

CAREER SPECIAL

TU/e alumnus Thomas Plantenga, CEO of Vinted

JOB HUNTING
DURING COVID-19
DO'S & DON'TS

COLUMN
CASTING OFF THE PHD BOAT

START-UP
MYLIUM MAKES TEXTILES
OUT OF FUNGAL THREADS

UNIVERSITY OF TWENTE.

TU/e EINDHOVEN
UNIVERSITY OF
TECHNOLOGY

TU Delft Delft
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WAGENINGEN
UNIVERSITY & RESEARCH

JUNE 2021, ISSUE #3

“A job description at Marel doesn’t limit you in the work activities you are allowed to do”



Robert van der Kraan (27) Development Engineer Logistics

After my bachelors in Industrial Engineering, I pursued a master in Operations Research and Logistics at Wageningen University. As part of this master, I did an internship at Marel, during which I experienced an ambitious international company with an informal working environment. I felt working for Marel would be a great opportunity to grow into my career and so I continued to work for Marel after my graduation.

Since my graduation, I have been working in the role as Development Engineer Logistics, in which I am part of a team within Innovation that develops controls and logistic systems for the poultry industry. The main question I try to answer in this role is how to process each incoming bird to create most added value for our customers. Together with my team, we write process automation software to execute this. Figuring out how to solve this complex optimization problem is a perfect fit with my education and seeing the result at work at a customer site (at 15.000 birds per hour) still has me amazed every time.

A job description at Marel doesn’t limit you in the work activities you are allowed to do, however, and therefore I have been able to work on a great variety of projects already. This has given me the opportunity to expand my knowledge on controls and software engineering, which was something I have wanted to do for a long time. As part of my job consists of testing new developments, I enjoy a good mix of working from behind my computer and working on the production floor at our customers’ sites. Our



customers are located all around the world and together with visits to other Marel sites in Europe and our Marel Academy in Copenhagen an enjoyable share of my job consists of traveling. What I treasure most in working at Marel, however, is that Marel lets young professionals take responsibility right when you start your career. In my first year already, I was given the change to become project lead of an ambitious development project. Challenging, but a great opportunity to learn!

About Marel

Marel is a global leader in transforming the way food is processed. We support the production of high quality, safe and affordable food by providing software, services, systems and solutions to the fish, meat and poultry processing industries. We bring together the best people, the most advanced technology and cutting-edge machinery to deliver real change in the way food is processed and consumed.

Sustainability is at the core of our business, our groundbreaking solutions reduce waste while improving yields and creating economic value.

Marel has a strong presence and a rich heritage in the Netherlands. Over 1800 of our 7000 employees work at one of our Dutch sites: Boxmeer, Lichtenvoorde, Dongen or Opmeer. Marel is only as good as the people within it.

Every time our people collaborate, cooperate and communicate, they contribute to making Marel a world leader in food processing. Our people make us the partner of choice for customers around the world. As we work together with food processors to transform the way food is processed, we understand the importance of individual representation and inclusion at work.

We come from a myriad of cultural, geographical, professional and personal backgrounds, and we respect and encourage this diversity. Just as we connect a series of high-tech products to create smarter factories, Marel’s value comes from the sum of its parts – its people.

For more information

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YOU LEARN IN PRACTICE

COLOPHON

This 4TU Career Special is a shared publication by the news editors of Cursor (Eindhoven University of Technology), Delta (Delft University of Technology), Resource (Wageningen University and Research), and U-Today (University of Twente). The magazine came into being in collaboration with industry, and is explicitly aimed towards students who are either in the final phase of their studies, or have just graduated.

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Sandra Pool, U-Today

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LAY OUT AND REALISATION SMG-Groep, www.smg-groep.nl

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PRINT RUN 16.000 copies were sent via post to those students who have recently graduated.



