

Eindhoven designs, volume eight

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Eindhoven designs

volume eight

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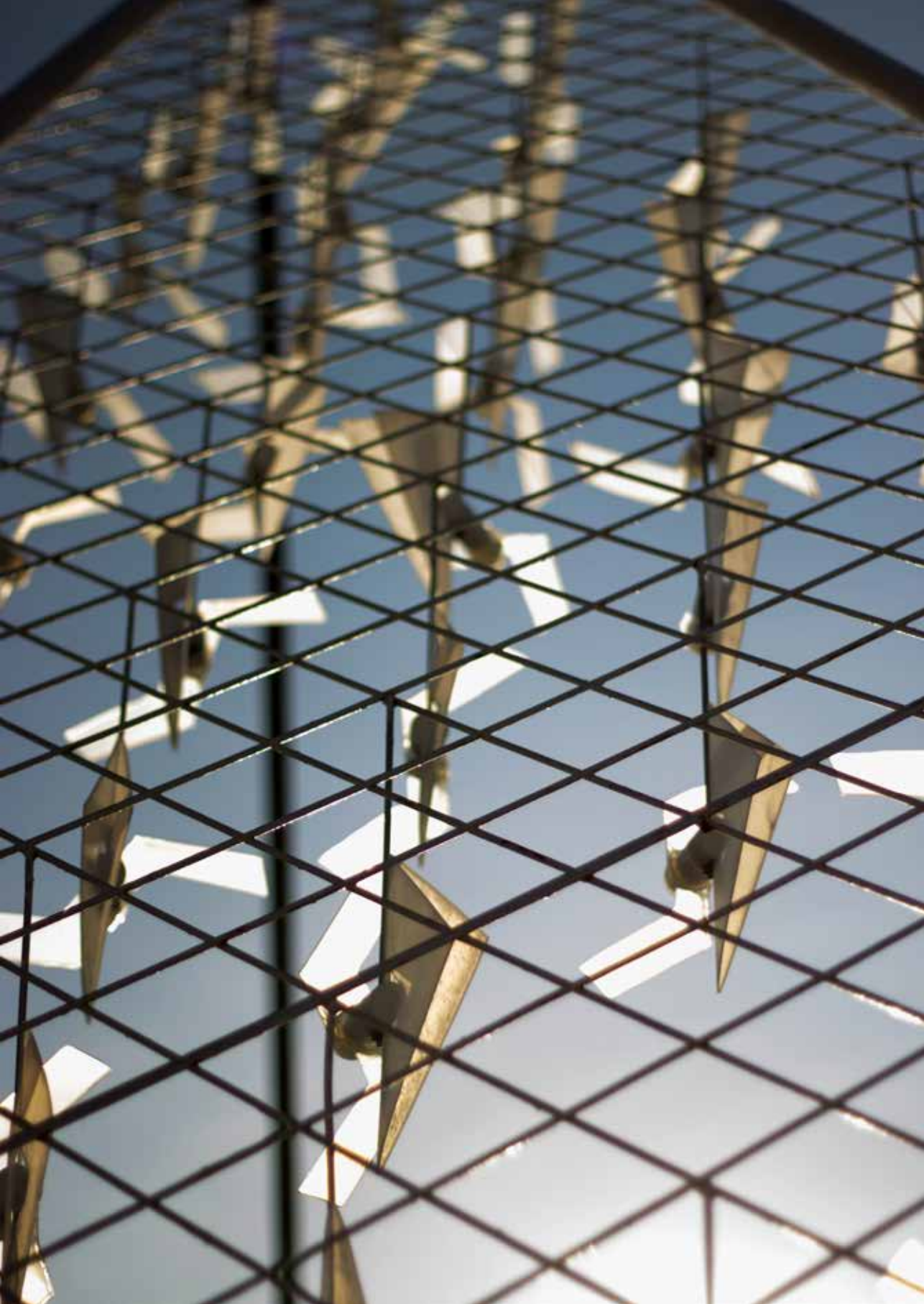
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JACOBS
FLEXLIG

HELLO MEAT
HELLO VEGETABLES
WE NEED TO THINK ABOUT
THE FUTURE



PREFACE

2012/2013 has been a hectic year with respect to Industrial Design Education. The Bachelor College was implemented across the university and we have reflected on the past six years for the accreditation. But in the meantime ID education continues to develop steadily and shows great stability as a passionate and innovative community.

Many things have occurred in the past year which we can look back on with great pride. Therefore, in line with the tradition initiated in 2008, I am very pleased to present you the eighth edition of Eindhoven Designs. It illustrates the highlights of our achievements with respect to the design of intelligent systems, products and related services that contribute to the transformation of society.

This year's booklet has a slightly different format than previous editions. Of course, the ambition is to show what the ID Education Community has accomplished in the past academic year. However, this year we wanted to go one step further. More than in other years, our students and staff were given the opportunity to present their work outside of the department. Therefore, we have decided to add a few new perspectives.

As always we first present a selection of the work our excellent students demonstrated during the semiannual exhibitions, with a particular focus on our excellent graduates. Next we summarize the beautifully revised ID'13, the yearly exhibition of ID, Design United and the work that our students and staff have presented at various other locations in the city during the Dutch Design Week (DDW). In addition, we wanted to show how

many of our alumni are starting to become visible at the DDW on their way to become visionary industrial designers.

Although the DDW is a great event to promote Industrial Design in an international setting, our students and staff travel beyond Eindhoven. Throughout the Netherlands and in various places around the globe they promoted our exceptional vision and educational program. By winning prizes and participating in collaborations with various stakeholders our students and staff continue to gather fame. Consequently, our unique position as an Industrial Design department has not gone unnoticed, and we have collected some examples of how our work is applauded by the media.

I hope you will enjoy our compilation and look forward to another bright year and future!

Miguel Bruns Alonso

Director of the Education Bachelor Program





IGES

DU
DESIGN
UNITED

TU/e

UNIVERSITY
OF TRENTO

TU/e



ID SELECTION

In this chapter we present a selection of the work of our exceptional students and graduates from both the Bachelor and Master Programs. This work shows the scope of our programs and the breadth of our students' visions. Their learning ambitions take them from the development of services for Eindhoven neighbourhoods to rural Africa. They demonstrate how even a classic industrial design product, such as a chair or stool, can incorporate intelligence. Furthermore, they show how playfulness contributes to interaction, and how it can stimulate children to become more active in sports as well as recover from life-changing events. The presented work illustrates that the clients and stakeholders for whom our students develop systems range from high-tech printing companies, people requiring medical support, to individuals who have to spend time in detention. They demonstrate that we should appreciate the world around us, even on a micro level, and enrich our lives with beautiful experiences.



Throughout this booklet these symbols are used to indicate whether a project is from the Bachelor or Master course.



IGNEOUS

IGNEOUS is a system of column-shaped lamps with which users can bring ambient lighting to urban spaces. Each user has his or her own token. On this token a color palette is stored with which he or she can create his or her own light plan. The user can then distribute this light plan to other pillars.

The light plans and activities of other users within an area can be tracked online. On the basis of this profile the user can also change his other color palette, copy someone else's or create a new one from scratch.

IGNEOUS is developed to eventually be applied in a variety of contexts and with a variety of interactions. The system and community eventually develop themselves through the input of external stimuli.

