User System Interaction
Eindhoven University of Technology
Industrial projects 2014
User System Interaction

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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 2014 success in pursuing their professional careers.

10 October 2014

Prof. dr. Panos Markopoulos and Drs. Mia Jelsma
User System Interaction Programme
I have always been interested in computers, tinkering with them since I was a child. After seeing the people around me struggle with using them, I wanted to learn more about the interaction between people and computers. I decided to pursue a degree in Communication and Information Sciences at Tilburg University where I learned about the UX field and I decided to specialize in Human Aspects of Information Technology. During this Master’s program, I researched how machines can understand users by looking at their behavior. As my studies were rather theoretical, I decided to apply for the User System Interaction (USI) program at the TU/e to put my knowledge into practice.

During the program, I worked together with people from many different fields and nationalities meeting a lot of skilled and wonderful people. In the future, I want to continue working on improving the interaction between people and machines.

Parkinson’s disease is a neurodegenerative disorder where dopamine producing cells in the brain die. This results in a dopamine insufficiency which causes both motor and cognitive symptoms. Motor symptoms include trembling of limbs, slowness in movement and episodes of freezing to the ground. Cognitive symptoms include problems with memory, planning, multitasking and motivation. There is no cure for the disease but symptoms can be managed by administering artificial dopamine.

One non-artificial method that increases dopamine levels in the brain is exercise. One client of the company plans to research this effect and approached the Center for Applied Games to design an exergame that can be played on a stationary bicycle and aims at motivating people during exercise.

To motivate patients to exercise and to monitor their exertion level, biofeedback is used as a game element. In addition, other interaction modalities may be implemented, depending on the abilities of the patient. After literature research, expert interviews and user interviews, a prototype was developed.

In the game, the player uses his heart rate to control the height of a flying figure. Game objects can only be collected if the heart rate is within the correct zone. Further manipulations of the figure’s direction are possible through other modalities. Additionally, an interface was designed that displays relevant information during the game.

This project has been Supervised by Dr. Erik van der Spek and Drs. Jeroen van Mastigt-Ide.
Curiosity is something beautiful: trying to understand the world around you. I have always been curious to find out how things work and how people think. Studying Industrial Design allowed me to combine these two things. I especially liked to gather requirements from the field, analyse the needs and different designs and translate this into different prototypes.

During my studies, I developed a passion to improve people’s quality of life where it is most needed: in healthcare and education. To ensure my designs help people in the best way, I involve the user throughout the whole design process. Because in my opinion; design is creating new experiences, and the users are the experts of their own experiences. The User System Interaction program was a good follow up; it helped me to bridge the gap between my education and industry. Not only my knowledge and skills were broadened, but the best part was to work in multidisciplinary and multicultural teams, we learned a lot from each other.

The first year was a good playground to explore. On the contrary, this playground shifted towards Serious Gaming at IJsfontein in the second year. Even though Amsterdam is not the place I felt home, IJsfontein was the best company I could hope for. Great atmosphere and nice projects, good ingredients to learn and experience the industry.

IJsfontein is one of the leading companies in The Netherlands in the field of serious games and interactive media. During my internship it was my task to explore the opportunities of using co-creation in their processes. To achieve this a thorough understanding of the IJsfontein company culture as well as solid understanding of the field of co-creation were required. The first was achieved by working on several projects at IJsfontein, experienced how they work. In combination with interviews and informal talks I concluded that the strengths from IJsfontein are the project (experience) and the people. There is always a tension between the tight deadlines and requirements of the client and the high quality standards IJsfontein sets to itself. In this tension field, co-creation has to prove its added value.

To gain a solid understanding of the field of co-creation I did not only explore this field in the academical context, but I also visited and interviewed several companies that use co-creation in practice. Conclusion; the term is used fairly indiscriminately, some say a focus group is a co-creation activity, but others say you can only call it co-creation when you involve the user more frequently and they are the owner of the ideas.

By combining all the insights, I proposed a proof of principal tool. This IJsCo tool will not only be used to inform about the how and when, but will also be convincing and easily accessible to make sure it is actually used by IJsfontein.

