of the design process. However in those stages the proposals to users are often not concrete enough yet for the user to get a good understanding of the user-experience. Therefore it is very hard for users to provide pertinent input/feedback to the design process. The more concrete the proposal to the user, the more accurate and concrete the information the designer receives from the user. The downside is that in order to make concrete proposals the designer has to fix many properties in advance without adequate foundation from user information.

To make my assignment more concrete and to be able to test the prototyping methods in a real design process, it is focused on a specific DAF development case. The case dealt with improving the blind spot ‘coping’ methods and vision for drivers, thereby improving safety for vulnerable road users.

This project has been supervised by Johan Broeders MSc (DAF) and Dr. Jacques Terken (TU/e).
Even though becoming a baker was my first ambition, only few pies and cakes were baked and instead I filled my schoolbooks with all sorts of drawings and random graphic creations. At the age of 18, a master in Product design seemed to be the final decision, which resulted in all sorts of foam shape cutting, fast and dirty sketching design activities. While working my way through various projects, my appreciation for beautiful, honest, clean and smart pieces of design only grew stronger but at the same time an increasing amount of attention was paid to the user perspective and the interface of my creations. Finally, it was clear: no pies but Interaction design. Though the experience gained during my studies and at design agencies was extremely useful, an adventurous decision was made to move to my Dutch friends in the north in order to find out what the post-master “User System Interaction” was all about. There I was able to apply my broad pallet of designer skills to a series of highly interesting team-projects, while at the same time learning a lot from colleagues with varying backgrounds and cultures and experimenting with interesting tools. What’s left now is a clear ambition to change the conventional way of designing. An ambition to design practical systems that are useful, intuitive, fun and intriguing. Products that move people instead of annoying them.

User interface on second screen for television control

More and more people enjoy watching television while at the same time using their smartphone or tablet. This trend has led several TV manufacturers to develop mobile apps to control the TV with these devices. With these apps a more compelling dual screen interaction is offered; with inherently, dual screen usability issues. This research explores the possibilities of using mobile touch-screen devices like smartphones or tablets for the control of television sets while addressing these issues. Smartphones and tablets possess different characteristics that can be utilized to create useful interaction possibilities that go beyond using merely the devices display. Characteristics range from touchscreens with different sizes to internal sensors that detect motion and orientation. Through an explorative user test and by analyzing the current users, use context and trends, opportunities for the project were defined and translated into a design framework. The design framework focuses mainly on the dynamics between laid-back and lean-forward use, and the need to quickly and easily change between the two. According to the framework, first concepts were defined and combined into a series of design proposals that were subjected to an expert review, resulting in the selection of a final concept. A working prototype of the concept was built and evaluated with users. Out of the results of this user test, the concept was redesigned and guidelines for future projects were defined.

This project has been supervised by Hester Bruikman (TP Vision) and Dr. Dirk Snelders (TU/e).
Xinyu Ma

I was born and raised in Baotou, Inner Mongolia of China. I obtained an Industrial Design Engineering bachelor degree at the Beijing Forestry University in 2007 and a master degree in Strategic Product Design at the Delft University of Technology in 2009.

My design experience covers graphics, furniture, exhibitions, medical equipments, domestic appliances and electronic products. Over the years, I was inspired by various design philosophies such as traditional Industrial Design, User Experience Design, Interaction Design, Multi-sensory Design and Strategic Innovation. The clients that I have worked with include many big names such as Philips, Unilever, Draeger Medical and Shell.

Inspiration Wall
An interactive image sharing system designed for breakout areas

In this project, the goal was to design, implement and evaluate interaction styles for people in a breakout area to interact with projection and possibly other forms of digital display. This project was carried out within the Intelligent Lighting Institute and in close cooperation with Yall solutions. Prior to the design phase, the design opportunities in breakout areas as well as the interaction possibilities between user and digital display were explored in the research phase. Base on the research result, the design focus was drawn upon connecting people in the same working environment through a breakout area and bringing relaxing and intuitive interaction with digital display into breakout areas. The final design consists of a web service, by using which people can easily share images with the breakout area in their office and an interactive installation, with which people in the breakout area can interact with the shared images in an intuitive and relaxing way. The final design was implemented into a working prototype and evaluated with the users. In general, participants reacted positively to the final design and valuable feedback on improving the final design was collected during the evaluation. Finally, reflections were made on the final design and the design process. And future works were also proposed at the end of this project.

