

DESIGNLAB

Science2Design4Society

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today

special

November 2017



16



DESIGNLAB

Science2Design4Society

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Colophon

This journalistic, independent special edition of U-Today was drawn up together with DesignLab.

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MEETING PLACE FOR GREAT IDEAS

Science to design for society (or Science2Design4Society) is the motto of the DesignLab we opened some years ago. The University of Twente is convinced that the only way to find answers to society's grand challenges is: open up to society and look for cross-connections between existing scientific disciplines. This marks University of Twente's 'high tech human touch' approach, it also involves 'design thinking' and it involves breaking barriers in a creative way. Above all, it involves bright minds meeting up.

And for that, the DesignLab is the ideal environment. In the first years of its existence, the lab has organized many inspiring sessions and contests, there is a daily 'buzz' of students working in multidisciplinary teams and building prototypes. Every time I visit the lab, I notice the open atmosphere that is needed for great ideas.

What I would like to see, is an even lower threshold for visiting the lab. Our scientists should, more often, step out of their own specialized lab for some hours, and meet colleagues from entirely different disciplines for discussion, testing of ideas or prototype building. This clearly goes beyond the academic exercise: startups, companies, governments should feel equally welcome to join in. This is the way we create a vibrant meeting place, in which we design for society and with society.

This DesignLab issue is a first step to get acquainted with the possibilities of the lab. The best way, however, is to visit the lab. You are more than welcome.

Victor van der Chijs

President, University of Twente



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Scientific Co-director
DesignLab

Text:

Marjolein Gosseling

Photo:

Rikkert Harink

'We focus on designing solutions through multidisciplinary science'

'The DesignLab was founded in 2014 as I thought design-thinking should have a more prominent place at our technical university. After I convinced the university's board of the value of developing a design centre that focuses on designing solutions through multidisciplinary science, I started coordinating the founding process. I explained the concept to various stakeholders and involved other faculties in the project, from which point Peter Paul Verbeek and Mascha van der Voort joined as co-directors. As Scientific Co-director of the DesignLab, I guard the interaction design aspect, evaluate projects and establish collaboration with stakeholders. Representing high-tech intervention, we search for novel ways to apply technology to meet societal needs.

As a professor of Human Media Interaction, I study the interaction between humans and computers. An example of this are robots that are programmed to recognize human behaviour and act in a naturalistic way.

We currently help a large mental health care organization (GGZ) to develop and co-design a road map for innovative treatment methods, e.g. offering e-coaching for (minor) mental health issues. We can detect emotions like aggression from voice and behavioural patterns through high-tech technology, which enables the diagnosis of psychoses and other mental illnesses at an early stage. This might result in less escalations, provide a safer work environment and prevent expensive hospitalization. This development is interesting for various stakeholders, like mental health organizations and employees, as well as insurance companies. The DesignLab enables us to build networks of valuable, strategic partnerships with these stakeholders. The DesignLab method offers a way to identify, fine-tune and tackle the actual problem, and co-design solutions through our creative workshops and multidisciplinary scientific study. Traditionally, we financed research from (inter)national and EU funds and convinced stakeholders of its benefits. Nowadays, as the world is moving towards participatory design, we rather involve stakeholders in an early stage of the ideation process. This requires alternative funding, but leads to more substantial support from stakeholders, resulting in a quicker adoption and better implementation of the solution. My research has benefitted enormously from this method, as it provided a structure in which all the stakeholders felt ownership over the defined problem and the approach to solve it.'

Prof. Dr. Vanessa Evers

Scientific Co-director of the DesignLab at the University of Twente
and Full Professor of Human Media Interaction.



Tosti Talks

'Get people together to discuss'

Whether it's about mushrooms, hemp, or artificial intelligence, the floor is open for discussion, 'as long as you have a passion and love to talk about it,' says Alexandra Batea (24), a member of the DreamTeam. 'Tosti Talks is a lunch event on Tuesdays where students – as I'm sure you've guessed – eat tostis and talk. The DesignLab provides the tostis, all you need to do is talk.' Anyone who has an interesting topic to share is free to set the scene

by giving a short talk on the subject, and from then on the discussion is open for everyone's questions and input. This informal congress is an initiative to get people together to discuss topics that are not typically heard, and is designed to be a sharing platform for students, professors, and even sustainable companies to share their interests that add value to society. 'We want interaction and there is no better way to do that than with food.'



Text: DesignLab

Photo: Zahra van Egdome

DESIGNLAB IN NUMBERS

..... In the 2016/2017 academic year DesignLab hosted over 55 different educational modules, contributed to the development of a number of research programmes and actively interacted with 28 external partners.

THE FACTS, DESIGNLAB HAS:

hosted **114 events** linking UT and the outside world, including Pioneers of Health Care, Pitch and Match, the Entrepreneurial Challenge, Global Goals Jam and the Smart Cities Pre-conference with the cities and universities in Enschede, Palo Alto, Linköping, Münster, Dalian and Heidelberg.

participated in **339 research-related activities**

educated over **1000 students** to use our workshop facilities

facilitated **student start-up's**, eg. Aryzon, AER, Smart Mirrors, Tiny Giants & RoboTeam

hosted and gave tours to an uncountable number of **external groups** interested in the University, DesignLab and our work

facilitated the **University Innovation Fellows, Smart Living Campus** and the **Ethics of Drones**

enlisted **32 UT researchers** as DesignLab Fellows

attracted over **1396 followers** on Facebook, Twitter and Instagram

attracted **20K website page-views**

Used **6912 slices** of tosti bread

Used **15 Kilo** of Polylactic Acid (PLA)

Secretary

What would the DesignLab be without a secretary? Ellen ter Brugge has filled the position since the 1st of September. 'A secretary is necessary in the web of activities, ideas and people that the DesignLab is. I assist the DesignLab with the

future proof skills of a modern secretary: be a guide to and maintain the processes where needed in the University community, cooperate with the team, solve problems and work together with the international students.'

STUDENT TEAM RUNS THE DESIGNLAB

Text: Marianne de Beer

Photo: Emiel Harmsen

'IT'S MORE THAN JUST KEEPING THE LAB OPEN'

A group of thirty students take care of the DesignLab. Whether you have a question, can't find your way or just want a cup of coffee, it will be the DreamTeam members in their green T-shirts that will help you. But their involvement goes further than that. Greta Seuling describes the student team: 'We really want to work together and help each other out.'

Greta Seuling (27) coordinates the DreamTeam with a lot of enthusiasm and passion. 'I am a psychology student, so at first I had a bit of a difficult time to find my own place at this technical university. I joined the DreamTeam in January of 2017 and started working on the project of collaboration, which I really enjoyed. When Karolina Niechwiadowicz finished her Master's she asked me to follow in her footsteps as the DreamTeam coordinator in August. I love this place so much and I think you can do many great things here, so I was very happy to take on the challenge of running the lab.'

We currently have a team of thirty students with very diverse backgrounds and a lot of different nationalities. The students form a family that really wants to work together and help each other out. Even if they are not on shift they will still offer help when needed.'

A typical day

Seuling tells us about a typical day of running the DesignLab: 'I come to the lab and start talking to the different people here: the DreamTeamer on shift, our TechTeam, our First Line Support and our Operations Team to check and get feedback on how things are going. I am always available for questions and make sure I am aware of the projects and the successes of that day. I also have to manage the administrative side: making the schedule and making sure we have the right people in the right place. I have meetings with our Project Coordinator, Edo de Wolf, about the progress of projects, our DreamTeam and the DesignLab in general. And I like to keep an eye on the creative and dynamic 'DesignLab-Feel!'