This project has been supervised by Naomi van Stelten, MA (Director New Business at IJsfontein) and dr.ir. Mark de Graaf (TU/e).
I’m a Visual Interaction Designer, with a background in Service Design and a passion for User Experience. I am eager about User-Centered Design process and I have been trained in designing solutions and services destined for a broad range of users in different contexts. I have developed skills in User-System interaction and I am very familiar with both qualitative and quantitative research methods. Being passionate about ethnography, I feel very enthusiastic in discovering cultures that are different from mine. I have a strong interest in working in low-income and developing countries. Users are the core of my research and I have a preference in designing systems of products and services in which technology and human interactions have a main role.

Diagnostics Solutions for Low-Resource Settings

Pneumonia is the leading cause of death among under-fives, killing more children than AIDS, tuberculosis and malaria combined. Globally a child dies from pneumonia every thirty seconds and 99% of these deaths are in low-resource settings in developing countries. UNICEF and the WHO have made pneumonia a focus area in efforts to reduce child mortality. Supporting this drive, Philips has developed a prototype that is easy-to-use and automatically detects the breathing rate of a child with the goal to help community health workers diagnose pneumonia. The automated breathing rate monitor has the potential to help community health workers make more accurate measurements of a sick child’s breathing rate, and hence improve the diagnosis of pneumonia. Accurate diagnosis would ensure that children with pneumonia receive the antibiotics they need, potentially preventing many of the deaths caused by pneumonia each year. Such a device could also help reduce the unnecessary overuse of antibiotics which contributes to the rise of drug-resistant diseases. By bringing more confidence to the measurement of breathing rates and presenting results in an easily understood way, an automated monitor could help health workers reassure parents and explain when antibiotics aren’t required. The prototype is currently under-going field tests, evaluation and validation.

This project has been supervised by Pavan Dadlani and Prof. dr. Panos Markopoulos (TU/e)
Hi, my name is Willem Fabritius. I consider myself Irish, having lived there for most of my life, but as you can probably tell my name is Dutch!

My professional background before USI was primarily in web development. I hold a bachelor degree in Multimedia and a master degree in Computer Science. It was during my master degree that I discovered the field of Human Computer Interaction and was immediately fascinated by this meeting point of psychology and technology. Through my previous professional experience I have seen first-hand how critical addressing user needs can be in the success of a technology project, a fact that is now gaining increasing recognition in industry. I decided I wanted to be part of this design process, giving me more creative freedom to choose the direction of my work. My interest in learning the techniques and theory behind user experience design brought me to USI, where I am grateful to have been given the opportunity to develop both personally and professionally.

Climate change is a critical issue in our modern times, with our national governments introducing many initiatives to try to reduce CO2 emissions. An important strategy that is often overlooked however is the use of behavioural science to improve our energy efficiency. After all, the cheapest and cleanest form of energy is the energy we never use.

The Semantic Smart Energy (SENSE) research project, a collaboration between Schneider Electric and the Insight research institute at NUI Galway, investigates how to address the issue of energy efficiency in the office environment, particularly how to motivate and educate office workers of small to medium sized enterprises (SME’s). The SENSE project utilises a number of emerging technologies including machine learning, the Internet of Things and the Semantic Web to identify energy saving opportunities and assign tasks to building occupants. My role in the project involved the user experience design and development of user interfaces that support interaction with this sensor and linked data. Through the research and application of environmental psychology and persuasive technology techniques, a website prototype was developed which aims to inform users about their energy consumption and encourage energy saving actions.

This project has been supervised by Dr. Edward Curry (Insight@NUI Galway) and Prof. dr. Panos Markopoulos (TU/e).
Born in the Netherlands from mixed backgrounds, raised in Switzerland, educated at an International School, and having the luck of parents who like to travel, I was exposed to a lot of cultural diversity from a young age, and now consider myself a third culture kid. I previously majored in Industrial Design, and enjoy the experience of being able to converge the different aspects of Design, Technology, User and Business. Designing is a way of asking questions and philosophising about hypothetical futures. It is a way of answering society and also a way of transforming it. As a designer, one has the responsibility to be curious and daring but also have a sense of the diversities in ethics, culture and respect. To me, when something is designed, it has this complete “air” to it. When something looks good, feels good, and functions well, and has that indescribable completeness within it (whether it is, for example, because of the rounded corners, or because you don’t even notice the transitions from one state to another, because it adapts to the context I am in, because it feels so natural), “that” is design for me. I believe that professional growth should be a balance between an academic and industrial approach. A PDEng at USI has perfectly facilitated this vision, as one of the demands of the program is to work together with the industry to deliver a unique concept to the market. These two years have been tough and definitely have carved a more responsible human being and designer out of me.