Bij Brunel ontwikkel jij je tot de **Engineer van de toekomst**

In een wereld vol geopolitieke uitdagingen heeft Brunel de wereld wat te bieden: onze kennis en kunde. We helpen elke Bruneller het volle potentieel uit zichzelf te halen en nieuwe kennis te ontwikkelen. We doen dit vanuit onze specialistische community's, waarin we de krachten met onze specialisten, partners en opdrachtgevers bundelen. Deze samenwerking stelt ons in staat een bijdrage te leveren aan actuele transitie in de wereld.

Binnen Engineering zijn we van alle markten thuis. Van de wereldwijde waterstoftransitie en het aardbevingsgebied in Groningen tot de automotivebranche in het zuiden van het land – je komt er engineers van Brunel tegen. We werken vanuit acht specialismen:

- Maintenance & Assetmanagement
- Supply Chain, Quality & Logistiek
- Projectmanagement en realisatie Bouw & Civiel
- Projectmanagement en realisatie E/W
- Digital Engineering
- Product Development
- Ontwerp & Engineering Bouw & Civiel
- Ontwerp & Engineering E/W

“Via Brunel kreeg ik de kans om meteen na mijn studie aan de TU in Delft te starten met een uitdagende functie bij Siemens. Vanaf het eerste gesprek werd er geluisterd naar mijn ambities en via regelmatig contact en ruimte voor opleidingen kan ik me verder ontwikkelen als professionele ingenieur. Dit is voor mij de perfecte start van mijn carrière.”

- Jens Vertongen, Busbar Engineer bij Siemens (specialisme Ontwerp & Engineering E/W)

“Ik zocht naar een plek waar ik kon werken aan duurzame mobiliteit. Via het netwerk van Brunel ben ik bij Movares terechtgekomen. Hier help ik meer internationale treinreizen mogelijk te maken.”

- Wouter Kessels, Engineer bij Movares (specialisme Maintenance & Assetmanagement)

Ben jij ook op zoek naar een uitdagende baan of traineeship op het gebied van Engineering? Laat het ons weten! Scan de QR-code voor meer informatie.



The coronavirus pandemic of last year has been a gigantic stress test for everything and everyone on our planet. The interconnected world economy proved vulnerable. The borders were closed. The global flow of goods that we all have come to rely on faltered. Countries used trade restrictions to get a grip on their supply of medicines and medical technology – with serious consequences for people, businesses and countries all over the world.



ROBERT-JAN SMITS

CHAIRMAN OF THE
BOARD OF EINDHOVEN
UNIVERSITY OF
TECHNOLOGY

But not only has the crisis exposed the vulnerability of our society, it has also shown how resilient and innovative we are. New vaccines were developed, companies designed new business models and products and found new ways to cooperate. At the universities, we also managed to offer students the best possible education in spite of the restrictions, through online means. Recently, it turned out

that student scores for last year were comparable to those for the previous years – an extremely positive outcome. Yet the stress that the health crisis has put on both universities staff and students has been and still is enormous. At a time when we are aware of limitations, other options become visible. Visible to those who are entrepreneurial and creative, know how to think out of the box, and want to cooperate in

cross-border teams. Exactly the qualities of the engineers we educate at our four universities of technology. We are immensely proud of you, our students, proud of your resilience and perseverance. When you will enter the labour market to embark on a career, I have only one piece of advice: follow your hearts. Because only then will you make it, but even more importantly: only then will you be happy in life ■

FEA
TUR
ED!

FYI

Personalised marketing strategy

Are you graduating soon? Have you just received your diploma? Are you looking for advice or guidance in your search for a suitable first job? Then make an appointment with one of the University of Twente's Career Services advisors.

We help you to establish your search profile and career wishes via a personalised plan comprising various modules, helping you to hone your skills and take targeted actions towards taking that first step in your career. We will also help you find answers to questions such as: 'Who am I, what can I do, and what do I want?'