Project by Rob Kouwenhoven and Willem Horsten

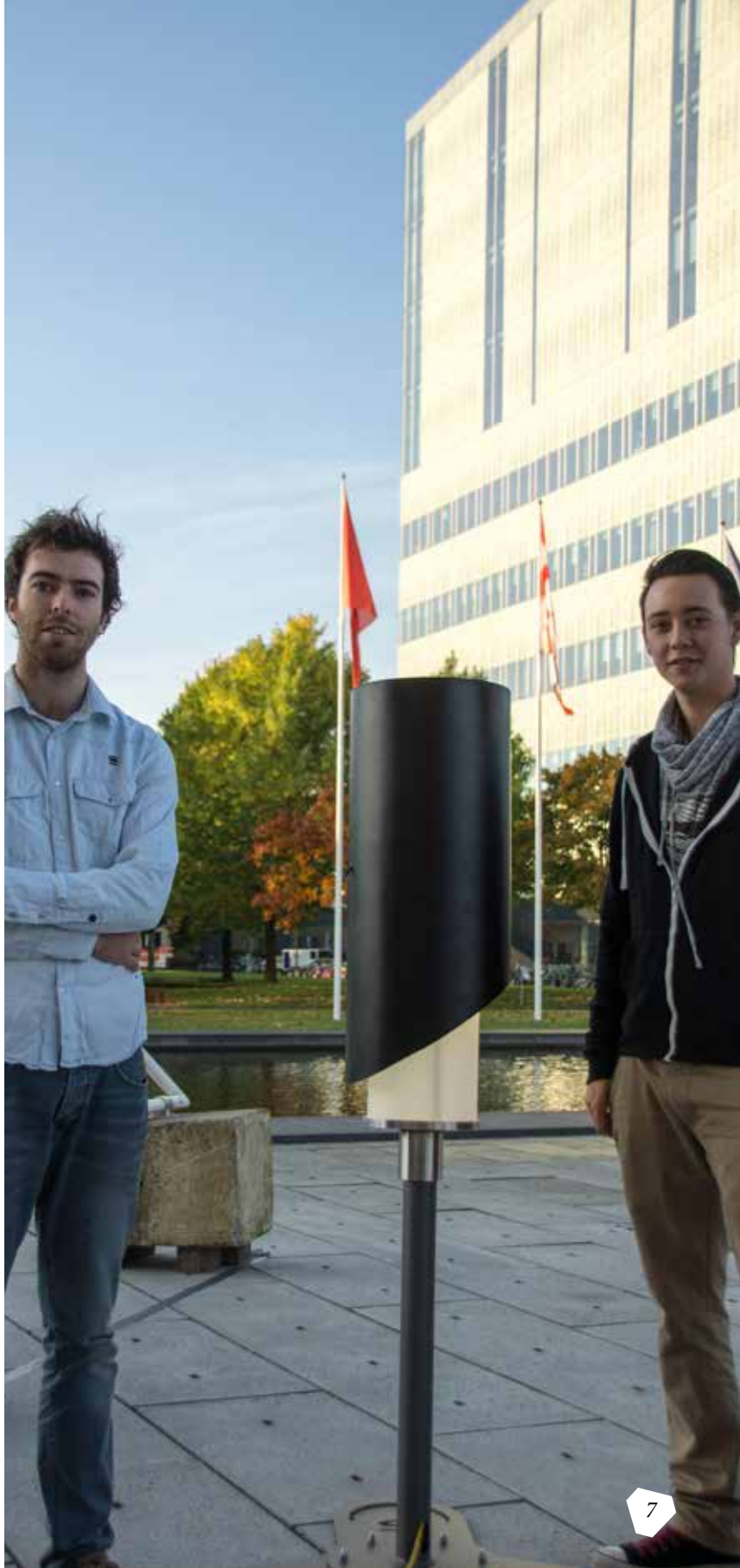
Coach: Lucas Reindl



DARE

DARE is an award-winning street-lighting system for safe and beautiful streets at night. DARE is street lighting redefined. With DROP, a dynamic, safe and at the same time atmospheric lighting solution and SHARE, a new transparent service to power both houses and street lighting, we realized our vision on the future, where sharing and collaboration become the new driving forces of our economy and society. DARE has won the Light Challenge 2013.

Project by Ashwin den Dolder,
Sway Leung, Wouter van der Wal,
Yannick Brouwer
Coach: Harm van Essen
Client: Ruben Fernandez
projectdare.nl







RHYS DUINDAM

[] - PRONOUNCED AS “TCHK TCHK”

[] is a clip-on device that transforms any sport tool into a controller for an audio game. The game is a sound-reward-based levelling system that is activated when the user is performing above his or her personal sporting best. The resulting reward tells the other players that the [] user is doing very well in the sport at that moment, which in turn creates an opportunity for social dialogue and social rewards.

[] is worn on the body, i.e., within the intimate personal space of the user. [] adds to the fun of sports or outdoor games, and does so using well-understood gaming mechanics. Most importantly, there are many gamers who are excited to get the final [] for their own sport.

Coach: Oscar Tomico



MAGIC FOUNTAIN

Fountain playground is an interactive prototype of a playful fountain. People enter the playground facing a narrow tunnel made of water beams. When they step closer, the tunnel starts to grow automatically, giving a dry path for the people to follow. Just by walking through the tunnel of water, this interactive fountain provides an experience of excitement, courage and wonder, but most of all fun.

Project by Mariëlle Coppes

Coach: Mark de Graaf

Client: Fonteintechiek Gruppen



LIGHT IN TRANSITION

Light in Transition reflects activity in a space through the light behaviour of its lamps and is actively 'looking' to connect with people. The lamp follows a person's path and positions itself accordingly. Six half mirror-coated incandescent bulbs hang from thin aluminium pipes. The incandescent bulb is chosen for its warm and intense glow. Since we want to welcome people into our homes, it is important that the lamp does not only emit light but also a feeling of warmth.

Project by Nadine van Amersvoort
Coach: Pierre Levy





CITY EXPLORER

The CityExplorer, designed for the visually impaired, consists of two distinct parts. The first is a smartphone application, which contains floor maps of buildings and a community. In combination with audio feedback it gives the user an idea of the general structure of a building such as a railway station. The community contains a database of blind-specific tips and activities per city. The user can add things to this community and can rate tips and activities.

When a blind person walks in the city he can no longer use a smartphone application while holding a cane and a guiding dog. For this situation the TinyExplorer can be used, which is the second part of the City Explorer. The TinyExplorer is a bluetooth device communicating with the smartphone and is mounted on either a guiding dog handle or on a cane. The TinyExplorer can be used on the go and gives visually impaired people the ability to scan their surroundings.

Project by Rens Alkemade

Coach: Simone de Waart

Client: Bartimeus



HINT

Chris likes reality-relevant products that tackle current issues in new ways. For his graduation project he developed his own design approach, called 'design-from' and designed products that add value to 'the things we already do and have'. To challenge this approach to the fullest, he chose a context that involves many perspectives and stakes: the prison.

Thanks to the Penitentiary Institution in Vught, Chris has gained first-hand experience of 15-day imprisonment and has spent another few weeks shadowing the guards in a different prison unit.

This experience and treasure chest of information and inspiration has resulted in three elaborated design concepts: a cell door knob, a cell chair and a communication system for prisoners with the outside world called 'hint'. The fundamental idea is to provide possibilities and ways of expression, based on the 'things that already happen'.

Project by Chris Gruijters

Coach: Joep Frens

Client: Penitentiary Institution of Vught & Innovation lab DJI Gouda



INTERVIEW

CHRIS GRUIJTERS

Chris Gruijters, graduate of the ID Master program, has been nominated for the Dutch Design Award 2013 in the category Future Concepts. He created Hint, a communication system for prisons. Hint gives prisoners new opportunities to communicate with loved ones outside the prison. The system aims to make prison life more meaningful and improve the reintegration process.

DESIGN FROM

Gruijters used his so-called 'design from' approach. Gruijters: 'The design from approach takes "the things we do and have" as a starting point for design and tries to add value to it. The trigger to design for prison life was the stereotypical image of American prisoners who do nothing but workouts. Couldn't I use this lost energy to let them light up a lamp at home or heat up their prison meals? This way of thinking got the Penitentiary Institution of Vught enthusiastic for a collaborative project.'

LOCKED-UP

Gruijters is not one to take easy way out. He arranged to be locked up in the Penitentiary Institution in Vught for 15 days. Gruijters: 'Neither the guards nor the prisoners knew I was not a genuine inmate. This way I learned things I would otherwise have never known.'

MEANINGLESSNESS

Two experiences really influenced his design. Gruijters: 'During the week prisoners have various day activities such as the creative hour (painting, etc.), music, a library visit and sports. These activities relieve their boredom but in a funny

way they also underline the meaninglessness of everything they do. For example, one prisoner got rather serious about painting. But every time the weekly painting hour was over, he had to stop and wait for a week to continue. And when he finished the painting, nobody he cared about got to see it.'

CONNECTION

'Another thing that struck me was how difficult it is for prisoners to have meaningful interactions with their loved ones. Regulations allow three types of communication: phone calls, letters and visits. You would think the visit, when you can see and speak to family or friends, is the high point, but visits are often strained and unhappy. Due to the enormous difference with life outside, prisoners and visitors find it difficult to talk and make a genuine connection. In the long run this can damage relationships and make it harder for ex-prisoners to settle back into normal life.'

HINT

Hint consists of five pieces of hardware: audio device, keyboard, camera, printer, and a personal tag. Gruijters: 'The audio device, keyboard and camera are placed in activity rooms. A prisoner can make audio recordings of his new song, take a picture of his painting, type messages, etc., and send these to, e.g., his partner. She has an app on her smartphone enabling her to watch and listen and send a reply. The printer, stationed in the guards' office, allows prisoners to print their incoming messages. Being able to share everyday activities helps maintaining the bonds with loved ones and makes the prison activities more meaningful.'

SUCCESS

Gruijters' design was a great success. He graduated cum laude and was nominated for the Dutch design award. Gruijters: 'Getting recognition is great. But



“NEITHER THE GUARDS NOR THE PRISONERS KNEW I WAS NOT A GENUINE INMATE. THIS WAY I LEARNED THINGS I WOULD OTHERWISE HAVE NEVER KNOWN.”

I am especially grateful to the prison staff. I had to work at making my way in their world but they believed in the approach and gave great support. They offered me a contract to work on a new design

for multi-person prison cells. I am looking forward to the many upcoming brainstorm sessions with prisoners and guards!