Sports performance is an ever-developing area supporting the constant competition between individuals, teams, regions and nations. Martin Truijens, national professional swimming coach and scientist, is one of the Netherlands’ leading and most passionate people concerning pushing the boundaries of human performance of the nation’s swimming athletes. With current technological advancements, the opportunities to create an instant and real-time feedback loop during sports-training are becoming a reality. Considering Truijens’ and Ganzevles’ research and by implementing biometric sensors, a real-time loop can be created, and hence provide a hypothetically more effective platform for improving athlete performance. Throughout this project, several angles of providing a coherent feedback loop were explored. Providing the coach with a decision support system to help intervene in an athlete’s development during training became the priority of the project. Focus was placed on designing a graphical user interface for the coach for real-time use during training sessions. In order to cater to the needs of the coach, several layers of interpretation were designed, explored and tested: (1) basic compliance, whether athletes are or aren’t meeting set expectations; (2) how external factors of performance are causing this (non-)compliance; and (3) how inner physiological parameters are affecting the compliance. Besides that, maintaining an overview, whilst still being able to zoom in and traverse the above-mentioned layers, became an important interaction design challenge. Considering the novelty of this development, the biggest question was to find out if I could effectively contribute towards new coaching methods within professional swimming and other cyclical sports.

This project has been supervised by prof. dr. ir. Aarnout Brombacher and dr. Martin Truijens.
Analytical, creative and interested in people, are the key words I would use to describe myself. Each of these qualities have been a red thread throughout my life. I have long struggled to combine my passions and exhausted myself to do each separately. To create art and design (my longtime hobby which I have always practiced at the side), to observe people and their behaviour (which is why I came to study psychology) and to analyse data and work with statistics (to fulfil this I had a minor in statistics and worked as an analyst for NS railways). During my master’s degree my interest for technology was sparked, as I was often in contact with people interacting with an increasingly technological world and the limitations thereof. I felt, as a psychologist, I could have a positive influence on human computer interaction. USI allowed me to combine all of these interests and learn from many different people from different fields; an experience I am intensely grateful for. My final project allowed me to design for and work with people with dementia. This pleased me as it allowed me to work closely with people, and gave a sense of purpose. In future I imagine myself in a place where I can develop more, where my innate curiosity can be satisfied, and where I can continue doing user tests and designing with challenging target groups. My interests remain broad and I am eager to find out what the future will bring.

The goal of this project was to design a simple navigation device which is usable by people suffering from dementia. It was done as a part of the Innovate Dementia project. Innovate Dementia is an ongoing European project that focuses on applying a Living Lab approach to design for people with dementia (http://www.innovatedementia.eu/en). The project strives to create innovative solutions to allow elderly with dementia to live at home for a longer period of time with a high quality of life. Dementia is a disease characterised by a decline in cognitive abilities, among which are memory loss and problems with way finding are common. The experience of being lost is a frightening one and is most often experienced when the person with dementia is eager to return home. In order to solve this problem a homing device was imagined. Within this project the homing device was designed to be a compass that always points the way home. An iterative design process was followed where new prototypes were created and evaluated with experts and users alike, until eventually a working prototype was created. As ordinary navigation systems are usually too complicated, this prototype was stripped to its simplest form to answer the question whether elderly with dementia were able to understand a simple pointing system for navigation. This prototype was tested by eight couples of which one of the couple had dementia. Each person with dementia managed to find their way to two unknown points and finally use it to find their way home. From these tests new insights were generated on how to design navigation systems for people with dementia, and recommendations on how this product should be developed further.

The project was supervised by prof.dr.ir. A.C. (Aarnout) Brombacher and dr.ir. P.H. (Elke) den Ouden, both are affiliated with Eindhoven University of Technology.
De-escalate project is a multi stakeholder project focused on investigating the positive effects of modern lighting technology on aggressive/escalated behavior. In the De-escalate Stratumseind PhD project we focus recreational settings and the effects of intelligent street lighting on problematic behaviors in the field - Stratumseind: the longest bar street in the Netherlands, located in the heart of Eindhoven. Measuring Stratumseind Experience is a USI traineeship graduation project and covers the first phase of the four year De-escalate Stratumseind PhD. Before we are able to design and test de-escalating lighting scenarios we have to get familiarized with the setting where these scenarios will be applied, we have to get to know the environment and users, and understand their experience in that environment. We also need to figure out how changes in aggressive behavior - and related experiences and cognitions - can best be measured once the lighting intervention is implemented on Stratumseind. Thus, the main goals of the current project were:

- to explore Stratumseind environment and profile Stratumseind visitors,
- to find out what causes aggression and escalation on Stratumseind and how we can measure this behavior and, finally,
- to explore possibilities for light designs which could reduce these escalation/aggression levels.