Challenges

Of course, there are challenges too: 'The hardest part of the job is probably the planning part, to make sure that there are not too many projects at the same time and that the projects we start are actually happening. We also have to ensure that we do not ask too much of the students in our team, their focus is their education. I always enjoy being involved and getting to have a say in what happens in the DesignLab. The input from students is really needed and helpful.' ●



DreamTeam

The DreamTeam was established by Jorien Alers and Job van Dongen. 'After the furniture for DesignLab was designed and built by a team of students, we asked them if they wanted to be part of a student team that would run the DesignLab,' says Alers. 'Miriam Iliohan eventually came up with the

name 'DreamTeam' and further developed the idea. She wanted the team to do more than just keep the DesignLab open and wanted them to be involved in the development of the lab.' Van Dongen tells us that the team has become more multidisciplinary throughout the years: 'We started with mainly Industrial Design students, but

as the DreamTeam renewed itself more disciplines and nationalities became part of the team. It is great to see that the team is still growing, that there have been multiple new coordinators and that there is a lot of diversity within the team. That was our goal in the beginning and I think we have definitely reached it.'

Text: Michaela Nesvarova
Photo: Gijs van Ouwkerk

'Students always reflect the atmosphere and attitude of their university, and fellows from the University of Twente are proactive, they are doers and they work well with others,' says Leticia Britos Cavagnaro, co-founder of the University Innovation Fellows (UIF) program and researcher at Stanford University.

'STUDENTS HERE ARE TRUE CO-LEADERS'

Leticia Britos Cavagnaro visited the UT recently and shared her thoughts on the UIF, as well as the University of Twente and the DesignLab.

What is the main purpose of the University Innovation Fellows program?

'It empowers students to create the future of education. I think we all know that education needs to change. It needs to empower students to identify and solve problems of the world. Regardless of their study field or career choice, they all need the skills to solve problems in a creative way, to come up with good ideas and make these ideas a reality. Unlike some might think, students don't have to wait until they graduate to make a difference in the world. They can already be the drivers of change.'

Worldwide movement

The University Innovation Fellows (UIF) is a program of Stanford University's Hasso Plattner Institute of Design. The program originated in 2012 at Stanford as an initiative to promote innovation and entrepreneurship in education. Since then, it grew into a worldwide movement involving 185 schools and over 1,000 students. In 2016, the University of Twente became the first European university to join the program.

The University of Twente was the first European member of the UIF. Does the UT bring anything unique to the program?

'Twente found us, but if we had to choose, we wouldn't be able to choose a better university. The UT is a highly student centered university. Students have a lot of leadership roles here. The core structure of the UIF is to create a community of students from universities worldwide and I think UT students have a lot to share with others. For example, how they run DesignLab and how they maintain a good relationship with the faculty and their mentors. Students here are true co-leaders. The key thing others could learn from the UT is the productive interaction between students and the faculty.'

Is there something the UT should still work on?

'There are a lot of resources here, but many students don't take advantage of them. I think the priority would be to engage students early on and make them aware of all their opportunities.'

You mentioned the DesignLab earlier. What are your thoughts on it?

'It's fantastic that it is run by students. You really see the results of their involvement. Overall, it's a great space which truly reflects the design process. It's all thought-out in order to encourage certain type of interaction. In the DesignLab, everything has its purpose and promotes the right dynamic. It's like the chicken and the egg: People create space, but space also creates people.' ●

This semester, Wim Kamerman (Business & IT), Sevim Aktas (Advanced Technology), Rianne Hagen (Industrial Design) and Titus Venverloo (ATLAS) have been selected by the UT to apply for the University Innovation Fellows program (UIF). The DesignLab is coordinating their participation and guiding them through the programme. Eventually, the DesignLab would like to become the European hub for the UIF program.

'A SAFE HAVEN FOR BREAKTHROUGH INNOVATIONS'

'I want DesignLab to play an important role in lives of students, researchers, partners and clients. DesignLab should empower them to become makers of change who realize that they are building the society of the future,' says Frank Kresin, the Managing Director of the DesignLab.



Text: **Michaela Nesvarova**

Photo: **Rikkert Harink**

Frank Kresin has been in charge of the DesignLab since January 2017 and he has a clear vision for its future. Among other things, he would like the lab to function as a multidisciplinary research and development facility with a real impact. 'Scientific knowledge and societal challenges are often quite removed from each other. Design thinking can build the necessary bridges. This is what the DesignLab and its Science2Design4Society-methodology can do,' thinks Kresin.

Combining different disciplines

Frank Kresin has a background in filmmaking and a Master's degree in Artificial Intelligence. He came to the University of Twente after six years as the Research Director at Waag Society, where he worked on themes such as Creative Care, Future Internet and Smart Citizens. Having an interdisciplinary background himself, Frank Kresin, staff, students and co-directors turned the DesignLab into a platform where people from all disciplines meet, inspire each other and work together to solve societal problems. Now he wants to take the next step and bring focus and consortia together.

'The lab is a place for the whole university: faculties, institutes, students and staff. It operates at the intersection of various scientific fields, paradigms and outlooks, and combines science, technology, ethics and design thinking, because today's complex problems – such as the aging society, migration and climate change adaptation – are omnipresent and can't be solved by any single discipline,' says Kresin.

Sustainable Development Goals

'It is important for a lab like this to commit to a sustainable future and I want the DesignLab to connect to both the EU Grand Societal Challenges and the United Nations Sustainable Development Goals. We are responsible for

'We are responsible for making the future better than the present'

making the future better than the present,' says the Managing Director. 'That's why we need versatile, open playgrounds, where people can make new concepts, explore, succeed, but also fail and start again.'

And the DesignLab should be just that – 'a safe haven for breakthrough innovations', as Frank Kresin calls it. Innovations that can be achieved by experts from various fields working together, in close collaboration with companies, governments and NGO's.

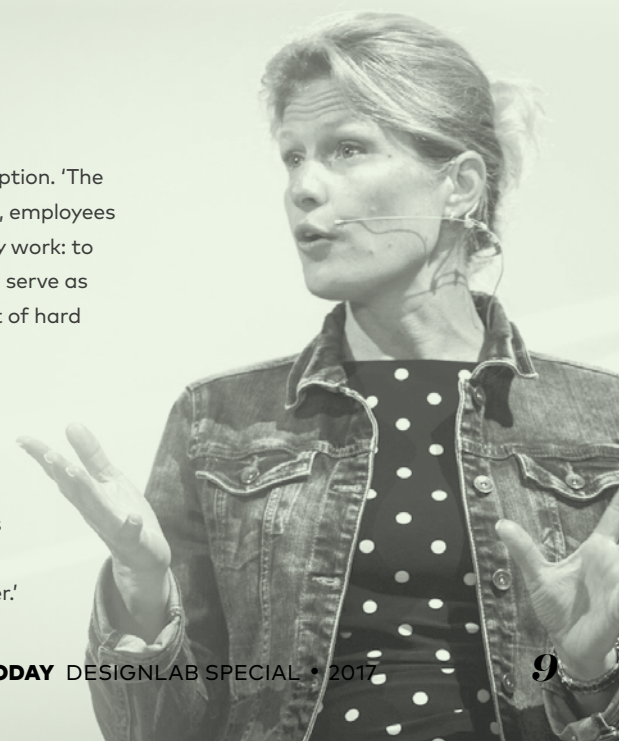
Research program

'We want to pose new questions that people from only one faculty wouldn't. Therefore we have attracted over thirty DesignLab Research Fellows: highly motivated researchers who are in the habit of doing multidisciplinary research and will help us to shape the lab. Our research program is co-defined by the fellows, and deals with themes like societal robotics, textiles and smart materials, digital societies, personalized healthcare, critical design & art science collaborations,' describes Kresin.