IN VITRO ME

In vitro ME is a bioreactor amulet, attached to the human body. It is able to produce human In Vitro meat for future consumption. The amulet can be worn as a necklace or bracelet. The most important part, needed for the production of human In Vitro meat, is the bioreactor within the amulet. Inside the amulet myoblasts (clusters of muscle cells) obtained from human muscle cell tissue are placed on top of a 3D-printed edible grid.

The grid contains an artificial vascular system connected with the user's bloodstream. It circulates blood which allows substances to diffuse in and out of myoblast cells. Oxygen and nutrition are provided to the myoblast cells, while waste substances such as CO₂ are released back into the blood circulation and filtered inside the human body. With this system muscle cells can grow without added hormones or chemicals and without the (unhealthy) application of electrical current.

Project by Chloé Rutzerveld
Coach: Janine Huizenga



EX NIHILO MEMORIALS

Ex Nihilo Memorials is an online service that allows people to put their personal thoughts and feelings into the design of a memorial such as a gravestone or columbarium. The design is the result of an online co-creation session between people engaged in a mourning process concerning the same person. The result will resemble the facial features of the deceased person and can be 3D-printed by everyone in any desired material or form. The target group is the social media culture at large. More and more people are hooked-up to social media and the service is meant for them as a new way of commemorating a deceased friend or relative.

Project by Ate Sens





SENSIBLE SENSE

This project tries to create tactile sense for prosthesis, which allows the user to yet again experience the objects in the world around us, and to distinguish the perceptive qualities of these objects.

Sensors integrated in the glove generate data which is interpreted by custom designed software. The output is expressed by a vibro-tactile display in the socket of the prostheses. Through multiple iterations we explored how certain variables and patterns were perceived. We created a system which enables the user to perceive functional aspects, e.g., whether the hand is opening or closing, or to experience touch. At the same time the user can perceive qualities like the approximate size and hardness of the object, and the stability of the grip.

Project by Jeroen Blom

Coach: Rene Ahn

Client: Livit Orthopedie



BAOBAB MEMENTO

'A Third Culture Kid (TCK) is a person who has spent a significant part of his or her developmental years outside the parents' culture. The TCK frequently builds relationships to all of the cultures, while not having full ownership in any. Although elements from each culture may be assimilated into the TCK's life experience, the sense of belonging is in relationship to others of similar background'. (David Pollock)

The Baobab Memento is a jewellery collection aimed at the Third Culture Kid. Two common challenges that arise with the TCK lifestyle are issues related to identity. The first concerns the question: Which of the many 'selves' am I? The other concerns unresolved grief that they may feel when leaving a country, especially due to the abruptness and permanence of the move.

According to David C. Pollock a way to aid the grief felt for a previous country is to aid in the 'mourning' ritual by collecting 'sacred objects' which are essentially mementos that remind the TCK of the previous country.

Project by Bram Smis
Coach: Maarten Versteeg







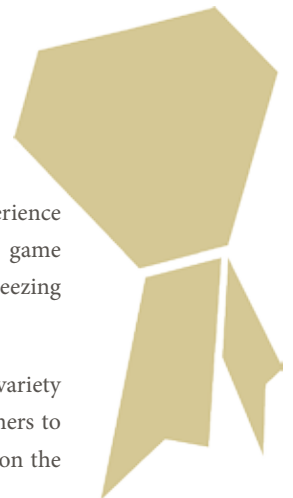
ARD JACOBS



PILLO

Pillo enables a wide audience, including parents, elderly and even toddlers, to experience the fun and social benefits of playing video games together. Using a cushion game controller, Pillo is very simple to use and fun to explore: Try hugging, pressing, squeezing and punching Pillo to control the game.

With Pillo overcoming the tactile constraints of today's game controllers, a wide variety of new applications can be developed that enable non-hardcore or less-abled gamers to experience the fun and social benefits of playing games together. Ard Jacobs has won the ASML Youth Talent Award with his Pillo project.



AUGMENTED MICROSCOPE

This augmented microscope enables visitors from the Hortus Botanicus to explore and discover the remarkable microscopic world of algae. Augmented Technology is used to give the museum visitor an emergent and compelling experience in studying microscopic algae species. The information about the algae are integrated within the interface and is context dependent, meaning that the information is relevant to what the user is currently observing.

Project by Frits Stam

Coach: Koert van Mensvoort

Client: Hortus Botanicus Leiden

fritsstam.nl



RESEAT

ReSeat is an intelligent office chair that recognizes sitting postures and sitting behavior and is able to associate these to an affective state. It gives natural feedback in the form of tilting the seat to influence sitting postures and sitting behavior and thereby the affective state.

To be able to give appropriate feedback ReSeat explores different feedback strategies. These strategies are a combination of the choice for stabilizing or destabilizing feedback, its amplitude, speed and acceleration/deceleration of tilt. As ReSeat gathers quantitative data about the efficiency, effectiveness and satisfaction of the feedback it is able to set up a personal profile for and adapt to an individual user. To be able to do so it uses Reinforcement Learning.

Project by Matthijs Kwak



INTERVIEW

RIK BOOTSMAN

Type II diabetes can cause serious damage to legs and feet. Bad circulation due to hardened or clogged arteries will hinder the healing of even small wounds. Infection may lead to gangrene, which makes amputation of the foot or the leg inevitable.

ID student Rik Bootsman has designed therapeutic slippers that may prevent these problems. His design, carried out as a final bachelor project within the theme Comfort and bonding in Health Care, was nominated for the Social Design Talent Award, and received an honourable mention.

NEW TECHNOLOGIES

Bootsman: 'My central interest is using new technologies in design, specially in a health care context. Through contacts at the department of Electrical Engineering I was aware of cold plasma technology and its capacity for killing bacteria and fungi. I wanted to apply this technology to the problems associated with diabetic feet.'

Existing treatments are expensive and time consuming. Bootsman: 'Patients need to make frequent visits to podiatrists who clean and dress wounds. If things get worse plaster casts will be used to isolate the wounds. A different therapy requires patients to sit in an oxygen tank for two to six hours a day, for several weeks.'

PREVENTION

'My solution aims at prevention. I wanted to use cold plasma technology to keep wounds in diabetic feet from infecting. However, I specifically avoided creating yet another piece of equipment operated

by nursing staff in a hospital environment. Instead I aimed for a product that is easy to use by the often elderly patients and fits in with their everyday patterns. Shoes are familiar objects and most people are able to put them on their feet. Patients need to wear the slippers for only one or two minutes per day. A visual cue informs the user when he can take them off.'

STAKEHOLDERS

As the project progressed more and more parties got involved. Bootsman: 'After setting up the project in cooperation with Electrical Engineering I talked to podiatrists. Next I developed a number of ideas and arranged with Buchrnhorn, a manufacturer of orthopaedic footwear, that I could use their workshop to construct the slippers. I tested the user friendliness of the slippers with a patient group and got very encouraging results. At the end of the project I had a set of fully functional prototypes. Currently, patents are being prepared and a medical investment company is willing to support the legally required procedure of medical trials.'

HONOURABLE MENTION

The Social Design Talent Award is an initiative of the Eindhoven city council. Bootsman: 'Getting nominated was really exciting. The jury was very enthusiastic, but thought my design should be developed in a national rather than local context. Hence the "honourable mention". Currently council members are creating an opportunity for me to present my project to the health secretary and members of parliament.'

In the meantime Bootsman has entered ID's master program. 'I am now working on something completely different. Together with other students I am constructing a colourful light installation for Glow-Next. The therapeutic slipper project is



“I SPECIFICALLY AVOIDED CREATING YET ANOTHER PIECE OF EQUIPMENT OPERATED BY NURSING STAFF IN A HOSPITAL ENVIRONMENT. INSTEAD I AIMED FOR A PRODUCT THAT IS EASY TO USE BY THE OFTEN ELDERLY PATIENTS AND FITS IN WITH THEIR EVERYDAY PATTERNS.”

in a stage where my role is limited. In the end I may return to the project, but only if it offers new design challenges.’



MOURNING RITUALS

Mourning Rituals concerns the development of a mourning support tool after the death of a parent. It stimulates the surviving parent and child to jointly become aware, discuss, and redefine changes. The parent provides the child with the proper context and protocol, in order to accommodate the mourning process.

The design consists of a central object and a number of small plastic tokens in different shapes and colours. With these the child can indicate connections to events and experiences and their level of importance.

Since a mourning process is highly personal, the child has the freedom to alter and define the tokens' symbolic meanings to its own liking. Parent and child are expected to jointly discuss the meaning, after which the central object with the tokens is put in the child's bedroom.

It is the child's responsibility to keep track of the overview and notify the parent if necessary. When the object's light is turned on, the image of the overview of events is projected on to the child's bedroom ceiling.

