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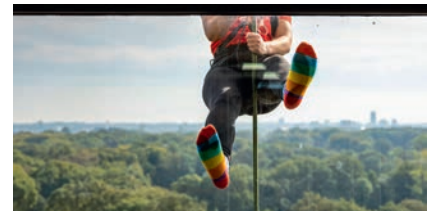
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SPECIAL EDITION

Before you lies a special edition of Campus Magazine. Not because of the content, but because it was close to never being published. The reason is the financially uncertain times which the UT finds itself in. This has a lot to do with a declining influx of students and an turbulent political situation concerning internationalization.

Last fall, the Executive Board therefore decided to send an email to senior management announcing measures to improve the UT's financial management. I do not want to bore you too much with numbers (also see page 13t), but there is a deficit of 2 million euros that needs to be overcome.

And so, the belt must be tightened. Campus Magazine cannot escape these measures either. Therefore, we have decided that this December issue will be printed in a very limited amount and will no longer be mailed to all employees, alumni and relations.

If this is a paper copy of this edition you are reading, then cherish it. People often say that using paper is wasteful, but this magazine is printed on almost 100% recycled paper. And reading something on paper is simply more enjoyable. It holds your attention better, the images can be fully appreciated and you can put down a paper magazine and leaf through it again later. You simply do not that with a digital version. You click it, scroll through it and then the stories quickly disappear in the gigantic stream of digital information that we are offered every day.

Meanwhile, we are working on Campus Magazine 2.0 for 2024. It has to be more efficient, that much is certain. Will the paper copy remain? I don't dare make a statement on it yet. What I do know is that the editors want to continue to provide you, as readers, with inspiring, interesting and newsworthy stories. That can be done in many ways, in very different guises. Good ideas about this are always welcome.

The editorial team of Campus Magazine wishes everyone a happy 2024! •

Maaïke Platvoet
Editor-in-chief of Campus Magazine

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*'Since the UT's 60th
anniversary two years ago,
a lot has been set in motion'*



HOW THE UT IS TRYING TO REFRESH ITS COLLECTIVE MEMORY

'A STACK OF MOVING BOXES CAN BE A GOLDMINE'

THE EARLY YEARS OF THE UNIVERSITY OF TWENTE ARE BEHIND US. AT THE AGE OF 62, THE UT IS NOW ACTIVELY WORKING ON REFRESHING ITS COLLECTIVE MEMORY, AND THE FIRST GENERATION OF THT STUDENTS HAS AN IMPORTANT ROLE TO PLAY IN THIS ENDEAVOUR. AS PART OF AN 'ORAL HISTORY' PROJECT, THEY SHARE VALUABLE ANECDOTES ABOUT THEIR TIME ON CAMPUS.

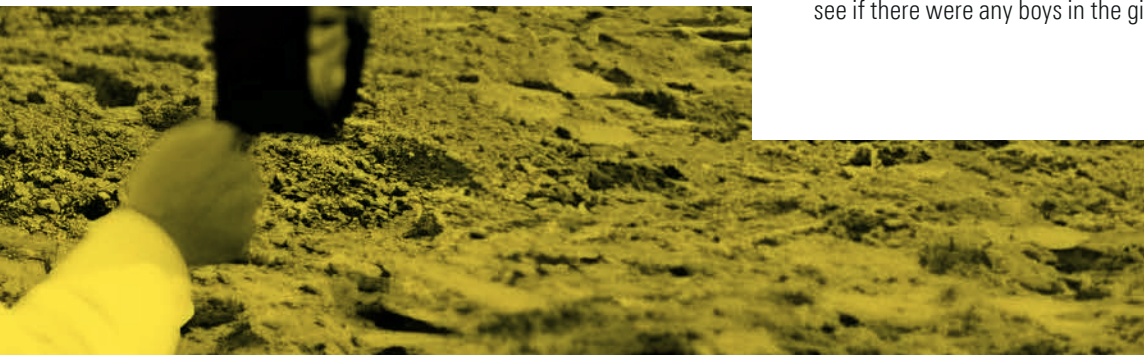
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In 1969, seventeen girls arrived at Twente Technical College (THT), which was considered 'quite a lot' at the time. Most of them wanted to study mathematics, but I, together with my fellow student Sjoukje, opted for Chemical Engineering. All seventeen of us lived together in one flat. I liked living with other girls. Together we learned to make chilli con carne and drink cheap rosé. We bought a treadle sewing machine and made trendy clothes for ourselves in the common room. We also played plenty of sports. We wanted to play hockey, but couldn't find enough girls to form a team, so we decided to play volleyball instead. You only needed six players for that.'

HOCKEY STICK

This is just a snippet from the story of Annemie Bongers, who grew up in Maastricht. Her mother was the one who suggested that she should go and study in Enschede. Not so much because she herself was from there but because she thought the campus would be a safe place for her daughter to study. The campus of a still very young technical college, with seventeen female students at the time, all living in the same flat. It was a very pleasant environment for Bongers, but the 'man's world' she found herself in could also be confrontational at times.

'I never experienced any MeToo incidents. I didn't hear about them from others either. But I did find it confronting how male students viewed us at the time. Now I think part of it was just awkwardness.' There are stories going around that there were checks in those days to see if there were any boys in the girls' flat, but Bongers dismisses this.





'Baseless rumours. No such checks ever happened. I did sometimes worry that men would enter our flat without permission, and I used to have a hockey stick next to my bed. By the way, we had our bed sheets changed for us back in those days!'

ANNIVERSARY

Today, in 2023, Bongers' story adds colour and context to life at the university in the year of the first moon landing. Her contribution is part of a so-called 'oral history' project, in which twenty first-generation THT students were interviewed. It is an initiative of the Archive department of the LISA (Library, IT Services & Archive) service, in cooperation with the Twente University Fund Foundation.

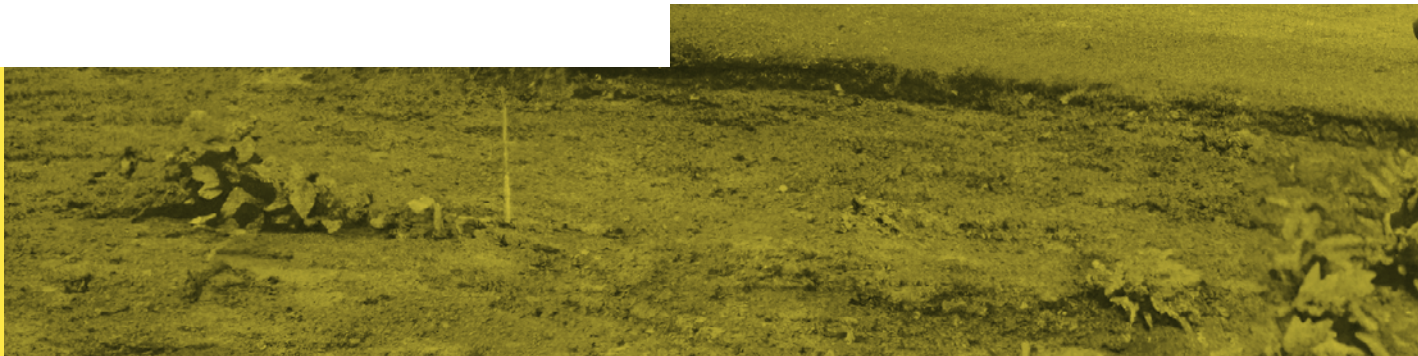
This project did not just come out of nowhere, explains Head of Archive Wiljan Puttenstein. 'Since the UT's 60th anniversary two years ago, a lot has been set in motion. After all, for many people, such an anniversary is a reason to look back. Furthermore, a survey among staff and students on sports and cultural needs that year showed that they specifically called for attention to Twente culture and the history of the UT. That tells us that the community is interested, that there is a demand for our history.'

FROM MOVING BOX TO GOLDMINE

It was time to strengthen the focus on historical heritage. And so, this year, the UT joined the Dutch Foundation for Academic Heritage,

an 'important milestone' says Puttenstein. 'There are quite a lot of initiatives at the university in terms of our heritage, but we lacked an overview. This membership brings more structure to our activities and allows us to exchange knowledge and experiences with other universities. It also provides opportunities to work together. A joint project on computer heritage is about to start, which we will actively participate in. Over the years, the Ampère Foundation has built up an impressive collection of equipment from the Faculty of Electrical Engineering, Mathematics and Computer Science.'

It is also worth mentioning that the UT recently acquired fairly complete archives of two leading figures at the university: Professor Arie Duijvestijn, one of the driving forces of computer science in the Netherlands, and former rector Harry van den Kroonenberg, founder of the UT as 'The Entrepreneurial University'. 'What was initially just a stack of moving boxes can now become a goldmine, especially for historical research,' says Puttenstein. 'Whether something is preserved often depends on coincidences, in these cases it was thanks to the families. Some people throw things out immediately or even burn them. I once had to rescue something from the paper bin myself. We do have an acquisition policy, so we can't just accept everything. But there is no harm in preserving things, even if it is difficult to determine their



value at the time. Even the scientific value of a collection isn't easy to determine. We collect it for future researchers, but we don't yet know what their research question will be.'

'READY TO FIGHT AT VINDICAT'


But the UT's academic heritage consists of more than just paperwork and objects, Puttenstein knows. It is also people's stories, their experiences, that allows us to relive history. Take, for example, Leen Noordzij's story. He was part of the very first batch of THT students and became the first Bachelor of Mechanical Engineering, the first engineer and the first Twente doctor to graduate at the UT. Like Bongers, he too fell for the charms of the campus. 'The excellent accommodation was definitely one of the reasons why I chose Twente. I was almost 22 when I moved to campus; most students were a few years younger. They still had a lot to learn. Like drinking, for example. I was already well versed in that because I had been in military service.'

Noordzij moved into a luxurious room in the first of the eleven flats on Calslaan and was an extremely active student for three and a half years; he was a student assistant, co-founder of study association Isaac Newton and sat on an introduction committee for first-year students. 'There was no hazing back then, no 'fraternity' atmosphere. There was

an exciting pub life on Friday nights, though. Once, we hired a bus and decided to visit Vindicat together. But they threw beer all over us there in Groningen. We didn't put up with that. We were ready to fight but fortunately, it didn't come to that. We made it back to Enschede in one piece.' But Noordzij was far from rebellious. For example, he did not approve of the havoc his fellow students caused on Campuslaan. The relatively closed campus community was not immune to the wild spirit of the sixties. 'If they didn't have a key on them, they would just kick in the front door. It would be complete chaos sometimes. Students once flooded the flats during that time. The whole place had to be completely renovated. Rector Gerrit Berkhoff expelled six or seven students from campus in those early days. Rumour has it that Professor Schuijer sometimes cried because of all the trouble students got up to at THT back then.'