One of Frank Kresin's main goals as the DesignLab's Managing Director is to make stronger connections with the outside world. 'We can only tackle complex challenges by working together. We therefore actively reach out to organizations that want to make a change. Consider this as an open invitation to connect if you are willing to work with us on issues that matter, now and in the future.' ●

'Bringing multidisciplinary teams together'

As its Project Manager and co-founder, Miriam Iliohan has been working in the DesignLab since its inception. 'The idea for the DesignLab came to life during a big brainstorm session, which was initiated by researchers, employees and students. The idea was to create a space as a means to make our universities vision and philosophy work: to bring multidisciplinary teams together to work on the grand challenges of today. The lab was meant to serve as an incubator where people can connect and gain new insights. In only just a few short months and a lot of hard work the lab was designed, built and opened due to the hard work of researchers, staff and students. DesignLab officially opened its doors with the Minister of Education, Jet Bussemaker, three years ago, in September 2014. At that point, it was only a physical space, we needed it to become truly different to be able to make the connections between science and society. Students Jorien and Job decided to create the DreamTeam, the student team that operationally runs the lab and because the lab is organized by students, it also lives inside the student community. Thanks to that, the DesignLab fulfils its purpose among other things, in making the crossover between staff and students much easier. It takes people out of their office or classroom, allows them to meet each other and start new projects together.'



DESIGNLAB: ONE PLACE TO CONNECT THEM ALL

Open, inspiring, eclectic. Those are some of the words that come to mind once you enter DesignLab. There is a researcher giving a presentation, a group of staff members having a meeting, students huddled together, working on their projects or just playing with Lego, robots beeping in between the desks. All of that is happening there. At the same time and in the same open, connected space.

Conconnected is another important word if it comes to DesignLab. Students, teachers, researchers, business owners. All of them can be and are connected through and in the lab.

Interact!

'I first came here for a presentation and I liked the environment a lot, so afterwards I was here almost every day. And now I work here,' smiles Jorge Papanikolaou, one of the members of the DreamTeam, as he walks around taking photos of one of the lectures currently taking place.

'I chose to spend time here, because here you can really interact with people, get distracted and just play table tennis and then focus on your work.'

'You can really easily interact with people from other studies here,' agrees another DreamTeam member Jos Varvik, who now has some time to sit behind the main information desk, but already knows he will need to be on his feet soon, helping people to find and use the local facilities. 'This is also the place where you can physically work on your projects and construct your prototype,' he points to the workshop rooms, where you can find 3D printers,



'Here you can really interact with people'

member DreamTeam

a laser cutter, and other high-tech as well as low-tech equipment. 'After a short training, everyone is free to use it,' adds Varvik.

Right now, nobody seems to be 3D printing anything, but there are a plenty of people around, hard at work. Robo-Team is using the local floor space and cameras to test their robots; some people are sitting in groups, discussing various projects and drawing onto the borrowed whiteboards, while others are solitarily staring into their laptops. There aren't many of those who are alone, though. 'DesignLab is all about collaboration,' explains Jos Varvik. 'If you are here, you should be ready to give and receive feedback.'

'Matchmaking'

DesignLab even serves as a 'matchmaking agency'. 'This is the place to connect with people from completely dif-

ferent areas – students, researchers, businesses, NGO's, government organizations -, so you can bring your visions together, connect technology and society,' says Flavia Carvalho de Souza, DesignLab's First Line Support. 'If you want to work on a project and need other people's help, you can come here and put up a 'collaboration flag' on your table, signaling you'd like some input. Or you can contact us and we will find the right people for you.' And before this staff member runs off to check on several meetings downstairs, in a more private section of DesignLab, she adds: 'In other buildings and labs, you get people mainly from one department or faculty. This is a neutral territory, everyone is welcome.'

Socializing is indeed one of the main things the lab has to offer. But there is a lot more. Education for one. Many courses and workshops are regularly organized in the various rooms of DesignLab. Whether it's an interactive session in the Classroom of the Future, a lecture in the Ideate space or a short explanation given by a DreamTeam member, the universal language spoken here is English. 'We didn't expect it, but DesignLab became an international hub,' says Miriam Iliohan, the lab's Project Manager and co-founder. 'It's like a home away from home for internationals here at the UT.' Simply, one space to connect them all. ●





Text: Jelle Posthuma
Photo: Emiel Harmsen

CREATION BY VAN LINGEN AND UT STUDENTS DRAWS AN AUDIENCE OF 1.5 MILLION

'THIS HAS BECOME HIGH ART'

A wave hitting the shore, three female faces blowing kisses and a touch-activated light pattern. 'From Twente with Love,' the artwork created by Randy van Lingen, professor Vanessa Evers and the DreamTeam, demonstrates that art and science do indeed go together.

When Van Lingen, an artist from Almelo, signed up for the Amsterdam Light Festival, an annual event in our nation's capital, he wanted to come up with something truly remarkable. He wanted to give his creation some 'body.' He got in contact with UT professor Vanessa Evers, who is initiator and Scientific Co-director of DesignLab and a group of enthusiastic students. The creation of 'From Twente with Love' suddenly became a collaborative project between the artist and the DreamTeam, a group of students that helped not only co-design this artwork, but actually made it come to life! 'The DesignLab has the expertise I needed to create the art project.'

Blowing kisses

The centre of the piece consists of three female faces, each blowing a kiss. The kiss is initiated by water, which flows from their mouths onto their hands. Once the palms have filled up, the weight of the water tips the hands over, simulating the motion of blowing a kiss.

The students built a touch-activated light installation at DesignLab. 'The light pattern you see is found everywhere in nature,' Van Lingen says. 'Try putting something under a microscope; you will see a pentagonal and hexagonal pattern. This is biomimetics, science created from nature.'

The installation was constructed in the DesignLab over a two-month period. 'All the tools were present. We were able to design and prepare everything right here,' the artist says. He describes the final construction of the artwork as an arduous process. 'It took up all our energy because we were working so hard.'

The dead of winter

Once the installation was finished, it was taken to the Amsterdam Light Festival. 'The students and I spent ten days setting everything up,' Van Lingen reveals. 'It was December, the dead of winter, and we had to work from eight in the morning until two o'clock at night to finish on time. We were done five minutes before the festival's opening. The champagne was ready to pop.'

During the exposition, the students had to return to Amsterdam another four or five times because the cold and moisture outside air created some problems. Nevertheless, the artwork was a major success. Van Lingen says that 1.5 million people came to look at his creation. 'The crowds were massive. That is fantastic, because every artist has a touch of exhibitionism in him.' The artist is also thrilled about the excellent feedback he received. 'They say art and science do not go together, but this project has become high art. That is what I would call a success.'

From Almelo with Love

'From Almelo with Love' was the first name Van Lingen came up with for his project. It has since returned to his home town, where it has been installed opposite the town hall. People have until the end of the year to admire the piece there. ●

'Every artist has a touch of exhibitionism in him'

CUSTOM SOLUTIONS FOR SOCIAL PROBLEMS



Enlisting the help of UT scientists to solve social problems; that sums up the goal of Science2Design4Society. 'Our multidisciplinary approach, which combines science through design, lets us develop creative and innovative answers to today's problems.'

Several of the UT's core values come together in Science2Design4Society (S2D4S). 'We make the crossover between design, science, technology and society,' says S2D4S postdoc Daphne Karreman in DesignLab. 'We do so as part of carefully selected teams whose job it is to come up with (possible) solutions in an inspiring, creative and interactive manner. Our clients include businesses, governments and countless other organisations.'

3D prototype

What makes S2D4S's approach so remarkable and unique is that the ideas and solutions are made tangible at an early stage by visualising them as 3D prototypes. 'We use LEGO and PlayMais for that,' Karreman explains. 'Participants create a 3D model in small groups or on their own. They use that to explain their idea to the other participants at their table. This is a valuable process, this way everyone uses their own background and expertise to provide input. The entire group then works on tying everything together.'