Project by Marjolein Kors

Coach: Wina Smeenk



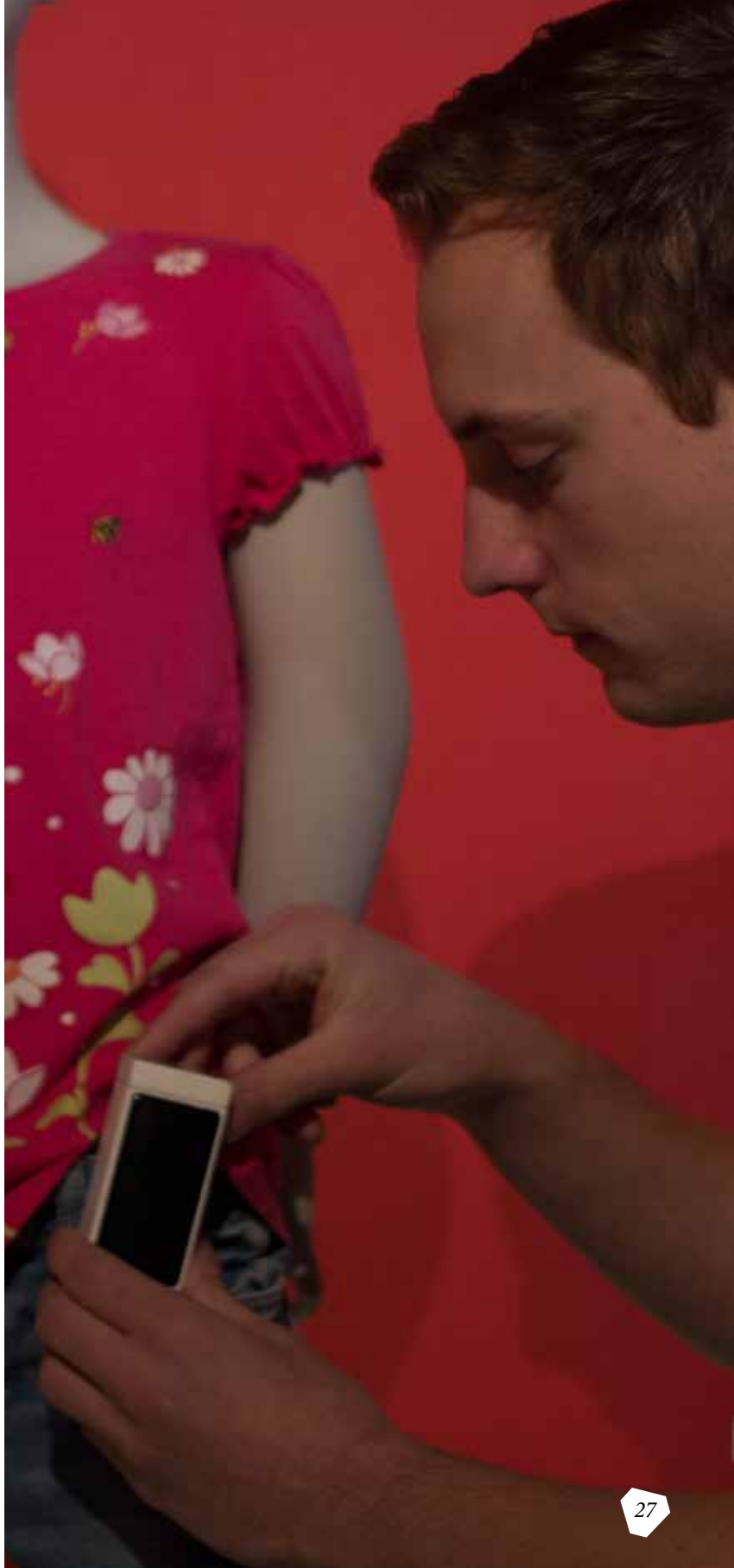
NUPPI

Friday the 11th of March, 2011, Tōhoku, Japan. A magnitude 9.0 earthquake sets off a devastating tsunami which engulfs more than 350 kilometres of Japan's north-eastern coastline and claims around 18,000 lives and counts well over 400,000 evacuees who became homeless in the event, among whom 100,000 children.

For many children the psychological burden of the disaster was not directly related to the experience of the tsunami itself, but was caused by the unhealthy home situation after the forced relocation.

The NUPPI is a travel companion, a 'guide dog' for children (6-10) in the months that follow such disaster. A self-sufficient (navigation) system designed to support them in their independent traveling needs. Its purpose is to present children and their respective caretakers with a more gradual transition in the process of gaining trust and awareness of their surroundings within their dramatically changed situation. By providing proportional guidance throughout this process the Nuppi naturally contributes to the resilience children need to prosper during possibly one of the most difficult periods of their life.

Project by Martijn Kors
Coach: Tilde Bekker





EERLIJK ZULLEN WE ALLES DELEN

Partnering with the project 'Solar Milk Cooling' of LEI Wageningen UR and Mueller BV provided access to research on fighting malnutrition due to perishable dairy products in Ethiopia. Through a dynamic design process of switching between contexts, a product service system was developed.

My vision was inspired by my association with local people. It allowed me to increase the awareness of their situation, and to improve dairy products, thereby by decreasing the malnutrition in Ethiopia.

Project by Lia Bardoeel
Coach: Lu Yuan
Client: LEI Wageningen and Mueller B.V.



MAKING WORK FLOW

Making work flow focuses on decentralized planning in print production. In professional print, planning is a complex activity as quite often during print production things just don't work out as they were planned. Although advanced planning software is available, the complexity and large amount of (invisible) data and information make it near to impossible to quickly and efficiently react to unforeseen circumstances such as last-minute orders and re-runs. Due to this complexity, the cognitive effort for the planner to make an ideal planning is high and in combination with time-pressure often results in a planning which is not optimal with regards to efficiency.

In order to provide a more flexible and efficient alternative to centralized planning, a system was designed which aims to facilitate decentralized production planning. This system is designed in such a way that it empowers the operator to make efficient decisions which are based on the current situation in the print room; so-called situational decision making. The responsibility of production planning is shifted from management-like functions towards the operator.

Project by Ivo Wouters





KOKKERELLETJE

Kokkerelletje brings children closer to healthy eating through hands-on experience. It involves a kitchen that contains basic cooking ingredients and utensils. The student's goal for the weekend could be to realize a simple recipe by the guidance of a smart device (tablet, smartphone) or a written recipe. Gradually, this pragmatic experience will stimulate their awareness about healthy food and familiarize them with its preparation procedure. Children will be proud of their achievement and, hopefully, enjoy the food they have prepared.

Project by Rob Dijkstra, Mitchell Jacobs & Pim Knops
Coach: Miguel Bruns
Client: Milieu Educatie Centrum and Gemeente Eindhoven
kokkerelletje.nl







COLLABORATION

The work of our students is highly appreciated by many. Through the themes of our department we enable collaborations between students, companies, institutions and academia. Various workshops, events and learning activities have been organized throughout the year in which students have participated. In addition, they have contributed to research projects that propose various innovations for society. Students from Playful Interactions work together with students from Fontys to stimulate sports, such as swimming. In Wearable Senses students collaborate with Fashion designers, textile and high-tech industries to develop new business propositions for the creative industry. In Comfort and Bonding students work closely with the neo-natology department of Maxima Medical Center to create a comforting hospital experience for parents and their newborns. Students contribute to innovation by participating in modules related to emerging technologies. Finally, they support transformation by facilitating workshops addressing societal challenges in both Out of Control and Changing Behaviour.



E-NEMO

MAXIMA MEDICAL CENTRE, ET AL.

The E-Nemo project, funded by SenterNovem Agentschap NL, has a consortium with partners of TU/e ID and EE, Philips Research, Máxima Medical Centre, Royal Health Foam and Applied Micro Electronics (AME) BV. The project aims to build a smart monitoring system for preterm neonates. The purpose of the system is to reduce the stress, pain and discomfort that induce significant negative long term effects to 50% of this patient category. The system has embedded sensors that can measure vital signs of the infants in a comfortable, unobtrusive way.

GHOST

FP7: FET

Generic, Highly-Organic Shape-changing Interfaces are display surfaces made of malleable materials that can assume and retain arbitrary shapes, displaying output from a system or affording new actions. The project combines disciplines on hardware and software for shape change; industrial and interaction design; and user experience. Master students designed and developed GHOST prototypes in two modules, contributing to this research project.

