

UNIVERSITY OF TWENTE.



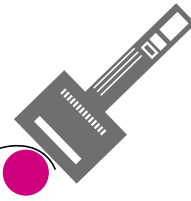
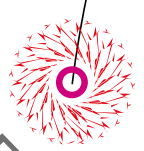
REAL-LIFE LABORATORY
Enschede as a technological testing ground

MAX PLANCK CENTER
Turbulent research

UT ENTREPRENEURIAL CHALLENGE
Taking your golden idea to the coach

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Photographer: Gijs van Ouwerkerk



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ECONOMIC GROWTH

The Netherlands are doing great. This year, The Dutch Central Bank predicts an economic growth that has not been seen for a decade. It is tempting to turn on cruise control, count our blessings, sit back and relax. Nevertheless, I am convinced that this is the perfect time to redouble our efforts. It is true that the growth figures are excellent. However, these are partly the result of investments made in the past and partly originate from the service and trade sectors. When we consider our country's position in terms of technology and innovation, we are at risk of losing ground to other nations. While developments in the world of digitisation proceed at such a rate that we cannot afford to fall behind, the chance that our next cabinet will allocate significant funds to technology and innovation is a small one. That would be a missed opportunity. The rate of technological progress is increasing and touches on all

levels of our society, all the way to individual employees who see their jobs disappear or change forever as a result of developments in robotics and artificial intelligence. It also affects universities in terms of their education and research. These developments are not gradual affairs; instead, they are disruptive and occur at an exponential rate.

Our students understand the importance of staying ahead. During the "Entrepreneurial Challenge," which the UT recently hosted, dozens of teams worked on developing their entrepreneurial ideas. Our entire society can stand to learn from their approach and attitude. That is also why the four technical universities, together with many other stakeholders, have lobbied for a Technology Agreement to be made part of the new coalition agreement, so we can maintain and further develop our country's excellent position in the long run. ●



"NOW IS THE PERFECT TIME
TO REDOUBLE OUR EFFORTS"



VICTOR VAN DER CHIJS, LL.M.,
(1960) CHAIRMAN OF THE UNIVERSITY
OF TWENTE EXECUTIVE BOARD SINCE
OCTOBER 2013.

CITY DEAL TURNS ENSCHEDE INTO A TECHNOLOGICAL TESTING GROUND AND LEARNING ENVIRONMENT

The University of Twente wants to use Enschede as a real-life laboratory. Students and university researchers work together with the municipal government to tackle major social issues. "This alliance is crucial for our city in order to attract new talent," says Onno van Veldhuizen, the mayor of Enschede. BY Marc Laan PHOTOGRAPHY Archief UT

ENSCHEDE AS A TECHNOLOGICAL

Enschede wants to become a breeding ground for new social ideas. In February, the University of Twente, Saxion University of Applied Sciences and the municipal government of Enschede closed their so-called City Deal, titled "Creating knowledge."

In twelve cities, knowledge institutes make their knowledge available to the municipal government via a City Deal. In Enschede, this involves such areas of expertise as healthcare, poverty, employment, the city's digitisation and the introduction of sustainable energy.

The UT and the municipal government have been working together for a while on a project that is intended to use IT technology to make citizens' lives easier, for example when it comes to traffic flow and public transport. This new City Deal expands the

alliance to include more issues that affect Enschede's inhabitants.

Clever bike app

There are plenty of opportunities to develop technology that serves the people. Enschede already has a clever bike app, for example, which stimulates people to leave their cars at home. The city has also developed an app that puts unemployed people into contact with employers, without the involvement of the UWV. Another project uses advanced radio technology, such as the Internet of Things (IoT), to read sensors that measure the quality of the city's water and the strength of its bridges.

Victor van der Chijs, Chair of the UT's Executive Board, has high expectations for the technological testing ground. "This City Deal can

speed up the process of resolving social issues that affect the city and the region. We do this by involving researchers, lecturers and students in this initiative at a large scale."

Van der Chijs is convinced the City Deal presents major opportunities for students. "The city offers them a learning environment in which we unite education, research and practice. The goal is to have students formulate research questions together with researchers, businesses, the government, social organisations and civil initiatives. Next, they research the city's various issues and evaluate the effectiveness of the solutions."

A chance to stand out

On the other hand, Onno van Veldhuizen (D66), the mayor of Enschede, expects that the municipality also

“City Deal can speed up the process of resolving social issues that affect the city and the region” - Victor van der Chijs

TESTING GROUND



A MESS OF CABLES

A *living smart* campus is one thing. Translating this smart university technology into a smart city in Enschede is an entirely different matter. A smart city requires a smart infrastructure – above and below ground. UT professor André Dorée (Civil Engineering) likes to voice a practical objection whenever there is talk of a “smart city.”

“At the UT, we have carefully and extensively mapped out the positions of cables and pipelines. In the city, however, it is hardly possible to know where these cables and pipes are and at what depth they are located. As a result of privatisation, a city’s subterranean infrastructure is no longer in the hands of any single party.

“We can talk about smart cities as much as we want, but we are struggling to maintain our existing infrastructure as it is. Below ground, some parts can be seventy years old, if not more.”

The professor knows from experience that underground modernisation can lead to excessive costs in practice. A lack of information and miscommunication can quickly result in a billion euros in excavation damage, he warns.

Dorée therefore wants to map out the subterranean mess of cables and pipes in 3D, starting with the campus and then moving on to the city itself. “It is comparable to non-invasive surgery. This method allows us to minimise the damage.”

WIFI-TRACKING

How do the people of Enschede use their city? Where do they walk, where do they ride their bikes, how do they use their cars? There is not enough information available on these topics. The municipality needs a system that can measure the flow of people in order to make more efficient use of public spaces. Enschede therefore plans to work together with the UT to look for ways to track people's movements within the city using Wi-Fi technology that does not compromise anyone's privacy. Wi-Fi tracking involves the tracking of mobile phones on the street. Many people do not know that whenever someone has their Wi-Fi turned on, their on-foot behaviour can easily be tracked using simple techniques. Shops already use this technology to determine how long someone browses the shelves. The UT has been testing Wi-Fi tracking on its campus with the help of technology developed by Blue Mark Innovations, a UT spin-off. If, for example, a lecture theatre is only

half filled, it would be more energy efficient to relocate the lecture to a smaller room.

Maarten van Steen of the CTIT research institute warns that, although tracking flows of people provides useful knowledge, it also leads to privacy concerns. "Facial-recognition technology that can be used on the street is already available. It can do a lot more than people suspect. That is worrisome, because the rate of technological development exceeds the rate of the public's growing understanding of these developments. Ultimately, that can undermine our democracy." "The only way to avoid these issues is with people-oriented info-tech. 'People-oriented' means that we look for solutions that offer the assurance that personal information will not be misused.

That not only requires technological solutions pertaining to e.g. security, but also social solutions such as regulations and oversight. The data analyst of the future may be required to swear an oath just like a doctor."



Burgemeester Van Veldhuizen



Maarten van Steen



Victor van der Chijs

stands to benefit from this alliance: "The University is vitally important to the city and the region – which explicitly includes the area across the German border. We live in one of the world's most competitive regions and we should be happy with that. It keeps us on our toes, but maintaining that competitive position also requires political focus."

Van Veldhuizen sees opportunities for his city to stand out in the struggle with other cities to attract new talent. "I believe in the creativity of innovative research, for example in the fields of nanotechnology and robotics. Just look at all the start-up companies that come out of the University. Add those together and you end up with a major advantage over other cities that do not have a university community in their midst."

Maarten van Steen, scientific director of the CTIT research institute, believes that the university can take the driver's seat as a pioneer in the implementation of "people-oriented information technology" in the city. "In a smart city, everything depends on whether a new technology can be designed in such a way that citizens adopt it in a natural manner. Adoption should be one of the first design criteria whenever one is developing a new technology. Only then can IT be used to cleverly improve the city's quality of life, mobility and energy consumption."

Van Steen sees one social issue that is not easily resolved: "The question is whether everyone can keep up with all these new technological developments. There is a growing gap between digitally savvy citizens and

those who fall behind. This gap is difficult to close. Unfortunately, the people who lack these digital skills tend to trivialise the issue and blame the technologists. The gap is partially created by people who long for the old days, yet who appear unwilling to make any effort on their part to help close said gap."

Mayor Van Veldhuizen prefers to look at this issue in a different light: "It is in the producers' best interest for them to make their products and services as user-friendly as possible. Simple market rules apply. If the consumer understands the possibilities and the producer gets the consumer, usability will be a major factor during product development. However, there will always be a gap between those with the requisite digital skillset and those without."



IOT SENSORS IN HIGH DEMAND

The number of smart devices needed for the development of smart cities is expected to grow with a factor of six over the course of the next decade. By 2026, 1.4 billion sensors, cameras and radios that can measure and transmit data will be sold. The American market researcher IHS Markit expects that circa 202 million of such devices will be sold this year alone.

There are other obstacles when it comes to introducing technology to citizens. Think of, for example, privacy and the people's faith in the new technology. Van Steen: "In order to make proper use of digital systems in e.g. the healthcare and legal sectors or even in your GPS device, it is vitally important that the system can be trusted and that you can be sure that your personal information is not used outside the context within which it was originally collected."

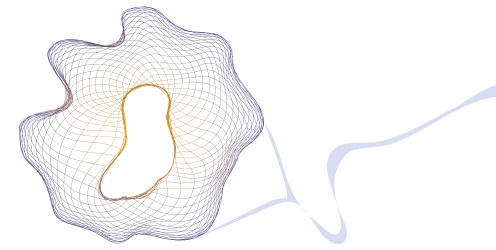
It is increasingly common for municipalities to store information about their citizens in databanks. Next, the smart cities connect these databanks to each other. Data analysts are among those who wonder whether anonymization is still possible in this situation. Van Steen is

sceptical: "The enthusiasm about linking data could stand to be taken down a notch or two, especially when people wonder what they might do with all that information. On the other hand, linking data and

"UT is in the driver's seat when it comes to implementing "people-oriented information technology" in the city" - Maarten van Steen

properly analysing the available information has proven helpful in identifying groups in the city who are, for example, at risk of falling below the poverty line." This kind of analysis should soon become a reality, as a result of the recently signed City Deal.

IN BRIEF



EXCESSIVE READINGS

Electronic energy meters can indicate a usage that is up to 582 percent too high, as demonstrated in research conducted by UT professor Frank Leferink. For this study, the meters were connected to devices such as energy-saving bulbs, heaters, LED bulbs and dimmer switches. Five of the nine meters that

were tested presented readings that were (far) too high. Leferink expects that the majority of the 850,000 households which have such a meter will not experience any problems in practice. However, the very fact that certified meters can present excessive readings is something Leferink calls "very worrisome."



ONLINE THERAPY

Chronic fatigue is a common symptom that affects between 20 and 40 percent of patients who have received cancer treatments. Using a new online intervention, physical therapists managed to achieve a significant clinical reduction of the fatigue symptoms in 66 percent of these patients, who were all fitted with an exercise monitor and a smartphone. These are the results of Marije Wolvers' doctoral research. Furthermore, 21 percent of the participants in the study achieved a full recovery.



STUDENT INVESTMENT

The first investment of the Dutch Student Investment Fund (DSIF), worth €50,000, will go to Grasp. This organisation has developed a promising technology for the analysis of large quantities of data on websites. The company also advises other parties on how best to get their message across. The new technology is the result of the doctoral research conducted by Frans van der Sluis, founder of the business. DSIF is the first fund in Europe to be managed entirely by students. It invests at an early stage in start-ups from (former) UT students and doctoral candidates.

PHOTON

Ask a scientist how much information can be sent with a single photon, a light particle, and most will say the answer is one bit (a 0 or a 1). Theoretically, however, there is no limit to the amount of information that can be sent with a single photon, although there are many practical limitations. Researchers from the UT have managed to send 10.5 bits of information with a single photon using an innovative method. To do so, they used an ingenious way of detecting individual photons. The knowledge acquired with this research can be used to improve the security and speed of quantum communication.