'MUCH CAN BE LOST'

Noordzij's story is also part of the UT's oral history project. Twenty first-generation THT students form a group of willing candidates who tell interviewers as much as they can about the early years of the university and life on campus. It was a time when students, lecturers,



*'Stories of people who
were there and experienced
it are extremely important'*

and professors all lived on the campus. As a matter of fact, they had no choice, because living on campus was compulsory in those days. There were communal meals in the cafeteria.

'In the sixties, when the campus ideal was taking shape in Twente, the aim was for the university to become less elitist and for there to be a focus on the social side of technology,' says historical researcher Marjan Beijering of the History Lab. She conducted a number of interviews and supervises the oral history project, in which not only LISA staff but also members of UT senior association GEWIS participate. She believes recording oral history is of great importance. Much has already been recorded, in commemorative books for instance, but if you want to know how the campus ideal took shape in practice, you will have to ask students from that time about their experiences. With the help of oral history, you can include interviews as a historical source in the archive. The stories of people who were there and experienced it are extremely important. What ideals did they have at the time? How do they look back on their student days? What was life like on campus? Now is the time to interview them. 'Most of them are close to eighty years old and can still vividly recount their student days. You accumulate the most memories between the ages of fifteen and twenty-five. Those years are formative and very intense,' says Beijering.

Puttenstein shares that sentiment. 'In thirteen years, the university will celebrate its 75th anniversary, but it may be that some of the people we're interviewing now will no longer be around by then. Much can be lost in thirteen years' time. The combination of stories and anecdotes with all the documents and objects we have collected is incredibly valuable. It tells us a lot about how people experienced a particular era.' Moreover, Puttenstein says the heritage will only increase in value as the years go by. 'There will come a time when the UT celebrates its 100th anniversary. Then we will have the stories of the people who were at the front of the crowd when Juliana and Bernard cut the ribbon in 1964. Such a memory becomes more valuable with every passing year.'

UT'S DNA

As diligently as the UT's history is being recorded, what use is it to the average UT student in 2023? 'Of course, students don't come here for a history lesson. But a good historical awareness can help you define your own story,' says Puttenstein. 'The UT as a campus university is a special phenomenon, but so are the people who studied here - from the inventor of Wi-Fi to the founders of Booking.com and Thuisbezorgd... It says something about the university's DNA - and that attracts a certain type of student.' And what is true for individual students is equally true for the university itself. 'Being well aware of your history, especially as a young university, can help you shape your future.'

Like former German Chancellor Helmut Kohl once said: 'Wer die Vergangenheit nicht kennt, kann die Gegenwart nicht verstehen und die Zukunft nicht gestalten.' In other words, 'Those who do not know the past cannot understand the present and cannot shape the future.' •

Academic heritage at the UT comes in all shapes and sizes, from campus art and architecture to association almanacs. Below are some noteworthy examples:

- The Ampère Foundation: From the attic of the Carré building, a group of former employees manages the historical study collection of the Faculty of Electrical Engineering, Mathematics and Computer Science, with shelves full of measuring equipment, amplifiers, old PCs and oscilloscopes.
- The paper archive of THT-Nieuws/UT-Nieuws (now U-Today) - from 1963-1995 - has been completely digitised. Thousands of pages of university news were scanned and handed over to the Historical Centre Overijssel.
- In 1999, Dr J.A.P.G. Boot (1905-2006) gifted the university library a collection (about 16,000 volumes) on the history of the Twente textile industry as well as a collection of sixteenth- and seventeenth-century city books, including a Blaeu atlas.
- And finally, a relatively new form of presentation: this year, U-Today created a three-part podcast called 'Landgoed Drienerlo', a quest to uncover the mysterious role of Drienerlo estate owner Gerrit Albertus Lasonder, an NSB member who helped Jews go into hiding.



For more information about the Oral History Project: <https://ut.nl/zqmrnj>

'I'D RATHER BUILD SOMETHING MYSELF THAN RIDE ON THE BACK OF SOMEONE ELSE'S SUCCESS'

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IN EARLY OCTOBER, BRAM NAUTA RECEIVED THE PRESTIGIOUS STEVIN PRIZE. IN MANY WAYS, 2023 HAS BEEN A REMARKABLE YEAR FOR THE UNIVERSITY PROFESSOR, AS EVERYTHING HE TOUCHED SEEMED TO TURN INTO GOLD. BUT IT IS NOT SOMETHING TO BE TAKEN FOR GRANTED, HE SAYS IN AN EXTENSIVE INTERVIEW. 'I WOULD ALSO HAVE BEEN HAPPY AS A CARPENTER.'



No flags or balloons in Bram Nauta's office on the second floor of Carré. But what does catch the eye is a row of mobile phones - from an old-fashioned Nokia to a modern smartphone - and behind it, a glass plate with a circuit depicted in LED light. Or rather: the circuit. It is a gift from his colleagues at Integrated Circuit Design in honour of the Stevin Prize.

BRAINWAVE AT THE SWIMMING POOL

Before long, the university professor launches into a concise lecture on the now world-famous Nauta circuit, which formed the basis for technologies such as Wi-Fi and Bluetooth and can still be found in many people's pockets today. 'The circuit has stood the test of time,' says Nauta. 'In the end, it's actually quite a straightforward system: two inputs on the left, two outputs on the right, and four inverters in between. Each wire connects to an input or output. In a circuit, you ideally want to see two things: lots of amplification and lots of speed. Whereas a regular circuit can quickly start malfunctioning, this thing can handle it all. Through its practicality and efficient performance, it offers the best of both worlds.'

Much has been said and written about the eureka moment that eventually led to the renowned circuit, all the more so since the announcement that Nauta is one of this year's Stevin Prize winners. One day, Nauta hit a roadblock in his PhD research. He had mapped out a complex system with up to twenty inverters... He decided to go swimming in the indoor pool on campus and while swimming laps, he suddenly realised how to design a compact circuit out of that complex tangle. He did so on a piece of newspaper he borrowed from the pool manager. Speaking of newspapers, Nauta still remembers the headline for the article in UT Nieuws (the printed predecessor of U-Today). 'Brainwave in swimming pool' it read, which I thought was rather clever.'

TINKERING

It turned out to be the first step towards an impressive list of achievements, the most recent addition being the Stevin Prize early this month. Nauta describes the recognition that comes with it as 'nice'. 'A bus full of people drove from Twente to The Hague for the award ceremony. Unfortunately, I was only allowed to invite 75 people. It is the joint highest scientific award you can win in the Netherlands (alongside the Spinoza Prize, Ed.), so it's certainly something special. And it's for applied research too; I didn't discover any new material or a black hole. I'm basically just tinkering, an architect assembling something with existing building blocks.'

Handiness was ingrained in Nauta from an early age. Before he studied and obtained his PhD at the UT, he progressed from pre-vocational secondary education (MAVO, now VMBO) and senior general secondary education (HAVO) to pre-university education (VWO). As a matter of fact, after he had finished primary school, he was even advised to attend LTS, the lower technical school, for his continuing

education. 'I would also have been happy as a carpenter,' says the professor. 'When something is broken, I want to fix it. I remember creating a chain out of one solid block of wood, just by drilling and sawing. For my fifth birthday, my father gave me a block of wood and a thousand nails and he said: 'turn it into a block of iron'. To this day, I hammer every nail perfectly straight.'

BALANCING ACT

The connection between carpentry and chip design is easy to make. 'Working with your hands is working with your head. Chip design is precision work, you can't afford any mistakes. Designing a chip is like programming, with the main difference being that a mistake during programming can be solved in no time. If you make a mistake in chip design, you lose maybe a year's work', says Nauta. 'So you have to be both precise and sufficiently creative and innovative if you want to be at the forefront of this field. That's a very fine line to balance on.'

But there are multiple explanations for his recent success. It also has to do with the people around him. 'Within the department, we have an unwritten rule that we don't bother each other, but we do help each other if we can. In other departments, there are often multiple PIs (Principal Investigators, Ed.), who don't collaborate. Anywhere else, it would be unthinkable for someone to pass on a secured grant to a colleague. Here, projects are handed over internally, out of collegiality.' Finding the right people is a crucial element in this, says Nauta. 'I've always been told I have a knack for that. You often see it in people's faces, in the lecture hall too. Someone who doesn't just stare blankly ahead and nod, but challenges you and asks questions. Someone who wants to understand.'

2023 is the year in which many things came together for the professor: Nauta celebrated the 25th anniversary of his Integrated Circuit Design department, he received the Dutch Innovation Award last May ('a prize that was apparently created especially for me'), the 'Dutch Nobel Prize' in the form of the Stevin Prize... 'And I also became a grandfather,' he is quick to add. 'Yes, it has been a good year.'

REDUNDANT

When asked what he will do with the 1.5-million-euro Stevin Prize, Nauta's answer to de Volkskrant was: 'Tinker'. 'It's not like I need to take on more PhD candidates to start a new project. I currently have 24 PhD positions open; the last one will start in five years' time and when that person completes their PhD four years later, I will retire.' He wants to use the money to invest in lab infrastructure and raise the profile of his field. And create some more space for research that does not necessarily need to lead to anything right away. 'There are a few things - fundamental things - that I still don't understand very well. I want to invest time in these, to understand them better. Even if it's not very useful right now, it might be in ten years' time.'

But at the same time, he is no longer required to do anything; Nauta has effectively secured more research money than he can spend. 'It's not like I wake up with the idea that I need to raise money. That stimulus is no longer there, I don't have to do anything. On the one hand, that is a reassuring thought. It almost feels like I'm redundant, even though I'm still bursting with ideas. Besides: it's time for the next generation to learn. I want to help them do that.'

CHIPTECH TWENTE

To top it all off, this year also saw the 'explosion' of ChipTech Twente, a collaboration of companies and scientists centred around Nauta's department. The professor will be very busy with that too. Nauta envisions a modest role for himself within the cluster, but the plans are ambitious. 'To have Twente as the hotspot in Europe in the field of chip design, that's the goal. Everyone knows ASML as the centre of the semiconductor industry. Twente must become the epicentre for chip design.'

One of his motivations is the love for the region in which the Hengelo native grew up. 'That absolutely factors into it. There used to be just one small chip design company in Twente, called Bruco, which was located in Weerselo. Because of that, it wasn't easy to retain talent. Twenty-five years ago, this field was uncharted territory in Twente; now, nine companies specialising in chip design have established themselves within biking distance of the UT. By developing the industry, you provide people with a reason to stay.'