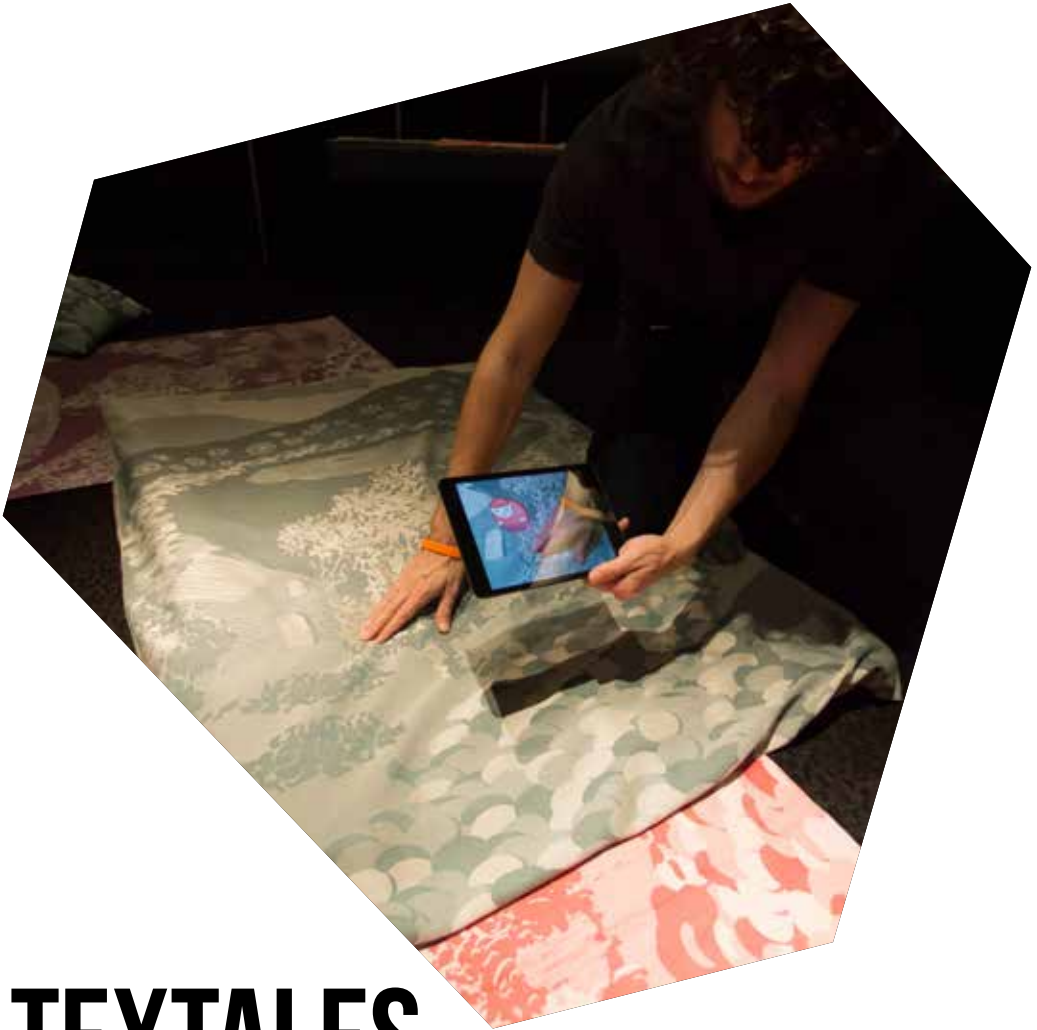




SWIM GAMES

FONTYS

In the SwimGames.nl project, students and researchers developed interactive games for in the swimming pool, and evaluated them immediately with real users in a commercial swimming centre. The cooperation in this project was multi-disciplinary and extensive: involved partners came from education, research, government, industry and users.



TEXTALES

CRISP

Textiles can tell stories. Whereas a Scottish tartan shows the identity of your clan, the complex patterns and symbols in Estonian dresses reveals much about the wearer's background. Designer Kristi Kuusk translated the tradition of storytelling through textile to a modern variation. The duvet shows the scenery of Little Red Riding hood. When looked through a tablet, the main characters of the story can be discovered on the fabric enabling parent and child to travel together through the fairytale land.



CO-CREATION

WOONBEDRIJF & IJU

ID student Janneke van der Poel tried to find a solution to the problem of the budget cuts on public services and the issues associated with this development. Together with fellow student Rick de Visser she developed a methodology for setting up 'social co-creation platforms': groups of local residents who take initiatives to improve their neighborhood, in cooperation with local authorities and care providers. Van der Poel chose the Eindhoven neighborhoods of Vaartbroek and Eckart as experiential design landscapes. Supported by the housing cooperation Woonbedrijf she carried out a number of experiments aimed at rousing residents to formulate their needs and desires and find ways to realize them. Based on her experiences she formulated a four-step tool focusing on the residents' 'dreams of the street'.

WS OPEN LABS

BALTAN LABORATORIES

During the Dutch Design week, the Open Labs kick-off took place at Baltan Laboratories. To inspire participants and establish high standards, the initial event included several smart textile works of fashion designers and TU/e doctoral candidates, in collaboration with several companies. These open sessions serve as an experiment to test and reflect upon the open lab model as a methodology for co-creation and collaboration.







DUTCH DESIGN WEEK

The Dutch Design Week (DDW) is an international event that attracts a quarter of a million visits to the City of Eindhoven. Dutch design is highly valued across the world, but the face of design is changing, and our department plays a leading role in this change. During the DDW, we have organized two exhibitions at the TU Eindhoven. ID'13 is the yearly exhibition of the work of our students, which was curated this year by one of our coaches and acclaimed artist Ronald van Tienhoven. Furthermore, every year we present the results from the Dutch design research community - together with our partner departments from Delft University of Technology and the University of Twente - at Design United. More than in other years our students as well as alumni have also presented their work at various other locations in the city, such as the Designhuis, the City Hall, Ketelhuis Plein and Temporary Art Center.





ID'13

As ID'13 curator I decided to showcase excellent projects from all ID Bachelor and Master years. Excellence can be found in projects developed by 19-year-old Bachelor students as well: a great incentive for young visitors who are considering to become an Industrial Designer. In this light the main reason for selecting a project was its direct visual impact, its conceptual power, and its promise for the future.

The Industrial Design department consists of seven themes and four research groups. Many projects seem to be hybrids crossing these groups: they are both/and-undertakings. Therefore I decided to build so-called zones in which new thematic connections between projects could be established. Clusters of projects were brought together under new zones, such as 'corpus' (the human body in all its aspects), 'intimacy' (the highly personalized, intimate relationship between one person and technology), 'kids' (design for children) or 'the other' (designs, services and systems for and with people who are living under very different social, economical and cultural circumstances). Two highly successful projects developed for the Microsoft Design Challenge 2013 were given a special zone. Last but not least, several projects were presented individually, simply because they seem to bypass – or nullify – any thematic structuring. As a result a rich mosaic of different design projects was established during this year's ID exhibition.

Ronald van Tienhoven

Curator of ID'13



DE ANDER | THE OTHER

MARCEL VAN HEIST

NATURAL ENERGY

EERLIJK ZULLEN WE ALLES DELEN



DESIGN CHANGES



DESIGN UNITED

Design has the power to change people's lives. It can make life healthier, more enjoyable and meaningful. However, as modern society evolves more and more rapidly and faces problems of increasing complexity, designers have to adapt and change their ways of working.

Design United is the 'platform for Dutch Research in Design' of the 3TU programs in Industrial Design. It combines the academic power of the field of Industrial Design and strengthens the innovative force of the Dutch industry with new knowledge.

These tight bonds with other stakeholders are changing the field of industrial design. New methods and tools are being developed that provide support during collaborative idea generation, during testing of concepts and for involving users in the design process. Therefore designers do not only design concepts and products for society, they are also (re-) designing their own field of study.

The exhibition DESIGN CHANGES showcases these new developments. In the themes Inspiring theories, Facing reality, and Creating tools, different aspects of the design process are demonstrated through interactive prototypes, inspiring scenarios and ready-to-use applications. DESIGN CHANGES is the annual exhibition of Design United, the platform for Dutch Research in Design of the 3TU Industrial Design programmes.



NOW YOU SEE ME

I see you, I try to catch your eye. Now I see you seeing me. I even see you seeing me seeing you. I let my gaze slide for a moment, but will soon watch you again.

When two people meet they automatically make contact. Eva Deckers wants machines to play the same game. “I want the machine to sense your presence; I want it to notice whether or not it holds your attention, and even that it seduces you to make contact.” Deckers is investigating how design can bring about such interaction. She uses experimental set-ups that react to humans through light, like the installation LUMA, designed by Koen Beljaars. “First the lights follow your movements, then they try to entice you to come near.”

Project by Eva Deckers and Koen Beljaars

TACTILE DIALOGUES

The language capabilities of people with dementia may rapidly deteriorate. This textile cushion was designed to communicate in a novel way, using touch. It is big enough to be placed on two laps at the same time and contains vibration motors that react to touch. Stroking the textile produces a soft vibration on the other side of the cushion. By playing together, the client and care giver or family members, may developed their own 'language' together. The cushion can be used in a nursing home or can be rented out to clients to be used in their own home. Employees of an elder-care organisation, electronic engineers and partners from the textile industry are involved in the realization of this product and service.