ROBOTIC CHEETAH

UT PhD candidate Geert Folkertsma has developed a robotic cheetah. The idea behind his work is that thorough knowledge of the way a cheetah moves can help with the development of robots that move around much more efficiently. Compared to a

real cheetah, Folkertsma's robot uses only fifteen percent more energy to get around. The knowledge acquired during this project can be applied for the development of e.g. advanced prosthetics or robots that assist in physical rehabilitation.



FIVE TOP-QUALITY MASTERS

Five of the University of Twente's master's programmes were given the title of Top-Quality Programme in the Master's Programme Guide 2017; two more than the year before. The programmes in question are the Applied Physics, Chemical Engineering, Geo-information Science and Earth Observation, Sustainable Energy Technology and Technical Medicine master's programmes. Rector

magnificus Thom Palstra is proud of the fact that 12 of the UT's 27 master's programmes achieve the highest scores in their respective categories and that most programmes earn higher marks than the year before. "This demonstrates that we offer high-quality programmes across the board. It is a validation of the way in which we strive towards the continuous improvement of our education."



More information about these items can be found at: www.utwente.nl/en

UT ENTREPRENEURIAL CHALLENGE

Having a golden idea is one thing, being able to develop and present it properly requires entirely different qualities. During the University of Twente's Entrepreneurial Challenge on 2 May, both aspects were equally important. In the DesignLab, the teams presented their plans to the partners, which included several major businesses. BY **Frederike Krommendijk** PHOTOGRAPHY **Arjan Reef**

TAKING YOUR GOLDEN



There you are, with a golden idea and all the goodwill you can muster, opposite people who have already made it big in the business world and in society. Although this can be quite stressful, the teams deal with it well. After all, this is a valuable experience and your plan might just stand out enough to lead to wonderful things in the future. The coaches themselves are also eager: the UT is home to innovators they would love to work together with.

“We look for people who show initiative and there is plenty of that going around here”

- business developer **Demcon**

Marketing specialist Anne Elderink and recruiter Cecile ten Bokum of the construction company Koopmans are just two examples. “Here, we can meet talented students with innovative ideas. The construction process involves more and more technology and digitisation. To implement these innovations, our col-

laboration with the UT is very important.”

Puck ten Cate, product manager Development at ASML, also sees it as a reciprocal process. “We contribute to the potential of the students and, in turn, we can show the truly motivated people with the right drive just how versatile working at ASML can be.”

Convoy philosophy

First to join her are Berry Gerrits (PhD Industrial Engineering and Management) and Robert Andringa (Master Industrial Engineering and Management). These men give an inspired pitch about Drive 2 get there, an app they want to develop to bring together different traffic flows. Their convoy philosophy, which saves fuel and leads to greater efficiency, is received well. “It went fine. We were not really nervous. We are very excited about our idea and convinced of its potential,” Berry says with confidence. Daan van Ramshorst (creative tech-

nology) is struggling a bit more during his meeting with EY (Ernst & Young). He wants to conquer the world with his Map of Humanity, starting with the UT itself. His dream is to present the history of the world in a visual manner on a digital platform. “History is mainly composed of a lot of text. However, there is a wealth of visual material available, from museums and antiquities rooms to municipal archives and collections of private photographs. My plan is basically to present all available visual material in an accessible manner, like a kind of Wikipedia.”

Daan does not have a commercial product that can make the business world greedy. Nevertheless, the advice given to him by the coaches from EY and Thales is valuable. “You get a new perspective. I have been working on this project full-time since September and you can eventually start to develop a kind of tunnel vision. Having to explain

IDEA TO THE COACH



WINNERS OF THE UT CHALLENGE

The student companies Aryzon and Hops & Grains have won the UT Challenge, which took place during the Entrepreneurial Day on Tuesday 13 June.

The *Ideation* category was won by Hops & Grains, founded by TBK students Émile Heijs and Yorick Bosch. The company offers a personalised way to brew speciality beer. Customers can choose from hundreds of ingredients and closely monitor the brewing process. The students received a sum of €4,000.

Aryzon (see article on this magazine's final page) was the winner in the *Prototyping* category. The company pitched the eponymous augmented-reality goggles to the audiences and the judges and received a sum of €6,000.

Based on their pitch during the semi-finals, Hops & Grains also won the Audience Award worth €2,000. ASML and TMC Group, both partners of the UT Challenge, also handed out awards. Reinout Veldhuizen (HMI) received €2,500 and three months' worth of support from ASML for his work on developing a drill that can make several holes at once.

Roberto Cruz received help from the TMC Group with his "Goal-Setting Support System." The health psychology and technology student designed an online platform that allows users to easily set and achieve goals.

your idea in a single minute forces you to focus and clarify your intentions."

When it comes to financing, he is definitely going to try to win some of the money that will be distributed during the finale on 13 June: €4,000 in the ideation category and €6,000 for prototyping. ASML will present the ASML Makers Award (€2,500 + 100 hours of support) and there is an audience award worth €2,000. "I am going for the grand prize and the audience award," Daan laughs. Business developer Timo Roestenberg of Demcon definitely sees the potential of the enthusiastic young students. "We are always looking for good people. We hire fifty new team members every year. We look for people who show initiative and there is plenty of that going around here."

Director Atilla Kerpisci of marketing and communication (one of the instigators) is excited about how things are going. "There are fifty

genuinely good teams and coaches from renowned businesses and organisations. The students are put to the test, which makes them take a critical look at their own ideas. Ultimately, this benefits the development of their ideas. Entrepreneurs see that this is where it all happens, which is great for the UT's image." Furthermore, an afternoon like this, full of pitches and sharing knowledge, also requires a different skillset. "We often talk about hard and soft skills. When you are presenting your plans, you definitely need those soft skills."

One might demonstrate their skills wearing a bespoke suit, while another chooses sweatpants. One cannot help blushing, while another appears cool as ice. One thing everyone has in common is their drive and determination to turn their golden idea into a successful business venture. "Drive and motivation are nearly as important as the idea itself," says Roestenberg from Demcon.



More information:
www.utchallenge.nl/info



NETWORKING UNDERNEATH THE APPLE TREE

Networks are often born on paper, at the coffee machine or in meeting rooms. The Marina van Damme Network, however, is nothing like that. Its conception occurred underneath the apple tree in the eponymous creator's garden. A select group of women are now reaping the rewards. BY Lidewey van Noord PHOTOGRAPHY Klaudie Bartelink

In 1965, Marina van Damme (87) was the first PhD candidate of the Twente Technical University of Applied Sciences, as it was then called. Next, she embarked on an impressive career in the worlds of science and business. Because she wants other women to have a similar career path, she has been awarding the Marina van Damme scholarship – a sum of €9,000 – since 2003.

Sonia Heemstra de Groot was the first winner. "Back then, it was an

award for an entrepreneurial woman studying at the UT," she relates. "It was directed exclusively at women, because the only other award, the Van den Kroonenberg Award, was always given to men. I was very honoured to win. The appreciation and support that came with it really motivated me."

With this scholarship, Van Damme wants to give ambitious and talented alumni the opportunity to take an extra step outside the university

MARINA VAN DAMME'S CAREER

Marina van Damme became the director of chemical strategy at Akzo in 1977. She advised the board of directors on strategic and operational plans and on investment projects and acquisitions. She was also a member of the supervisory boards at TNO and ABN AMRO. She was an active member of the employers' organisation VNO and a member of several study groups working on technology policies in Brussels and at the Ministry of Economic Affairs.

"The appreciation and support that came with it really motivated me"

- Sonia Heemstra de Groot,
first winner Marina van Damme Scholarship

itself. She believes that going the extra mile or gaining international experience can improve someone's chances of having an interesting career. These days, the scholarship is also awarded every year to an alumna from the University of Delft and Wageningen will join the club in 2018.

"For me, winning this scholarship provided the boost I needed," says Susan Roelofs, 2013's winner. "My entrepreneurial ambition was pushed to the background when I was working on my doctoral degree. When I wrote my application, I announced my ambitions. That is the only way to actually realise them. The scholarship had a snowball effect on my life."

Underneath the apple tree

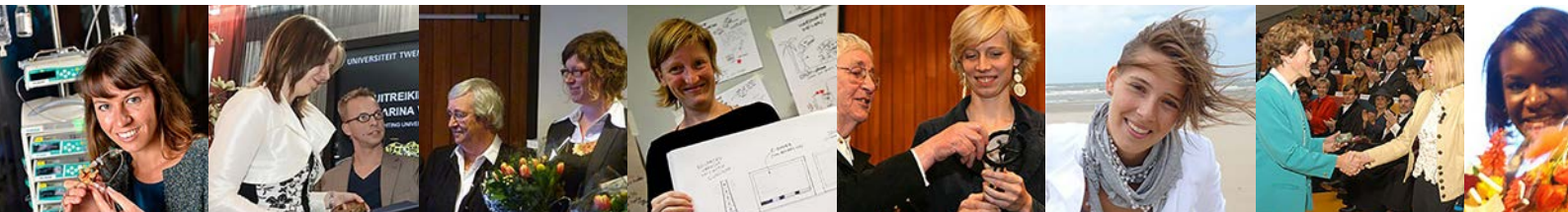
The eponymous benefactor of the scholarship invites all winners to her home once a year, in the garden of her idyllic farm in Vorden. "The first time, I took some pictures and sent them around with the title 'Underneath the apple tree.' That name

started a network for the continuation of the scholarship in Mrs Van Damme's memory. This allows us to support her now and guarantee that the scholarship will still be around after her passing." The winners – over thirty in total – formed the Marina van Damme Network in June 2015. Van de Kamp was its first president. She believes they form a remarkable group of women together. "Women with the nerve to speak their minds and take bold new steps. We can share a lot with each other: about the programmes we were able to follow because of this scholarship, about how much risk you dare to take in your career, about how to deal with negotiations and conflict, but also about the balance between our work and our private lives. Whether you are active in the medical sector or in the world of culture, we all encounter the same issues."

Heemstra de Groot: "The first winners now have another decade of professional experience. We can offer these other women advice."

Winners of the Marina van Damme scholarship

- Mrs M. Shoko, MSc (2017)
- Mrs B. Ataoglu, MSc (2016)
- Mrs D.A. Nguyet, MSc (2015)
- Mrs B. Riphagen, MSc (2014)
- Mrs S.H. Roelofs, MSc (2013)
- Mrs A.S.S. Meel-van den Abeelen, MSc (2012)
- Mrs K.M.C. Bartelink, MSc (2011)
- Mrs W.M. Borneman, MSc (2010)
- Mrs C. D. Wezeman, MSc (2009)
- Mrs H. bij de Vaate, MSc (2008)
- Mrs N. Haye, MSc (2007)
- Mrs I.N. van de Kamp, MSc (2006)
- Mrs T Stobbelaar-van der Laan, MSc (2005)
- Mrs I. Breymann, PhD (2004)
- Mrs S.M. Heemstra De Groot, PhD MSc (2003)



stuck around," Heemstra de Groot says. "On the day itself, Mrs Van Damme will have prepared a list of topics she wishes to discuss. It is clear that she held management positions in her day and that she is used to keeping people moving in a very effective manner."

Several years ago, Van Damme announced that she would like to continue this scholarship for a long time, even after her own passing. Iris van de Kamp (the winner in 2006): "We

Roelofs says that she is working on a start-up and that the network is a source of inspiration for her. "It is very easy to contact someone from the network." The members are sparring partners to each other, which is also true to Mrs Van Damme's spirit, says Van de Kamp. "She always asks us critical questions about our work and she is highly intelligent and sharp-minded. She always looks to the future and immediately saw the potential of this network."