To achieve these goals the qualitative ethnographical approach was chosen. Stratumseind was explored by observing life on the street during the busiest nights, by interviewing a number of café owners and security staff serving the Stratumseind crowd, and by talking to police officers taking care of visitors’ safety. Besides, to extract users’ experiences on Stratumseind, their views on safety, atmosphere, and overall evaluation of the street as a recreational area more than sixty mini interviews at the spot (on Stratumseind, on a party night) and ten elaborate retrospective interviews (not on Stratumseind, during the day) were performed with Stratumseind visitors.

This project has been supervised by dr.ir.Harm van Essen (TU/e, ID) as USI coach, dr.ir. Yvonne de Kort (TU/e, HTI) and Antal Haans (TU/e, HTI) as project coaches.
I have always dreamt of engaging with companies that can convert new technologies to superior user experiences. As a user-system interaction designer and businesswoman who studied strategic marketing, I had the opportunity to work with international teams on several professional projects. My background in engineering helped me to understand technical requirements of a design. My business/marketing experience guided me on how to convert an idea to a product/service bundle, analyze consumer behavior, segment the customers and position that bundle toward target customers. Lastly, the user-system interaction program provided the opportunity to bring all above-mentioned skills into a unified process into account to initiate a user-centered design.

I firmly believe that efficient incorporation of technology in product/service innovation will be viable by approaching a problem from multiple disciplines. Understanding a business problem and analyze it from different perspectives (design, engineering and marketing) has granted me the ability to communicate that concept to other technical and management teams and connect teams from different specializations. Therefore, my multidisciplinary experience is a precious asset which will help me to tackle challenges in my future career.

Driver’s distraction has been received a considerable attention in the research literature. In recent years, the number of newly added functions of in-vehicle user interfaces has increased dramatically, drawing concerns toward the interactions with in-vehicle technologies. These technologies are offered through a wide variety of visual information such as navigation system, road and traffic information, as well as other emerging wireless and cellular applications. Recently, car companies, such as Tesla and Mercedes, implemented a central screen for most of the in-vehicle control.

Interacting with these interfaces mainly include visual inspection and interaction during the driving as the main task. The complexity of the perceptual quality of interface visualization and cognitive processing with mentioned system affect driving performance. In the current work it has been tried to shed light on problem of visual complexity and simplify the tasks by breaking down the complex interface into consequent but simple steps that help driver not to lose focus on the main task which is driving. Breaking a task into steps will provide an opportunity for user to gaze back toward the road without losing significant information to complete the task. Furthermore, the user is not obliged to finish a task in one act and consequently is able to control the time to move on to the next step. We are willing to focus on the cognitive quality of the model. The result of this study will provide helpful guidelines for designing interaction of in-vehicle medium.

This project has been supervised by Dr. Jacques Terken in TU/e Industrial Design department.
I am a human-centred designer and researcher with passion in UX and interaction design, research methodologies, and application of psychology in design. I believe that psychology has an answer for plenty of designers’ questions, and I keep this in mind while creating meaningful interactive products and interfaces. My favourite hobbies are searching for reasons behind everyday activities, studying how human mind works, and how people use technologies and why. I regularly speak at the gatherings of design professionals and at conferences, mostly about the topics of interaction and UX design, virtual reality, and hacking of various well-established conceptions in order to support creating new questions instead of dogmata. I hold a Master’s degree in Human-Technology Interaction from the Eindhoven University of Technology. I also studied electronics & information technology, and software engineering in my beloved Prague – city where I came to Eindhoven from. I love Czech and Mexican cuisine, board sports, and I totally love to travel.