BUILDING SOMETHING

The fact that an initiative like ChipTech Twente has now taken off is anything but a matter of course, according to Nauta. 'Anne-Wil Lucas (former area director of Kennispark, Ed.) set the ball rolling when she noticed all this activity.' Within the UT, Nauta never felt that 'traction'. 'We also tried to establish a chip cluster at the UT, but it didn't get off the ground. It was just one little department - albeit a good one - backed up by many companies. And in microelectronics at that, which, of course, is not exactly nano-electronics. The centre then shifted to MedTech... But it's a good thing that the UT has put chips on the agenda after all. I hope this will further strengthen the region and encourage more graduates to stay here.'

In a way, 2023 feels like the year in which Nauta has got his dues: success and recognition, in whatever form, despite forces that worked against it. And on his own merit too. 'Sure, I've had offers from other universities. From Silicon Valley too. But I'd rather stay in a place where I can build something myself, than ride on the back of someone else's success at Stanford.' •



LANGEZIJD'S NAMED 'SCHOOL BUILDING OF THE YEAR'

Outgoing minister Liesje Schreinemacher (Foreign Trade and Development Cooperation) officially opened the new accommodation of the ITC faculty at the end of October. The ambassadors of Pakistan, Indonesia, Ghana and Tanzania were also present when the doors of Langezijds - formerly the building of the chemistry department - were officially reopened. In November, the building won an award; Langezijds was voted 'school building of the year' at the Architectenweb Awards, a national platform for architects. •



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SECOND PLACE FOR SOLAR TEAM TWENTE

Solar Team Twente crossed the finish line in second place team at the World Solar Challenge in October. For five days, the Innoptus Solar Team from the Belgian town of Leuven and Solar Team Twente were very close competitors in the 3,000-kilometre race through the Australian outback. The Belgians claimed a (much) better starting spot in Darwin, which meant Solar Team Twente had to chase them all week. The students from Twente ended up twenty minutes short of beating the Belgians at the finish line in Adelaide. However, Solar Team Twente can call itself the best Dutch team. •



SMART STUDY DEBT CALCULATOR

Master's student of Mechanical Engineering Dominiek Spin created his own 'smart study debt calculator', out of frustration with the calculation tool offered by DUO, the Education Executive Agency. Spin hopes his website can help fellow students, especially now that interest rates on study debt are rising sharply. Using four parameters - study debt, interest rate, the desired monthly repayment amount and the number of months you want to wait before you start repaying - you can see your financial situation. According to Spin, that insight can help students save thousands of euros. •

KOOS FOCKENS DEFENDS PHD THESIS

He started his UT studies in Electrical Engineering in 1965, and after a long career Koos Fockens, as a retiree, found another challenge in a PhD track. Fockens defended his PhD thesis this autumn at the age of 77. He researched causes and consequences in radio interference. Human activity increases the levels of electromagnetic noise and interference in residential environments, hindering and blocking the reception of radio signals over a wide frequency range. Among other things, Fockens found a significant increase in the noise floor in residential environments in his dissertation. •



UT MAKES ACUTE ADJUSTMENTS TO ITS FINANCES

Not extending temporary contracts, a vacancy stop and not even lunches or catering at meetings anymore. With a number of firm measures, the Executive Board wanted to 'make acute adjustments and achieve immediate effect' in the last quarter of 2023 to improve the UT's finances. The university budgeted a €15 million deficit this year and seemed to be heading for a €17 million deficit at the time. To keep the university financially healthy, the Executive Board deemed it necessary to intervene. •





WITH A CALCULATOR AND NOTEPAD AMONG SCREAMING CHILDREN

APPROXIMATELY 150 MECHANICAL ENGINEERING STUDENTS EXPERIENCED AN EXTRAORDINARY DAY OF LECTURES ON DYNAMICS. AMIDST THE SCREAMS AND CHEERS AT AN AMUSEMENT PARK, THEY WENT ABOUT CALCULATING THE FORCES ENCOUNTERED DURING A RIDE. 'IT FEELS LIKE A FIELD TRIP.'

15



Amusement park Slagharen. Once a territory for ponies, it remains the domain of school classes and day trippers to this day. A place of spinning, turning, screaming and yelling. However, this day is also about studying.

The second-year Mechanical Engineering students took a bus from the Spiegel on campus to Slagharen this morning. Students from both the UT programme and the joint bachelor degree with the Vrije Universiteit in Amsterdam joined in. 'It's fun to be here regardless,' says student Tjerk Zweers at the main entrance of the amusement park. 'But it should also be a learning experience.'

FIELD TRIP

As cheerful as Zweers already sounds on Friday morning, the cups of coffee are equally welcome to many of his fellow students in the American Circus Theatre. On the stage where ponies paraded in the not too distant past, now stands assistant professor Jurnan Schilder, who is also the initiator of the amusement park visit. 'It feels like a field trip, doesn't it?' he asks his students. 'But many of the rides we visit are excellent examples of dynamics. I would say: go on the rides, so you can experience the forces you calculate.'

Before the students split into groups to experience the forces expressed in various amusement rides, they receive a lecture from Schilder. For example, he explains the G-forces you are subjected to during a roller coaster ride, as well as the structural integrity of the construction itself, where the weak spots are usually at the welds and bolts. Before they know it, the teacher is chalking up his screen with free-body diagrams and equations. All in order to dissect the forces released during a swinging ship ride.

Accompanied by Schilder's colleagues, the groups of students then head toward the park's rides. The group led by PhD candidate Luc Keizers reports to the Tomahawk, a so-called spin 'n puke ride for the connoisseurs. For this assignment, the students only need to pay attention to the linear actuators, observing how the rotational motion of the motor is converted into a straight push or pull. Keizers advises students to observe carefully first, to only then draw out the problem on paper.

Not before long, a remarkable contrast unfolds: a screeching school class flying by in the Tomahawk, in the face of students busily poring over diagrams and equations on their notebooks or drawing tablets. On the other side of the park, at the Apollo whirligig, the picture is no different: hyperactive children run past Mechanical Engineering students who have littered a picnic bench with calculators, notepads and a bag of pepernoten.

'CALCULATIONS MUST BE CORRECT'

The dynamics become even more complex at El Torito, a so-called octopus attraction where the forces are exerted in X, Y, and Z directions. 'The beginning of the task is doable, describing how the elements move,' student Job Nahuis explains on the spot. 'But I'm a little afraid of the kinetics, calculating how the movements are connected. And of course the setting is different from a lecture in the Waaier. Now we approach it the other way around: instead of drawing from a calculation, we see an attraction moving where we have to figure out the underlying calculations ourselves.'

That is exactly one of the reasons for walking around here with 150 students, Schilder says. 'Of course it's more than a field trip, students are working hard here. This is a place where you see a lot of fun around you, but it is all about something that matters. The calculations for such rides must be correct, otherwise people will die.' The closer Schilder can bring reality to his students, the better. 'Such a complex device can be daunting, but if you sit down for a moment, you can flatten all those movements into a number of equations on paper.'

ON CLOUD NINE

Fortunately, there is also some time between the calculations for students to take a ride on a roller coaster, log flume, free fall or whirligig. The Spanish trio of Irene Encina, Lucas García and Alberto Marques just got off the whirligig and are on cloud nine with this unorthodox day of classes. 'People around me sometimes ask what kind of job I could do after this study. Well, designing something like that,' says Encina. 'It would be cool if we could go on a field trip to a ride builder later in our studies,' Marques adds. 'Seeing and experiencing it helps to calculate the dynamics, although it is a tough subject,' says García.

Moments later, the trio is in queue for the launching coaster Gold Rush. Calculating what G-forces a body has to endure is just part of the fun. But experiencing it in person, that is what gives you a thrill. •



'IT FAMKE FAN DE RJOCHTER'

What does exclusion feel like? Why do some people experience a gap between themselves and the leaders of the Netherlands? Journalist Joris Luyendijk examines our society through an anthropological lens and published his book *De zeven vinkjes* [The seven check marks] last year. What he observed was that a group of three percent are in charge. Men - and a handful of women - with a set of common characteristics: the so-called seven check marks. Male, heterosexual, white, with a grammar school or pre-university education (VWO) degree, a university degree, at least one parent born in the Netherlands and one parent who is highly educated or well-off.

The book caused quite a stir. Were the people who ticked off all seven really that powerful? Were they deliberately excluding others? It also created a sort of social game: how many check marks do you have? Some secretly added a few. Others were ashamed of their high score.

It's one of those books that many people have an opinion about, but few actually read. That is why Studium Generale invited Luyendijk to come and talk about its contents at the UT. The crux of his story? People with seven check marks are often unaware of their privileges. They believe they have earned their place at the top of the social ladder through hard work. On their own merit. If others put in more effort, they too can achieve what they want. Injustice, poverty or unequal opportunities? Just pull some economic levers, emphasise personal responsibility and voilà, you're a fool if you fail to climb the social ladder. After all, where there's a will, there's a way. Having a positive attitude generates success. Pessimism is for losers.

But... how can you be aware of your privileges if you've never experienced exclusion based on your background, skin colour, dialect, gender or education?

When I was five years old, my parents moved to Oentsjerk, a village in Friesland to a street which already had a row of houses on one side. Small houses for the families of a carpenter, bricklayer or bicycle mechanic. Across from these, detached houses were built for the households of a teacher, stewardess, dentist. And a judge. My father.



I'm a typical 'six-ticker': the only thing that prevents me from ticking off all seven is the fact that I'm a woman. As I grew older, I realised that I'm sometimes disadvantaged based on my gender. But as a young girl, I never noticed. I learnt to speak Frisian in no time and played with all the children. It was a wonderful childhood.

However, the parents of my friends from across the street would sometimes make snide remarks about my parents. They thought they were different, and they didn't mean that as a compliment. That much I understood. Another strange thing was that whenever we got up to some mischief the 'victims' would only ever show up on our doorstep. After all, I was 'it famke fan de rjochter', the judge's daughter. I was truly separated from the group when we all went to secondary school in Ljouwert. My friends all went to housekeeping school, a few enrolled in pre-university education. I was the only one to attend a grammar school. Suddenly, I was no longer part of the group. For six years, I cycled to school alone, twelve kilometres through all kinds of weather, without a group of friends to keep me company. I was excluded, but it wasn't that bad: I exchanged my playing bubble for a learning bubble.