For more information, visit www.marinavandammenetwerk.nl



In the new Max Planck Centre, the UT shares research facilities with two Max Planck Institutes at the highest level – literally, as one lab is located on the mountain Zugspitze. The editors visited the campus in the medieval town of Göttingen, where Max Planck once lived himself. BY Wiebe van der Veen PHOTOGRAPHY Jan Vetter

“OUR LABORATORIES COMPLEMENT EACH OTHER VERY WELL”

TURBULENT RESEARCH

The wind tunnel in the laboratory of professor Eberhard Bodenschatz at the Max Planck Campus in Göttingen is bright red, six metres tall and eighteen metres long. It is not the type of wind tunnel used to research the aerodynamic properties of an airplane, cyclist or ice skater. In fact, the tunnel is hermetically sealed and does not even have any windows. The red tube is filled with a gas, sulphur hexafluoride, and placed under fifteen bars of pressure. Inside, the conditions are extremely turbulent with, to use some terminology from the world of physics, exceedingly high Reynolds numbers. Bodenschatz is the director of the Max Planck Institut für Dynamik und Selbstorganisation in Göttingen. This medieval town, once home to Max Planck himself, is steeped in science. Throughout history, it has been the home base for more than forty Nobel Prize winners. The Max Planck Campus - Göttingen is home to five Max Planck Institutes – is located slightly above the old town centre. In this high-tech environment, one can also find the lab with the red wind tunnel. The tunnel's predecessor, which dates back to circa 1930, is still located next to it, as Bodenschatz proudly shows.

Turbulence is one of his institute's primary areas of research: one of those physical phenomena that has major consequences and still leads to many unanswered research questions. The University of Twente also

has extensive knowledge and some unique facilities to contribute to this research, in the group of professor Detlef Lohse. One example is the proprietary “Taylor-Couette”-setup with its rotating cylinders. It can be used to generate turbulence in liquids, similar to what occurs along the hulls of ships.

Complementary

“Detlef Lohse is one of the world's leading researchers in this field. He was already connected to our institute as an external scientist,” says Bodenschatz. “Our laboratories complement each other very well. This was reason enough for us to combine our strengths and draw up a proposal for a Max Planck Centre.”

The joint research centre not only studies such large-scale phenomena as turbulence. It also considers the behaviour of a single nanodrop. That is why the group led by professor Albert van den Berg is also part of the Centre: his BIOS Lab-on-a-Chip group knows all about fluids at the micro- and nano-scale, for example in the channels found in a laboratory on a chip. That, in turn, ties in with the Max Planck Institut für Polymerforschung in Mainz, the fourth partner of the new Max Planck Centre. Bodenschatz: “With its MESA+ Nano-Lab, Twente has unprecedented facilities to create small structures for the manipulation of fluids.”



“What I appreciate most about the Max Planck Institutes is the freedom they offer to conduct fundamental research”

professor Eberhard Bodenschatz

COOPERATION

The new Max Planck – University of Twente Centre for Complex Fluid Dynamics is a cooperation between two Max Planck Institutes and two UT departments: the Max Planck Institut für Dynamik und Selbstorganisation in Göttingen and the Max Planck Institut für Polymerforschung in Mainz and, on behalf of the UT, Detlef Lohse’s Physics of Fluids group and Albert van den Berg’s BIOS Lab-on-a-Chip group. For the next five years, a sum of circa ten million euros is available, which will mainly be used to attract talented researchers from all over the world. In total, there are only sixteen Max Planck Centres in the entire world. The Max Planck Gesellschaft is the foremost organisation for fundamental research in Germany, with more than eighty institutes all over the country. In order to protect its knowledge and translate this into practical applications, an organisation was founded: Max Planck Innovation.

Imagination

The centre will mainly be investing in human capital. Stefan Karpitschka is the first researcher to set up his own research group. For now, “group” is not really the right word: it consists of just him and a yet-to-be-appointed postdoc. Karpitschka himself was a postdoc in Lohse’s group and worked in Stanford, among other places. He chose Göttingen as his new base of operations because of his family and because he wants to take a *Habilitation* in Germany, a second scientific doctoral degree focused on education, on his way to professorship. “What I appreciate most about the Max Planck Institutes is the freedom they offer to conduct fundamental research, driven by curiosity and imagination. That is also reflected in Detlef’s group, with its powerful combination of theory and experiments.”

One thing that becomes clear during the tour around Göttingen is the reach of the research conducted here. The dynamics of fluids or particles can also be translated to e.g. traffic flows or “smart grids” in the energy sector. In Göttingen, this has already resulted in some surprising spin-offs. One example is the EcoBus: a dynamic and self-organising transportation system with which the institute plans to experiment, in cooperation with the region.

At the top

The top-most lab of Bodenschatz’s institute is located right beneath the summit of the Zugspitze, Germany’s tallest mountain. Using a laser setup, researchers look into the clouds to examine e.g. the formation of droplets and – again – turbulence. The goal is to gain a better understanding of the origins of rain showers, which can be used to make weather forecasts more reliable. Bodenschatz laughs: “Thanks to the Max Planck Centre, the UT now has a new laboratory at an elevation of nearly 3,000 metres!”



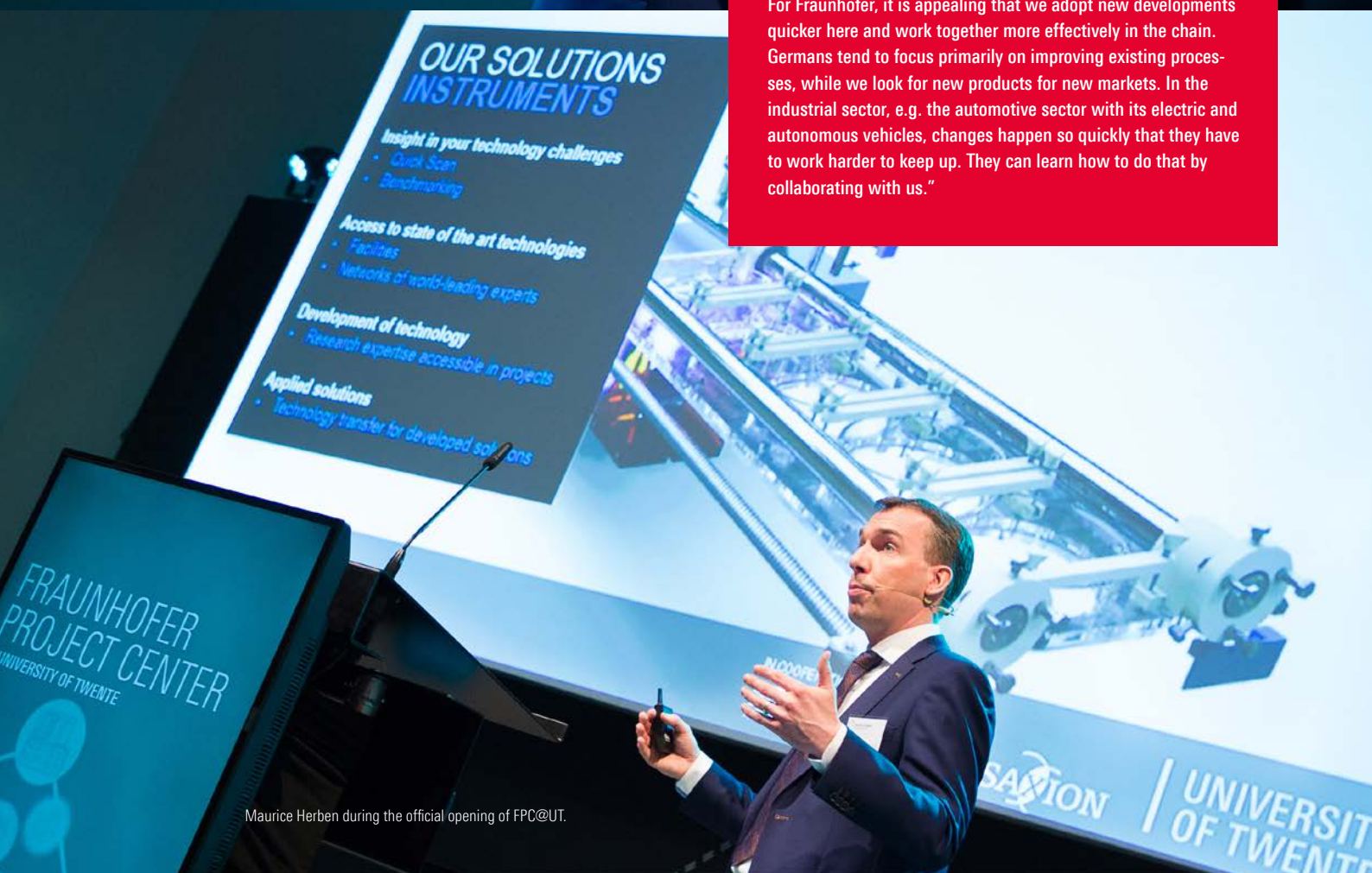
More information:
[www.utwente.nl/
maxplanck](http://www.utwente.nl/maxplanck)



FORERUNNER FRED VAN HOUTEN

"There are strong industrial ties between the Netherlands and Germany. With FPC@UT, we strengthen these ties even further and allow our businesses to benefit from Fraunhofer's knowledge of the latest production technologies. Students who do not choose to head into research or found a start-up company can apply their knowledge and get a taste of business life during short projects.

For Fraunhofer, it is appealing that we adopt new developments quicker here and work together more effectively in the chain. Germans tend to focus primarily on improving existing processes, while we look for new products for new markets. In the industrial sector, e.g. the automotive sector with its electric and autonomous vehicles, changes happen so quickly that they have to work harder to keep up. They can learn how to do that by collaborating with us."



Maurice Herben during the official opening of FPC@UT.

The renowned Fraunhofer-Institut für Produktionstechnologie (IPT) from Aachen opened a Project Centre at the UT campus earlier this year. German and Dutch researchers combine their strengths to help businesses from the (east of) the Netherlands pave their way in today's *smart industry*. BY Hans van Eerden PHOTOGRAPHY Gijs van Ouwerkerk

FRAUNHOFER LANDS AT THE UT CAMPUS

Last May, Fred van Houten could sign off as UT professor of Design Engineering with peace in his heart. What he had come up with as a thought experiment a decade earlier – bringing the Fraunhofer-Gesellschaft to the UT – had become reality this year. The official opening was held on 23 January. Van Houten: “Fraunhofer stands for socially relevant applications for scientific research, for example in the industrial sector.”

FPC@UT is an initiative of Fraunhofer IPT, UT and Saxion University of Applied Sciences. Fraunhofer already has FPCs in various other countries; the one at the UT is the first in the Netherlands. The centre contributes to the *smart industry*. In Germany, this is known as Industry 4.0. FPC@UT is intended to bring the latest insights pertaining to

production technology, digitisation and robotization to businesses.

‘Production is a challenge’

Maurice Herben is the managing director. “With our projects, we will be serving specific corporate interests. That may involve a *smart industry quickscan* that takes a few days to complete or a year-long process of setting up a pilot production line. In the Netherlands, we excel at coming up with clever products, but their actual production often proves to be quite a challenge. *Two research engineers* will be leading the projects; they will also bring in employees and students. The focus is on practical applications, that is why Saxion is also part of the initiative.”

There are five themes: predictive maintenance, laser forming, lab-on-a-chip microsystems, optomechani-

cal sensors and multi-material laser-direct micro circuit generation. Herben emphasises that the demands of businesses ultimately determine the course.

“The demands of businesses determine the course”

Prove one's self

The Project Centre will have five years to prove its viability: three years under the wing of Fraunhofer IPT and, after an interim evaluation, two more years to work towards independence. Describing the objective of Fraunhofer's debut in the Netherlands, Herben says: “We want to grow and help the Dutch industrial sector by adding knowledge of production technology to knowledge of product innovation and mechatronics.”