The way in which products are being designed and developed nowadays is different from what was done in past. One of the key differences is that teams are distributed, and that they collaborate and share processes, activities, and artifacts via the Internet. Such teams typically use a number of online tools for managing and sharing their projects, files, information, tasks, and communication. Although these tools are designed to support sharing perfectly, scattering the information into number of separate tools makes user to lose the oversight of the project. Instead of developing a new tool that substitutes or extends the existing ones, we designed a tool that incorporates and unifies them. The tool provides an accessible information dashboard that filters the content according to what is relevant to every single user and makes this content available at a glance in one place. This enables users to stay updated by checking only a single place, instead of logging into multiple different tools and arranging their different notification areas, status bars, feeds, and other elements meant for updating. Moreover, this new presentation layer above the existing tools allows for new ways to personalize the content. The tool concept was prototyped and tested in two design iterations, and the results indicated that it is viable, and can be developed as a standalone product or a component into a larger-scale platform. The results of this work are going to be further used in the development of COnCEPT platform.

This project has been supervised at TU/e ID by Dr. Mathias Funk and Prof. dr. Panos Markopoulos.
I want to be part of the development of creative, usable and beautiful products, which inspire people and support them in everyday life and at work. How do I want to do that? By doing user research and using the results to design creative concepts for products in an interdisciplinary, colorful team. How did I discover the topic User Experience as a psychologist? In the very end of my studies at the University of Tübingen I was offered the opportunity to do an internship the field of User Experience at Bosch. The internship and my diploma project about product aesthetics changed the direction of my professional path completely. I decided that my future lies in User Research and Design. In order to learn more about user-centered design, I decided to participate in the USI program. Here I had the great chance to acquire professional knowledge and skills in the complete field of user-centered product development. Besides applying my knowledge of psychology to user system interaction I am happy to have acquired technological knowledge and design skills as well. Now, I am looking forward to challenging projects at my employment at Bosch as a User Research and Testing Specialist.

For my final project phase I was working at C/UX, the corporate department for User Experience at the Robert Bosch GmbH in Leonberg. C/UX can be described as an internal agency supporting all business units of Bosch’s world-wide organization. Firstly, C/UX is responsible for implementing a user-centered product development process within the company. Secondly, projects are executed by an interdisciplinary team of visual, interaction, industrial and service designers, prototypers and user researchers. I was hired as a so-called User Research and Testing Specialist in order to support several projects. I planned, organized, conducted and analyzed tests of concepts mainly in two product areas: automotive systems and power tools. Depending on the concepts and fidelity of the prototypes, tests were conducted in different settings - in the car while driving on the highway, on a driver training area, in the department’s driving simulator or in its usability testing lab. Mainly qualitative observation and interview methods were used to get user insights. The results of the user research were used to refine concepts together with the project team and the internal stakeholders.

Main goal of the last seven months at C/UX were getting to know the user-centered design approach in the corporate context of Bosch and thereby supporting my new department C/UX with the skills I acquired at USI.

The project phase described above has been supervised by Stefan Riedel (Robert Bosch GmbH) and Dr. Jacques Terken (TU/e).
I was born in a small Russian town on the border with Finland. Since the age of nine I wanted to become a software designer, but 13 years later realized there is another kind of design that attracts me. After three years as a front-end developer I switched to the UX design field. To start a new career I had to fill in a lot of gaps in my education (well, they don’t teach some things to computer science students): from basic human behavior principles and color theory to design best practices, grids and typography. I was looking at lots and lots of examples of good websites and app to figure out how things work. I still do. I experiment, design, try out new approaches, and it brings me lots of fun and pleasure. Design challenges became a part of my life and I can’t get enough of them. Everyday I am learning new things: how to be more creative, or a more efficient way to do something, or a new tool or technology. There is a list of books I want to read and it’s only getting bigger. Besides UX design, I do a bit of calligraphy, graphic design, and always learn a language or two. Often you can find me in a sport center practicing new tricks on a pole.