This project has been supervised by Patrick Storms (Yall) and Dr. ir. Harm van Essen (TU/e).
My journey begins in Greece. I grew up in Athens from where I moved to Patras to study what I felt I liked the most; Computer Engineering and Informatics. I loved it indeed! For my Diploma Thesis I built a computer game and it was then when I realized how important and fascinating the user interaction aspects of technology can be. This new interest along with my passion for art and design made the field of interaction design the perfect next step for me.

This brought me to the Netherlands, to start a post master in User System Interaction. During these two years in USI, I discovered how to apply my knowledge of computers and technology in user-centered design, in order to make systems meaningful and simple for the users. With this new perspective on creating systems, I had the opportunity to design the interaction of very diverse systems, from web and mobile applications to healthcare.

Now, ready to take the next step in my personal and professional life, I want to continue blending technology, art and design into the most fascinating interaction designs that this world has seen!

Design of an interactive system for monitoring pregnancy at home

Regular monitoring of pregnancy progression has been proven to reduce complications and mortality, but with current monitoring systems it would create an unbearable load to the healthcare system and generate extremely high costs. The key challenge in pregnancy monitoring is therefore the replacement of current monitoring systems by alternatives that are non-invasive, sufficiently reliable, comfortable, and applicable for mobile monitoring throughout the pregnancy at home. This project aimed at providing a step towards the implementation of such a system.

The project started by defining the possible use-scenarios of a system for pregnancy monitoring at home, as well as the target user groups and their needs. A concrete use-scenario and a design for a system for monitoring pregnancy at home was proposed. The main goal during the entire design process, was to provide the mother and her caregivers with an unobtrusive system that informs them about the pregnancy and the health of the fetus in a simple, clear way. Towards that direction a prototype of a wearable solution was created as well as two prototypes of a mobile and a desktop application, for the parents and the medical staff respectively. An evaluation study with users followed, the findings of which will be important for further development of this system.

This project was a part of the Smart Energy Body Area Sensor Networks (SEBAN) for Pregnancy Monitoring project. Partners within the SEBAN consortium are: Electrical Engineering & Industrial Design Faculties (TU/e), Philips Research, Holst Centre and Maxima Medical Centre.

This project has been supervised by Dr. Wei Chen (TU/e).
I am a user experience designer with a background in Informational Design. I was born in November 1985 in a small town Lisichansk USSR, in the family of seafarer, which makes my biography geographically wide. It twists from the small Far East island Sakhalin through West of Russia to Europe. In 2007 I graduated at St Petersburg State Polytechnic University where I have been studying Informatics and Multimedia Design. After that I have been working in a field of online services and web applications development for about 3 years. By designing interfaces, I felt some practical gap in my knowledge related to User Testing and Cognitive Psychology. Autumn 2010 I entered the User System Interaction postgraduate program at the Eindhoven University of Technology in the Netherlands. There I was living, working and practicing not only human-computer interaction, but human-human, culture-culture and Psychologist-ComputerScientist-Designer interactions for the next 14 months. Being an USI trainee the second part of the program was conducted in the industrial project for Russian company Dnevnik.ru. The project let me apply previously gained knowledge and try out lots of learned in USI methods for HCI design. It made me focused deeply in a social networking area, and gave a whole bunch of new experience related to the field specifics.

As a final part of User System Interaction Programme an external industrial project was conducted in Russian software company Dnevnik.ru. Prof. Jean- Bernard Martens is a TU/e mentor of entire work. In the company the project is led by Michael Danilovsky - chief technology officer and Karina Sotnik – an international senior business consultant.

The result of the project is a set of recommendations for redesign of the e-learning, school management, and social networking system Dnevnik.ru. New concept is designed to meet needs of users and solve their problems within the educational context, making an interaction between the system and main user groups such as teachers, students and parents clear and simple. New guidelines are made to be implemented across all localised versions of the entire product.

Taking into account local specifics of countries the product to be launched in, their user, marketing, and technology requirements where thoroughly investigated. Web analytics tools and statistics data were used; literature and related researches were studied. For user study and data gathering the following methods were applied: user tests, user interviews, card sorting, co-designing, questionnaires and online surveys.

Structural and functional prototypes were made as visualisation of designed recommendations and were taken across its intermediate evaluation. An American version of the service Classedin.com was used as an example of user interface implementation in mockups for a new concept.