More information:
www.utwente.nl/fraunhofer



Daniëlle van Middendorp can look back on a successful event. She was part of the team responsible for the organization of the Concrete Canoe Race on the Twente Canal in Enschede in May. “The atmosphere was great and the teams were eager to win. Even when their canoe was sinking, they still tried their best to reach the finish line,” says the student of Water Engineering and Management. BY Esther Windt PHOTOGRAPHY Arjan Reef

GETTING THINGS DONE TOGETHER

Teams from the Netherlands, Belgium, Germany and even Poland competed for the prizes with their home-made concrete canoes. In total, twenty-six canoes, including four from the UT, participated in the races across various distances. “Unfortunately, one canoe was lost during the inspection beforehand and another one, which broke free from its mooring, sank during the night before the event,” Middendorp explains.

Precision

Building a concrete canoe requires great attention to detail. During the races, one of the home-made vessels would occasionally sink, which meant the people in it had to be pulled out of the water. “The canoe’s stability determines its speed. The

quality of the canoeing is important as well, of course.” The UT has been participating in these races for the past ten years. In that time, extensive progress has been made in the development process of these canoes. The teams have been among the best of the best for years and this year, the UT was the best university in the race.

As secretary of the organization committee of the study association Concept, Van Middendorp was mainly responsible for maintaining contact with participants. Furthermore, she took care of a wide variety of affairs together with the other committee members. “We started this organization eighteen months ago. When we set a date for the event last year, it

was important to arrange the permits and the financing in time.”

Activism

When asked about her motivation for actively taking part in this association, in addition to working on her studies, she says it is both educational and fun for her. “I also believe that, as a member, I should give back to the organization,” Van Middendorp says. “I learn a lot from this, such as dealing with different kinds of people and getting things done. I very much enjoy helping to put together these events. I also did this kind of work for the Christian Student Association Alpha. I love persuading businesses to help us out. I mean that in more than just the financial sense. It is wonderful to get things done together.”

SOCIAL SCIENCE AT A TECHNICAL UNIVERSITY

Student of communication Alexander van Deursen, student of nanoscience David Marpaung and student of philosophy Saskia Nagel recently won a VIDI scholarship. This prestigious scholarship from the Netherlands Organisation for Scientific Research is intended to give promising scientists the opportunity to develop their own innovative line of research.

It is remarkable that two of the three aforementioned students work in the Behavioural, Management and Social Sciences faculty, the UT's Social Sciences faculty. That once again underlines the profile of our institution. The UT is a place where technology is always developed in conjunction with society and where society is studied in conjunction with technology. That is how the UT differentiates itself from its sister universities in Delft and Eindhoven.

In the past, this profile made us call ourselves a "dual-core university" and a "university for technical and social sciences." These days, we prefer the phrase "high tech, human touch." Of course, it is about much more than a human touch. Technology has an enormous impact on people and our society. That is precisely what makes it so interesting to conduct research in the field of social science at a technical university.

New technology leads to new communication processes and financial systems, it affects our legal and education systems, it changes the nature of entrepreneurship and calls for new forms of policy, it raises ethical concerns and impacts our wellbeing. Every single domain of

the social sciences – from psychology and public administration to educational science and business administration – is affected and challenged by technological developments.

At the same time, social science itself has also undergone significant developments as a result of new technology. More and more, big data technology replaces questionnaires and interviews. Cameras, microphones and sensors, but also Twitter and YouTube offer new sources of empirical data. The interaction between technology and our society is an interesting topic of study in and of itself: how can we understand, evaluate and affect this interaction?

In recent years, the Behavioural, Management and Social Sciences faculty has restructured itself in order to optimally bring social science and technology together: with less focus on individual fields and more focus on the ability to properly research the relationships between people, technology and society. The two VIDI scholarships demonstrate this as well: Alexander van Deursen studies the behaviour and skills necessary in a society in which the "Internet of Things" plays an increasingly prominent role. In her "Techno Sapiens" project, Saskia Nagel conducts research into how technology can be an extension of the human mind, outside the confines of the body itself.

These are both wonderful examples of a new generation of research in the field of social science, in which technical and social science are not opposed but rather intertwined. I see a great future for our university. ●



"EVERY SINGLE DOMAIN OF THE SOCIAL SCIENCES IS AFFECTED AND CHALLENGED BY TECHNOLOGICAL DEVELOPMENTS"



PROF. P.P.C.C. (PETER-PAUL) VERBEEK, PHD (1970) IS UNIVERSITY OF TWENTE PROFESSOR OF PHILOSOPHY OF MAN AND TECHNOLOGY.

IN THE LAB

Name **Igor Makhotkin**
Age **31**
Position **postdoc**
Lab **XUV Optics Focus group**

BY **Marco Krijnsen**

PHOTOGRAPHY **Gijs van Ouwerkerk**

Modern computers are becoming ever faster and chips must offer increased performances. As a result, the production machinery for these chips must also become more and more advanced. Researcher Igor Makhotkin contributes to this development. In the lab of his XUV Optics Focus group, part of the MESA+ institute for nanotechnology, he spends many hours every week working with the PANalytical Empyrean. This machine uses X-rays to analyse ultra-thin multi-layer films. These layers, each with a thickness of circa three nanometres, are used in special mirrors that make use of Extreme UV light. XUV Optics researches these mirrors for e.g. the lithographical equipment used by technology companies such as ASML and Carl Zeiss. PANalytical, based in Almelo, is also part of the industrial consortium.

These industrial applications were the main reason for Makhotkin to move from Russia to the Netherlands in 2009. He began his time at the UT as a PhD and is now a post-doc at the XUV Optics Focus group, under the supervision of Fred Bijkerk. "Metrology largely remains hidden from the outside world, but it is undeniably important for advanced industrial processes. We have extensive knowledge of efficient and optimal nano-scale analysis techniques. It is an ongoing challenge to use that knowledge to contribute to the scalability of innovations within the industry. What we do matters. We help make the world a little bit smarter every day."



alytical

"We have extensive knowledge of efficient and optimal nano-scale analysis techniques"



EMPYREAN

Igor Makhotkin spends many hours working with the PANalytical Empyrean in the lab of the XUV Optics Focus group.

Information technology alumnus Marco Jansen (46) founded the auction website Catawiki together with his friend and former colleague René Schoenmakers. What started in an attic in Assen won the title of fastest-growing technology company in Europe in 2015. BY Marieke Vroom PHOTOGRAPHY Private pictures

STEP-BY-STEP

"Marco Jansen plays the piano in the
mast of the Ebenhäezer"



SUCCESS

What do the script of the very first episode of Game of Thrones, Nirvana lead singer Kurt Cobain's guitar and the jawbone of a T-Rex have in common? They were all auctioned off at Catawiki. The company owned by Marco Jansen and his partner strives to "make remarkable objects attainable for anyone." It is working: every month, fourteen million people from all over the world visit the auction website. Every week, tens of thousands of objects change hands: from comic books and jewellery to classic cars and Oriental tapestries.

Looking for something more

Jansen was fourteen years old when his parents first brought a computer into their home in Oosterbeek in Gelderland. Since then, he has been fascinated by computers and software. After finishing high school, he enrolled in a technical computer science programme. The alumnus "wanted more" and continued his studies. He left for Twente to attend the Enschede University of Applied Sciences' computer science programme. That still did not offer him what he was looking for, though. "I wanted to delve deeper into software development, so I chose the information technology master's programme at the UT."

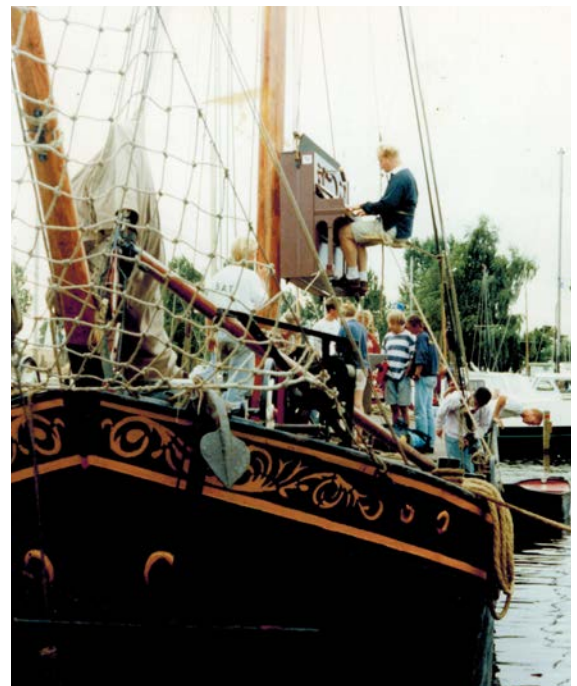
The transition to a university was not like what he had expected, Jansen explains. "Because of my prior education, I was given a lot of exemptions. During my first year, my only subjects were mathematical. It felt

like I was enrolled in a mathematics programme instead of an information technology programme. It was quite dull. I was glad when new subjects were introduced in my second year."

Jansen discovered student life at the UT. "When I attended the university of applied sciences, all those activities and parties on campus passed me by. I only came into contact with those during my master's programme." He thinks back on his years in Enschede with fondness, especially about his time at the Euros sail club in Drienerlo, of which he was an active member. "I played the piano and there was one on board Euros' flag ship, the Ebenhaëzer. I was hoisted up, piano and all, to play a tune for my fellow members."

Catalogue for collectors

The UT alumnus found his first job at KPN Research. That is where he met the co-founder of Catawiki, René Schoenmakers. Over the course of the next few years, they kept in touch – even though both men had moved on to different jobs by then. Eventually, the idea to start a company together was born. "René wanted to develop something he would use himself. He is an avid comic book collector with a collection of around 15,000 books. Just like other collectors, he made lists of what he owned and what he was still looking for. He liked the idea of collectors sharing these lists with each other in order to create a catalogue of everything that can be collected."



MARCO JANSEN

- 1982 - 1986 High school in Oosterbeek
- 1986 - 1989 Technical Computer Science (MTS Ede)
- 1989 - 1992 Bachelor Computer Science (Enschede University of Applied Sciences)
- 1992 - 1996 Information Technology master's programme (University of Twente)
- 1995 - 1999 Scientific Advisor at KPN Research
- 2000 - 2004 Technical Architect at Contrado
- 2004 - 2006 Iteration Manager at Thoughtworks in London
- 2006 - 2008 Agile Project Manager at Thoughtworks in Bangalore, India
- 2008 Founding of Catawiki
- 2015 Chosen as the fastest-growing technology company in the Netherlands and Europe (Technology Fast 50, Deloitte)
- 2016 Chosen as the fastest-growing technology company in the Netherlands (Technology Fast 50, Deloitte)



In February of 2008, the online catalogue Catawiki was born. The business quickly became one of Europe's most successful auction websites. Did Jansen ever expect his venture to be this successful? "We had our hopes, of course. We saw potential in the idea," he explains. "We always wanted to include the auction aspect, but that first requires a large community of buyers and sellers. That is why we started with the catalogue itself."

"The original script of the very first episode of Game of Thrones was sold for €1,800 in 2015"

A new business every year

Circa 80,000 collectors used Catawiki. The founders were still working from home in Assen. It was just the two of them at the time: "We did everything ourselves, from developing the platform to advertising and maintaining communication with its users. Eventually, that became too much work for two people. It was time to take the next step." After a search for investors, two parties were found: the Noor-

delijke Ontwikkelingsmaatschappij (NOM) and Peak Capital. With their contributions, Jansen and Schoenmakers opened an office in Assen and hired their first employees.

In 2011, the first auctions took place. "From that moment, it all happened very fast. It was like we had a new business every year," Jansen says. "We started with comic book auctions one night per week. Soon, we were hosting many more auctions. We also expanded our product range and no longer only targeted collectors, but also people who enjoy buying something nice every once in a while. We discovered that people in foreign countries were using Google Translate to bid on the Dutch website, so we started translating our content. We currently offer seventeen different languages, including Mandarin and traditional Chinese."