We also invited Luyendijk to listen to residents of poorer neighbourhoods in Enschede. People talked about the lack of understanding between official bodies and themselves. They felt unheard, unappreciated, lost in a bureaucratic quagmire. That is what true exclusion feels like.

There was also a solution to somewhat reduce the gap. Local residents set up groups to help each other or mediate with the municipality. After all, they personally understand how it feels to be excluded. And that is how you can help: realise that society is bigger than your own bubble. Let people come up with their own solutions instead of formulating policies over their heads. Open up a seat for them at the governance tables. And above all, truly listen to other people. Whether they have zero, three or seven check marks. •

Hiska Bakker

Historian, journalist and presenter at Studium Generale

MANAGESCAPE AIMS TO TACKLE WORKPLACE INEQUALITY

PROVIDING MANAGERS WITH A DATA TOOL TO GAIN INSIGHTS INTO THEIR TEAM COMPOSITION. THAT IS WHAT UT ALUMNI AMALIA BĂLAN (24) AND MADALINA PLOSNITA (22) ARE WORKING ON AT THEIR START-UP MANAGESCAPE. THE DUO WANTS TO PRIORITISE DATA OVER FEELINGS AND SEEKS TO PROMOTE GREATER DIVERSITY IN RECRUITMENT.

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They met during their bachelor's in Communication Science. Amalia Bălan from Romania and Madalina Plosnita from Moldova. After their internships, their paths crossed again and it just so happened that they both had the exact same experience at their respective workplaces: they saw managers putting together a team or hiring new staff based on their feelings rather than science-based data. Bălan: 'And believe me, it's a big problem. Because managers tend to hire people they can recognise themselves in: the similarity-attraction effect. Not only does this lead to great inequality, it can also result in your team missing certain hard and soft skills. We wanted to do something about that.'

ARTIFICIAL INTELLIGENCE

That 'something' led to the birth of Managescape in March 2022. Managescape is a tool that offers guidance in forming a team, specifically for managers of medium and large size companies. The data is based on the qualities of the employees already working at the company. Plosnita: 'We provide employees with a neuroscientific questionnaire to identify their unique profile through artificial intelligence. This includes personality, compatibility, technical skills - such as programming or accounting - and soft skills such as creativity and critical thinking. This way, a manager knows exactly

what skills and qualities they have within their workforce, but also what is still missing.'

The duo built the tool themselves and it is now part of the Novel-T ADVANCED programme. In 2022, they received a 4TU wildcard and won the ASML Makers Award at the UT Challenge. Bălan: 'A great surprise, especially since ASML is mainly focused on manufacturing and engineering. For us, it was a confirmation that the problem we want to tackle is prevalent everywhere.'

PATIENCE

Bălan and Plosnita talk passionately about Managescape and firmly believe in the importance and potential impact of their start-up. At the same time, the duo is also aware that there are considerable steps to take before Managescape can enjoy a sustainable future. Plosnita: 'We're now in the testing phase to improve the tool and are in contact with potential customers. These are two companies with about fifty employees. We're also working towards a testing phase with a company with over a hundred employees. The more input the tool receives, the better the results. That's how artificial intelligence works. This phase is interesting, but it requires an incredible amount of patience. We're constantly taking two steps forward and one step back.'

MANAGESCAPE

High tech supports equality



Build your perfect team
in the Managescape

Madalina Plosnita (left) and Amalia Bălan

'A start-up is a continuous learning process,' Bălan adds. 'Madalina and I believe in our mission one hundred percent, but in this phase, finding the right people for our start-up is difficult. Our resources are limited and you need to intrinsically motivate people with a long-term vision to get them on board. For now, we're doing everything with just the two of us and we receive support from two colleagues from Novel-T in IT and communications.'

In the future, Managescape hopes to help all sorts of companies with team formation. For the coming period, the focus will be on the healthcare and education sectors. 'The Dutch healthcare sector is supposed to be largely digitised by 2030, but institutions often have no idea whether and to what extent their employees are ready for this. We can help by mapping out the complete staff profile. What skills are missing in the workplace? A manager or HR can take this into account during recruitment. Then, choices can be made based on specific data,' explains Bălan.

She also sees potential for Managescape in the world of education, for instance to tackle the high drop-out rate in the first year. 'In project-based education, not everyone gets the chance to excel. Suppose someone doesn't feel welcome, is introverted or feels lonely. Then they might drop out, even though they might be of added value elsewhere. We see opportunities here, through mapping skills while also taking personality and mutual connection into account,' says Bălan.

FILTER BUBBLE

According to her, the biggest problem Managescape wants to tackle is the initial filter bubble used by managers. 'They choose people they feel good about. That is often a narrow selection, but it has major consequences. A lot of talent is left out and as a company you lose that talent.' Plosnita: 'And subjectivity has another big disadvantage. Managers can make choices in an application process that not everyone supports. Our report provides transparency in the recruitment process and in the internal decision-making process.'

The alumni - who work in the Incubase spaces at the Bastille - put a lot of time into building trusting relationships with potential clients and getting to know the company culture. When is their job finished? 'That depends on the client, but in the ideal scenario, we deliver a report with data and companies stay connected to us, as neuroscientific research is not a one-off thing,' says Bălan.

The entrepreneurial duo has no shortage of ambition. Bălan hopes that Managescape will eventually become the European leader in data-based organisational development. 'And I hope people understand how big our impact can be. We all spend so much time with colleagues, often more than we do with family. By putting together a complementary team, managers can be lifesavers. Not feeling happy at work is a terrible thing, also for those around you. We can make a difference there and we want to convey that message.' •

IN THE RIAGG HOUSE, IVO NIEHE IS NEVER FAR AWAY

THE UT HAS NUMEROUS ICONIC STUDENT HOUSES. WHAT KEEPS THEM UP AND RUNNING? AND WHAT BINDS THEIR RESIDENTS TOGETHER? WE ASK THE INHABITANTS OF HET RIAGG, A MEN'S HOUSE THAT HAS BELONGED TO TASTE SINCE 1997.



Walk across the Oude Markt square in the Enschede city centre and down Menistenstraat, turn right before Stanislaus Brewskovitch and then immediately left and you will find a green front door next to Big Belly's Tavern. Next to the door you will see two doorbells: one for the Riagg house, the other for the DADA house. Sitting at the kitchen table of the former option are residents Nils Meulenbroek, Job de Beurs and Julian Wets. They are enjoying a Chardonnay on their regular Monday house night.

The Riagg house was established in 1997, one year after their female Taste neighbours DADA. The name Riagg is a reference to the mental healthcare organisation, the predecessor of GGZ. 'Riagg, de regionale instelling voor ambulante geestelijke gezondheidszorg (the regional institution for ambulatory mental health care). You need to commit that acronym to memory if you come to live here,' says De Beurs, an Industrial Engineering and Management student.

CUP OF COFFEE

Wets, an Industrial Design student, chimes in. 'From what we understand, the ladies of DADA were always busy with flings and boyfriends during the founding years. Sometimes someone would sneak out through the back door and via the roof terrace and then they would drop in at our place. We would offer them a cup of coffee and serve as a kind of reception centre. That tradition of drinking coffee at the Riagg house has lived on.'

The three interviewees make up half of the current Riagg residents. Strikingly, there has been no change of occupants in years. Meulenbroek: 'We've been living in this composition for almost four years now, which is quite unusual. We even survived the pandemic together. This has always been a house for 'long-term students', with some living here for as long as eight or nine years.'

What makes the house on Van Lochemstraat 228 so special, according to the gentlemen, is that there is only one common room: the living room. De Beurs lists the advantages of living in the house. 'You don't come here for the facilities, but the location is perfect. And the rooftop terrace more than makes up for it in summer. On top of that, the combination with our DADA neighbours is unique. We hang out together a lot and often visit each other.'

IVO NIEHE

According to legend, television presenter Ivo Niehe once lived at Van Lochemstraat 228. 'There are even rumours that he was the founder of this house. I don't know whether all those rumours are entirely true, but that's not really something you should want to check. We once sent Ivo a message on Instagram, but unfortunately we didn't get a response,' says Wets. A special place has been dedicated to

Niehe in the common room. From a large poster, the television legend confidently gazes in the direction of the kitchen table. 'What's nice is that he always looks at everyone at the same time and he always looks content. Niehe is also our group chat picture. Next to his poster are pictures of people who we are sure have lived here,' Meulenbroek says.

Throughout the year, Riagg celebrates New Year's Eve with the neighbours, hosts a house party and arranges themed parties. 'And the youngest member of the house arranges a wine tasting every year. We then drink a lot of cheap wine together, as cheap as the wine we're drinking now,' De Beurs reckons. 'And we plan an annual DIY weekend, although that doesn't always pan out. I once made that cabinet as a house assignment. Unanimously a ridiculously great success, if you ask me. Yes, we often quote Ivo Niehe here.'

CUTTING DOWN CHRISTMAS TREES

Any other Riagg anecdotes worth sharing? Meulenbroek grabs a notebook from the windowsill. 'This is where we write down special quotes or anecdotes, so we don't forget them. I'm not sure if these are suitable for sharing, though. I do have another good story to tell: we always have the youngest member of the house get a Christmas tree, but he's not allowed to spend money on it; that would be too easy. We always convince that person that we cut down a tree in the forest every year. Job here believed that story and actually did it a few years ago. In the middle of the pandemic, he cycled all the way to that forest behind the university to cut down a tree.'

After the Christmas tree story, the residents recount one anecdote after another. It seems that the book of Riagg stories is far from finished. The question is who the new characters will be, given that there will soon be a change of occupants after so many years. Meulenbroek: 'Our dynasty is coming to an end. We're entering a new era.' •

*'The youngest member
arranges a wine tasting
every year'*

PANORAMAS

You might just be attending a lecture on strength calculations and the distribution of forces, when suddenly, next to you, two sweaty feet stick to the window. You then see the owner of those feet, dangling from a rope, making their way down... No, it was not an everyday scene this autumn, when a crowd of UT students rappelled down the 53-meter high Horst tower. The occasion was a special one: ASV Taste celebrated its 35th anniversary with this 'Braided Descent', as a nod to the student association's logo. An ill-suited lustrum activity for those with a fear of heights, but the participants who dared could enjoy breathtaking vistas. For the students who followed their lectures inside, the panorama was a bit less flattering. Not to mention the fate of the window cleaners... •



UG RECTOR JACQUELIEN SCHERPEN ON HER TEN YEARS AT THE UT

'I HAVE BECOME INCREASINGLY INTERESTED IN POLICY MATTERS IN RECENT YEARS'

24

THE POSITION NEVER EVEN CROSSED HER MIND DURING HER STUDIES AND PHD AT THE UT, BUT SINCE SEPTEMBER, JACQUELIEN SCHERPEN (57) HAS BEEN RECTOR MAGNIFICUS OF THE UNIVERSITY OF GRONINGEN. ON TOP OF THAT, SHE HAS BEEN AWARDED THE TITLE OF ENGINEER OF THE YEAR. THIS CALLS FOR A VISIT TO THE CITY OF GRONINGEN.