This project has been supervised by Michael Danilovsky and Prof. Jean-Bernard Martens (TU/e)
I was born in 1985 in The Hague to Danish parents. In 2003, I began studying Psychology at the University of Leiden. I wanted to know why people behave the way they do. As human behaviour is controlled by the brain, I became interested in this organ and did a master about it called Clinical Neuropsychology. Afterwards, I wanted to learn how to apply my knowledge about the human mind in various practical settings. Fortunately, a master existed that taught just that. It was called Applied Cognitive Psychology. The course from this master that I enjoyed most was about human computer interaction. I started reading books about this subject in my free time and, after graduating in 2009, I worked as an intern at a usability research company for half a year. I enjoyed this internship a lot and was offered a job. It was a difficult decision, but I declined the offer. I had gotten accepted to the User-System Interaction (USI) programme, which looked like it would provide me with the latest and greatest skills and knowledge concerning the design and evaluation of the user experience of not only websites, but also various other artefacts. USI has done not only that, but has also advanced my skills concerning working with people from different educational and cultural backgrounds. All in all, USI has provided me with an ideal preparation for a future career as a user experience designer.

Life is full of processes, seeing as a process is nothing more than a series of actions or steps taken in order to achieve a particular end. When a process occurs within a business context, it is called a business process. BPMone is a web-based software suite that allows people to discover how their business processes are running, identify inefficiencies and breakdowns, test possible solutions in a virtual environment, and then automate these processes. The aim of this project was to evaluate and improve the user experience (UX) of one of the components of BPMone.

The project was made up of four phases. The initial three phases focused on evaluating the UX of the BPMone component in question. The first phase consisted of a user interface inspection by means of a heuristic evaluation. In the second phase, internal stakeholders were interviewed. In the third phase, users were interviewed and observed while using BPMone in their normal working environments. These three phases collectively led to a thorough understanding of both the positive and negative aspects of the current UX of the BPMone component. In the fourth and final phase, various changes to the (interaction) design of the BPMone component were recommended. These recommendations were aimed at removing the negative UX aspects, while preserving the existing positive UX aspects. Future work consists of iteratively testing mockups containing the recommended (interaction) design changes with users of BPMone.

This project has been supervised by Jennifer Curtis, MA, PDEng (Perceptive Software) and Dr. ir. Mark de Graaf (TU/e).
I am an interaction designer with a practical and educational background in software engineering. During my bachelor studies, I learned that programming is not limited to creating a functional application. It also includes paying attention to the user interface and the ease with which users interact with systems. This drew my attention towards the interaction design field and motivated me to do my master and later my post master studies in this field.

I am now an interaction designer who has a passion for human-centric design and is keen on discovering more about this subject. The USI programme made me realize how broad user system interaction is. The more I learn about this topic, the more my enthusiasm for it grows.

These two years at USI were the best two years of my academic and professional life. USI did not only teach me about the user system interaction field; it also taught me how fun it is to work in this field. I had loads of fun while working on different projects, I met people from all around the world and I made wonderful friends.

Now that we are getting close to the end of USI, I feel ready to take the next step in my professional life. I am ready to make MIND-BLOWING designs. I am confident that I can be a great asset to any company that is concerned about its customers and wants to improve its reputation.

The dynamic workflow of hospitals is increasing the need for mobile collaboration and communication among healthcare professionals. The aim of this project is to enhance the communication and collaboration among radiology staff of hospitals with a role-based mobile system. The main demand is to present a method through which the radiology staff is provided with essential and dynamic information such as their colleagues’ roles, tasks, and availability. This system is to enhance their workflow and reduce the number of erroneous contacts during a day.

Based on the field observations, interviews with the potential users that I did and revision of the previous interview notes provided by the Philips project team, a mobile application was iteratively developed and refined. For the purpose of evaluation, the concept and its interactions were prototyped with two wire-framing tools (one for low fidelity and one for high fidelity prototype). Through three levels of iteration the prototypes were evaluated by people with a clinical background and later they were modified based on the received feedback. The look and feel of the prototype is consistent with iOS design to avoid confusion and to easily get feedback on the concept and presented functionalities.

The concept was considered to be practical and helpful by the potential users since it matches the communication patterns in radiology departments. Moreover it facilitates the communication among the staff by providing users with dynamic information concerning roles, tasks, specialty and accessibility information. This system is expected to decrease the amount of interruptions during a working day and to increase efficiency and staff satisfaction.

This project has been supervised by Angelique Brosens-Kessels (Philips) and Dr. ir. Rene Ahn (TU/e).
I was born on the 19th of January 1985, in the village of Stompwijk (NL). As a kid, I always tried to find out how things worked. I was particularly fascinated by our first computer. Not only could I take apart the hardware, but also the software that was running on it. As I became more successful in putting back together what I took apart, I thought that I’d better study something with computers. So I did.