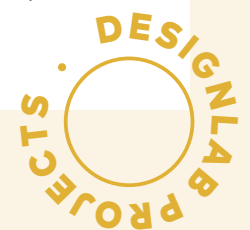
From introduction to pitch

A S2D4S workshop follows a fairly standard routine. After the group introduction, there are inspiring lectures to attend. Participants then discuss a problem in small groups, before everyone works on solving the issue on their own. 'Next comes reflection,' says Karreman. 'You have to ask yourself if the solution you came up with still suits the issue at hand. It is okay if it does not, mind you, because you can use the experience you gained to approach the problem

again from a better angle. This first step in our six step method helps all parties involved take active ownership of the problem at hand. It provides value through different disciplines and brings the Technology and social sciences together resulting in a more realistic and acceptable approach.' The real finale is the pitch: each group presents their findings to the participants at the other tables. 'We make a LookBook or an extensive report out of all this,' Karreman says.

High tech, human touch

The UT theme high tech, human touch is clearly represented in this method. 'When creating the groups, we make sure to put people with different backgrounds together,' Karreman explains. This varied group composition offers several advantages. 'We not only come up with solutions, but we also examine their potential impact. Suppose someone comes up with the idea of building an apartment complex without an elevator. Is that solution even feasible? To answer that question, you have to think about the impact of such a decision, both on individual people and on larger groups. This approach gives you a better idea of the consequences of the solutions you came up with.' Of course, every situation requires a different approach. 'We identify the client's wishes beforehand,' Karreman says. 'These then form the foundation for the workshop. Our method is excellently suited for this. S2D4S allows us to deliver custom solutions and achieve results that help our clients out.' ●



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Sustainability workshops

'We tried to come up with ideas that are truly sustainable'

In effort to achieve sustainability and reduce their carbon footprint, DesignLab has hosted several sustainability workshops, during which students discussed various ways in which these goals can be realized. 'Sustainability is an abused term,' says Lisanne de Weert (23), a DreamTeamer who is pursuing her double Master's degree in Industrial Design and Mechanical Engineering. 'Therefore, we tried to come up with ideas that are truly sustainable by incorporating educational,

social, and physical considerations.' With these three pillars, students drafted plans. The DreamTeam is now implementing some of the project ideas, for example by constructing plastic recycling bins from sustainable materials, and by introducing Fix-It Fridays: evenings where people gather to fix belongings that have broken. 'These Fix-It Fridays tackle the physical side of sustainability by fixing broken items, so that people do not have to buy another product instead.'

Text: Rik Visschedijk
Photo: Bart Klaassen

Introducing new methodologies to the world of social sciences; that is an apt description of 'his' laboratory's mission, says Bart Klaassen, head of the Tech4People BMS Lab. 'We do this by promoting new projects and pointing out wonderful initiatives to researchers. We also offer our assistance and support to these projects wherever we can.'

TECH4PEOPLE BRINGS SOCIAL AND TECHNICAL SCIENCES TOGETHER

LOOKING FOR THE HUMAN FACTOR



The Tech4People BMS Lab is an extension of the Tech4People investment programme. On the groundfloor of DesignLab, researchers have been hard at work since last year to introduce new high-tech environments in the social sciences. 'We have already completed around seventy projects,' says Klaassen.

Connecting

One of the lab's key objectives is to connect UT researchers. 'The technical faculties often look at how something works,' Klaassen explains. 'In the social sciences, it is mostly about the question

of why people behave in a certain manner. In this lab, we can combine these different perspectives on research. This helps us find the social aspects of technology. Traditionally, social sciences are believed to lag behind technical sciences. Here, we strive to integrate technology and behaviour.'

The Tech4People BMS lab has a wide range of methods that it can deploy. 'From high-tech infrastructures in data storage, processing and applications to virtual reality, biometric research platforms, eye tracking, buildings filled with sensors and motion-capture technology,' Klaassen says. 'Our motto is basically 'whatever you need, we got

it.' To facilitate the expansion of these technological developments, three new high-tech environments are being realised in the Cubicus building.

Wonderful projects

Klaassen is very positive about the work being done in the lab. 'We are working hard to support and scale up some wonderful projects. To do so, we choose a number of flagship applications and systems, which we can then also apply in different areas of research.'

Another key area of focus for the lab are – in his words – apps on steroids. 'Those are, for example, survey apps in which we can also log and process sensor data and use it right away for interventions.' This leads to some remarkable projects that bridge the gap between technology and the social sciences. 'From tracking escaped convicts with wearables in the popular TV show *Hunted* to researching nudging effects on people making healthy choices in a

'The technical faculties often look at how something works'

supermarket,' Klaassen explains. 'Other examples include visual attention at NS train stations and on store shelves with the help of eye tracking, monitoring and evaluating group measurement interactions via sensors or monitoring former alcoholics in order to develop new intervention methods.'

Information hub

The laboratory teams sets out to be an information hub within the BMS faculty. 'We also exchange knowledge with other UT laboratories. I believe we can play an important role in this, because we know what is happening in the world of the social sciences and speak the language of technical experts at the same time.' ●

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Scientific Co-director
DesignLab*'We stimulate a new kind
of interaction between
science and society'*

'My role as Scientific Co-director of our DesignLab is to take up the shared responsibility of running and further developing the DesignLab and its embedding in the university. Also, I run projects in the PhilosophyLab, at the interface of philosophy, design and ethics. As a professor of philosophy of technology, I analyze how technology influences society and how we can evaluate that impact and take it into account when designing technologies.

PhilosophyLab is part of the DesignLab and connects philosophy of technology with design and innovation. Here, I stimulate people to look at design from a broad perspective and raise philosophical and ethical questions. PhilosophyLab helps people to identify and address ethical questions arise during the design-making process. For example, in one of our projects we have developed an ethical and legal tool for the responsible design and use of drones and drone services. Recently, we presented this tool to drone developers and people from the police and fire brigade who make use of drones. The tool proves to be really useful and enables them to address the ethical issues in an early stage during the design process.

The activities of DesignLab focus on multidisciplinary cooperation. Our ambition is to stimulate a new kind of interaction between science and society, that combines basic research and societal applications. It also creates a new dynamics of research funding, connecting science funds, companies and societal organizations. We try to reach out to society early on and stimulate people to turn to academia in order to help them address actual problems and design challenges.

Researchers could benefit enormously from the DesignLab as it's a straight-forward and valuable opportunity to meet people from different disciplines and gain new and surprising insights. The DesignLab is a very active platform that's run by our DreamTeam and promoted by DesignLab fellows, our ambassadors. We welcome students and staff from all disciplines. By connecting the social sciences and the technological sciences, I think the DesignLab really embodies the university's slogan high tech human touch.'

Prof. Dr. Ir. Peter Paul Verbeek

Scientific Co-director of the DesignLab, responsible for PhilosophyLab in the DesignLab & Professor of Philosophy of Technology at the Department of Philosophy

DESIGNLAB
PROJECTS**Prototyping for students***'All students are welcome to develop their skills'*

Walking around DesignLab, you will see a dozen prototypes displayed in the honeycomb shelves that dot the DesignLab floor. 'Each of them was created by students, right here in Designlab's electronic and mechanical workshops,' says Erik Analbers, who works in DesignLab's TechTeam. 'Whenever students need to build an antenna, 3D print a model, or wire their Biorobot, they can come to our eWorkshop and mWorkshop to build and test their prototypes.

Our doors are open.' Regardless of whether it is an assignment, Bachelor's or Master's project, or simply a hobby project, all students are welcome to develop their skills. 'It provides a way for students to build on their education, by being able to come here and learn to work with wood, plastics, electronics, Solid Works, the laser cutter, or the 3D printer. When students have this hands-on practice, they learn for future ventures what is possible and what is not.'

DesignLab is not only suitable for study-related projects. A large number of start-ups at the UT use it during the early stages of their company. We spoke with three of them to discuss their experiences with DesignLab and how it helped their company to grow.