This initial exploration of your personal and professional profile is followed by an orientation within the labour market. What are the possibilities, what options do you have, and how do you go about it? We discuss your personal 'marketing strategy' to approach interesting employers.

A CV check and advice on your cover letter and LinkedIn profile can be part of these services. In addition, we can help you find your way around various job websites and refer you to informative websites about regulations and conditions relating to work.



For more information, visit our website, or make an appointment with a Career Services advisor via the online planner. www.utwente.nl/nl/ces/career-services/

GOOD TO KNOW

First children

Often, the oldest child in a family is smarter than their brothers and sisters. Or rather, the oldest child is more likely to obtain a higher education diploma than their siblings.

The above is a fact that cries out for an explanation. Statistics Bureau CBS investigated which of the children in a family ultimately obtains the highest education. At the age of 34, 43.6 percent of 'first children' has completed a higher education programme. For the second and third child, this is just below 40 percent. A striking difference.

The CBS provides some concise explanations. Parents have to divide 'resources' such as money, time, and energy between their children, and this is simply more difficult in larger families. First children have the undivided attention of their parents for a little longer. In addition, they may help their younger siblings with their homework and thereby develop extra skills themselves.

However, the CBS emphasises 'that the correlations uncovered are not causal and the differences are not that large'. In other words: Your older brother or sister definitely does not always know everything better!

Source: HOP / CBS

FACT

OF THE 92 PER CENT OF WUR ALUMNI WHO FOUND A JOB WITHIN SIX MONTHS OF GRADUATING, 65 PER CENT FOUND WORK AT GRADUATE LEVEL OR HIGHER. 77 PER CENT OF RECENTLY GRADUATED WUR RESPONDENTS WITH A JOB ARE WORKING IN THEIR OWN FIELD OR A RELATED ONE.

FACT

THE PROGRAM 'GREEN POWER OF THE DUTCH ECONOMY', CO-AUTHORED BY RESEARCHERS AT THE TU/E INSTITUTE EIRES, WILL RECEIVE 338 MILLION EUROS FOR THE DEVELOPMENT OF AN ECOSYSTEM BASED ON GREEN HYDROGEN. IT WILL BRING THE NETHERLANDS ALONE 23.000 TO 41.000 JOBS AND BECAUSE OF IT 66.000 JOBS FOR INSTANCE IN THE CHEMICAL INDUSTRY CAN BE PRESERVED.



TIP

Network

'Your network is often larger than you think. In order to find a job that suits you, you make use of this network prior to the application process, for example by having exploratory conversations and possibly making new contacts. Today, social media can also help you on your way. Make a LinkedIn profile, join groups, follow companies, invite your network—in short, actively participate', says Hemo Oumenad, coordinator the University of Twente's Career Services.

QUOTE

'Preparation for the online job interview becomes crucially important. If you are ill prepared, you are definitely in a disadvantaged position.'



TANYA BONDAROUK, PROFESSOR HUMAN RESOURCE MANAGEMENT AT THE UNIVERSITY OF TWENTE

GOOD TO KNOW

How do I survive my first job?

Starting work is hard, but it is also fun, exciting, challenging, and satisfying. Of course, you are keen to turn your first 'proper' job into a success, but how do you do that? Sometimes this means searching, doubting, falling down, and getting up again—even feeling insecure and lonely. This book opens your eyes, challenges you, allows you to relax, supports, and allows you to take ownership of the first steps of your career. By following the steps of the BAAS-formula, you will find your place as an independent professional not only faster, but also with more confidence. It offers examples that are immediately recognisable, poses confrontational questions that really get you thinking, and provides tools that you will be able to put to immediate good use. This book will teach you how to stay on top of any stress in your job, how to stay energetic, and how to prevent burn-out.





As a student, you often pick things up in the corridors, or whilst socialising. However, because of Corona, that social context is temporarily missing, and with it the chance to stumble across a nice opportunity for an internship or a job. Independent knowledge platform WIMM, which links students with the business community in Overijssel, has seen students struggle with this.