New investments from Accel and the American company Lead Edge Capital, which also invested in companies such as Facebook and Spotify, led to more international growth. Catawiki currently has more than 500 employees throughout Europe.

Trial and error

Did nothing ever go wrong in nine years of running Catawiki? "Of course it did, but that is part of the game. Overall, everything went as planned. I am a firm believer in trial and error. We conduct a lot of experiments and base our choices on the outcomes. If, for example, we want to implement a change on our website, we will create multiple versions to determine which one leads to the highest number of bids or registrations."

The success of the auction website is the result of its quality and reliability, according to the alumnus. "Other websites like eBay and Marktplaats require users to pay attention to what is real and what is fake. You cannot always be sure that you actually get what you paid for. Our auctioneers evaluate every item and the money will only be released to the seller once the buyer has received the item. On top of that, it is of course great fun to participate in an auction. I am not a collector myself, but sometimes I spot something that I simply have to bid on. I am now the proud owner of several gold records and a statue of Tintin."



Are you curious about what else Marco has to say? Attend the Alumni Talks on 13 October, where he will be one of the speakers. utwente.nl/alumni-talks

BUSINESS SCHOOL PROFESSIONAL LEARNING & DEVELOPMENT

Changes in an organisation often proceed with difficulty. Why is that? For the managers involved in the process, the cause can be difficult to pinpoint. During the University of Twente's "Change Management and Leadership" Master Class, participants learn to look at problems from a different perspective and find out how to resolve these issues. BY **Frederike Krommendijk** PHOTOGRAPHY **Gijs van Ouwerkerk**

MASTER CLASS ON CHANGE MANAGEMENT

The popular Master Class consists of ten half-days. Students enrolled in the Risk Management master's programme can choose this master class as an optional module, but there are also participants who have enrolled in this programme as an independent component. According to core lecturer Michel Ehrenhard, participants can learn from each other. "Combined, they have a wealth of experience. The goal is for us as lecturers to spend no more than half the time providing information. The rest of the time is spent engaging in discussions and sharing opinions. The participants learn most from each other."

"Looking at the matter from a different perspective"

Change should not be a goal in and of itself for an organisation. "Proper leadership during change management is important. It is all about facilitating people to do their jobs better. That is often where things start to go wrong," Ehrenhard notes. "Businesses and organisations often believe that the problems arise at the end of the process, when it turns out there is no support for the steps that were taken. However, when you look at the matter from a different perspective, you will see that the cause is found much earlier, for example because you failed to explain the necessity of the change to employees during step one."

Implementing change is not that easy. That is something participants from all fields experience, from the financial sector to healthcare and the government. "The areas of expertise may be different, but the problems participants face on the road to effective change are largely the same. We teach participants to examine the correct approach from a variety of angles. For example: How can you allow your team to function more effectively, how does the environment affect the process – e.g. the



"The areas of expertise may be different, but the problems are largely the same"

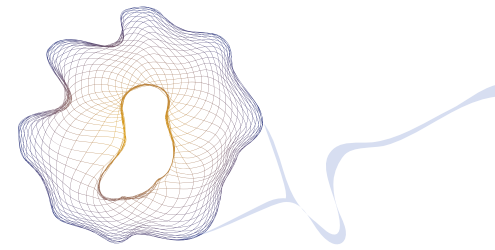
media – and what role does informal mentoring play within your organisation?"

When participants share their problems and solutions, new insights are born. "Eventually, the goal is to learn concrete ways to change one's approach. Simply changing your organogram and making wonderful plans does not constitute change. You have to be able to apply it to your daily practice in a concrete manner."

Michel Ehrenhard, core lecturer of the "Change Management and Leadership" Master Class.

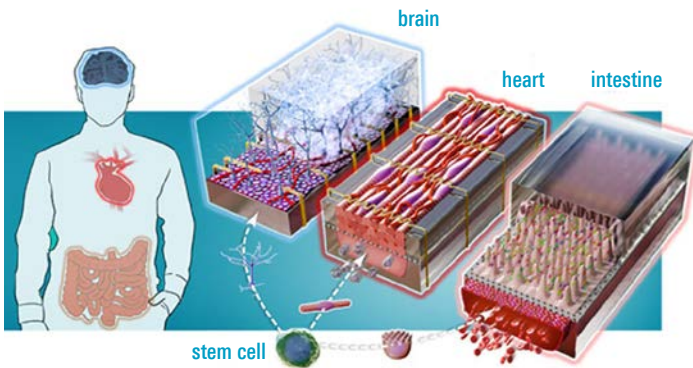
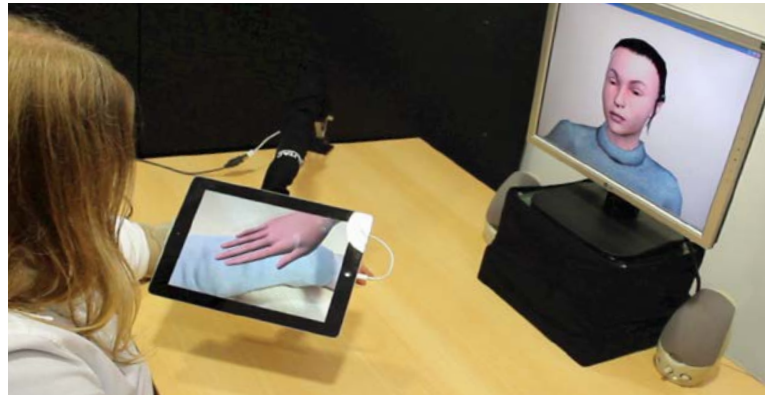
If there is sufficient interest, another edition of the "Change Management and Leadership" Master Class will be scheduled in November. For more information, visit www.utwente.nl/pld. The groups consist of circa 25 participants.

IN BRIEF



CONTACT SLEEVE

Not just real people, but virtual characters are also seen as warmer and friendlier when they touch you, as demonstrated by Gijs Huisman's doctoral research. In his research, he used a special sleeve that is worn around one's arm and which can "stroke" the wearer using vibration. Test subjects liked the characters in a video game more when these characters "touched" them in this manner.



ORGAN ON A CHIP

The Dutch government has awarded a "gravity subsidy" of nineteen million euros to a research consortium working on "organs-on-chips." These chips contain special reservoirs in which cells grow and function under conditions similar to those inside the human body. The chips feature small channels for the administration of nutrients and medication. They are developed with the ultimate goal of testing (new) drugs and to conduct research into diseases. The University of Twente's contribution to the project mainly consists of knowledge and experience pertaining to micro and nanocomponents on the chip.

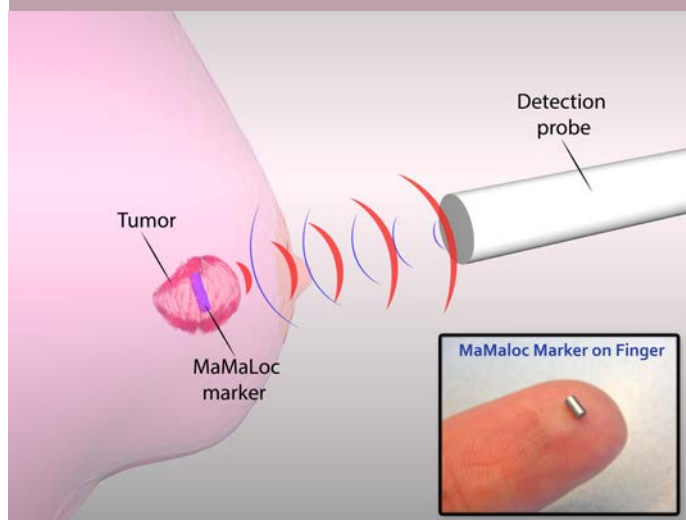


ROBOTIC BIRD

Edmonton International Airport in Canada is the first airport in the world to make daily use of the robird developed by UT spin-off Clear Flight Solutions. The robotic bird is used to scare off real birds in order to make air travel safer. CEO Nico Nijenhuis calls it a "historical step for the robird, our business and the entire aviation industry." At the Canadian airfield, the robird is part of a major project that also makes use of drones to observe wildlife, inspect buildings and conduct 3D measurements.

FINDING A TUMOUR

For surgeons, it is often difficult to find and remove a breast tumour. Researchers from the University of Twente and the Antoni van Leeuwenhoek Hospital therefore developed a new method to find a tumour during an operation. To do so, a small metal rod is inserted into the tumour prior to the operation. During the surgery itself, the surgeon can use a device to detect the rod and make sure he is looking in the right place. Based on images made beforehand, the surgeon will know exactly how much tissue to remove around the rod.



INFLUENTIAL

Time Magazine has ranked UT alumnus Guus Velders among the one hundred most influential people on the planet. The chemist was part of the scientific team behind the global climate agreement that was signed in October of 2016. Nature Magazine already selected Velders in 2016 as one of the year's ten leading scientists. Velders studied at the UT and obtained his doctoral degree in 1992 as part of the chemical physics department.



EUROPEAN GRANT

Two researchers of the University of Twente have been awarded the prestigious ERC Advanced Grant. Han Gardeniers uses his grant to conduct research into making chemical processes (in e.g. the

fine-chemical industry) more effective and efficient. Detlef Lohse uses the grant for fundamental research into "liquid-liquid-extraction." For Lohse, this marks the second time that he has won an Advanced Grant.



More information about these items can be found at: www.utwente.nl/en

SENTIMENT AND SOLIDARITY



From left to right:
Jan Kees te Riet Scholten (chairman)
Anne van der Meer, (communication)
Henk Braam, (treasurer)
Steven Olthof, (secretary) and the mem-
bers Geert Hidding, Dorien van de Belt
and Leo Koekenberg.

How enjoyable and inspirational it can be to be in contact with students as an alumnus, that is the key message of Anne van der Meer, board member of Principia, the alumni association of the Mechanical Engineering programme. BY Lidewey van Noord

Because the majority of its three hundred members do not have the time or opportunity to attend its social events and other activities, Principia differentiates between active and passive members.

“You have to steer them in the right direction from time to time”

The active heart of the alumni association consists of six board members and ten to fifteen alumni who host a variety of events. Most of these members have already retired. “Our main goal is to maintain the relationships between alumni and the UT,” says Van der Meer. “We do so with a focus on sentiment and solidarity. In the past, we believed that as long as we hosted fun events, people would come. However, an event had to be truly great to bring people from the Randstad region all the way to Enschede. That is why we chose to mainly focus on improving the solidarity with today’s students of Mechanical Engineering. After all, they are our colleagues-to-be.”

“Is that something you might be interested in?”
Board member Leo Koekenberg never planned to become an active member of Principia, until

he ran into his former fellow student Anne van der Meer during a business trip in England in 2009. “He asked me whether that was something I might be interested in. I quickly began to enjoy it a lot, both with former fellow students and with today’s students. You can help them out and earn recognition in return.”

Senior Expert Support

A group of active members forms the SES, the Senior Expert Support club. They help out groups of students who are working on projects. “This group includes people with forty years of experience in the world of research and development,” Van der Meer says. “They know the ins and outs of the field. When they work together with these young minds, it often leads to wonderful results.”

Involved

The SES is involved in Green Team Twente, a team of students working to develop a hydrogen-powered car. A different club, Solar Boat Twente, is working on a boat that runs on solar power. Principia is closely involved in these projects. “The alumni association is very important to us,” says Hidde Pik, one of the team members. “During the early stages of the project, they helped us form the team and create the initial designs. They kept us sharp by critically evaluating our design choices and contributed a wealth of ideas during our brainstorming sessions. Their extensive knowledge of technology and their genuine interest in our project often lead to great conversations and discussions.”
Van der Meer: “Our involvement in this kind of

project brings a lot of excitement to the association. When the final result is presented, we invite our members and make a celebration out of it.” Principia spends more than half of the membership fees it receives on sponsoring student activities. A digital newsletter keeps members up to date on the latest state of affairs.