HOW DESIGNLAB HELPS COMPANIES TO GROW



SmartMirrors

SmartMirrors is an electronics and software company that focuses on the development of interactive, intelligent mirrors. It was established in 2016 by Menno Noorlander and Ivar van Wooning. Van Wooning (22, Creative Technology) tells us about how they used DesignLab to develop their product and build their compa-

ny. 'DesignLab provided us with our own workspace where we could work on our prototype for four months, as we did not have a suitable place for this ourselves. We used the different tools in the workshop to develop our product and really enjoyed the productive and friendly atmosphere at DesignLab.'

Van Wooning is very positive about the facilities that the DesignLab offers: 'Students usually do not have the means to rent a workspace, so it is really cool that DesignLab offers students a place where they can build their own enterprise. It is also great to be brought into contact with other entrepreneurial students who might want to join your start-up. There is a lot of knowledge in DesignLab, which makes it a really special and inspiring place at the UT.'

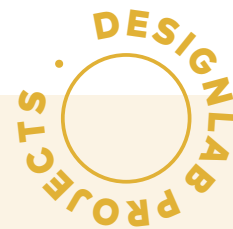
'DesignLab provided us with our own workspace'

DesignLab University Workshops

'Giving everyone the tools they may need'

DesignLab recognizes that great minds can only achieve so much if they lack the right tools. That is why it provides students from all faculties with the opportunity to develop various practical and soft skills through workshops taught by fellow students of the UT. 'What's the use of having lots of handy, high-tech equipment if students don't know how to use it?' asks Dominik Lenz (28), Master's student of Human-Media Interaction and Dream-

Team member. 'Students are introduced to the basic skills such as 3D printing, Arduino, woodworking, soldering, or brainstorming in these workshops, with the intention of giving everyone the tools they may need. These workshops have a broad appeal, because by tutoring at a basic level our target group is inclusive of students from non-technical programs who would not have gotten in touch with these technologies in the first place.'



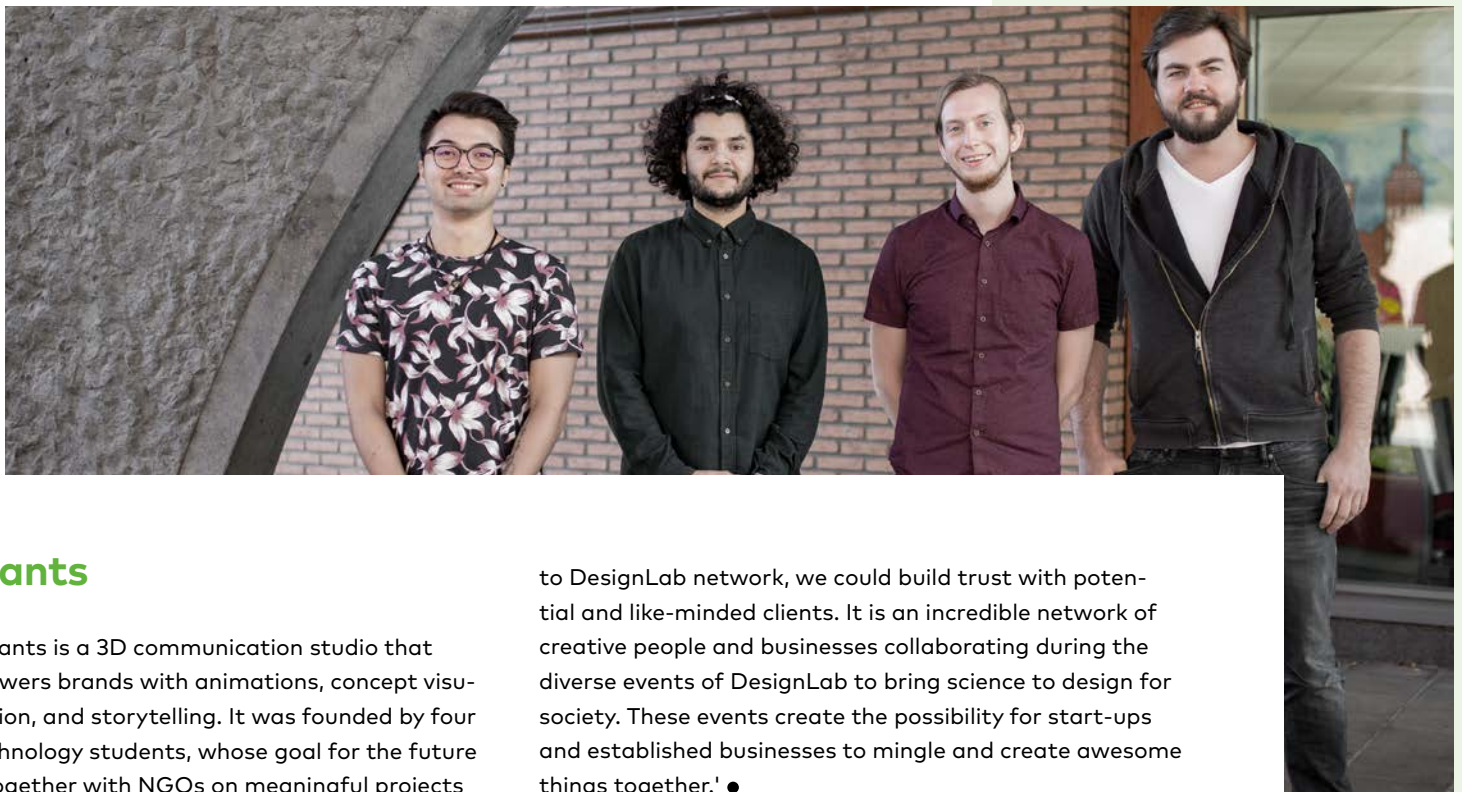
Text: Marianne de Beer
 Photo: Arjan Reef, SmartMirrors

‘It was really nice to have a spot where we could set up our project’

Aryzon

Aryzon produces an Augmented Reality headset that offers a lightweight and affordable option to experience the world of augmented reality. It was founded in February 2016, by five Industrial Design students. Maarten Slaa (27), one of the co-founders, tells us that the development of the design of the headset was mainly done in DesignLab. ‘It was really nice to be able to have a spot where we could set up our project. We used the laser cutters at the lab which

were very suitable for the material we were using. This enabled us to make a lot of different prototypes. We also really benefited from being in contact with the inspirational and enthusiastic people at DesignLab; this offered us a lot of new opportunities and helped us broaden our network.’ Slaa is optimistic about the future of Aryzon: ‘We are currently very busy setting up our production, we already have a lot of orders. In the future, we want to make Aryzon a lot bigger and we also want to start selling a more advanced version of our product.’



Tiny Giants

Tiny Giants is a 3D communication studio that empowers brands with animations, concept visualisation, and storytelling. It was founded by four Creative Technology students, whose goal for the future is ‘to work together with NGOs on meaningful projects that create a better world where visual communication breaks cultural, religious and political boundaries.’ – in the words of Arian Hohmann (27). Hohmann, co-founder of Tiny Giants, expressed that DesignLab was a great asset in setting up their company: ‘We do not have a tangible product like most start-ups do, but by being connected

to DesignLab network, we could build trust with potential and like-minded clients. It is an incredible network of creative people and businesses collaborating during the diverse events of DesignLab to bring science to design for society. These events create the possibility for start-ups and established businesses to mingle and create awesome things together.’ ●

‘We could build trust with potential and like-minded clients’



Text: **Marjolein Gosseling**
Photo: **Rikkert Harink**

‘The lab serves as an incubator where people can connect and gain new insights’

As a Professor in Human Centred Design, I search for ways to elicit the actual needs of stakeholders in order to support the design of products that meet those needs. Enhancing a scenario-based approach and stakeholder involvement in the design process is key in this. We use a holistic approach and look at the entire spectrum of a (use) challenge to co-design the best solution. As many stakeholders are not trained to design, we develop the design tools to empower them to actively participate.