The UT and the University of Groningen (UG) share some similarities, but there are also clear differences. One of them being the location where the Executive Board is housed. Whereas the three UT board members are based at the front side of the campus in Vleugel, the situation is a little different up north. Due to renovations to its accommodation on Oude Boteringestraat, the Groningen Executive Board is temporarily working from behind the front door of a characteristic house in the heart of the city centre, at Muurstraat 14, a street that runs parallel to the houseboats on the waters of Lopende Diep.

Not far behind that front door, Jacqueliën Scherpen recently settled into room 0013. 'But I'll be moving to another room soon. I'm rather attached to my books, which are all packed up in those moving boxes over there, but there's no room for them here.' On Friday, the 1st of September, during a ceremony in a packed Martini church, Scherpen was handed the rector's chain by her predecessor Cisca Wijmenga. 'I dove headlong into all kinds of dossiers and for two days a week, I tried to wrap up my old job. At least, that was the plan. In practice, everything overlapped and got mixed up, but things have more or less settled down by now.'



TWENTE OR GRONINGEN

Scherpen, who is originally from Schoonebeek in Drenthe, studied and obtained her PhD at the UT between 1984 and 1994. Her parents were not keen on the idea of her studying anywhere beyond Groningen or Twente. The enthusiastic information session on applied mathematics in Enschede proved to be the deciding factor for her. 'I had no idea what I wanted to do. I thought I might like to work at a bank in the future. In Twente, there was an option to specialise in a type of financial mathematics later in the programme. That seemed like something for me, though in the end I didn't even choose that specialisation.'

The mathematician looks back fondly on her Twente years. She was an avid volleyball player at Harambee, lived in multiple student houses - including one on Bilderdijkstraat - and was actively involved in study association Abacus. 'Together with my three former housemates, we recently visited the house on Bilderdijkstraat during a city trip. The only change was that the residents had squeezed in an extra room.'

What has stayed with the Rector the most from her years in Twente? 'Maybe it would be a bit much to call it one big family, but that's often what it felt like. It was a close-knit community. Of course,

you didn't hang out with everyone and at 77 students, our cohort was relatively large, but you could just drop in anywhere and it seemed like everyone knew each other. Another great thing was that lecturers also often joined us for the monthly get-togethers.'

Despite her enjoyable time in Enschede, Scherpen relocated to Delft to focus on electrical engineering after obtaining her PhD in systems and control theory - with her dissertation entitled Balancing for Nonlinear Systems. 'I was advised to go somewhere else for a while to get out of my own bubble. It turned out to be good advice because I spent some wonderful years in Delft. After a while, I even felt like a true Delft resident.'

CROSSROADS

At several points in her career, Scherpen found herself at a crossroads. Although she was tempted by the idea of working abroad, she turned down the opportunity to switch to the corporate life several times. However, in 2006 she decided to leave Delft for Groningen. 'Not a technical university, but my discipline had always been highly regarded in Groningen. My family situation was one of the reasons I made that



choice. My husband and I both grew up in the east and wanted our children to have the same sense of space growing up that we had had there. The Randstad was so crowded.'

As a professor, Scherpen started the research unit Discrete Technology and Production Automation and focused on systems and control engineering. In 2013, she also became director of the Engineering and Technology institute Groningen (ENTEG). Furthermore, she founded the Groningen Engineering Centre and in 2018, she joined the national engineering deans' consultation. In 2020, the international IEEE, the Institute of Electrical and Electronics Engineers, appointed her a Fellow and she was also appointed Captain of Science of the top sector High Tech Systems and Materials.

SECOND WOMAN

And then, 2023 arrived. Scherpen received the Prince Friso Engineering Award from Princess Beatrix herself, earning her the title of Engineer of the Year. It came as a complete surprise. 'It brings extra exposure, not just to me, but to the university as well. It shows that I was able to contribute something to the image of the engineering field and I consider that an honour.'

She speaks about her appointment as Rector with the same modest pride. After Wijmenga, Scherpen is the second woman on the long list of Rectores Magnifici. 'I firmly believe that a team with more diversity comes up with different solutions than less diverse teams. And I mean diversity in the broadest sense of the word, not just in terms of men and women. What helps is that I know the challenges you might run into as a woman. I understand those better than my colleagues would. I know what it's like to be the only woman in the workplace, for example at electrical engineering in Delft. Fortunately, times change, but sometimes they change too slowly. This is something I'd like to contribute to. Cisca was already doing that and I'm happy to continue her work in that area.'

Scherpen says that becoming Rector was never her goal. When the UT was looking for a successor to Thom Palstra a few years ago, the thought of returning to Twente never even crossed her mind. However, in the spring she decided to vie for the position of Rector in Groningen. 'I have become increasingly interested in policy matters in recent years, but I wanted to establish myself academically first, before thinking of such a position. Plus, the timing was better for me personally.'

A COMPLETE PACKAGE OF SOLUTIONS

Scherpen sees the major challenges society faces as motivation for her new role. 'I feel that now is the time when we, as universities, can and must contribute to the enormous challenges ahead. Especially as UG - with our profile combining so many disciplines from all faculties - we want to create a complete package of solutions. I see a lot of opportunities there.'

At the same time, Scherpen is aware that a challenging period lies ahead. UG is facing a period of cutbacks, predecessor Wijmenga expressed her concerns about the loss of dialogue during a farewell interview, and in Groningen, too, there is apprehension about The Hague's future plans for higher education and discussions about internationalisation. 'It is a cause for concern. We've been working on becoming more inclusive together for years. We encourage all students to think globally because that's what's needed. It feels like we're being forced to take a step back now.'

The Rector believes that issues such as housing and access to education for Dutch students require critical attention, but she fears the consequences of a sledgehammer approach. 'It's happening too fast. Moreover, student numbers are declining demographically, the population is ageing and there are substantial labour market shortages that will not improve any time soon, for example in engineering. Not to mention our role in the region, which is comparable to that of Twente. That's why universities need to cooperate to an even greater extent. Fortunately, this is happening more and more. We're initiating discussions with Twente about more cooperation as well.'

Scherpen also advocates a more stable funding of education. 'In the current system, someone who studies at a university but turns out not to fit the academic approach of that programme, chooses another university programme. It would be much better for the country if that person entered higher vocational education instead, but our funding system doesn't support that.'

These are the challenges that Scherpen and her colleagues will address in the coming years, preferably in alliance with the other universities wherever possible. Will she ever consider returning to Twente? 'When my husband and I left Enschede we said to each other: when we retire, we will return to live here. Will things really work out that way? Who knows.' •

'HERE YOU CAN BUILD YOURSELF UP TO BE THE BEST VERSION OF YOURSELF'

Xander Bon (22) has put his master's degree in Industrial Engineering and Management on hold for a board year as president of the Student Union.

01

STEPPING OUT OF THE LECTURE HALL AND INTO A BOARD POSITION. WHAT IS THAT LIKE?

'It's a world of difference. One moment you're a student, the next, you're at the helm of an organisation. But it also makes for quite a challenge. I'd read up on it thoroughly of course, but now that my first weeks are behind me, it's even more than I expected. It's truly special that, as a UT student, you're given the opportunity and trust to take on such a task. As a board member, you have a lot of responsibility; something you'd probably only get after several years of work experience when you start your career.'

02

HOW DO YOU FULFIL YOUR ROLE AS PRESIDENT?

'The SU board members have very different portfolios, each with their own responsibilities. I serve as a facilitator within our team. We've only just started, but we're already becoming a very close team. We really work together well and I think I play a role in that. I'm good at overseeing the big picture, keeping an overview and not drowning in things that aren't primary goals.'



03

WHAT IS YOUR MAIN FOCUS AS STUDENT UNION?

'Our priority lies in encouraging personal development outside of studies. There should be many different ways you can do that, and how you can use your student days for that. When I started my programme, I had a completely different picture of what my student life would be like. But along the way, there were many stimuli and opportunities that attracted me. In my opinion, this is a true core value that we as the UT should propagate even more and that sets us apart. Here you can build yourself up to be the best version of yourself. But the path that leads there is one you determine yourself, it's not set out for you.'

04

CAN YOU USE OTHER PLACES AS A MIRROR FOR THE WAY YOU DO THINGS HERE?

'There's nowhere else in the Netherlands where students have so much policy responsibility. Our ambition is to propagate this further too. Students themselves are the best judge of their own needs, both for their extra-curricular personal development and for sports and culture. We make connections with organisations within the Netherlands that have the same goals but may not operate in the same way, as well as with similar organisations in England and Scandinavia, for example, to exchange knowledge about which approach works and which doesn't, and what challenges they run into.'

05

HOW DO YOU VIEW THE STUDENT CULTURE IN ENSCHEDE?

'Above all, it's very convivial. Of course, the UT is not that large, which helps. It allows us to really connect with each other and creates a sense of familiarity. Fortunately, we hardly have to worry about the extreme incidents that sometimes appear in the media elsewhere. A great example is our responsible alcohol consumption covenant that we have made with the associations. Because of this, there is a lot of discussion and an open dialogue about what is happening, what is desirable and what is necessary.'

'I WANT TO BE AT THE FOREFRONT OF SCIENCE'

OLEKSANDR MIALYK HAS HAD A FAIR SHARE OF HARDSHIP DURING HIS PHD JOURNEY AT THE UT. HIS SUPERVISOR, ARJEN HOEKSTRA, DIED, THE COVID-19 PANDEMIC BROKE OUT, AND WAR STARTED IN UKRAINE, HIS HOME COUNTRY. DESPITE ALL THAT, MIALYK KEPT GOING. HE RECENTLY FINISHED A PROJECT WITH THE WORLD BANK AND EVEN CONTRIBUTED TO A REPORT OF THE INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE (IPCC).

'My first study, hydrogeology, was not satisfying for me. I craved something with a broader perspective and tried my luck in applying for Erasmus Master's. I was accepted with a full scholarship, and it was a life changing experience. It was my desire to be a part of something big, something of global importance, such as the UN or WWF, and work on environmental issues. That's how I discovered Professor Arjen Hoekstra and his ERC-funded project focused on humanity's water footprint – a challenging topic and a perfect fit for me.