During my bachelors in Computer Science at the University of Twente (UT), I realized that I’d spend years on understanding how computers work. I started to wonder how it was possible that so many people were using computers, while so few of them actually understood what they were doing. Soon, my interest shifted from learning how computers work, to learning computers how humans and the world work.

During my masters in Human Computer Interaction (also at UT), I’ve worked a lot on interactive systems. These systems, such as interactive bars and playgrounds, were all about people. Computers played a role in the background, facilitating rather than demanding users to provide input.

After my masters I applied for USI and soon started a wonderful period in which I had the pleasure to work with a group of talented people. Inspired by successes during my stay at USI, I decided to accept a PhD position in Industrial Design at TU/e, working on the topic of End-User Development.

My internship took place at the Eindhoven University of Technology (TU/e) and Adelante rehabilitation clinic, as part of the WikiTherapist project that aims at developing new design processes for allowing health practitioners and manufacturers of interactive technologies to co-create technology supported therapy systems. One of these systems is Tag-Trainer, an interactive rehabilitation system consisting of TagTile boards. These boards can be programmed to react on objects with light and sound output. As part of the project, the Tag Exercise Creator (TEC) tool had been developed that allows therapists to create programmes for the Tag-Trainer. Goal of this internship was to optimize the TEC such that therapists are able to perform these tasks without assistance and as part of their daily work.

A prototype of the TEC that had already been developed at Adelante was evaluated as a first step towards improvement. The results of this evaluation were combined with issues that had been collected by Adelante during informal tests. From this, an extensive set of improvements was formulated for the re-design of the TEC.

The TEC was re-designed iteratively in close cooperation with researchers from Adelante. In order to resolve the issues that had been discovered before, the re-design became fundamentally different from the original prototype, such that the TEC was redeveloped from scratch.

Although the formal evaluation of the TEC is outside the scope of this internship, preliminary results indicate that the redesigned TEC is ready to be used as part of the daily work of therapists.

This project has been supervised by Prof.dr. P. Markopoulos (TU/e).
I’ve always been fascinated by the human mind and brain. I also am very interested in technology, gadgets and gaming. Looking back, I guess the path I’ve taken towards interaction design makes sense. After initially studying Cognitive Artificial Intelligence I decided to make the switch to studying Psychology. I could have anticipated that the courses on cognitive psychology would draw me in the most, setting me up for a Master in applied cognitive psychology. During this Master I was introduced to Human Computer Interaction which felt like coming home. I definitely wanted to pursue HCI further which led me to applying for USI, a decision I’ve never got to regret.

The multidisciplinary and multicultural aspect of USI is amazing and inspiring. I’ve had the pleasure of working with a diverse, interesting and incredibly fun group of people. When I started USI I could never have guessed I would be working on such versatile projects. For example, in the past year I helped design a solution to comfort preterm neonates at the intensive care and worked on a new videoconferencing tool for the online classroom. The sheer scope of this field is simply wonderful. I don’t know what my future will bring but I do know there are countless of possibilities and opportunities lying ahead of me now. Interaction design ended up finding me, and I’m glad it did.

The aim of this project was to explore how video communication can play a more beneficial role in the vast space of online education. Video conferencing is already used in some online classroom formats, allowing students and the teacher to see and hear each other during the lesson. Still, even with this technology it is difficult to get students to interact and learn from each other.

Literature and user studies were performed to gain a better understanding of the field of distance education. There are many factors that influence online education. It is definitely not as simple as taking a regular classroom lesson and simply copying it to the online environment. Two separate tracks were eventually created for the course of this project. In the first track a study was performed on the effectiveness of icebreakers during a video conference of a small group. It was found that icebreakers may have a positive effect on the level of information shared during a cooperative decision making task.

The second track involved the design and development of a functional prototype of a novel video conferencing tool. This tool allows for participants to get together in a shared virtual space. Users can select their location on screen and form communicative sub-groups. The prototype was tested in focus groups leading to new insights and possibilities for next design iterations.