Project by Martijn ten Bhömer
Supervisor: Oscar Tomico
Promotor: Caroline Hummels











LUCID

DESIGN IN PROCESS

Study Association Lucid organized Design in Progress. In a pavilion on the Ketelhuisplein at Strijp S, they invited visitors to contribute to the design of a lighting object for the 'Lichtjesroute'. The 'Lichtjesroute' (Route of Lights) is a festival held every autumn in Eindhoven that commemorates the liberation of Eindhoven during World War II. It aims to create fairytales of light for and by the inhabitants of the city. Throughout the week, various inspiring lectures and workshops were organized addressing light and light design. Students from TU/e, Design Academy and Fontys supported visitors in creating an impressive object.









DESIGN FOR KIDS

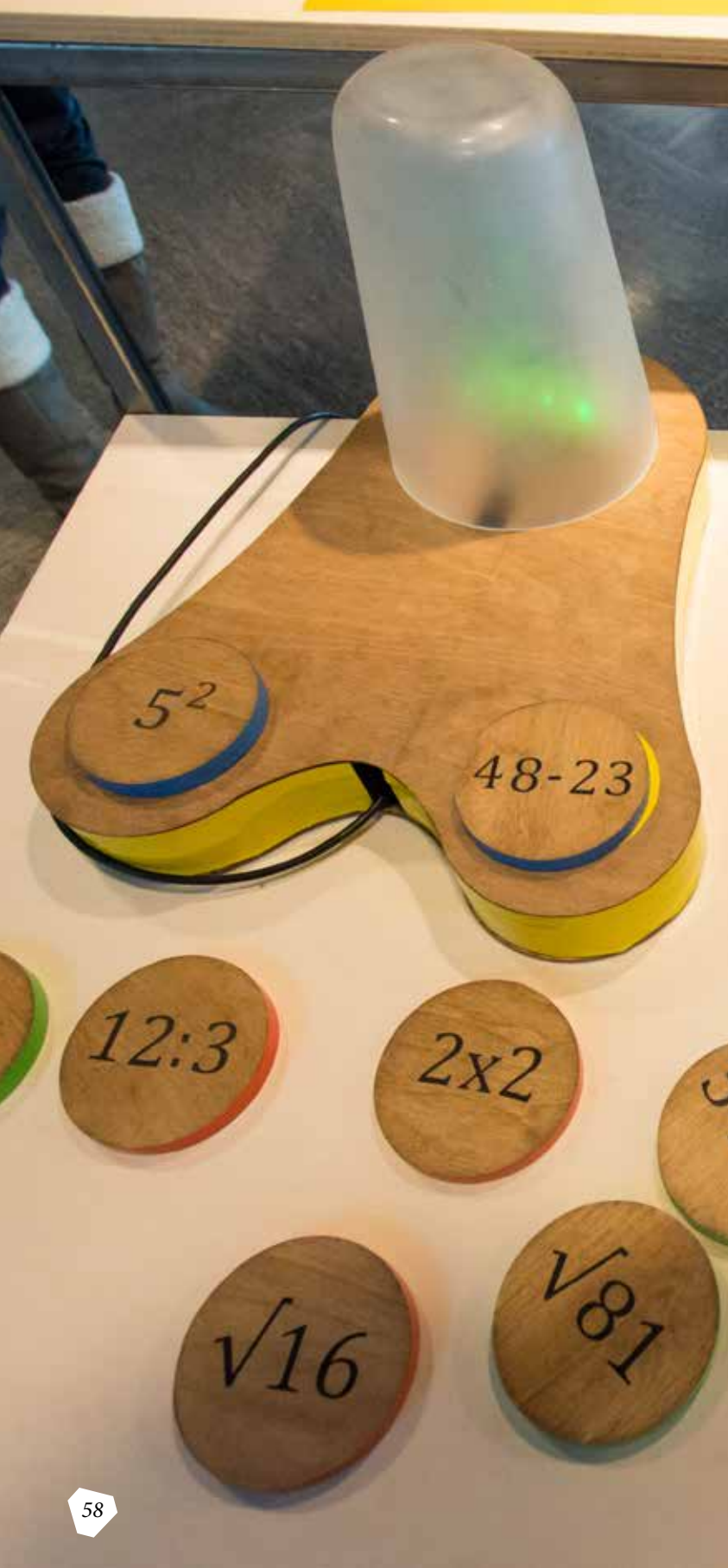
Design for Kids was an exhibition at the City Hall in with research, prototypes and final products of different design schools were on display. Four projects developed by TU/e students were presented, the food-related project Kokkerelletje, around which cooking workshops were organized during the week for children. Furthermore, children could interact with three other games that support learning, Rolemodels vs. Slow models, Mr. Bacteria and Bababa, a ball pool with interactive ball pool balls, which for example make surprising sounds. Bababa, by Chris Gruijeters and Gijs Houdijk won the ID'12 Audience Award.

ROLEMODELS VS. SLOW MODELS

Rolemodels and Slow models are two different characters that have the ability to motivate children. Role models are experts, heroes; characters children look up to. Role models can inspire and motivate with their enthusiasm and knowledge. Slow models are the funny, somewhat clueless characters that need help to achieve their goal. These slow models can motivate to with their cluelessness by making the child feel like the superior.

These two characters were used as a starting point to create different abstract feedback mechanisms in the context of a mathematic game. The feedback mechanisms are reflected in the light pattern of the math-game that gives feedback on whether the children match the right disks. The Role Model get's "happy" when a right match is made and otherwise gets "angry". The Slow Mode needs to be kept awake by letting the children put down right matches.

Project by Doenja Oogjes



MR. BACTERIA

The aim of this project is to increase awareness for synthetic biology and its potential by making synthetic biology more visual and thereby better understandable for society. The project is in collaboration with Biotecture, a company concerning public awareness for life sciences.

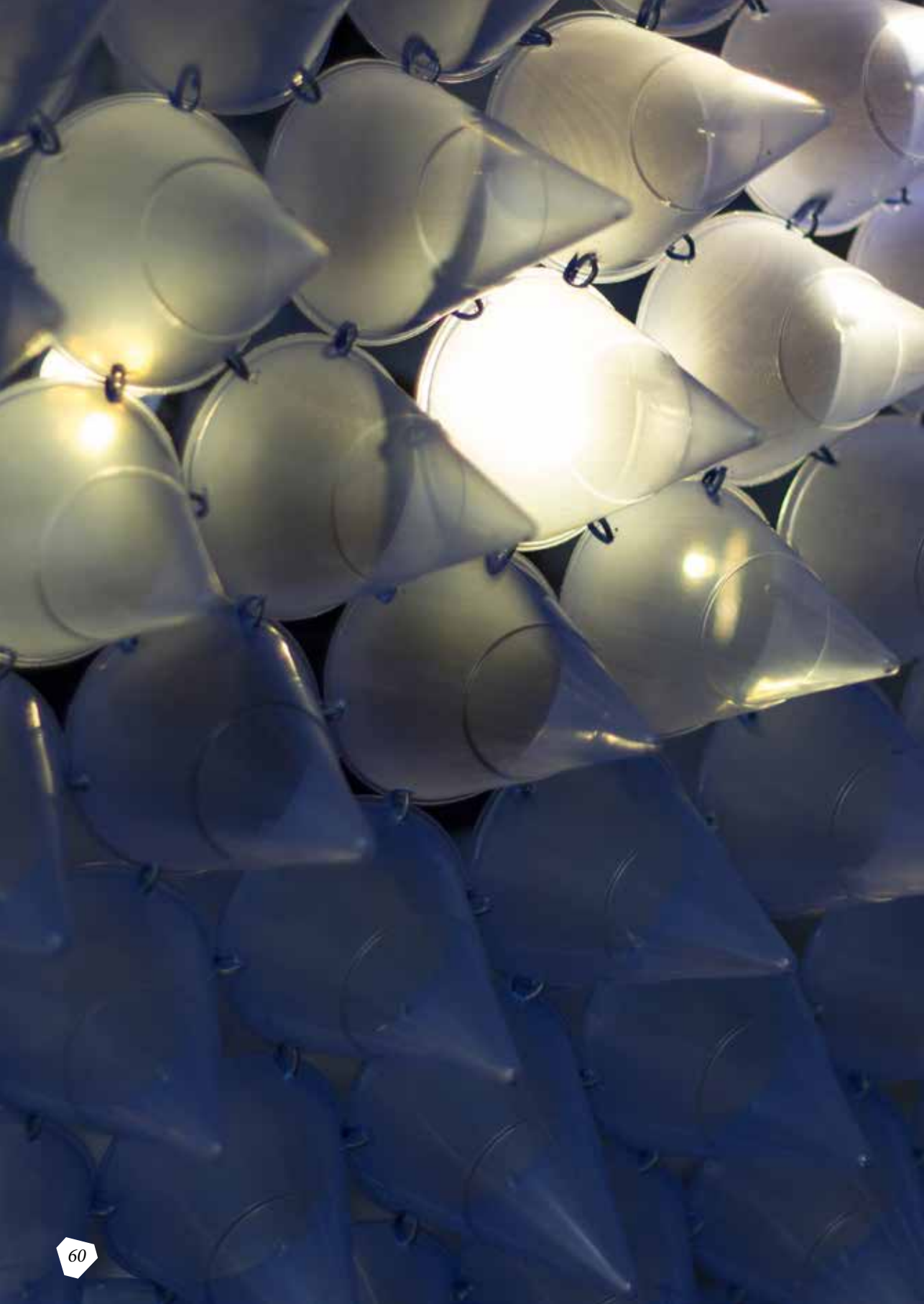
The outcome is an educational toy about synthetic biology for children around the age of 6. Getting the children acquainted with new technologies through story telling with the toy, so they get familiar with the technology which should stimulate social understanding and acceptance in the future.