APPLYING FOR JOBS ONLINE IS MORE DIFFICULT

Looking for the spark

'You really miss chatting at the company fairs, the informal networking, and meeting each other for real.'

● In the Province of Overijssel, small and medium-sized companies make up 80 percent of businesses. These companies are trying hard to keep their heads above water so, naturally, this also means there is less enthusiasm to actively look for that 'golden' job applicant. 'They present themselves less than in other years because they are occupied with the crisis,' says Manon Smellink, director of WIMM. 'Amongst students, we see that the atmosphere is becoming a little impassive. They take a less active approach and seem to think: Never mind, it will not work out now anyway. I can understand that because it is all rather tough at the moment.' Still, as far as she is concerned, there is no reason to become discouraged. 'There are definitely opportunities—and not only online. We still take students to visit companies several times a year, but now we do so individually or in small groups, of course, taking necessary Corona-safe measures. There are also online company fairs where, following the more general introduction, you can split up into breakout sessions to see if there are opportunities for an internship, graduation project, or a first job. If needed, afterwards, you can talk further with a career coach.' According to Smellink, the lack of social context and chance meetings in corridors creates another problem. Students seem to be less aware of what they want to do. 'Normally, you

MANON SMELLINK

would physically visit fairs, job events, or company days, but that has all disappeared. There are still online events that you can attend, but you do get less of a feel for the atmosphere in a company and whether it 'clicks' or not. In addition, everyone is getting tired of online events, which is understandable.' In order to find out what you would like to do next, WIMM (with branches in Almelo and Zwolle, and a hub in Deventer) offers independent career interviews. 'Everything starts with knowing what you want or what you are looking for. Once that is clear, we can link the student with people in our network. We also take a look at your CV and cover letter.'

A tour around the workplace is often not possible when you are applying for a job online. 'However, you can fill in many gaps if you ask the right questions. What would my first working day with you look like? What values are important to you? The online environment requires much more interaction, meaning you must not only answer questions, but also ask questions yourself about the topics that matter to you personally. You have to try and pick yourself up. Recently, I overheard



a student saying: I have already applied for five jobs. To which I think: Just five? You could definitely do better.'

The support may be excellent, but Manon will still celebrate as soon as more live events will be possible again. 'You really miss chatting at the company fairs, the informal networking, and meeting each other for real. Frankly, it is just easier to create that spark than in an online environment.'

For more information, visit: www.jobopp.nl ■

Royal  IHC

Are you joining us
in creating the maritime future?
royalihc.com



Jurrit Bergsma and his colleagues are looking for solutions to the challenges of making the shipping industry more sustainable. He does this as a business developer and a PhD candidate, both for the shipping industry itself and the world in which we live.

“There’s still a long way to go before all shipping, inland navigation and ports are climate-neutral. There are major interests at stake in this internationally-oriented sector, and the desire for greater sustainability is by no means equally strong everywhere. At TNO, we want to accelerate the sustainability process. We’re conducting research into circularity, smart logistics, energy-efficient motors and alternative fuels in order to show the maritime sector what’s possible. In principle, the Netherlands has all the knowledge, skills, people and stakeholders needed to play a pioneering role internationally.

The maritime sector still runs on fossil energy. Many ships use fuel oil and have high CO₂ emissions. We can improve this with today’s technology, such as by sailing on methanol. An even greater profit can be made with fuel cell technology in which a hydrogen fuel cell drives the propeller via an electric motor.

It happens at sea

A lot is going to change in the North Sea over the next 20 years. Drones will carry out tasks which currently use manned vessels, such as the surveillance and maintenance of offshore infrastructure to name but one example. It is important that clear and supportive preconditions are drawn up by means of legislation so that the green business cases can quickly be brought closer to reality. Think of emission taxes and green procurement. The government has an important role to play in these. And strong management of the creation of these preconditions is desirable. In the coming years, floating islands for living and working will appear on the North Sea: seaweed farms and wind farms, of course, which are an enormous source of sustainable energy. With the combined knowledge, skills and preconditions, we can create enormous added value in a sector that already employs more than 260,000 people in the Netherlands.