Participatory design

In DesignLab we search for ways to connect society and science, using design and design-thinking as a vehicle. As scientific co-director I explore the role of designers in a world where everybody is an expert and everyone can participate in the design-making process. We focus on identifying and further developing the contribution of design to government-citizen-academic-industry collaborations (the quadruple helix) for realising smarter responses to the grand societal challenges. DesignLab empowers researchers to gain insight into specific societal needs and to design creative products or solutions for them. This process involves a lot of reflection and reframing. We challenge people to think outside the box and redefine the actual problem, until it's really clear what their actual challenge is.

Grand and local challenges

In general, potential technology development and commercial knowledge transfer are often leading aspects in science. However, I rather take societal challenges as a starting point and identify the actual needs together with various stakeholders. DesignLab stimulates the collaboration of multidisciplinary teams to work together on today's challenges, e.g. United Nations' grand challenges. One of the local challenges we're currently working on concerns enhancing civic participation in Enschede. We look for ways to support actual needs of citizens and empower them to help improve and co-create their city. The lab serves as an incubator where people can connect and gain new insights, and I'm happy to see that it's successful and active.

Prof. Dr. Ir. Mascha C. van der Voort

Scientific Co-director of the DesignLab, responsible for Education in DesignLab & Professor in Human Centred Design at the Faculty of Engineering Technology.

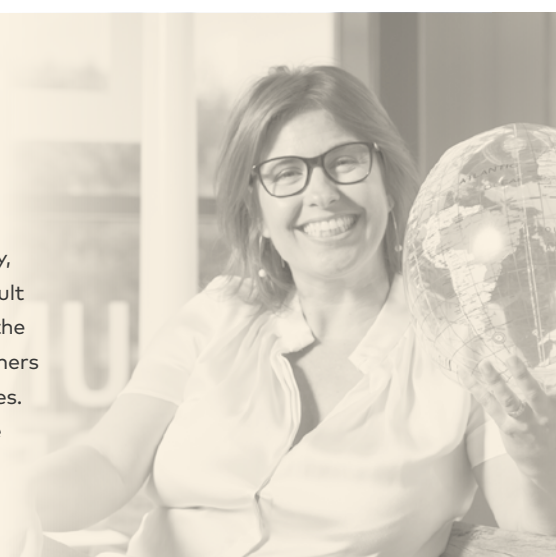


DesignLab Lectures

‘Any form of collaboration would be a great win from these lectures’

Often, DesignLab hosts lectures given by external researchers, professors from other universities, or big names in the industry. ‘The topics of the lectures vary, but they always fit with DesignLab’s DNA and our motto of Science2Design4Society, says Flavia Carvalho de Souza, First Line Support at DesignLab. Organized approximately once per month, these lectures are used as a way to spread knowledge about the things DesignLab stands for. ‘We also hope that by bringing

experts to DesignLab we enable contact between researchers, students, and members of the industry, with the ultimate wish that a collaboration can result from it. Any form of collaboration – be it between the guest speaker and DesignLab, students, or researchers at the UT – would be a great win from these lectures. That is why we leave these lectures open to anyone and everyone, because we want to have as big and diverse an audience as possible.’



LABORATORY IN TWENTE IS PROMOTER AND CONDITION FOR MILLION-EURO PROJECT

BECAUSE OF DESIGNLAB, SPENCER SHOWS THE WAY AT SCHIPHOL



In late 2015, it was the centre of attention for a brief moment: Spencer, the guide robot. It was tested at Schiphol Airport for a week, where its job was to point travellers in the right direction. Before that, Spencer drove around the hallways of DesignLab. This was a vitally important time for the research project, says Professor and Scientific Co-director of DesignLab, Vanessa Evers.

The 1.90-metre-tall humanoid robot not only passed its test out in the real world, it actually made an unforgettable impression, Evers explains. 'It is only then that you see how people really react to it. He was a celebrity at Schiphol. Many people stopped to take a selfie with him.' Of course, that was not the goal of the experiment, Evers laughs, 'but it does illustrate the culture shock a robot like Spencer causes.'

Few errors

The professor of social robotics believes that Spencer did his actual job very well indeed. 'He was remarkably good at recognising and guiding groups of travellers. He only made a few errors.'

Before Spencer arrived at Schiphol, Evers' Human Media Interaction department tested the robot in the DesignLab. 'The environment there is not unlike that of an airport, with its open areas and long hallways,' Evers explains.

European Union

The lab did more than just take part in the testing phase, however. It played a much more important role in the submission of the project proposal to the European Union. The

million-euro project was eventually given the go-ahead in 2013. Evers believes this is largely thanks to DesignLab. 'A futuristic proposal like this is only really given its due when you can prove that you have the environment and vision needed to unite technology and society. Ultimately, DesignLab was a promoter and a condition for the approval of the project proposal. The lab is a place where social issues and technology come together. That gave the entire research the boost it needed.'

Robots in public spaces

The research project ended in 2016. Together with collaborating parties, Evers is currently working on a new proposal for a follow-up project aimed at valorisation. Evers sees a lot of potential in using robots as service providers in public spaces. 'Spencer is an example of this. Broadly speaking, there are countless possibilities. Think of mobile information terminals in inner cities that provide information and where people can, for example, buy movie tickets.'

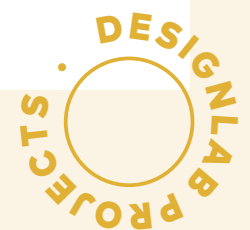
The professor believes there are many challenges to overcome in the field of man-machine interaction, but there is also a myriad of opportunities to be seized. 'I am sure DesignLab can play a valuable role in this.' ●

Rapid prototyping for external companies

'DesignLab is a bridge that connects companies and students'

Through rapid prototyping, DesignLab helps external companies explore concepts and develop prototypes with the help of creative young minds. This service is useful for companies that are exploring a field they are unfamiliar with. 'Most importantly though,' says Edo de Wolf (23), Dream-Team Project Coordinator and Master's student of Human-Media Interaction, 'companies approach us because we can tackle the projects from both social and technical perspectives. It is only natural that we attract these sort of projects,

because it falls in line with DesignLab's motto of Science to Design for Society.' Students assist the company with their projects in many ways, be it through a brainstorm session to develop an idea, or producing a product prototype and testing its user experience. 'By doing this, DesignLab is a bridge that connects companies and students: companies benefit from the students' input, and at the same time the students can make connections and exchange knowledge and experience with the companies.'



DESIGNLAB FACILITIES

On the Campus of the University of Twente, located in The Gallery, staff and students from all disciplines work together in DesignLab on multidisciplinary projects that translate science to society, using the facilities for ideation, interaction, prototyping and testing. From lounge to playground, from classroom of the future to test location, you find it all in DesignLab. Let's take a tour.

UPSTAIRS

IDEATE [Capacity: 150]

Part of the open space

IDEATE provides an ideal brainstorm setting. In this area there is space to explore and analyse the context and problem. Be inspired by lectures and scientific research and gather new insight to come up with new ideas.

CONCEPTUALISE [Capacity: 35]

Part of the open space

If you want to translate your ideas into concepts, this is the place to be! It has mobile TV screens, whiteboards and flip-overs.

PROTOTYPE [Capacity: 35]

Part of the open space

This space is best suited for rapid prototyping and working on projects in groups.

WORKSHOPS

[Cap.: 15 per workshop]

Situated next to PROTOTYPE, it is ideal if you want to create rapid prototypes for research and educational projects. The mWORKSHOP provides all kinds of large machines and manual tools for physical processing methods, such as drilling, sanding and sawing. The eWORKSHOP holds electronic equipment and rapid prototyping machines like a solder, 3D printers and a huge laser cutter. By prototyping, you can test, evaluate and improve your concepts.

LOUNGE

At the LOUNGE, you can relax and clear your mind. Be it on one of the couches, or by playing ping-pong. Everyone is always welcome to take a break here.