This project has been supervised by David Lou (Alcatel-Lucent), Jan Bouwen (Alcatel-Lucent) and Dr. Jacques Terken (TU/e).
Glenn Veugen

At a young age, I got interested in computers in general. This resulted in focusing my high school studies more on computer science, and especially programming. When immersing myself in the world of information technology, I grew an interest in the visual aspects of software. As a side dish, I educated myself in motion graphics and special effects. Having acquired this knowledge, I attended the Communication & Multimedia design programme at the Limburg University College in Genk. This is when I started expanding my skills in information technology and web design. I encountered different media platforms, and realized that new media is not limited to computer screens anymore, any kind of device or product brings forth interaction, and they are in need of an easy-to-use and intuitive user interface. That is how and why I rolled into the things I do these days: conducting research about the functionality of an interactive application, design prototypes and perform user tests, in order to optimize the concept and end product.

During my master’s thesis, I got more into human-computer interaction and experience design. When I finished my master’s in Communication & Multimedia design, I knew quite a bit about user experience and interaction design. The User-System Interaction allowed me to expand my knowledge further, and dig deeper in the aspects of interactive product design.

With the arrival of auto-stereoscopic 3D TV’s, the well-known 3D glasses will be redundant. The project investigated a functional use of 3D elements in a user interface, allowing the viewer to navigate content with a novel, visual way. An early user study was conducted with a group of users, performing a movie search on four web-based systems. This study showed how users search for video content, and how lean-back or lean-forward such a system should be. This initial observation also indicated that content discovery could be a valuable input for a 3rd dimension.

From this point the concept creation started. The user observation yielded a set of requirements and guidelines, to which the concepts should comply. Multiple concepts were generated, each representing a specific part of the big UI concept. In the end, the combination of best sub concepts was chosen to create one big blueprint for a prototype.

Along with the creating of the prototype, several use case scenarios were written. For the validation procedure, the two most relevant use case scenarios were chosen for usage during the user tests. Both novice users and experts (3D perception, UX and content innovation) participated in the user test. The results of the evaluation session indicated a sufficient understanding of using the 3rd dimension as recommendation significance. It should also be noted that a TV UI needs a good navigational structure, and recommendations should be relevant to the user. If recommended content is being provided, it should be well considered who or what will be responsible for these recommendations.

This project has been supervised by Toon van Craenendonck and Dr. Dirk Snelders (TU/e).
I am an engineer by education and way of thinking. I believe that good design must be elegant, clean and functional.

Born in a small industrial town in Ukraine I had not many options but become an engineer. I got my masters degree in automation and process control but actually I was always more keen on a creative side. I started my professional career as a web-designer in 2005. Since 2007 I have been working as an interaction and graphic designer for various projects including websites, desktop and mobile applications. Now I could proudly say that my expertise lies on the intersection of the art and technology.

My graduation project is done as a part of an Innovation and Feasibility Project within Robert Bosch Thermotechnology under supervision of Dr. Jacques Terken from Eindhoven Technical University and Erica Cusell (MSc) form Bosch. The aim of the project is to develop the control unit and industrial design for a new generation of wall-mounted boilers with enhanced user experience for both installers and house-owners. The novelty of this project is that for the first time in the department history a user experience approach was used as a design method.

During this project I developed and evaluated a number of interaction design concepts. First the concepts were decomposed into several components such as a menu structure, interaction principle and screen layout that were developed and evaluated separately. This approach helped to focus on specific aspects at a time and allowed more controlled exploration of the design space. As a result, the two interaction directions that were most appreciated by the end users are suggested for the future development.

The taken approach helped to discover new insights from the end-users and use those as inspiration for the new design concepts that, as evaluation with end-users shows, could be considered as a qualitative leap over the existing design.

This project has been supervised by Erica Cusell MSc (Robert Bosch) and Dr. Jacques Terken (TU/e)
I am an enthusiastic UX engineer. From the start my love of tinkering with technical parts was apparent and this was also mimicked by my choice for a study of computer science at the University of Twente. That my love was not only with technical things became clear during my studies because I was also very active in the student life and even became a board member in the student association, Inter-Actief.

So driven by a combination for technology, computers, and people, I chose to do a master in Human Media Interaction, also at the University of Twente. For an internship and graduation, Philips Research was the place to be, to look into the interaction with TVs, with tactile feedback and how the internet could help.

And because this was not yet enough, I finished a post-master programme at the Stan Ackermans Institute on User System Interaction. In this programme I found many different professionals and developed myself to be a capable team player as well as experienced in creating the applications that were thought up. For a final project, my interests were turned to the services that Sorama offers its customers. Here a new interaction with the hardware and software was envisioned, implemented and tested, so efficiency could rise and the software could easily be extended with more functionality in the future.