Mr. Bacteria is a bacterium which wants to detect toxics in the water, so he can warn the children when they cannot drink the water. By letting the children build synthetic DNA for him, he can glow in the polluted water to communicate this.

The picture book is the guideline of an interactive story which actively involves children. The story involves the children by letting them physically build new DNA for the bacterium, so he can complete the story. This DNA can be build with the DNA printer.

Project by Mitchell Jacobs







ALUMNI

Although we are still a young department, our alumni are already starting to become more and more present in the national and international design scene. We have highlighted some of the projects that our alumni presented and exhibited during the Dutch Design Week. From the examples, it is clear that industrial Designers operate in a wide range of activities; in our selection we illustrate the development of new design methods, impressive interactive objects and the organization of co-creation workshops. We look forward to see more work of ID graduates in upcoming Design Weeks or other settings.

HIDDEN DESIGN

Afdeling Buitengewone Zaken believes that systems which successfully tap into today's possibilities can never be designed beforehand, they ought to emerge from within the context. They believe that the products and services within the systems they design should revolve around the people interacting with them. These people, and the way they interact within their context, become the most essential parts of the system itself and the starting point for their work.

The Afdeling wants to take existing ways to gain insights in the way people respond to new designs one step further. Commonly used design methods such as co-creation, focus groups or design probes still project or reflect on suggested situations, approaching people as research participants. They hide their design and research process, presenting prototypes as finished products and playing roles to create real life scenarios. They become the designer equivalent of a secret agent, searching for pure, sincere insights by hiding their motives.

Project by Afdeling Buitengewone
Zaken



FIET

Fiet is an interactive light object that visualizes the emotional impact of movement. The object is built out of hundreds of cones which emphasize the motion of the surface. The points of the cones move closer to each other or expand when the skin is moving. All this happens by the influence of sounds surrounding the object. You will see the sculpture become stressed when there is a sudden noise, but when it is quiet and peaceful it will move in a comfortable manner. It is like a living organism that interacts with its environment.

Toer's passion is to explore the boundaries of product and spatial design. The designs are a result of their fascination for simple movements and the emotional impact this can have. This in combination with subtle material use and a straightforward form language identifies the work of Toer.

Project by Studio Toer





FOUNDED BY ALL

Founded By All - a cooperative for entrepreneurs in design and technology - opened its doors for the first time during the Dutch Design Week. Visitors got a sneak preview, but also some collaborations started.

One of them was a workshops organized with Artifort/Lande about 4NG (for next generation) office environments.

Maarten Hendriks and Fiona van de Geijn composed a brainstorm/tinkering session to compose new, inspiring ideas.

A group of designers, architects and marketing people shared their creativity, generated a lot of brilliant ideas and worked out some of the concepts.

A good start to be continued...

Project by Maarten Hendriks

SHOE MAKING SESSION

During the Dutch Design Week de-factorij.nl organized a shoe making session in collaboration with Don't Run Beta.

There were no rules. Everybody who had an idea shared it. Collaborations grew and so did the ideas which were translated into real prototypes!

Different digital manufacturing machines like laser cutter, vinyl cutter, 3D scanner and 3D printer were available.

And within 4 hours some inventive prototypes arose, like a foot that was 3D scanned and printed to be used as a personal-shoe-last, a roller shoe, a shoe with exchangeable soles and a special version of a toe-shoe.

Project by Fiona de Geijn







DESIGN HUIS

DRAPELY-O-LIGHTMENT

Drapely-o-lightment is a skirt designed around the themes of drapability and light. The light sources used are 6 OLEDs (Organic light-emitting diodes), integrated in a fabric consisting out of over 2500 patches. The OLEDs are square, the triangle patches provide drapability. The transitional quadrilateral to triangular tessellation is obtained as the Voronoi diagram of a set of points on a special grid.

Project by Loe Feijs and Marina Toeters

INTERVIEW

LOE FEIJS & MARINA TOETERS

Clothes are not only worn for warmth and protection. They also tell our environment who we are. By covering or exposing certain body areas the wearer conveys messages about his or her identity.

Recent developments in electronics have created new possibilities for telling our personal story through our clothing. Built-in sensors can measure body signals, which the garment can present to the environment in the form of light or sound.

HEARTBEAT

Loe Feijs, professor at ID - Marina Toeters, coach at ID Wearable Senses theme have created a skirt that communicates the wearer's heartbeat. It is called the Drapely-o-lightment. A sensor built into the fabric measures the heartbeat, which is transformed into an oscillating light pattern emitted by small OLEDs.

Toeters, coach in the Designed Intelligence Group and director of by-wire.net, a design studio specializing in fashion technology, explains how the project came about. 'We did not start with a clear goal. Garments created from a combination of hard and soft materials have for some time held my interest. I was investigating the drapability of a fabric made of small hard patches glued onto a soft substrate. When Loe saw what I was doing he started asking questions about the shapes of the patches.'

Feijs, holder of the chair in Industrial Design of Embedded Systems and member of the Designed Intelligence Group, has for years been active in the field of mathematics in art. Feijs: 'Through my work on simulating Mondriaan's Victory Boogie Woogie I had gained some expertise in

the generation of spatial patterns. Marina's efforts opened up possibilities to further expand my knowledge and application domain.'

Toeters: 'Together we first examined the drapability of various types of patches, such as squares, triangles, and an Escher-inspired shape. Measurements of flexibility confirmed what the naked I had already suggested: the triangle shape was far superior.'

INTEGRATING TECHNOLOGY

Somewhere along the way the idea came to include OLEDs in the fabric. Feijs: 'As the available OLEDs are square, we had to find a way to combine the squares with the triangles. A straightforward, hard boundary did not look very pleasing, so I developed an algorithm that generates a smooth, more gradual transition involving irregular polygons. It has a natural, organic look reminiscent of scale patterns found on reptiles, e.g., on a lizard's head.'

The skirt is made out of 2,500 patches cut from four coloured polyester sheets. Together with the OLEDs they were mounted on a cotton fabric. Toeters: 'We got help from various parties. People at the d.search-labs at ID helped us getting the patches out of the laser cutter; Philips provided the OLEDs, and the E-atelier made them flash. As the skirt is currently used only on exhibitions, it has no sensors and displays an artificial heartbeat.'

SYNERGY

Feijs: 'The skirt is a great success. It really triggers people's imagination. We get a lot of media attention and receive many invitations for exhibitions, both in a fashion and a technological context. Next week it will be part of the Smart Fabrics conference in Barcelona.' Toeters: 'Philips is also very happy with the result. They often show off the skirt to



“I WAS INVESTIGATING THE DRAPABILITY OF A FABRIC MADE OF SMALL HARD PATCHES GLUED ONTO A SOFT SUBSTRATE. WHEN LOE SAW WHAT I WAS DOING HE STARTED ASKING QUESTIONS ABOUT THE SHAPES OF THE PATCHES.”

technological partners as an inspiring example of synergy between technology and art. The Drapely-o-lightment is at the same a real innovation and a very ‘ordinary’ and wearable commodity. There lies its power.’

INNOVATE DEMENTIA

The goal of this project was to design a tool to help people with dementia and their caregivers in the home environment. The design of the intelligent calendar, the PhysiCAL, provides a solution to deal with day-to-day time and activity management in the home environment. The calendar provides an overview of the events of an entire week and is kept physical on purpose, to make it understandable for people with dementia and elderly in general.

A time indicator moves over the week to physically indicate the current time and magnetic event tags can be put on the week schedule to create events. When the time indicator passes such an event tag, a sound will attract attention. If desired, messages can be attached to the event tags to add to the information of the tag and increase trust in the event.

For the early phase of dementia, this will empower the person to create personal memories and act independent. Along the process of dementia, the calendar becomes a tool for the informal care giver to manage the home environment in an easy way. If introduced early, the calendar will remain a reliable reference for the person with dementia for a long time in the dementia process.