Supertanker

I’ve been a sailor since an early age and have a strong intrinsic motivation to make a societal contribution to sustainability. The choice of Maritime Engineering at TU Delft and sustainability was therefore made quickly. I learned a lot about technological innovation, but also about how to involve people in it. As a business developer at TNO, I can really make a difference. The shipping industry can be compared to a supertanker: not very manoeuvrable but once on a course, we keep going. This is why it’s incredibly important to set the course for sustainable shipping as soon as possible, for both the shipping industry itself and for the world in which we live”.



**Contributing to
tomorrow’s world.
Can you envision it?**



Whilst she has yet to graduate in July, Jelbrich Sieswerda (25) already has a job. The student in technical medicine from the University of Twente is going to work as a clinical perfusionist at Leeuwarden Medical Centre.

Already finding

employment, despite corona

● A clinical perfusionist performs a crucial role during open heart surgery. 'With the help of the heart-lung machine, you ensure that the function of the heart and lungs is temporarily taken over. The heart is stopped during operations, for example when a damaged heart valve needs to be replaced. As a clinical perfusionist, your goal is to mimic the function of the heart and lungs as closely as possible with the use of technology. One of the most important tasks is to continuously monitor the pump pressure, temperature, pH-value, and other blood parameters, so that the operation can be performed safely,' she explains.

COMBINING TECHNICAL INSIGHT AND MEDICAL PROCESSES

Although now able to explain her job very well, Jelbrich admits that a while ago, she had never even heard of this



JELBRICH SIESWERDA

profession. 'I knew I wanted my work to have meaning for medical practice. My preference is to have a practical function, complemented by education and research. In addition, the atmosphere in a hospital really appeals to me. This profession enables you to support the medical process with technical insight, which is one of the reasons why I chose to study technical medicine. At the time, I thought I wanted to advance in the field of neurology, but by following internships at various departments, I discovered that this did not suit me after all. Then I saw this vacancy, and I started to explore it further.'

Normally, you would visit various hospitals for orientation, but Corona made that difficult. 'I started searching on LinkedIn to find medical technicians who were already doing this work. I contacted clinical perfusionists from Nijmegen and Groningen. These conversations made me even more enthusiastic. Then I started to apply, because it seemed a good idea to also gain some experience with job interviews.'

Fortunately, it was possible to do the job interview live and Jelbrich became increasingly enthusiastic. 'During the

next stage of the application process, I was allowed to observe in the operating theatre and all my doubts disappeared. It is just not possible to experience that atmosphere and hecticness digitally. I had already worked in operating theatres during internships, but for other applicants, it was a new experience. You really have to experience it first-hand in order to determine whether it suits you. I am fascinated by the atmosphere in the operating theatre. Everyone has a different function, but they all revolve around the patient on the operating table.'

The position in Leeuwarden is all the more attractive because Jelbrich comes from the north of the country. 'I really wanted to work in that region. I will now follow an internal training programme at the hospital in Leeuwarden, and on occasion, I will go to Leiden University for a week,' she explains. It feels good to already have a job 'in the bag'. 'I am glad it has already been arranged. However, looking for a suitable job and applying for it during your graduation and during this corona crisis, is quite tough. I can definitely understand why people think: That will happen after graduation.' ■

Werken aan gebiedsontwikkeling Amsterdamse Zuidas

Kersvers afgestudeerd aan de TU Delft solliciteerde Margot Haitsma Mulier een jaar geleden bij het Ingenieursbureau van de gemeente Amsterdam. Als junior projectleider begon ze haar carrière bij de gebiedsontwikkeling van de Zuidas.