As a final USI project I was implementing the UX for small businesses at Appar. Appar is a small consultancy company helping businesses bring the mobile app idea to life and suggesting a suitable developer for each particular case. Appar was exploring the niche markets and opportunities, and created two new services: AppSpecialisten and AppFlavors. AppSpecialisten is a platform where business owners can find various app developers based on their budget, expertise and location. A mobile app is a big investment, so in order to make sure that the idea will work, clients were offered to get a prototype first. So, as a result prototypes were designed for several clients to help verify their ideas. AppSpecialisten website was partially redesigned in order to emphasize the value it brings to the customers. AppFlavors project started out as an app search platform, offering users to search and organize the apps into collections called app stores. The lean startup method was used to test the idea, so after several iterations it changed dramatically and turned into a service to help municipalities reduce the amount (and costs) of calls by personalizing their website. Tilburg municipality was very interested and became a pilot. User research, website data analysis and usability review was done to find out where problem occurs and why. As a result, the municipality received a proposal document with practical suggestions what steps to take to increase their service level and reduce the amount of calls in both short and long time.

This project has been supervised by David van der Loo, MSc. and Mathias Funk, Ph.D. (TU/e).
Carina Palumbo

I obtained my degree in Visual Communication Design in 2008 at the National University of the Littoral in Argentina. Then I worked for different organizations designing and teaching Visual Communication. Projects requiring problem-solving beyond aesthetics were the most engaging for me. During those years, interface and information design became my main interest.

To develop further competences in these topics, I decided to pursue the Master Degree in Information Studies and Human-Centered Multimedia at the University of Amsterdam. During my Masters, I have learned about digital information and how it can be analyzed, collected, classified, stored, and retrieved to be useful for people. Although informatics play an important role in user experience, as a designer, I wanted to develop in-depth skills to conduct user-centered design.

It is for this reason that after my Masters graduation in 2012, I decided to join the User-System Interaction (USI) program at Eindhoven University of Technology (TU/e). By following USI, I gained hands-on experience in diverse user-centered methodologies for product development. The program enhanced my practical and technical skills to center the design process in users, their needs, their mindset and their behavior. USI provided a solid framework for me to stand as a designer in order to achieve high quality user experiences and interfaces.

Sana Commerce is a software solution that enables companies to build webshops using the data and business logic stored in their Enterprise Resource Planning (ERP) system. It includes an administration system (Admin) that allows users to manage the webshop content and settings. The development of the Admin has been driven by commercial and technical opportunities. The perspective of end-users, including the way they conceive, use and experience the product, has not been a major consideration in this process. As a consequence, users require a great deal of support and experience to manage the system efficiently.

The goal of this project was to design the User Experience (UX) of the Admin. Main challenges and improvement opportunities include transforming a data-base driven information structure into a user-task centered one, reducing information overload and task complexity, and updating the interface and interaction design.

To this end, user research was conducted. First, we identified and prioritized improvement opportunities by interviewing stakeholders, analyzing user behavior in the help website, and mapping the UX. Second, we translated the findings into solutions, using a user-centered design process (UCD). Information architecture tests were run, and mock-ups and prototypes were built and tested iteratively.

The new design provides an improved user-centered experience. Information is intuitively organized and displayed according to user roles and tasks, and terminology is more familiar. Furthermore, the redesigned Admin includes in-situ support and a notification system that makes tasks easier to carry out.

This project has been supervised by Prof. Lynda Hardman (Centrum Wiskunde & Informatica), Prof. Panos Markopoulos (TU/e), Jouke de Vries and Bram Streefkerk (Sana).
Dominika Potuzakova (1985) obtained her bachelor degree in Engineering Product Design in London South Bank University in 2010. She joined the faculty of Industrial Design at the Eindhoven University of Technology and finished her master degree in 2012 and her PdEng. postgraduate degree in 2014. Since 2009, she has been focusing on user-centered design and user research in the health care and well-being domains. Her master as well as PdEng. thesis were devoted to conceptual product solutions in the comfort and bonding between mothers and prematurely born babies. Currently, she works as a Senior User Researcher at AVG Technologies in Prague, Czech Republic.

Within the E-NEMO project (E-NEMO, 2010), a concept for a new positioning system was developed in order to automate the positioning of premature neonates. E-NEMO stands for Embedded Neonatal Monitoring, and the project aimed to build a smart monitoring system that overcomes the stress, pain and discomfort that is related to the monitoring of the vital signs on neonates. A part of this project focused on designing an actively adaptable positioning system: a smart mattress that changes its shape according to different positions in which a preterm infant lays. The mattress hereby was meant to intensify the tactile comfort for the preterm infants.

The positioning was provided by carefully designed 3D organic shapes that follow the body-line of a preterm infant’s body. Additionally, to mimic the in-utero environment, the 3D organic shapes were designed to provide required positioning support and necessary physical boundaries for the infant. The shapes and support were sustained through different stiffness of the soft (textile) materials that as a whole create one compact 3D surface.