Shadowing days

There is frequent contact between Principia and Isaac Newton, the study association of the Mechanical Engineering programme. Together, they host orientation days and when a student who is approaching their graduation is interested in a certain business, Principia will look for an alumnus who works in that organisation. The student can then get a taste of what things are like there. Koekenberg is responsible for organising these shadowing days. “This lets us help bachelor’s students choose their career path. Master’s students who have to choose their first job can become part of the organisation for a day to get a taste of the atmosphere there. Instead of an overly managed programme, they can experience the day-to-day routine.”

Lunch lecture and award

Hugo Wesselink, chairman of Isaac Newton, is happy with the collaboration. “The Principia members are enthusiastic and have relevant contacts. It is great to see them so involved.” Every year, there is a master lunch lecture during which an alumnus with five years of professional experience talks about the first years of their career. Every two years, the Principia Award is given out. Teams of master’s students are given a day to come up with a creative and feasible solution to a certain case and the results are then evaluated by a jury.

Just like Koekenberg, Van der Meer derives a lot of pleasure from the work he does for Principia. “Meeting old friends and working with today’s students is great. You have to steer them in the right direction from time to time, but these young men and women all show wonderful creativity.”



NEW: ALUMNI TALKS "SEE THE FUTURE"

The atmospheric Amphitheater at the Vrijhof will be the scene of a new annual event for all UT alumni on Friday 13 October from 15:00: "Alumni Talks." Whether you are a technician at heart or a social scientist, Guus Rijnders, Peter-Paul Verbeek, Bram Nauta and Marco Jansen of Catawiki will give four inspirational "Talks" – centred around the theme of "See the future" – that are sure to get any UT alumnus thinking. Food for thought! Afterwards, we will gather for drinks in the Vestingbar.

For more information and to sign up for this event, visit www.utwente.nl/alumni-talks

COLOPHON ALUMNI NEWS

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UT'ers ON THE MOVE

- **Eva van Aalst (CS '08)** started working as Campaign Officer Refugees at Amnesty International in May of 2017. Before, she worked at the Ministry of Foreign Affairs.
- Since March of 2017, **Menno Bangma (TN '00)** works as Senior Product Manager Replay TV at Liberty Global. From 2004, he held a variety of positions within TNO.
- Starting in March of 2017, **Martijn Beijerink (TBK '08)** holds the position of Senior Business Consultant at the Adidas Group. Before that, he worked as a controller for Wehkamp and TenCate, among others.
- After earning his PhD in Biomedical Optics from the University of Twente, **Pim van den Berg (TN '12 / PhD '17)** started working as an Imaging Engineer at ASML in March of 2017.
- Since March of 2017, **Susanne Blaak (TBK '06)** works as a Senior Policy Officer Real Estate & Housing at Rotterdam University of Applied Sciences. Before this, she worked at Arcadis, first as a consultant and later as a senior housing adviser.
- **Joost van den Boom (INF '02)** works as a Senior Consultant/Engineer at Altran since May of 2017. From 2007, he worked as a software engineer at CIM Solutions, Metrohm Autolab and NEXUS Nederland.
- In May of 2017, **Rob Bos (TBK '94)** started working as head of engineering at BAM Infra Nederland. Before this, he held management positions at Wegener, NUON and Rijkswaterstaat, among others.
- Since March of 2017, **Chris Bruggenkamp (TBK '00)** als Manager Continuous Improvement NXT Operations bij ASML. In het verleden werkte hij bij DAF Trucks en NedTrain als Productie Manager.
- **Dennis van Ek (TW '95)** was chosen as the new Executive Director of JP Morgan Asset Management in April of 2017. Between 1995 and 2001, he worked as a Senior Investment Consultant at Aon Hewitt and between 2001 and February of 2017, he was a Principal Consultant at Mercer.
- After working as a policy officer in the University of Twente's Strategy and Policy department for six years, **Susanne de Gooijer (PA '09)** has moved on to the position of policy officer in the Education, Research and Quality department of the NHL University of Applied Sciences in March of 2017.
- After working as an Assistant Professor at the University of Twente, **Johnny Hartz Søramer (PhD '10)** started working as a Policy Specialist at Google in Ireland in February of 2017.
- Since April of 2017, **Rogier Ikink (CW '11)** works as Manager at EY Advisory FS Risk. Before this, he worked as a consultant at DNG GL, RJI Consultancy and Goldman Sachs.
- Since March of 2017, **Maarten de Jong (WB '07)** works as a Process Engineer at LyondellBasell. Before starting there, he held a variety of positions within Flowid B.V.
- Since March of 2017, **Esther Klein Koerkamp (BK '08)** works as project manager Packaging at Lidl Nederland. Before this, she worked at Yellow Dress Retail BV and Unilever, among other places.
- **Jolien Klazinga (CW '10)** started working as CRM Manager Benelux for Samsung Electronics in March of 2017. Before this, she worked for De Nieuwe Zaak, kleertjes.com and MS Mode, where she held a variety of positions in the field of email marketing.
- **Jakob Klok (INF '99)** already worked as a Salesforce Architect at Deloitte Nederland. In May of 2017, he started working as a Salesforce Architect at Cognizant.
- **Erik Koene (TBK '10)** has been working as a Commercial Controller at FrieslandCampina since March of 2017. Before this, he held a variety of positions at Grolsch.
- **David Langenkamp (BA '10)** started working as a Data Analyst at Rijksoverheid in March of 2017. Before joining Rijksoverheid, David worked at ING as, among other things, Account Manager Mid-Corporate.
- Since May of 2017, **Merijn Linthorst (TBK '04)** works as Lead Buyer at DSM. Before this, he worked in various Procurement departments at Roche.
- **Mark Pardijs (HMI '08)** started working as a Medior Digital Researcher at Politie Nederland in May of 2017. After completing his final thesis project at Siemens Medical Solutions, he worked at Topicus Zorg as an Information Analyst/Architect/Developer until February of 2017.
- Since April of 2017, **Renée te Poele - Akkermans (TBK '09)** works as a sector manager in the Clinical Genetics department of the Erasmus MC. Before this, she worked in the Healthcare sector at EY Advisory after completing her final thesis project at the Erasmus MC.
- **Ard Slotboom (WB '88)** started working as a senior manager at EY Advisory in Melbourne in April of 2017. Before this, he already worked "down under" at NTT DATA Business Solutions and A&L Windows | Doors.
- Since April of 2017, **Amanuel Tunc (BA '11)** is an Investigator in training at Politie Nederland. After completing his master's programme, he worked at Wegener, Rabobank and ITON, among other places.
- Since March of 2017, **Bart van der Veer (CE '09)** works at Fluor Corporation as a Process Engineer. Before this, he worked as a Process Engineer at Shell, Tebodin, E.ON and Technip.
- **Rein de Vries (TN '08)** started working as a Sensor Architect at Philips Lighting in April of 2017. After completing his PhD via Philips Research, he first spent several years at ASML as a Design Engineer before returning to Philips.
- **Paul Zandbergen (INF '08)** started working as a Senior Analyst at Accenture in April of 2017. Before this, he worked at Alliander and Realworld Systems.
- **Rick Scholte (EL '04)** was chosen as the Engineer of the Year 2017 by the Royal Institute of Engineers (KIVI). As the founder of Sorama, he focuses on mapping and eliminating noise pollution.

The most recent updates can be found on twitter.com/alumniUTwente. If you have a new job yourself or know someone who did something noteworthy or won an award, you can submit your tips via alumni@utwente.nl



YOUR DONATION MATTERS, EACH AND EVERY YEAR!

“More and more alumni, relations and (former) employees of the University of Twente contribute to the annual campaign of the University Fund. In the past three years, we have gone from circa 250 annual donations to nearly 700 donations per year. It is fantastic to see so many people support their own university in this manner. With these donations, we can continue to support many remarkable projects and activities of our students and researchers and hand out scholarships and awards. On these pages, you can see some examples of said projects. That is why I can honestly say that your donation matters, each and every year! On behalf of the administration, I want to thank all those who donated for their faith in what we do.”

Maurice Essers, Director of the University Fund Twente Foundation
m.l.g.essers@utwente.nl



Goal: € 5.000
Amount raised: € 3.488



Goal: € 10.000
Amount raised: € 6.465

ANNUAL CAMPAIGN: JUST €5,000 AWAY FROM THE FINAL GOAL. WILL YOU HELP?

The university fund's new annual campaign was launched in late December of 2016. With gifts from nearly 400 alumni, (former) employees and relations of the University, the final goal of € 30,000 is in sight. By now, more than € 24,500 has already been raised! This money is used to support four remarkable projects: a back-up robot for the RoboTeam Twente during the World Championships in Japan, the study tour fund, Kipaji scholarships for students from developing countries and an acceleration of the research into improved mobility for students with Parkinson's disease.

Will you help bring these projects closer to their final goal? Visit www.steunutwente.nl and donate! Your contribution will be spent entirely on the project of your choosing. On behalf of the students and researchers, thank you very much.

WWW.STEUNUTWENTE.NL

Donations made without specific preference: € 10.878



Goal: € 10.000
Amount raised: € 4.090



Goal: € 5.000
Amount raised: € 1.885



STUDY TOUR MISC FOR INTER-ACTIEF

In total, 29 students of the Inter-Actief study association went on a trip to Malaysia, Indonesia and Singapore in September of 2016. Under the banner of MISC-2016, short for Miscellaneous, the students visited Dutch embassies and businesses in a wide range of sectors, as well as several universities. The Singapore University of Technology & Design was the absolute highlight of the trip: a brand-new university that boasts a fantastic infrastructure. The tour concluded with a visit to the Puls Lab in Jakarta. This high-tech laboratory processes big data in order to analyse and resolve various social issues. The students finally returned home with a wealth of new experiences and insights.



STRESS STUDY TOUR 'BEARD THE LION'

Beard the Lion: that was the motto of the study tour to South Africa taken by 27 students of the Stress study association in January of 2017. The goal of the trip was to research the implementation of "Lean." The students visited various multinationals and typically South African businesses to gather information and advise these organisations on the use of "Lean." In addition to all these visits, the cultural aspects were not forgotten either. The students went on an impressive Soweto tour, experienced a fantastic safari weekend and completed a gruelling ascent of Table Mountain. All in all, this trip made for an experience these students will never forget.



MOREBLESSINGS SHOKO WINS THE MARINA VAN DAMME SCHOLARSHIP

This year, the Marina van Damme scholarship for talented and ambitious alumna was awarded to Moreblessings Shoko (ITC'10). The judges selected her out of a total of 33 candidates.

Moreblessings earned her master's degree in Earth Observation and Geo-Information Science for Geomatics at the ITC faculty in 2010. She then earned a second master's degree in Business Administration from the Open University in Zimbabwe and will obtain her doctoral degree from the Geomatics Division of the University of Cape Town on 14 July.

With this scholarship, Shoko intends to set up an ambitious project in Zimbabwe. The goal is to offer young girls in Africa's rural areas the chance to get a proper education. Because the facilities we consider commonplace in the western world are often unavailable or unaffordable in rural Africa, most girls are forced to stay home from school when they are on their period. This causes them to miss out on a quarter of their school hours. Shoko intends to develop new, reusable and hygienic sanitary pads and use drones to set up a distribution system that covers the furthest reaches of the rural area. The ultimate goal is to improve girls' feminine dignity and their chances of getting a proper education and position on the labour market. The drones will also be used to collect geo-information for further scientific research and practical applications in agriculture and industry. This will help her develop as a social entrepreneur. For this project, she will be working together closely with the ITC faculty.