CLASSROOM OF THE

FUTURE [Capacity: 120]

The Classroom of the Future is not your typical classroom. With all kinds of digital tools and a remarkable, uneven setup, it's particularly suitable for encouraging active learning and interaction between students and teachers.

INFORM [Capacity: 60]

INFORM is a separate room which is best suited for creative lectures and presentation sessions, that need a flexible set-up. It's the perfect place to educate each other and share ideas with a mid-sized group.

TEST

An office space for DreamTeam and University Innovation Fellows working at DesignLab.

PHILOSOPHYLAB

This is the place you'll probably find Philosophy of Technology researchers, talking about... well, the philosophical side of technology.

ROBOLAB

A place where robots are conceived, made and tested.

PLAYGROUND

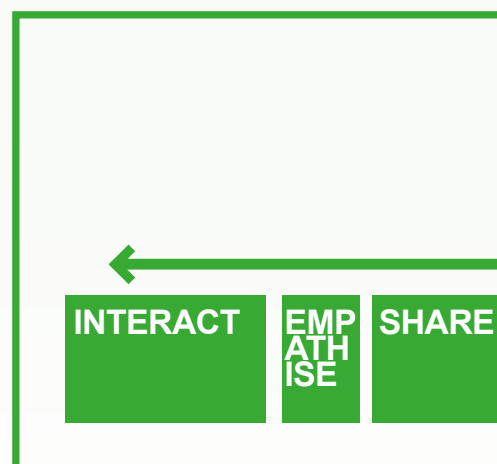
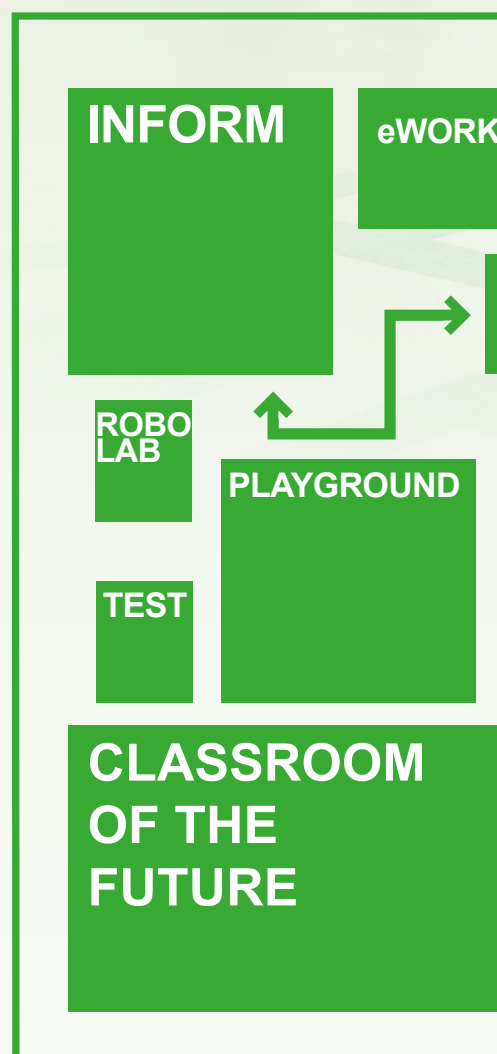
A bit of a darker – but playful – space with a black floor and sensors and beamers attached to the ceiling. Here you can test how technology can change human behavior.

EXHIBIT

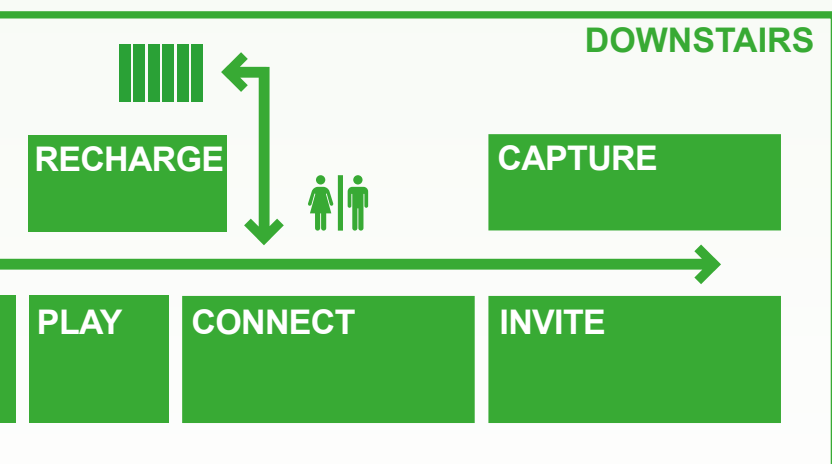
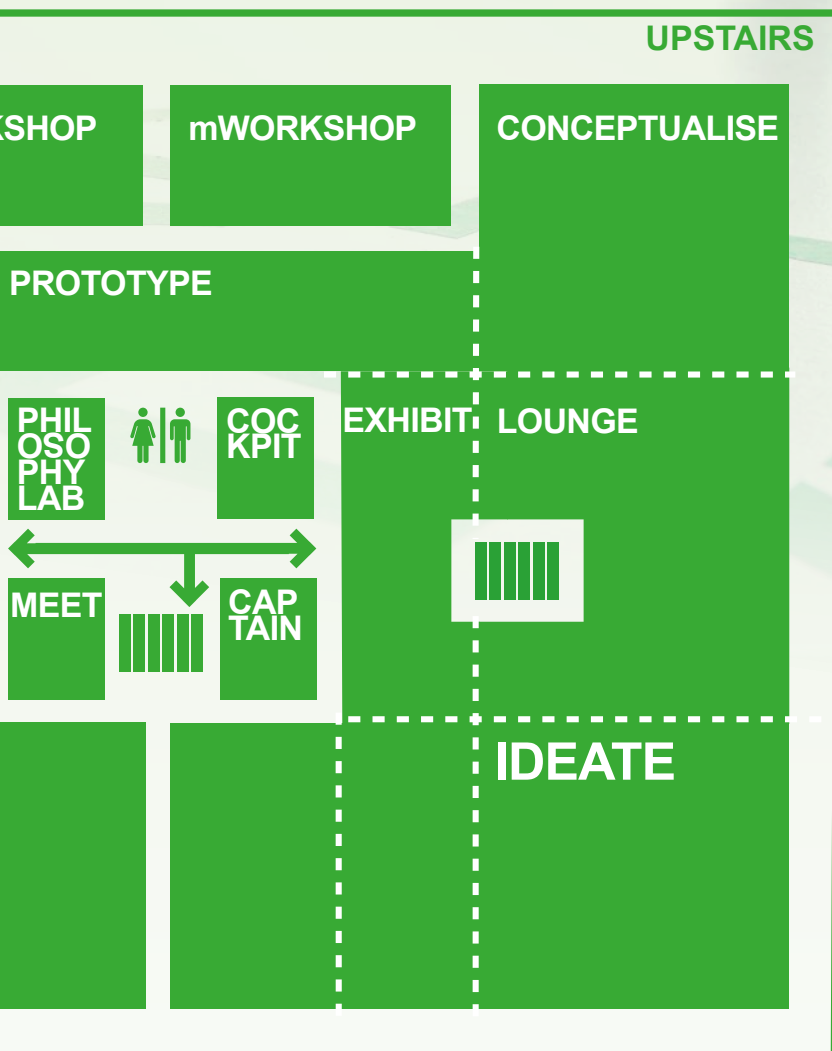
In EXHIBIT, products, prototypes, models and other accessories are displayed. Students from all study programmes at the University of Twente show their work here.

Text: Rense Kuipers

Photo: Jorik Ordemans



DOWNSTAIRS



INVITE

INVITE is the space where DesignLab properly receives speakers, CEOs, professors, and others to talk about collaboration. A large table, a nice coffee machine and a large whiteboard wall can be found here.