This project has been supervised by prof. dr. ir. Loe Feijs and dr. Wei Chen at the Industrial Design Department in Eindhoven University of Technology.
I am Denys Tserkovnyi. I was born in 1989 in Kyiv, Ukraine. I was always fascinated about design, and my first idea about a dream job was to become a garbage truck driver. I knew nothing about negative sides of this job, but what I knew for sure was that garbage trucks have an awesome fork to lift containers, which I recreated with the help of Lego. My interests were changing; new and new hobbies became part of my life, although a curiosity about how things work and how people use them were always in the area of my interest. Trying out new technologies in IT and then concentrating on a few particular things helped me to diversify my interests and work experience.

In 2005 I was accepted to the Aviation University to the multimedia technologies department. In the same summer I was hired at my first job in the leading map supplier company as an IT specialist and designer, where I worked for the next 7 years. It was still not enough, so I started freelancing to get more experience in graphic design, programming, 3D modelling, printing production and to become more acquainted with all stages of the design process.

After receiving the Master degree I was looking for the opportunities to obtain more teamwork experience. That is how I found the User System Interaction program in TU/e. Where everyone is very different and still can work with each other with a great joy and productivity.

The project is situated within the creation of LanguageLearningPortal: a global high quality language courses aggregator and provider aiming to help users finding language learning opportunities. The development of this portal is based on the existing StudyPortals platform.

Adapting the principles of Scrum development provided a basic framework for project development and management. Therefore, iterative design was ensured by applying a user centred design methodology during the whole duration of the project.

In order to make the web service future proof, Mobile First and Responsive Design principles were applied. Key activities in the process included wireframing, information architecture, usability testing, improving cooperation between design and development team, conceptualizing design ideas, designing interaction and as a result developing a high quality web service platform which can be improved gradually.

At the end of this project the first functional version of the LanguageLearningPortal was launched. This beta version was evaluated in order to continue web service improvement in the future. These suggestions will be applied on the portal, aiming to release a high quality user focused web service helping thousands of language learners finding a language course according to their wishes.

The project has been supervised by PDEng Toon Van Craenendonck (StudyPortals) and Dr. Ir. Bart Hengeveld (TU/e).
The increasing aging phenomenon has presented tremendous challenges on economic prospects and societal wellbeing. As a result, in the Netherlands, pensioners need to stay independent longer. TU/e, Summa College and Viedome collaborate within Samen Slim Zorgen Thuis project to bring modern technology to support care and independent living for the elderly. Technology itself however raises many difficulties for the non-tech savvy senior generation. My role in this project was to investigate the relationship between seniors and technology in order to develop a solution that bridges this gap.

The concept of Te[a]ch.you services was shaped through service design and creative workshops, observations, and interviews with various stakeholders including elderly, educational and care organizations, and teachers for elderly. An educational tool in a form of cards sets collection was developed and evaluated through participation in several digital technology classes for seniors. Each set of Te[a]ch.you cards explains step by step how to perform certain desirable for seniors tasks with the use of modern technologies. It provides means for independent and assisted education, as well as a playful aspect which supports building of mental models. Finally, Te[a]ch.you is not only a physical product, it’s also a range of services based on a vast network of stakeholders in the care industry.

This project has been supervised by dr. Yuan Lu (TU/e), Susan Metz (Summa College) and Marc Zwamborn (Summa College).

I always found myself at the intersection between the worlds of technology, people, arts and business. Never willing to fully commit to only one of them. After my bachelors in Mathematics I was thrilled to pursue a degree in Human Computer Interaction. Everything finally clicked in my life when I was introduced to the world of usability. Back then, it was a very new topic in Poland. I was exploring it by working for 3 years as a Usability Specialist and UX designer in the web design industry. After moving to Seattle to study at the University of Washington I realized there is much more to UX than just web. People were researching new interactions, building tangible products and even designing the experience of sex toys! USI program at TU/e looked like the perfect next step to discover all those new areas. It offered me a chance to broaden my knowledge in innovation, concept and service design as well as develop my professional skills.