Shockingly, Arjen died only three months after I started my PhD. It was a major loss for everyone. Shortly after, the grant was cancelled and most of my project fellows had to leave. This took a toll on my motivation.

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LOCKED IN MY APARTMENT

Arjen always believed that you could do more than you realized, which was suddenly missing. Luckily, I still had great supervisors and colleagues. But not long after, the COVID-19 pandemic started which was another big challenge. I spent most of my days locked in my apartment alone with two screens and a connection to a supercomputer, making sure that my research wasn't delayed. When things began to normalize, another shock came. Russia started a full-scale invasion of Ukraine. For the first month, I was not able to work. Together with other Ukrainian employees, we were trying to collect humanitarian aid and help people who were affected the most. Obviously, my PhD progress was put on hold for a long time.

Now I feel like I'm in a good place. I think I was able to get through everything because I'm quite rational and self-disciplined, like Spock from "Star Trek". Yes, I often feel bad about things and the world provides us with plenty of reasons, but then my rational self tells me to move on and focus on what's within my control.'

'I'm still the kid that believes he can make a difference'



WHAT I DO

'My PhD research is focused on assessing recent changes in water footprints of 175 crops, such as wheat, tomatoes, apples etc. We've developed a global model to simulate crop growth and assess how much water is needed for it. Based on my research, we can see that humanity's water footprint is increasing even though we are more efficient in our production. Modern farmers can grow more crops compared to the 1990s using the same amount of water. However, the humanity needs so much more produce nowadays that the global water consumption keeps increasing. Now I'm at the last stage of my PhD research, aiming to figure out why exactly this is happening and what we can learn from it.'

Because of the global scale of our group's work, we got interest from the World Bank last year. The World Bank is creating an overview of water resources around the globe, focusing on water scarcity but also water quality. Essentially, they want us to provide fresh estimates for the humanity's water footprint covering not only crops but also industrial and domestic use as well as international virtual water trade. Some luck came my way, and I was able to work on this project as part of my PhD research. Currently, we are in the final phase of this project and expect the World Bank to publish the report sometime next spring. I hope Arjen would be proud to hear it.

On top of that, I've been a member of the Agricultural Model Intercomparison and Improvement Program (AgMIP), a global community of scientists aiming to provide future projections of crop production. Last year our joint paper made it to the latest IPCC report. Even though my work is only one small part, it is a part of something at the forefront of science. And that feels like the place I want to be.'

FINDING MEANING

'If you do a PhD, you need to get satisfaction from it and to know that what you do is not for nothing. This struggle is quite common in academia. Many people get imposter syndrome. They think they are not good enough and that their research is useless.'

Sometimes, I also have these doubts, but I manage to keep them under control.

It all came together for me, despite everything. I really want to stay in academia. In March, I will begin my postdoctoral journey at the UT.

I'm actually refusing other job offers because I know what I want—to continue researching the interplay of food and water. There are many challenges where I can positively contribute. I'm still the kid that believes he can make a difference.' •

OLEKSANDR MIALYK



PhD research topic

Assessing global changes in water footprints of crop production.

Work

PhD candidate at Multidisciplinary Water Management group, Faculty of Engineering Technology (ET), University of Twente.

Education

Erasmus MSc in Water Science and Engineering from IHE Delft (the Netherlands), TU Dresden (Germany), and Instituto Superior Técnico (Portugal) & MSc in Hydrogeology and Engineering Geology from Dnipro University of Technology (Ukraine).

Originally from

Ukraine.

CITIZEN SCIENCE HUB TWENTE CONDUCTS RESEARCH ON LONELINESS AMONG TWENTE CITIZENS

'CITIZEN RESEARCH IS THE DEMOCRATISATION OF SCIENCE'

THE UT'S NEW RESEARCH PROGRAMME 'CIVIC AND CITIZEN SCIENCE' IS OFF TO A GOOD START. WITH FINANCIAL SUPPORT FROM THE PROVINCE OF OVERIJSSSEL, FIVE SUBMITTED CITIZEN SCIENCE PROJECTS HAVE BEEN REWARDED WITH UP TO 10,000 EUROS EACH. TOGETHER WITH TWENTE INHABITANTS, UT SCIENTISTS ARE ROLLING UP THEIR SLEEVES AND WORKING TOWARDS VALUABLE RESEARCH RESULTS.



One of these projects is a study on loneliness among Twente citizens. Jeroen Ottink, project leader of the IKKanWelzijn Enschede foundation, immediately addresses a common preconception. 'Loneliness can affect anyone and everyone. It can't be linked to factors such as age or background. The most important factors are life-changing events and circumstances such as: dismissal, a death, a new degree programme, retirement, poverty and low literacy. The trigger often has to do with major changes in your life's trajectory,' he explains.

Together with UT researcher Jodi Sturge, he is working on establishing the subsidised project. And that is very much needed, he says. 'Research shows that fifty percent of Enschede's residents experience feelings of loneliness. That's a high figure! And we know that twelve to thirteen per cent even have feelings of extreme loneliness. This undoubtedly leads to psychological and mental issues. We know from previous research that loneliness is as harmful as smoking fifteen cigarettes a day.'

Previous research has shown that people need positive encounters, Ottink points out. 'How can we facilitate this and bring it about? That's what we will be exploring together with the UT. There are welfare organisations that often focus strongly on offering activities. These activities are informally advertised as: 'Come and eat with us!' Or 'Join us for a bike ride'. But this is not how you reach the people who are truly lonely. The real question is: how do we get behind the front doors of people who are lonely. That's where our focus lies.'

NO IVORY TOWER

The study is still in its early stages. It currently involves a group of fifteen to twenty people who have recently experienced feelings of loneliness. Research questions are formulated collectively based on their experiences. In addition, the initiators are engaging in discussions with UT researchers, and seek support from students if possible. 'The aim is that in due course we'll be able to present joint results, substantiated by data. Results that answer questions like: What actions or what products are needed to help people maintain valuable contacts? That's the first step. After that, we will consider our next steps,' Ottink explains.

BROADER MOVEMENT

Michelle de Boer, coordinator of Citizen Science Hub Twente, calls citizen research the 'democratisation of science.'

Citizen Science is a broad movement, she points out. 'We shouldn't pretend it's something new. Citizens have had an active role in various research projects at the University of Twente for a long time. I'm

referring to projects at the ITC and BMS faculties. Think, for example, of soil measurements carried out by local inhabitants.'

'In January 2023, we officially launched Citizen Science Hub Twente,' says De Boer. 'The aim of this hub is to coordinate and support citizen science activities within the UT.' The hub builds on TOPFIT CitizenLab, the European INCENTIVE project that is setting up four Citizen Science Hubs at four European universities including the UT, and is in line with UT's Shaping 2030 strategy.

PARTICIPATING IN RESEARCH

A prime example of citizen participation is the page on the University of Twente website where citizens can sign up to participate in research on the online platform 'Meedoen', De Boer points out. 'This portal works both ways: not only can residents express their interest in participating in ongoing research, but citizens can also pose their own research question here. For example, one resident asked whether the UT could do research on the valuable conversion of car exhaust gases. This way, the portal also provides the UT with insight into what citizens are interested in.'

To her great satisfaction, Michelle de Boer has noticed that more and more is happening at the UT in terms of Citizen Science. As an example, she mentions the recent Citizen Science for Health conference, which involved a special day for citizens. 'That day, citizens got to work with researchers on citizen science methodologies.' She also sees the recent appointment of community manager Wiro Kuipers as a valuable stimulus. 'Our Citizen Science Hub is also there to support researchers and citizens and to keep those people engaged. Wiro will certainly have a valuable role to play in this.'

The five projects subsidised by the UT and the Province of Overijssel are now up and running. 'We don't have an ultimate goal for the study on loneliness among Twente citizens,' says De Boer. 'But if we manage to connect the people currently participating as trainers in this project to citizen science after it's completed, that would be wonderful! They in turn might be able to train others on the topic of loneliness. This creates a ripple effect.'

The initiated citizen project is also a pilot for the UT. De Boer: 'We're learning from it as a university. Every quarter, we review the progress and discuss what problems we have encountered. It's a valuable learning process.' But what is even more important is that this project ultimately yields results that benefit citizens. 'That people really become less lonely. That would be a true victory,' says Ottink. •

TEACHER OF THE YEAR HEIDI TOIVONEN

'TEACHING FEELS LIKE COMING HOME'

LAST JUNE, FINNISH ASSISTANT PROFESSOR HEIDI TOIVONEN (39) WON THE TITLE 'TEACHER OF THE YEAR'. ORIGINALLY A CLINICAL PSYCHOLOGIST, HEIDI ONLY STARTED TEACHING TWO YEARS AGO, SO THIS IS QUITE A FEAT. 'I WANT TO CONNECT WITH STUDENTS AND LISTEN TO THEIR NEEDS.'

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It's the 18th of March, 2020. Heidi can still see herself standing at the airport in Helsinki. Her flat has just been emptied. Her belongings have already been transported to the Netherlands. The Finnish government is about to close the borders due to Covid-19. Flights are being cancelled, but she HAS to get to Amsterdam. There, the love of her life awaits, with whom she will embark on a new adventure. By a stroke of luck, she manages to get the very last flight.

Now, more than three years later, she can laugh about it. 'My boyfriend had arranged for us to stay in a nice hotel in Amsterdam. We were looking forward to a full and hearty breakfast, but we had to make do with two small breakfast bags that they pushed at us from a distance.'

Back then, she could hardly have imagined that three years later, she would be pregnant with her first child, living in Tilburg, working at the UT and that she'd be the proud winner of the "Teacher of the Year" award. What a difference a few years can make.

ABOUT DOLPHINS AND BULLYING

Toivonen grows up as an only child with her parents in Helsinki. Her mother looks after her full-time, which is not very common in Finland. Initially, this is a conscious choice by her mother, but later - due to the economic recession and scarcity of work - it becomes a forced choice. 'It didn't make my childhood any easier. I think that's why I liked going to school.'

At the age of four, she teaches herself to read, because she loves books. Young Heidi is a shy, introverted girl. She has a regular group

of friends at school, but she is also bullied. 'I was always reading and writing, those were my favourite pastimes. But I didn't say much.' Except when she gets to appear on stage. 'Somehow, I would overcome my shyness at those moments. I remember one time - I must have been nine or ten years old - when I asked if I could play teacher in front of the class. I talked about dolphins. I loved standing in front of the class.'