Medal of honor from the University of Twente

The University Fund Twente will be awarding the Marina van Damme Scholarship for the fifteenth time this year. This scholarship is made available by Mrs Marina van Damme PhD MSc. In June of 1965, she was the first engineer to earn her doctoral degree from the Twente Technical University of Applied Sciences. Until the early nineties, she was the director at AKZO's corporate headquarters. The University Fund owes great thanks to Van Damme for her annual donation and has nominated her for the University of Twente's medal of honor. The Executive Board supported this nomination entirely and awarded the medal of honor to Van Damme during the Entrepreneurial Day 2017.



VAN DEN KROONENBERG AWARD 2017 FOR FELIX BROENS

Felix Broens (CT'09) won the Van den Kroonenberg Award for young entrepreneurship this year.

In 2009, he graduated in the field of membrane technology. Using the TOP regulation, he founded Convergence in his parents' garage. The company develops liquid and gas filters or membranes for research, quality control and industrial applications. Thirty percent consists of standard production, while seventy percent involves custom solutions. The company's clients mainly include membrane companies in Europe, but also in China and North America. From the onset, the company has been profitable and it currently has circa 15 FTE. The business is expanding rapidly. Everything has been financed independently without any use of external assets. The company's main focus is on achieving continuity.

Broens not only created a technically and economically viable organisation. The judges were mainly impressed by the facts that he knows his own strengths and weaknesses and acts accordingly. At an early stage, he brought in a general director to oversee the company's business operations, while he took on the role of CTO. The UT alumnus is a hard-working and versatile entrepreneur, whose ambition focuses on creating beautiful and simple industrial products. His strengths mainly pertain to the pioneer phase. With the knowledge he acquired, he would not hesitate to start up a new business. It is worth noting that his father, Lute Broens (CT'74) also won the Van den Kroonenberg Award in 1989 in the same sector with his company X-Flow, which was later taken over by Norit and then by Pentair.



KIPAJI SCHOLARSHIP FUND

Suman Sapkota is the first student to study at the UT thanks to the Kipaji Scholarship Fund, intended for talented engineering students from developing countries. Entrepreneurs Job Elders, Casper Peeters and Per Slycke (the latter two are UT alumni and founders of Xsens) established this fund.

Suman Sapkota is Nepalese and currently works on earning his master's degree in Sustainable Energy Technology (SET). Sapkota's experiences at the UT are positive. He is mainly interested in renewable energy and wants to devote his future to contributing to a solution for Nepal's energy crisis. www.steunutwente.nl

WOULD YOU LIKE TO ENDOW A NAMED FUND?

You can support the University of Twente by making a one-off donation, a regular contribution or by naming the University Fund as a beneficiary in your will. It is also possible to endow a 'named fund', provided its purpose is in keeping with the general objectives of the University Fund. You decide the fund's name and how its resources are to be spent. The minimum donation required to establish a named fund is € 10.000,-.

More information

See www.utwente.nl/ufonds or contact Maurice Essers on +31 53 489 3993, email m.l.g.essers@utwente.nl

Universiteitsfonds Twente

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WERE YOU THERE?

José van Dijk, vice president of planning, operations and program management Cloud Services at Cisco, gave the innovation lecture on Tuesday 13 June during the Entrepreneurial Day. In the Waaier, she talked about how Cisco deals with clients in a digital world. PHOTOGRAPHY Gijs van Ouwerkerk

ENTREPRENEURIAL



DISRUPT OR BE DISRUPTED

DAY



She discussed change management, digital transformation, loyalty to clients and the role enthusiastic employees play in this process. Van Dijk mentioned Airbnb and Uber as examples; businesses that do not own any hotels or taxis, yet have reached enormous scope and give a new impulse to the market. "Everything is connected to everything," Van Dijk said. "However, only seven percent of the CEOs has a digital plan in place, while 87 percent views digitisation as a crucial aspect of their business. There is a lot of room for improvement here."

After the innovation lecture, it was time to give out the awards. Felix Broens, founder of Convergence Industry B.V., won the Van den Kroonenberg award. Moreblessings Shoko, alumna of the ITC, was awarded the Marina van Damme scholarship. This scholarship's namesake was given the badge of honour by the Executive Board.

In the afternoon, the UT Challenge was won by Hops & Grains (for the ideation component), while Aryzon won the prototyping component (see also pages 11 and 44).

SCIENCE2DESIGN4SOCIETY





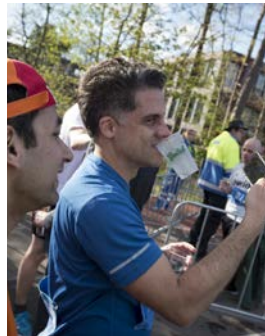
GIVING IT YOUR ALL

Who doesn't remember the Batavierenrace? Crowding into a van, running stages during the night, restarting in places like Ulft and Barchem and then finishing on the running track.

45TH ITERATION BATAVIERENRACE

On Saturday 22 April, the campus was the scene for the 45th iteration of the student relay race. In total, 8,500 students participated and covered the distance between Nijmegen and Enschede in teams. The starting gun for this anniversary edition was fired on the Grote Markt in Nijmegen. As always, the finish line was on the campus. The university team from Amsterdam won this year's race, while the UT/

Saxion's own team finished fifth. "We gave it our all," runner Nick Assinck said afterwards. In the overall classification, the "Success is a choice" team won the title. After such an athletic feat, it was time for some well-earned relaxation in the form of the Batafeest. More than thirteen thousand visitors partied well into the night during various performances and stages spread across the UT grounds.



SPECIAL SANDWICHES, PARTIES AND MOVIE NIGHTS

The Bata4life fundraiser has brought in more than €9,000 this year – slightly less than in previous years. Committee president Marith van Lent hopes for more active participants next year.

Bata4life raises money for the KWF Kankerbestrijding foundation. Van Lent says that three teams in particular were exceptionally focused on raising money. "Together, these teams brought in a substantial share of the final amount. We would have liked to have

had more active participants, but it is difficult for us to reach the runners directly.

They are still unfamiliar with Bata4life, although everyone does know the race itself."

The committee still has a lot of work to do in this area, Van Lent claims.

In addition to individual efforts to raise money, there were also a movie night and a party hosted by a study association. Some of the proceeds of these events were donated to Bata4life. Furthermore, special sandwiches


were sold. "These were all great ideas that proved quite popular. We see plenty of room for development for such initiatives. I was surprised to see a student party bring in €350 for KWF in a single night. That is just great."

The money that was raised will be spent on a joint research project set up by the Radboud University and the UT: using a new magnetic detector to detect tiny amounts of magnetic material used to identify the sentinel lymph node.

bata4life



More information:
www.bata4life.nl



**STUPID
MISTAKES
UNDER
PRESSURE**

MARIEKE HUISMAN TACKLES PROGRAMMING ERRORS WITH VICI SCHOLARSHIP

IT professor Marieke Huisman has a lot to explain whenever she talks about her job. “I design techniques that allow programmers to write error-free software. That is too abstract for most people, so I usually just tell them that I teach programming to students. Everyone understands that.” BY Marc Laan PHOTOGRAPHY Rikkert Harink

Marieke Huisman (1973) recently won a 1.5-million-euro scholarship. The professor, who works at the CTIT research institute in Twente, can use this Vici grant in the next five years to set up her own research group with five other researchers.

What will you do with 1.5 million euros?

“We want to develop software that can be used to evaluate the reliability of computer programs. Quite often, there are serious flaws to be found. Especially software that carries out multiple steps at once is prone to unexpected errors. With the money from the Vici scholarship, we will develop tools that allow programmers to verify whether their software contains any errors with a single press of a button. Ideally, this will allow programmers to check their own code. Although it requires more effort, it saves you a wealth of time if you do this as you develop the program. Fixing errors at the end of the road is costlier.”

What kind of errors are you referring to?

“People make a lot of stupid programming errors. An infamous example is storing the result of a calculation in a memory location that is not reserved for that purpose. The reverse also happens: you have your software access a location where nothing has been stored.” The tools Huisman envisions will search the software code for comment tags used by programmers to indicate what a segment of code is supposed to do. “A programmer uses these comments to say e.g. ‘The program will carry out a calculation here and the result is stored in a certain location in the computer’s memory for later use.’

“A common error involves saving a sequence of data in a buffer and then trying to retrieve data from an entirely different memory buffer later in your code. With our software, you will be able to easily filter out such common errors. Note that these errors can also be exploited by hackers for an attack on the computer system. Our tools therefore also improve the security of the software.”

It all sounds a bit abstract.

“When I talk about my job to others, I find that it can be quite hard to explain. People ask me if I can fix their Windows computer after it crashed. I have resorted to telling people I teach programming to students. Everyone understands that. I often use the example of a traffic light. Our software determines whether the changing of the colours has been programmed in a logical manner. No two streets can have a green light simultaneously. The simple question we ask ourselves is whether the software does what it is supposed to do. In the case of an airplane, that is extremely important. Less so for a video game. It is important to prioritise.”

Can your intelligent software automatically correct errors?

“Although we can do a lot with our software, it has not been fully automated yet. It takes a lot of computational power to prove that the software’s intentions are correct. Inspecting five to ten lines of code to detect logical errors currently takes around an hour and a half. Considering the fact that the average piece of software may contain as many as 100,000 lines of code, there is a lot of work left to do.”

“Our software points out where the errors are located and where the program will end up crashing. Our tools help programmers do their work more effectively. Software development often occurs under extreme time constraints. It is pretty much a given that there will be bugs in the code. We want to detect those at an early stage. Ideally, programmers should look for errors each time they finish a small segment of their code.”

“What makes our approach unique is that we create an abstract logical model of the program and then verify whether the program code matches the requirements of this abstract model. This technique was developed during the ‘60s, when Bob Floyd and Tony Hoare were able to prove that a piece of software worked correctly. They used pen and paper, we have modern IT techniques.”

“The simple question we ask ourselves is whether the software does what it is supposed to do”

Do modern programming languages not prevent these kinds of errors?

“No, if only they did. A language like C allows a lot of errors to slip in. Java does too, although it is structured a bit better. Mozilla’s Rust language is quite good at checking for inconsistent code, although users can turn off that option if they want their software to be faster. I do not see it as my job to hunt for errors. I prefer to do the opposite: proving that a piece of code is secure. That makes the programmers feel good: I prove that their software works.”



OPENNESS AND TWENTE'S CHARACTERISTIC ENTREPRENEURIAL SPIRIT MAKE GITLAB GREAT

Technology company GitLab in San Francisco owes its tumultuous growth to its open-source method: the best people work together on something wonderful from locations all over the world. Geographical distances no longer matters. CEO Sytse (Sid) Sijbrandij explains how he laid the foundation in Twente.

BY **Marco Krijnsen** PHOTOGRAPHY **Private pictures**

DISTANCES NO

If he would ever bring up external financing, she should smack him in the head. That is what Sid Sijbrandij told his wife a few years ago. That smack was never delivered, but the money from investors was. GitLab's CEO realised that there was no escaping it. "In a consolidating market with two competitors, you have to grow rapidly. You need the best people available, who often want options. That costs money, so you have to look for investors. It all ties together."

GitLab is a platform used by programmers to develop software together. It is seen as an advanced version of Google Docs for software and – partly due to external financing – it is undergoing an impressive

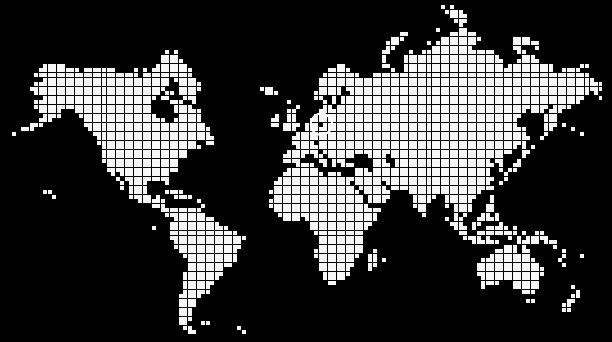
growth. Two years ago, the company, which was founded in 2013, raised 5.5 million dollars via the Y Combinator incubator programme, which also brought fame to such organisations as AirBnB and Dropbox. Last year, another twenty million dollars came in from various investors. GitLab's team grew from 9 to 150 members. The number of people who contribute to the development of the software exceeds 1,500. They make sure there is a new update for the software every month.