CAPTURE

Smile! CAPTURE is a photo studio, complete with a green screen, multiple flash lights and a prototype photography table.

CONNECT [Capacity: 20]

This room is meant for groups, to enjoy some privacy and focus on their project. The room has whiteboards on two walls, giving a plenty of space for writing down ideas. With tables that were designed and made by the DreamTeam that want to show how quickly collaboration can be formed and transformed.

PLAY [Capacity: 10]

This space has been designed to play with the Science2Design4Society method with a design and construction by (again) our very own DreamTeam!

RECHARGE

There's also a small kitchen where people can 'recharge': grab a drink from the machine, have some lunch or play air hockey.

EMPATHISE

This room is used in combination with INTERACT. From this room, researchers can observe research participants in the INTERACT room through a semi-permeable mirror. The mirror only works when one room is dark and the other one is lit.

INTERACT

INTERACT is used in combination with EMPATHISE. INTERACT is equipped with all sorts of technologies in order to do (behavioral) research.



PARTIES REACH NEW INSIGHTS ABOUT ROAD SAFETY

Text:
Rense Kuipers
Photo:
Shutterstock

DESIGNLAB BRIDGES THE GAP

Minimizing the number of fatalities and injuries in traffic is not just a key concern for the police and the Public Prosecution Service (OM); countless other parties are involved as well. Jeroen van Leeuwen, head of Policy and Strategy at Parket CVOM, believes that DesignLab managed to bring all these parties together and help them reach new insights.

Since the number of (fatal) casualties in traffic has been increasing again since 2015, Van Leeuwen and his colleagues of the Parket Centrale Verwerking (CVOM) have been trying to end this trend in whatever way they can. 'Road safety is about more than just upholding the law,' Van Leeuwen states. 'We are collaborating with such partners as municipal governments, manufacturers and organisations developing new and safer technologies.'

Working together

Van Leeuwen knows that it can be quite a challenge to get all these different people – public officials, technicians, scientists, policy makers – working together as one. He therefore called in the help of DesignLab. 'DesignLab managed to bring everyone together in a clarifying, fun and creative manner,' Van Leeuwen says. 'The lab bridged the gap between all these different parties.'

Eventually, all these parties spent a day in DesignLab. Van Leeuwen says that people were immediately pulled out of their comfort zone. 'DesignLab managed to put people in a

different state of mind. With their approach and by asking the right questions, they got people to shift their focus to other matters.'

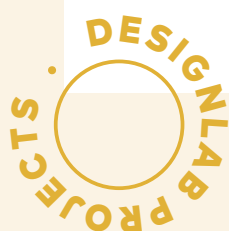
Bike safety

An example? 'We normally focus mostly on motor vehicles,' Van Leeuwen explains. 'DesignLab brought up bike safety, however, partly because of the rising popularity of speed bikes that can reach ever-higher speeds. It might sound trivial, but approaching the theme from a new angle really helped to open our eyes. It was not long before we managed to come up with fresh ideas.'

Second session

Would he recommend a collaboration with DesignLab to other external parties? 'Absolutely,' Van Leeuwen says convinced. 'I believe their methods are especially effective in groups.'

He is continuing the collaboration himself as well. 'Indeed, the second session will take place soon.' ●



Makers Nights

'Explore other disciplines or techniques'

The University of Twente prides itself on being one of the most entrepreneurial universities in the Netherlands. 'However, what the university lacks is a space where people can develop their idea from beginning to end,' claims Jorik Ordemans (23), member of the DreamTeam. 'We have the facilities, what needs to be done now is opening up these facilities to students and staff to accelerate their potential for innovation and experimentation.' Makers Nights gives students an opportunity to

work on personal or entrepreneurial projects. 'I found that I learn more in projects that have captured my interest, and as a result I am more willing to explore other disciplines or techniques that I am unfamiliar with. We believe that being able to utilize the DesignLab's eWorkshop and mWorkshop in the evenings will encourage people to interact more in the workshops and ideation areas – in hopes that this will lead to collaboration and out-of-the-box thinking.'





Text: Marianne de Beer
Photo: Jellien Tigelaar

DesignLab has a number of fellowships with influential researchers and teachers. Although their disciplines vary, their research and the subjects they teach are all connected to the vision of DesignLab in some way. Thomas van Rompay, Geke Ludden and Dennis Reidsma tell us what role DesignLab plays in their research and why they became a fellow.

DESIGNLAB FELLOWS

Thomas van Rompay has a background in cognitive psychology. 'After pursuing my PhD on product experience at Delft Technical University, I came to the UT to do research and to teach marketing communication. After that I worked at the department of Industrial Design and currently I am back at the faculty of Behavioral, Management and Social Sciences.'

DesignLab plays a substantial role in his research, says Van Rompay. 'The lab is very different from the confined office that I often work in. DesignLab is a place where an idea can immediately be developed into something real, because of the many facilities and different kinds of people that it offers. It is a flexible and dynamic place. Being a fellow at DesignLab allows me to have a say in what the lab offers to UT students and employees and to come into contact with the students that work there.'

'I work at the Faculty of Engineering Technology, in the chair of Interaction Design,' says **Geke Ludden**. 'My research revolves around the interaction between people and products. I focus on how products and services can support healthy behaviour or otherwise contribute to people's wellbeing.'

Ludden has been involved in DesignLab since it started. 'It's very applicable to the research I do. I am currently teaching the Master's subject Multisensory Design at DesignLab, which is a design project for students from different disciplines.'

Ludden is excited about a project called Textile Reflexes. 'Which I am working on with fashion and textile designer Hellen van Rees and computer scientist Angelika Mader.

We are developing a robotic textile that can support and coach the wearer. DesignLab is a great place to develop a project like this, because it really connects people from different disciplines and allows them to work together.'

'Being a fellow allows me to have a say in what the lab offers'

'I am currently conducting research in expressive technology, which includes robots and interactive playgrounds like the ones that you can find in DesignLab,' says **Dennis Reidsma**. 'It is all about combining a visually pleasing technology with play, learning or healthcare. An example of this is a robot that aids children in learning new things in the classroom or a playground that elicits behavioural change in children.'

Reidsma continues: 'I was very involved in the development of DesignLab, as my research was helpful in determining what facilities were required in the lab and how these could appeal to the target group. The open attitude of innovation, sharing and impact of users also really suits the subjects that I teach in Intelligent Interaction Design, which is why I have always had a very close connection with DesignLab and why I became a fellow.' ●

(advertorial)

DESIGNLAB:

Catalysing Innovation

Stuck in worn-out models of thinking? In need of new ideas? Looking for talented individuals to disrupt your practice – before others will do it for you?

Are you ready for a breath of fresh air?

DesignLab offers versatile services to enhance the innovation potential of businesses, governments and non-profits alike. It engages students and staff from the University of Twente to work on the challenges that matter to you the most, help you to imagine the future today, and act in the present to bring it about.

Our offer:

• **Design Thinking Workshops**

Our design thinking methods stimulate and guide creativity in multidisciplinary groups working on complex challenges – surprising outcomes guaranteed.

• **Rapid Prototyping**

Highly motivated students with complementary skill-sets materialize innovative ideas into working prototypes – ready for take-off.

• **Pizza Sessions**

Over pizza and beer, talented young minds come up with out-of-the-box perspectives on multi-layered challenges – what you see is what you get.

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Wicked problems are solved by bringing together researchers from widely diverse academic fields – high tech, human touch.

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Our welcoming environment and stimulating moderation enhance the outcomes and the impact of any event – creativity you feel.

Curious?    

Contact us via designlab@utwente.nl
or +31 (0)53 489 2079

Topics we love to work on: smart cities & regions; sustainable development & resilience; smart materials & textiles; the future of work and education; personalised care; the morality of technologies.



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