Project by Rens Brankaert

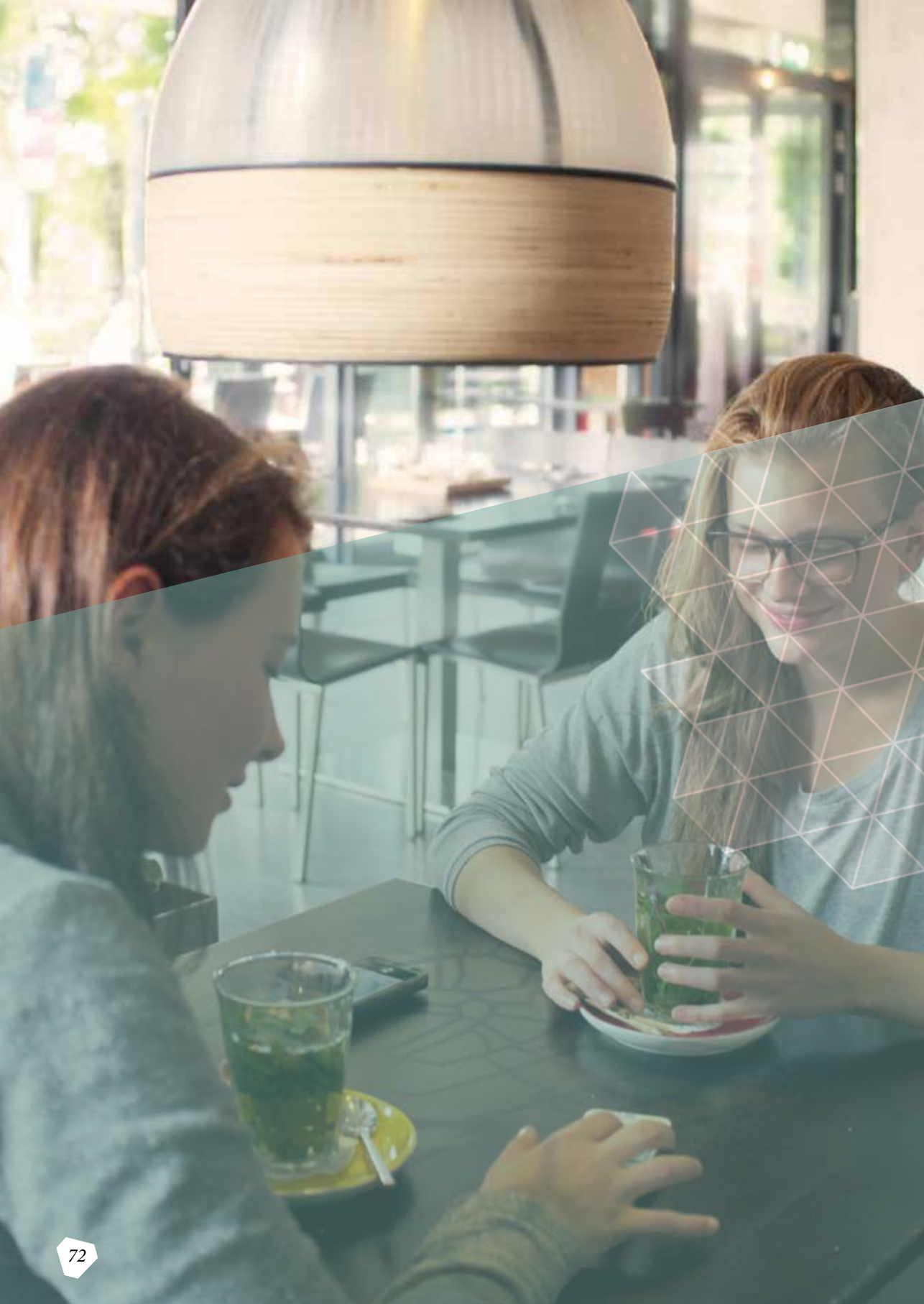
VIBE-ING

Vibe-ing is a self-care tool in the form of a garment, which invites the body to feel, move, and heal through vibration therapy. The aim of this design is to contribute to the non-invasive treatment of osteoporosis, particularly for women who are most at risk of developing osteoporosis in the post-menopause period and therefore supporting the need for their wellbeing.

In a design approach, Vibe-ing is a knitted and felted wearable textile made of merinowool interlaced with conductive yarns using fully-fashioned digital production techniques. This surface invites the wearer to touch, move and feel the fabric and the body. Vibe-ing contributes to serve as an inspiration for health and wellbeing and the new possibilities that the integration of textile and technology offers in everyday life.

Project by Eunjeong Jeon, Kristi Kuusk, Martijn ten Bhömer, Jesse Asjes







ID IN THE WORLD

When I started as Director of Education, students interviewed me for their magazine UNID. One of the quotes they selected was that I wanted a 'community of people expanding and moving over the world'. And so they did. In the different projects presented above we have already seen remote locations. However, many students have also travelled the world to promote our program or participated in local events with international exposure. Redmond, USA was the destination of four students who participated in the Microsoft Design Expo. In Beijing a group of first year Bachelor students danced along their concept during the Design Week. Glow and the Discovery festival are two international events in which students build interactive installations enlightening and engaging their visitors. Finally, our study association Lucid organized a three-week trip to China. Various schools and companies were visited to explore our opportunities in the Far East.





MICROSOFT - AMP

AMP is an application allowing several persons to explore the city through tweets and photos taken in and around Eindhoven. AMP consists of a lamp which casts a shadow on a table, representing the map of Eindhoven. When interesting things are happening in the city, for example a concert, and many people are tweeting about this, hotspots are shown on the shadow map.

By placing your phone on that spot, you can access real-time information of that location. When you are using the system with more than one person, the visible hot spots will be a result of the combined interests of the people using the system. When accessing multiple hotspots at the same time, additional relevant hotspots will appear.

BEIJING DESIGN WEEK - EXPERIO

Experio is a new atmosphere in which dancers, as visitors of an event, are responsible for the musical experience. The goal of the experience is to give the audience the responsibility to provide themselves and the surrounding crowd with pure entertainment. Create your own musical environment and have a great time while performing and seeing other people perform.

Through dancing on the laser platform inputs are given to the moderator in the middle of the platform, who provides the dancing beat. The platform is divided in sections, each with a different function. The moderator mixes all inputs he gets from the audience into a great song. Experio delivers a completely new musical ambiance.

Project by Bastiaan van Hout,
Manon Junggeburth, Luca
Giacolini, Tom van Rooij
Coach: Maurits de Koning
Client: Izabela Boloz



GLOW

From 2010 onwards, students can participate in masterclasses organised by OPENLIGHT, creative lab of the intelligent lighting institute. In these masterclasses, students are challenged to design and realise large, temporary lighting installations for festivals, exhibitions and shows.

In 2013, students contributed to two installations for GLOW, the Eindhoven light forum attracting almost half a million visitors annually.

In the WAVES installation students investigated ways to visualise sound, and created an experience where sound waves are being made tangible.

In the IRIS installation, students elaborated on the notion that colour is made up in the mind, and non-existing in the real, physical world. Using side-effects of human perception, a 240m long carpet revealed colourful patterns based on the change in colour of the illumination.

Project by ID Master students
Staff: Jacob Alkema, Saskia Bakker,
Harm van Essen, Rombout Frieling



DISCOVERY FESTIVAL

The Braitenberg vehicle represents the simplest form of artificial intelligence, it is capable of following a light source. The Momics bristlebot robots designed by Willem Horsten apply this principle. At the Discovery Festival, Willem taught participants of all levels of secondary education how to make such a robot, and let them explore their behaviour in a test arena. Participants left with a positive experience with technology, they literally soldered their own electronic creature together and were very proud of that, and gained some understanding of the Braitenberg principle.

In another workshop, principles of emergence in multi-agent systems were explored in massive acting out sessions. Participants pretended to be cars, or fluid particles, following simple rules of behaviour. They experienced how self organisation in complex systems can work.

Project by Willem Horsten

Coach: Mark de Graaf

Photo by Willeke Machiels

B

CHINA TRIP

This summer Lucid organized a trip for twenty highly motivated students to various cities in China. During this trip students visited high-tech companies such as Microsoft, Philips and Huawei and learned about traditional crafts at the Suzhou's silk museum. Furthermore, they visited Jiangnan University in Wuxi where they worked on design cases relating to health and well-being with Chinese students. The cases supported them to learn about current developments in China, aspects of feasibility and Chinese (design) culture. The trip was a great success and supported them in developing their vision on designing for a global context.

Organized by Lucid Association







BOOGIE WOOGIE

Professor Loe Feijs has won the Elegant Algorithms contest, in which programmers were challenged to recreate the Victory Boogie Woogie by Mondrian through programming. Loe Feijs, an avid Mondrian enthusiast, had previously attempted to recreate his works in code. He frequently uses the art of Mondrian in his Creative Programming assignment. However, because of its complexity he had left the Victory Boogie Woogie aside. The current contest was a great motivation for Loe Feijs to take up the challenge. His entry is currently on exhibit at the Municipal Museum of The Hague.