Interest in physics

How did Sijbrandij get caught up in this exciting adventure he now directs from Silicon Valley? To find out, we have to go back to Twente, where he studied Industrial Engi-

neering and Management from 1999 to 2003. "I have always been interested in physics. I love discovering how something works. What is even more fascinating to me, however, is a collection of people working together on the most complex problems. That all came together in the Industrial Engineering and Management programme."

When Sijbrandij reflects on his time in Twente, he mostly remembers the entrepreneurial spirit of the University. "Entrepreneurship was stimulated with great enthusiasm and it became the driving force in my life. That all started in Twente. I kept meeting inventors with whom I wanted to work together because I saw market opportunities everywhere I looked."



“Any decision of mine is made based on data”

LONGER MATTERS

U-Boats

After finishing his studies, Sijbrandij started a business that dealt in IR receivers, before moving on to the world of U-Boats (U-Boat Worx) and setting up an app store (AppAppeal). All these projects included involvement from a partner with a UT background. “During that time, I learned that I love rapid expansion. The organisation has to move forward all the time. I want to keep hiring new people to take us to the next level. That is what I am doing with GitLab at the moment. I also discovered that it is great to create something that is both useful and profitable.”

Wise strategy

With all his entrepreneurial experience, Sijbrandij saw opportunities

for the platform that co-founder Dmitry Zaporozhets had set up in the Ukraine. This led to the creation of GitLab. Ever since, the company has focused on the development of a software programme that comes in two versions: a free community edition and the enterprise edition, which offers additional features and costs \$199 per user per year. The CEO still believes this to be a wise strategy. “More than 100,000 organisations are perfectly happy with the free open-source edition. Some of them later switch to the paid version.”

Data lost

Earlier this year, GitLab faced a major setback. When its production database was accidentally deleted,

more than 300 GB of data was lost. The company responded by sharing their efforts to resolve the issue with the rest of the world. “We are an open-source organisation and published about our troubleshooters’ efforts in Google Docs. We kept our users up to date via livestreams.”

This approach received widespread praise. It even led to another expansion of GitLab’s userbase. In order to properly manage this rapid expansion, another UT alumnus has joined the team: Ernst van Nierop, a student of Applied Physics. Furthermore, in his position of leadership, Sijbrandij relies on what he once learned: “Any decision of mine is made based on data. It makes a decision smaller and easier to oversee.”



Would you like to know how you can allow your entrepreneurial spirit to flourish? Attend the Young Alumni Network event on 18 July, where Sid Sijbrandij will be sharing his personal vision!
www.utwente.nl/young-alumni

“WE LIVE LIKE BROTHERS”

HUIZE 'T POTT

The term “student accommodation” does not suffice when talking about Huize 't Pott, located at Oldenzaalsestraat 315. This luxurious villa on the outskirts of Enschede is surrounded by a large garden and meadow. “Student mansion” would be a more apt description. BY Lidewey van Noord PHOTOGRAPHY Gijs van Ouwerkerk

The two new residents are about to arrive: the goats Adje and Kratje. Ruben Thomas Engberts, one of the residents of the villa, bought the animals. Now to bring them back home. “I cannot put them on the back seat and have them stick their heads out the window – can I?” Back to the house. Its construction began in 1872 when the textile industry in Twente was flourishing. The building was owned by wealthy textile tycoons until students of the Textiel Hogeschool moved in in 1968. Since 1984, the villa has been the property of the Huize 't Pott foundation and home to eight residents.

Duties

The household duties have been carefully divided. Senior resident Max Lhoest has just stepped down as the Director of the house. His enormous room on the first floor boasts a seating area, a manager's desk (including a whisky collection) and a separate bedroom. Max now has an honorary position: that of gardener. He shares the bathroom, which adjoins his bedroom and has a toilet, bathtub and twin-head shower, with Gijs Keizers, the new Director. His room is decorated with a large, dead plant. It is a good thing he is not responsible for the goats. Treasurer Joppe Wessseling is in charge of

the account into which the residents deposit a monthly sum. “For beer, toilet paper, condiments, etcetera.”

Technical department

Vasco van Pinxteren and Sem Mohan form the Technical Department together. They have plenty to do in this old building. Kees Bosch is in charge of hallways and corridors and Ruben runs the kitchen and loads up the dishwasher. Junior resident Daan Reugebrink is the Kitchen Clown: he has to do all the dishes that will not fit inside the dishwasher. “Yes, every night.” The residents do their shopping and cooking together. Gijs: “We live together, sort of like brothers.” That has always been the case, says former resident Jeroen Lindenhovius (Industrial Engineering & Management, 2006-2012). He currently lives in Utrecht, works as a supply chain manager at L'Oréal and still meets up with his former housemates regularly. “I made a lot of friends in that house. We are very close because we did so much together.”

Heineken

Interesting fact: although the rest of Enschede prefers Grolsch above all else, Huize 't Pott is a Heineken



"If we were to switch to Grolsch, the former residents would stop coming"

enclave. Every month, a truck drives over from Amsterdam to refill the stock. During the annual gala, nothing but Heineken is served. "If we were to switch to Grolsch, the former residents would stop coming."

Gala

The Christmas Gala has been around since 1981. For one week a year, the residents use large sheets to turn the entire ground floor into a gala venue. Furniture is taken to the basement. The bar – which was once part of café De Kater – is carried to one of the tents outside by eight people and pushed through a window that was once placed with the express purpose of getting the bar into the house. The antique billiard table in the living room is used as a stage because it is simply too heavy to move. Max: "We suspect the house may have been built around this table at one time." Jeroen returns for the gala every year. "It is always great to be back here, although it can be a bit grimy. I never noticed that when I lived here myself, but now that I have a clean, warm home of my own, I realise that things were not always that great here. That is mostly because the heating in the house rarely works, if at all. When you live here, you get used to it, but the last time I

slept here I had to grab two blankets to keep warm at night."

Overcoats

The rooms are large, even the attic floor (nicknamed "Paradise"), and full of strange corners and passageways. Everywhere you look, you see furniture and decorations that appear to date back to before the war. These are often heirlooms from former residents. The ties with former residents are close. "Last year, fifty of them returned for the gala," says Gijs. "One of them even flew in from China for the occasion. Sometimes, they will drop by with a bottle of wine to join us for dinner."

The residents of Huize 't Pott wear white overcoats when they are doing chores around the house or having a drink. The dirtier the coat, the more respect the wearer gets. The coats worn by former residents who still visit regularly are stored in the house's central hallway, there for the taking when their owner "comes home." Jeroen's coat is one of them. "At least, it should be. When you leave in the morning after spending a night in the house, returning the coat to its peg is the last thing on your mind."



Want to add a profile of your student house (current or former) on [facebook.com/AlumniUT?Get in touch](https://facebook.com/AlumniUT?Get%20in%20touch) via alumni@utwente.nl

Bregje Buiteveld (31) loves working on the cutting edge between technology and business administration. She feels right at home at the webshop Coolblue. "I act as a kind of translator between what the business wants and what IT can offer." BY Hans van Eerden PHOTOGRAPHY Ronald van den Heerik

BRIDGE BETWEEN BETA AND BUSINESS



She greatly enjoyed her time studying applied mathematics at the UT. However, when the subjects became too abstract for her, Buiteveld opted for a somewhat more practical master's programme: industrial engineering and management. Old habits die hard, though, so her thesis still incorporated aspects of mathematics. For the National Police Services Agency (KLPD), she drew up a model to determine the optimal positioning of police helicopters across our country.

Her first job placed her on the cutting edge between mathematics and business administration. Buiteveld joined AkzoNobel in Arnhem to work on their production planning. "A true operational role. After two years, I started looking for something else." The position of business analyst at Coolblue appealed to her. This webshop, founded in 1999, deals in consumer electronics and currently has 325 specialised online shops and eight brick-and-mortar stores in the Netherlands and Belgium. "During the application process, I was asked to solve a complex puzzle. I enjoyed that challenge a lot."

Big data

She has worked in Coolblue's head office in Rotterdam for nearly three years now. Recently, a business dashboard centred on customer satisfaction went live. "I developed that based on the wishes of management and the commercial teams. It collects and analyses all data provided by clients pertaining to their satisfaction with Coolblue." The most important asset Buiteveld acquired during her time at the UT is her technical background. "I act as a kind of translator between what the business wants

"I have a lot of colleagues
that are my age"

and what IT can offer. I strive to bridge that gap. My work has a lot to do with big data. It is great that the UT focuses on that area. If that had been part of my own studies, I would certainly have benefitted from it."

Fast-growing

Coolblue is a fast-growing business that already has more than 2,600 employees. "I have a lot of colleagues that are my age. Recently, another UT alumnus was hired with a background similar to mine. The work is diverse, with multiple-week sprints during which we work on one project, before moving on to something entirely different. There are a lot of social activities, which improves cooperation between people. In terms of atmosphere, it is like a continuation of my time as a student, although we work a lot harder now."

AGENDA

Sunday 13 till Tuesday 22 August
CuriousU: Summerschool of the
University of Twente

Monday 4 September
Opening Academic Year

Saturday 7 October
Science Night

Friday 13 October
Alumni Talks

Friday 24 November
Dies Natalis

Further information:
www.utwente.nl/en/events

UNIVERSITY OF TWENTE is a modern, enterprising research university. We work to develop the technologies that will define the future of ICT, biotechnology and nanotechnology. We are already acknowledged as world leaders in several areas. We approach new technology in the context of its relevance to society, applying insights from the social sciences and management disciplines. The combination of 'high-tech' and 'human touch' is extremely important to us. We are known for a design-led approach that addresses the needs of the private sector, and for the creation of new, innovative companies. We work on groundbreaking solutions to the major societal issues of the day, such as energy scarcity, sustainability, safety and security, and health. The University of Twente has over 3,000 staff, more than 9,600 students, a network of 45,000 alumni and some 900 spin-off companies.

COLOPHON

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SPIN-OFF

MORE THAN REAL

BY Hans van Eerden PHOTOGRAPHY Arjan Reef

Augmented reality (AR) overlays information on top of our reality, seen through a pair of AR goggles. One example is Microsoft's HoloLens, which contains special electronic components and has a price tag of \$3,000. Maarten Slaa believed there was a way to make this technology simpler and more affordable. He developed a frame of lightweight cardboard with two (semi-translucent) mirrors and a lens used for the projection of images or animations, generated by a smartphone placed inside the frame.

Together with fellow master's students of Industrial Design Engineering Alexander Ceha, Kay Hoogsteder, Niels Ruiter and Leon Schipper, he founded Aryzon.

They finished the product design, developed several simple applications and provided products to the UT's Virtual Reality Lab. Now, a year later, they are moving on to crowdfunding, Schipper says. "We are primarily targeting developers who want to use these goggles to develop new applications. Think of, for example, architects and artists, but also museums and landscapers. With its price tag of circa €30, our product is affordable, which makes it much easier for companies to start using it for e.g. education or training."

In late May, Aryzon joined Kickstarter with the goal of raising a sum of €25,000, which would pay for more than 800 pairs of goggles. This goal was met within just twenty-four hours. "We want to use this money to bring in people to further develop the software and 3D models, so we can focus on offering the complete picture."

UNIVERSITY OF TWENTE.



For more information:
www.aryzon.com

"We want to offer the complete picture"