Her teenage years aren't easy either; the bullying continues. Eventually, she opts for a high school with strict admission requirements. 'The average grade needed for admission was high. That meant that all the students who attended that school were ambitious and eager to study. When I was admitted there, I was no longer an outsider; I was among like-minded people. And so, I ended up enjoying my high school days, even though it was a very intensive period. We pushed each other to get high marks, that was the culture. So we had to work hard.'

FINNISH LANGUAGE AND LITERATURE

She has been interested in psychology from a young age and pursuing a degree in that field would have been the obvious choice. 'But after my strenuous time in secondary school, I was exhausted and didn't have the energy to take the entrance exam. I would have had to study for months before taking the exam and hope that I would be among the ten percent who would be admitted. That's why I decided to study Scandinavian languages at the University of Helsinki instead, with the prospect of becoming a translator in the back of my mind.'

A NEW PATH

She realises that with that course of study, she cannot help people the way she would like to. Therefore, Heidi chooses a new path and moves to eastern Finland to study psychology at the university. 'Finally, I felt like I was at the right place. Even though I also found it hard to live in eastern Finland. I felt like people had prejudices against anyone coming from Helsinki and speaking with the capital region dialect. I didn't really fit in. The city where I studied had about 76,000 inhabitants and was really too small for me. But I did meet a person who would become one of my best friends there. I would never have met her otherwise.'

MOTHER AND CHILD

After her graduation, the young psychologist gains work experience in various clinics. For example, in 2011 she works at a Mother & Child clinic in Helsinki which treats pregnant women, mothers and young children with a wide range of problems. The day she moves to Helsinki for this job, her mother suffers a stroke. 'Immediately after I arrived, I took a taxi to go to the hospital. There she passed away two weeks later.'

'I lost my mother and at the same time, I was helping future mothers at my job as a psychologist. It was very conflicting. Her illness and death forced me to deal with some difficult issues. I had a strained relationship with my mother. She was very controlling and overbearing. That caused tension. It was only after her death that I really understood the impact our relationship had had on me. And in the end, I found myself again.'

The relationship between parent and child can have a huge impact on your life, she says. 'Nothing is black or white, there are so many grey areas. The younger you are, the more you idolise your mother. Then suddenly you see her as a monster. The reality is somewhere in between. At any rate, my mother had a complex character because of her own background. I know she didn't have an easy time growing up either.'

In 2012, Heidi starts her doctoral research alongside her work as a clinical psychologist in a hospital. 'I worked on my PhD in the evenings and weekends. I wanted to do more research on complicated cases for which there is no solution because our healthcare system is bogged down.'

*'Students should
absolutely feel safe'*





I was also dealing with that personally and it frustrated me. Doing research gave me inspiration again. Some people worried that the combination of work and research might lead to burnout. But I always said: 'Doing a PhD actually keeps me from getting burned out. It was intellectual work and opened up a new world for me.'

BREAST CANCER

Then, once again, everything changes. At age 34, she discovers a lump in her breast. Soon she learns it is cancerous. 'I reported sick. What followed was surgery, chemotherapy and radiotherapy. I lost all my hair because of the chemo.' Meanwhile, she continues writing her dissertation. 'It gave me hope, at least I had a goal: I would defend my dissertation no matter what.'

Exactly one year after discovering the lump in her breast, she obtains her PhD.

'And more wonderful things happened,' she continues excitedly. 'I also met my current partner in that difficult year. We're still together and he is also the reason I moved to the Netherlands. After I had earned my PhD degree, he said: why don't you come with me?'

'Looking back now, I realise how bizarre that year was. From sick to healthy. From sadness to joy. And I found love.'

POSITIVE FEEDBACK

She and her partner, who hails from Italy, end up in a flat in Tilburg. And since 2021, she has had an appointment at the UT as assistant professor in narrative research. This area of research focuses on narrative aspects of human experiences. Because it is at least a three-hour commute to the UT, she and a colleague rent a small flat in Hengelo together.

How is it that after barely two years of teaching, she has already won the title Teacher of the Year?

'When I began teaching, I soon started getting positive feedback from my students. For me, that was confirmation that I was on the right track; teaching felt like coming home,' she says. 'I want to connect with students and listen to their needs. Having been a psychologist for ten years helps in a way, because you know how to listen well and really connect. You know how to set boundaries and

how not to overstep. I try to find interesting ways to convey to students what I know. I genuinely care about whether they understand. Is this relevant? Is this inspiring enough?'

On top of that, she tries to 'be in the moment,' she says. And take her time. She always pays attention to whether students are engaged during class. 'Are they looking at me or at their phones? I try not to put myself on a pedestal as lecturer. I think teachers should have authority, but that doesn't mean they should be authoritarian. I take the time to be there, look at them and observe them. What are they doing and how do I engage them?'

Creating a sense of safety in the lecture hall is a 'big thing' that she values greatly, she says. 'Students should absolutely feel safe.'

She also teaches diagnostics and how to write up a report on a patient. These tutorials are very 'hands-on,' she explains. She also interacts with her students during small-group thesis supervision sessions. Her favourite is the Personal Reflection module. This is a course that master's students in the Positive Clinical Psychology and Technology program take before they start their internship. 'They learn about mindfulness and meditation and write down their own life story. That can be quite emotional for some, because writing about your own life is not that easy. So it gets pretty deep, but I love those classes.'

'We should never feel ashamed of things that are not our fault and can ultimately make us stronger as individuals. Life comes in all colours and shapes. But we need other people's stories to help us realise that no one's life is perfect. That is why I am sharing my story too, now in this interview. As a teacher, it's not about me.'

How about the future? She wants to continue in academia, that's for sure. 'I want to continue to teach, to do research and I am writing a book. The book is about agency in times of climate crisis. Publishing this book would be a nice thing. And then, of course, getting more research done, taking more steps to learn new kind of methods and apply them to new topics. Just advancing my research, and becoming a better teacher. And where that will be? I have learned to never say, oh, this is where I stay. So far, I have enjoyed the UT a lot. But life is long and anything can happen.' •

YES, FOR SURE!

Normally, my credit card company bores me with payment reminders. But this message is different: they've detected a suspicious transaction and blocked my card. Did I spend the exact same amount ten times at different branches of the same store chain the day before? It's possible, of course. I could have cashed in on a bunch of discounts with a stack of coupons at different shops ('Two max per customer!'). But the transactions took place at different Walgreens stores in Los Angeles and I'm at home in Enschede. The new year has just begun and I'm still working on finishing off the last of the oliebollen so it's unlikely that I spent around 500 euros on drugstore items in a violent neighbourhood in Los Angeles yesterday. It was a good catch by the credit card company, long live the artificial intelligence they used for this! It's a classic example of a useful application of artificial intelligence.

Artificial intelligence - AI; everywhere you turn, it's AI this, AI that. The credit card company's vigilance is great, but it doesn't take a lot of imagination to see how this piece of technological ingenuity could go off the rails. Maybe it's just me, but it often seems easier to think about the bad rather than the good. The bad seems versatile and endless, whereas you have to put in more effort to see the good.

In science too, artificial intelligence, or what is presented as such, is popping up everywhere. I'm not talking about serious AI research, but I've seen quite a few neural networks being set up out there that made me think: do they actually know what they're doing? And isn't it just a trendy fig leaf to cover up inadequate technology or scientific modelling? Now you might be thinking: Steenbergen just doesn't get it himself. And you're right about that, but I wonder whether all those researchers who decide to jump on the AI bandwagon do, in fact, get it. In any case, it would be a good thing if these neural network tools came with some sort of ethical instruction leaflet.

As for myself, I spend a good part of the day viewing the world through a Microsoft-filled screen. Over the years, more and more features have appeared at the edges of that screen that make me think: hey, what's that doing there, and what am I supposed to do with it? The most recent addition is the unsolicited appearance of suggested replies above incoming e-mails. Another product of artificial intelligence, but with suggested replies like 'OK, enjoy!' and 'I feel for you!' it's clear that this AI hasn't quite adopted my style of language yet, thankfully. What strikes me is that the suggestions are always some variations of 'Yes, will do!' or 'Agreed!'. Saying no, a good way to stay in control of your own work, does not exist in the Microsoft vocabulary. 'Computer says yes!'

This was my last column for Campus. I hope you got some use out of them from time to time, some annoyance is also perfectly fine. To dispel any remaining doubts about whether I should quit, I e-mailed myself: 'Dear Wiendelt, it's time you quit your column, don't you think?' The suggested reply: 'Yes, for sure!' •

Wiendelt Steenbergen

Professor of Biomedical Photonic Imaging



UT'ERS ON THE MOVE

WITH NEARLY 60,000 ALUMNI IN 173 COUNTRIES, NOT A DAY GOES BY WITHOUT AN INTERESTING CAREER STEP OR PROFESSIONAL SUCCESS TO CELEBRATE! WOULD YOU LIKE TO SHARE AN ACHIEVEMENT WITH THE UT COMMUNITY? A PROMOTION, AWARD, PUBLICATION OR MAYBE EVEN A BOOK? WE'D LOVE TO HEAR ABOUT IT! PLEASE SEND ALL THE DETAILS ALONG WITH A PHOTO TO ALUMNI@UTWENTE.NL.