Tin de Zeeuw

Sorama is a small spin-off of the Eindhoven University of Technology. It was founded by Rick Scholte who distilled the idea of acoustic holography from his PhD thesis on the same subject. The company’s main business is helping product developers reduce and optimise the sound level of their products. From the data that is gathered with these microphone arrays the exact speed and pressure that is sent through the air by sound waves can be calculated. From this data images and videos can be rendered to show where the sound is generated.

For the acquirement and analysis of this data a Sound Imaging Analysis (SIA) client built in Matlab was used, but this application required an overhaul to make it more user friendly. At the start of the project users of the SIA client were interviewed and heuristic evaluations were performed. A task analysis was also performed to determine what needed to be supported in a new workflow.

Designs were then made according to the usability guidelines set by Nielsen as well as guidelines set out by Alan Cooper in about face 3, to implement these tasks in a more usable way.

An implementation of these designs was performed in Silverlight because this was the platform of choice for Sorama. This implementation resulted in a prototype that could also be partially used in the final application. This prototype was evaluated against the previously used guidelines, heuristic evaluations, as well as with users in several usability tests.

This project has been supervised by Merijn de Jonge (Sorama), Rick Scholte (Sorama) and Dr.ir. Jun Hu (TU/e).
Nowadays, selling virtual gifts becomes a popular way for Social Network Service (SNS) companies to gain profit. For example, Facebook has its own currency system, called “Credits”, to facilitate users to purchase virtual gifts online to express their appreciation for the people in their lives. Many third party applications are designed for this purpose, such as Birthday Cards, Hallmark Social Calendar and Pieces of Flair. The market of virtual gifts has been growing for years, but the nature of virtual gifts limits the further development of this market, because it lacks the link with the real world and it has often very limited value in people’s real lives.

This USI project intended to extend the concept of virtual gifts and to blur the boundary between the virtual world and the real world, aiming at improving the experience of the SNS users. The designed Location Based Service Delivery System lets a SNS user order a real gift, instead of a virtual gift, and the gift is delivered to the gift receiver based on the receiver’s location. Furthermore, a novel interaction method using the bump technology was added to the system for delivery confirmation, with the desire of being more a fun factor for the end user experiences. Besides, the project also studied the users’ emotional differences between using the bump interaction and other methods for gift delivery confirmation and thus the added value of using bump interaction in the designed context was evaluated.

This project has been supervised by Dr. Jun Hu (TU/e) and Dr. Mathias Funk (TU/e).
I am a big fan of music, from Beatles to Cradle of Filth. I also enjoy travel and active sports, such as squash and outdoor scouting activities, and I am an avid reader on my treasured Kindle. My main activity in life is starting projects in different areas to keep myself busy, such as: photographing, programming, organizing parties, etcetera. On top of that I organize several scouting-camps each year. My favorite color is orange.

My passion lies in improving designs to make them more usable, useful and enjoyable. I noticed the extraordinary synergy between man and machine during my studies in Artificial Intelligence (MSc. at the University of Groningen in 2009). During my master-project at CMU in Pittsburgh I created a system that focused on human-robot interaction and I saw how designing for natural interaction when creating a complex system can lead to enhance the strength of the system and lead to a more pleasant user experience. This insight led me to prolong my study-life and partake in USI.

I’m quite creative and I enjoy creating new designs based on user research. I can then go one step further and make highly interactive prototypes. With the USI-experience in my pocket and an AI-background I am confident that I can reach my goal to improve the interaction between user and system for all kinds of complex systems.

This project was carried out at Philips iXR, which develops and produces X-ray machines for medical interventions. Their customer service department gathers large amounts of field-feedback data. This data is stored in several databases and most of it is unstructured text data. This data was not used optimally; the data was not combined and therefore insights were lost. This was further complicated because there was no overview of the available datasources. The aim of this project was to partially solve this problem using a research-by-design approach. Due to the broad problem statement an orientation started the project, by having open interviews with 37 employees. The project-focus was then funneled to a specific problem: supporting the field-feedback procedure.

A user-centered, iterated design phase was followed resulting in a concept which combines data from multiple sources. In the concept all the available data of a customer is visualized as a ‘ball’ on one or multiple timelines, where each line represents an iXR system. On selecting such a ‘ball’ the full details of this data-element is shown. First paper prototypes were used, then high fidelity prototypes and a finally a fully working interactive prototype implemented as a web application.

The concept was evaluated using qualitative research and rated positively. iXR will continue to use the interactive prototype and will be improved based on feedback gathered in the evaluation phase.

This project has been supervised by André Vermeulen (Philips iXR) and Dr. Lu Yuan (TU/e).

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