Now, I proudly call myself Experience Designer. Whether I’m designing an online store, persuasive system, interactions in the periphery or tangible products my goal is to deliver meaningful experiences, which simplify or enhance lives and create that extra wow-effect. I believe that every experience has something to teach me - whether it’s a new project at work, trying out a new dance style or talking to a stranger on the train.
Derec has broad interests in Human-Computer Interaction (HCI), mainly focus on new Interaction Techniques. His prior research focuses on Human Computation, User Interface Design, Context-Aware Computing and Usable Security. He received his M.S. from Carnegie Mellon University (CMU), where he worked with Prof. Jason Hong in Human-Computer Interaction Institute (HCII), and he received his B.S. in Computer Science from National Chiao Tung University.

Before pursuing his Professional Doctorate in Engineering (PDEng) in User System Interaction at Eindhoven University of Technology (TU/e), he worked with Dr. Kuan-Ta Chen at Academia Sinica’s Institute of Information Science (IIS) to conduct research in various areas of HCI including Human Computation and Context Aware Computing. Meanwhile, he led the Smarter Contacts research project at National Taiwan University’s Mobile HCI Lab, supervised by Prof. Mike Chen.

Currently, each web application developed by Nedap’s Healthcare department works independently, that is, users need to login separately to each application that they want to use. Besides, there are more and more users have to switch between applications to accomplish certain tasks. However, currently there is no easy way to switch between healthcare’s applications but opening different web pages. In more depth, current applications are lacking context information of users, specifically, they do not know under what circumstance would users like to switch applications. Being aware of users’ context can help predict what would be users’ intentions in terms of switching applications, and further provide users possible navigation options based on their intentions.

To solve the problems mentioned above, we present Hub, the design of the entry page of all Nedap Healthcare’s web applications, which aims at easing users quickly and easily access to their target healthcare’s apps which they have access permissions.

The main part of the Hub is the navigation bar, which will be eventually applied to every Nedap Healthcare’s web applications. Hub’s navigation bar consists of a search box, an app launcher, and two message-related buttons. Through the app launcher, users can not only navigate to their target app, but also check the updated information of each application without going directly to the app itself. Also, the contextual linking introduced by Hub provides users with possible action links next to the identified name of a client or a colleague.

In future work, we plan on continue implementing Hub and preparing for a wider-scale evaluation.

This project has been supervised by dr. J. (Jun) Hu PDEng MEng (TU/e) and André Foeken and Mark Oude Veldhuis.
Ever since I was a child, I’ve asked myself (and others) why people behave the way they do. This resulted in a Masters in Neuropsychology and a PhD. Both allowed me to enhance my knowledge of psychology and strengthen my research and analytical skills. Although a career in academia seemed to be the most straightforward way to go, I wanted to broaden my horizon to a field that was not only more useful and applied, but also more creative. It was time that I started to take my design ambitions seriously.

And then I found USI.

The User System Interaction (USI) program at the TU/e revealed a fascinating world to me, in which applied psychology, design, and technology are combined. Because the user of the product is never out of sight in the design process, truly people-centered and user-friendly products are being created. This asks for a mix of creative, research, and technological skills, which I applied in an abundance of different projects in the past year. I aspire to continue creating innovative, practical products that are meaningful to people. Products that are not only easy and fun to use, but that actually add value to someone’s life.

According to IBM, 2.5 quintillion bytes of data are produced every day, and this number is increasing rapidly. Companies can obtain a large advantage by exploiting big data to, for example, gain better insights in their customers’ online behavior. This, in turn, can be translated into better targeting (e.g., customer-personalized instead of general offers) and higher return on investment. The DimML (declarative in motion machine learning) language was specifically developed by O2MC to facilitate real-time collection and management of big data.

The aim of the current project was to provide DimML users with an overview of their DimML use. In a full design cycle, a dashboard was created to enable DimML users to view their server calls, DimML flow elements, invoices, and token consumption. One of the requirements was that, since DimML users often create products in DimML for clients of their own, it should be clear from the dashboard how much of the obtained DimML package was used by which of their customers. Strongly grounded in user research, persona creation and customer journey analysis, several lo- and hi-fi prototypes were developed, tested, and adapted in short iterations. With the final version of the dashboard currently being developed, the next aim is to connect it to the dimml.io developing platform and evaluate its use with new DimML developers.

This project has been supervised by Bob Nieme/Stefan de Kraker (O2MC) and Lu Yuan (TU/e).
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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