2005

PIETER THOMASSON

In October 2023, Pieter Thomasson joined Semco Maritime as Vice President APAC, Renewables in Singapore. With this switch, he continues his career in the field of offshore wind energy in the Asia-Pacific region. For this new position, Thomasson bids farewell to Heerema, where he was employed for 13 years. Thomassen graduated from the Applied Physics programme at the UT in 2005. He lives with his wife and their three children in Singapore. •



1995

MARK BENTUM

On the 1st of September 2023, Professor Mark Bentum was appointed by the TU/e Executive Board as dean of the Department of Electrical Engineering (EE). Bentum graduated from the University of Twente in 1991 with a degree in Electrical Engineering and obtained his PhD in 1995. For the past 25 years, he has worked at ASTRON, the Dutch institute for radio astronomy, where he served as head of the Astronomy & Operations department in recent years. In addition, he was an Associate Professor at UT from 2008 to 2017. Since 2017, he has been a part-time professor of Radio Science at TU/e's Electromagnetics research group. •



2020

AKARSH GOPAL

Akarsh Gopal took up his position as Software Engineer at Rocket Factory Augsburg in Germany in October 2023. Gopal graduated from the UT in 2020 with a BSc in Technology and Liberal Arts and Sciences (UCT ATLAS). He has since worked as a research and software engineer in both the Netherlands and Germany and co-founded two startups. •



2000

BART SATTLER

As of September, Bart Sattler started as acting Regional Ambassador for the Southern Netherlands at the Ministry of Economic Affairs and Climate (EKZ) in The Hague. In this role he connects the Ministry of Economic Affairs and Climate Policy with the regional governments, companies and knowledge institutions in the provinces of North Brabant and Limburg. Bart moved from Berlin, where he worked as an innovation advisor for the Dutch Embassy. After his UT studies in Industrial Engineering and Management, he fulfilled various policy and diplomatic roles at the Ministry of Economic Affairs and Climate, in both the USA and Europe." •



2021

VEDRAN ZANCHI

In October 2023, Vedran Zanchi started his secondment as a Business Innovation and Change Management Consultant for the UN World Food Programme in Rome, Italy. Vedran graduated from UT's MSc programme Sustainable Energy Technology in 2021 and also worked at Shell during his studies. Since then, he has been part of the Boston Consulting Group's Budapest office and worked on projects in Europe, the Middle East and Southeast Asia. •



HIGHLIGHTING TWENTE'S STRENGTHS IN BRUSSELS

Since the last alumni event in Brussels took place in 2019, the recent gathering in the city is long overdue. The alumni meeting in October coincided with the European Week of Regions and Cities and was organised by the UT Alumni Office in collaboration with the Twente Board management to highlight the strengths of the Twente region in the European context. During the meeting, reflections were shared by Enschede mayor and UT alumnus Roelof Bleker, Twente Board director Victor-Jan Leurs and European Commission policy officer and UT alumna Sevim Aktas. Thanks to the help of local alumni volunteers, more Twente activities are set to follow in Brussels early next year! •

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DIGITAL ALUMNI SERVICES AT YOUR DISPOSAL

Did you know that as a UT alumnus, you have a range of digital services at your disposal? From access to the digital library with academic articles to the alumni newsletter featuring interesting and inspiring stories every month. Below, we highlight three of these digital services.

>> JSTOR

UT alumni have access to tens of thousands of articles and over two thousand leading scientific journals in all disciplines. In cooperation with the University Library, the UT Alumni Office offers its alumni access to the online JSTOR database. Navigate to 'library' in the alumni portal, log in to JSTOR and easily access your favourite journals and scientific articles!

>> GOODHABITZ

Even after your studies, you can continue to develop and challenge yourself. To this end, UT alumni can make free use of GoodHabitZ, an

online learning platform where you can find more than 150 online courses in a wide range of fields. Ranging from strategy to social intelligence, from digital skills to personal leadership. There are interesting courses for everyone! Go to 'library' in the alumni portal and log in to GoodHabitZ.

>> MONTHLY ALUMNI NEWSLETTER

Receive inspiring alumni stories, interesting initiatives and special events and activities for and by alumni in your digital mailbox every month.

STAY UP TO DATE

If you are not receiving the newsletter, your e-mail address has changed, or if you want access to JSTOR or GoodHabitZ but you have lost your login details for the alumni portal, please let us know. Send a message to alumni@utwente.nl or update your details via this QR code:



Meet Magali Coello, UT alumni officer

In September, Magali Coello joined the Alumni Office at the University of Twente. With her broad international background and experience, she is a valuable addition to the team and will help to further build up UT's alumni community. If you are thinking of organising an alumni event, setting up an alumni activity or if you would like to get in touch with fellow UT alumni, please contact Magali at m.coellocasian@utwente.nl.



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LEAVING A LAST GIFT

WHAT IF? Even if you are no longer here, you can mean a lot to future generations at the University of Twente. By leaving a legacy to the UT, new generations of students can develop themselves further and our research can make a valuable contribution to society. Are you considering including the UT in your will? We would be happy to discuss the possibilities with you.

For more information go to our website



IMPACT OF 75 YEARS OF TWENTE UNIVERSITY FUND

Started in 1948 as a lobby for a technical college in the east of the Netherlands, the foundation was converted into a college fund (later a university fund) in 1961. Since then, the fund has been committed to the growth and prosperity of the UT and the UT community. What have we made possible over the years?

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The Twente University Fund has officially been classified as a charity by the Tax Administration. The Foundation has been given the status of ANBI (Public Benefit Organisation, PBO). This means that donations to the fund are tax deductible under certain conditions. Visit our website at www.utwente.nl/ufonds for more information.

Contact:
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06 238 218 36 or
m.l.g.essers@utwente.nl

NATURE AS A CIVIL ENGINEER

THE WATER ENGINEERING AND MANAGEMENT DEPARTMENT STUDIES NATURAL DEFENCES AGAINST WATER. THIS 'NATURE-BASED ENGINEERING' DOES NOT JUST REVOLVE AROUND CIVIL ENGINEERING AND WATER, BUT ALSO ECOLOGY, FOR EXAMPLE. 'NATURE HAS ALWAYS BEEN CHANGING, BUT NEVER AS ABRUPTLY AS IT DOES NOW.'



*‘We want to make
nature-based thinking
mainstream’*



The Netherlands has been fighting a battle against water for centuries. This symbolism of water as the enemy was popular among 20th-century engineers. In the 21st century, there is more focus on natural processes and we speak of water management instead. But what will the Dutch water landscape look like in another century? The Water Engineering and Management department seeks the balance between nature and human needs.

NATURE-BASED

In nature-based engineering, the aim is to build in collaboration with nature. Kathelijne Wijnberg is a professor of Coastal Systems and Nature-based Engineering and researches these and other natural solutions for coastal protection. She explains the concept: ‘A well-known example is the Sand Motor, an artificial sand dune near Kijkduin. We used to dump a lot of sand on the coast every few years to prevent erosion, but in doing so we disrupted the ecosystem. The Sand Motor uses natural currents to gradually add sand to the beach and dunes over many years, ensuring that the dunes remain a safe water barrier while allowing vulnerable nature to flourish.’

The concept of nature-based engineering is not black and white. You cannot simply label technological solutions as either ‘nature-based’ or not. As Wijnberg points out: ‘It’s a spectrum where, at one end, you let nature take its course completely and at the other end, you have a strictly technological solution.’ Denie Augustijn, Associate Professor of Civil Engineering, adds: ‘The purest form of nature-based engineering is, for example, allowing a river free rein, but we don’t have that kind of space in a country like the Netherlands.’

BEE HIGHWAY

There is, in fact, a wide range of different measures by which you can cooperate with nature to a greater extent in water management. Augustijn gives a few examples: ‘In one of our studies, we’re investigating what effect herb-rich plants have on the strength of a dike. These plants have a much more varied root layer than the grass that usually grows there. And in addition to creating a sturdy dike, all these beautiful flowering plants also form a kind of bee highway.’

'We actively seek out cooperation in these areas, not just with water managers but also with ecologists, among others. Nature-based engineering serves many different functions in nature. Besides acting as wave breakers, our salt marshes in the Wadden Sea are important for biodiversity and CO2 storage. This natural coastal protection preserves all kinds of unique species and captures CO2 while also reducing waves. If you can maintain all these functions, you kill several birds with one stone.'

All these different interests often result in complex challenges. 'It's about finding the right balance. We want to base processes on nature as much as possible, without neglecting the importance of other functions. For instance, how can you give the river as much space as possible without it immediately overflowing if there are heavy rains. And if you give a river or stream free rein, you want to avoid one farmer suddenly gaining more land at the expense of another.'

CLIMATE CHANGE

Despite the complex challenges, water managers are increasingly turning to these more natural solutions. This is largely due to the effects of climate change. 'According to the most recent climate scenarios by the Royal Netherlands Meteorological Institute (KNMI), it's possible that the sea level will rise by seventeen metres by the year 2300,' says Augustijn. 'With such prospects, there is no point in continually raising dikes. We need to come up with much more resilient solutions.'

Wijnberg points out that accelerated climate change is forcing us to rethink our approach. 'Nature has always been changing, but never as abruptly as it does now. With our highly urbanised delta, we are now facing challenges. We need to consider whether to stick with our current approach or adapt to the changing nature.'

SUSTAINABILITY

'At the same time, it's important to stay realistic. Nature-based is not the solution to all problems.' For example, there is still only limited knowledge about its sustainability. This is what Markus Berger, professor of Multidisciplinary Water Management, focuses on. 'The problem is that everyone assumes that natural solutions are sustainable,' Berger explains. 'But how 'green' are they really? Just take the Sand Motor; all that sand has to come from somewhere. The impact of such concessions is still often overlooked.'

Berger also explores the life cycle of nature-based engineering, a relatively new approach. He emphasises its complexity: 'Natural processes - like nature itself - don't really have a finite lifespan. We need to compare traditional and nature-based solutions in order to develop protocols to properly analyse the life cycles of nature-based solutions.'

Ultimately, the researchers want to ensure that water managers draw inspiration from nature in a more structural way. 'We want to make nature-based thinking mainstream,' Augustijn stresses. It's all about finding the right balance between the many different needs of society and nature; embracing adaptability. •

'Raising dikes? We need to come up with much more resilient solutions'





TACKLING GLOBAL PROBLEMS AT LOCAL, NATIONAL AND INTERNATIONAL LEVEL

The challenges society faces today are complex and far-reaching. More than ever, they call for the collaboration of many different, complementary stakeholders. At ECIU University, of which University of Twente is a partner, our vision is to help solve these complex challenges and make society futureproof by collaborating at local, national and international levels.

In order to realise this, ECIU University and University of Twente adopt a new approach to research, learning and innovation. We bring together students and scientists with government, businesses and citizens to identify urgent, definable problems across all societal domains, from transport and mobility to the energy transition or a smart circular economy. We then form international, multidisciplinary teams



We would definitely like to get in touch with you as a challenge provider

and help to solve complex societal problems through a challenge-based approach. Do you work for a public or private organisation and would you like to make an active contribution to this new learning programme? Then we are looking for you! Marike Boertien (Novel-T, University of Twente): 'We see challenges as an opportunity to build long-term relations within our ecosystem. Students, researchers and stakeholders working together to solve a challenge is a powerful mix of creativity and innovation and we hope you want to join us.'

WHO WE ARE

The European Consortium of Innovative Universities (ECIU)

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- 12 partners offering countless combinations of education, research & innovation opportunities
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- One transformational approach to on- and offline education, research and innovation

The background of the page is a photograph of a vast green field under a cloudy sky. The field is in the foreground, and a dark line of trees or hills is visible in the distance. The sky is filled with grey and white clouds. The text 'UNIVERSITY OF TWENTE.' is centered in the upper half of the page, and 'Campus' is centered in the lower half. There are several thin vertical white lines that appear to be part of a grid or design element, spaced evenly across the page.

UNIVERSITY OF TWENTE.

Campus