Margot vertelt: 'Binnen het Ingenieursbureau werken we in teams aan de technische ontwerpen voor de (ondergrondse) infrastructuur, het contracteren van aannemers en het controleren en aansturen van de uitvoering van het werk in de openbare ruimte. De projectleiding heeft een coördinerende rol op het gebied van techniek, engineering en uitvoeringsfinanciën, planningen en omgevingsmanagement. En we gaan op projectbezoek. Bijvoorbeeld met specialisten mee op inspectie. Ik begon in coronatijd en werk vooral vanuit huis. Ik kijk ernaar uit om vaker 'met m'n voeten in de klei' te staan.'

GEEN EILAND

'We bouwen niet op een eiland,' vervolgt Margot. 'Er liggen woonwijken en kantoorpanden om de bouwprojecten heen. Daar moeten we zoveel mogelijk rekening mee houden. Je kan niet zomaar de Beethovenstraat afsluiten voor de aanleg van stadsverwarming waardoor de bus of brandweer er niet meer doorheen kan. We stemmen af met veel belanghebbenden en bedenken creatieve oplossingen.'

Na haar studie Aardwetenschappen en Civiele Techniek, met een specialisatie in Watermanagement, is



Margot helemaal op haar plek bij het Ingenieursbureau. Haar huidige werkzaamheden passen goed bij haar ambities. 'Als projectleider ben je uiteindelijk verantwoordelijk voor een goede afronding van het project. Het is belangrijk om overzicht te houden, structuur te vinden in de chaos en tijdig bij te sturen als dingen anders lopen dan verwacht. Bij de aanleg van nieuwe infrastructuur vinden we regelmatig kabels die niet op kaarten staan. Er moet daarvoor dan snel een nieuw tracé bedacht worden en met tal van nutspartijen overlegd, omdat de ondergrond al bomvol ligt.' Vervolgt: 'Wat trouwens uitdagend is, is de toepassing van allerlei innovatieve technieken. Dat maakt van de Zuidas een state-of-the-art gebiedsontwikkeling.'

Er is bijvoorbeeld een tunnel aangelegd speciaal voor kabels en leidingen. Daardoor hoeft de straat niet opengebroken te worden voor onderhoud aan ondergrondse infrastructuur.'

HART VOOR DE STAD

Amsterdam is een stad vol historie, die volop bouwt aan een duurzame toekomst. De gemeente stelt hoge duurzaamheidseisen aan ontwikkelaars en stimuleert circulaire oplossingen bij publieke werken. 'Bomen behouden we zoveel mogelijk door ze tijdelijk te verplaatsen, ons oude asfalt wordt gerecycled en warmte-koudeopslagen verschijnen overal,' licht Margot toe. 'Het mooiste vind ik om door een gebied te lopen dat net opgeleverd is. Het geeft enorm veel voldoening om mensen gebruik te zien maken van de openbare ruimte die wij hebben gemaakt. En een tastbaar resultaat van ons werk te kunnen aanschouwen in deze prachtige stad.'

**MEER WETEN OVER WERKEN
BIJ AMSTERDAM? KIJK OP
WWW.AMSTERDAM.NL/WERKENBIJ**

How do you find a job and get adjusted to it in times of corona? Yiling Liu applied for over one hundred vacancies before she found a position at ASML. 'I practised job interviews a lot.'

'Online job interviews require special skills'

After her bachelor's at TU Eindhoven and her master's at TU Delft, Yiling Liu graduated as a product designer in September 2020, right in the middle of the corona pandemic. Her plan was to take a month's break and then to seriously start looking for a job. That month turned into a week when she saw a vacancy for a junior position at Philips. That sounded too good to pass up.

It was not Liu's first application. Six months earlier, as a student, she tried her luck at becoming a PhD candidate. 'I tried several PhD positions, but found that my competitors often had more experience as a researcher.' Luckily, Liu discovered early on in her studies that the best thing to do was to keep open as many career options as possible; not only design physical products, but also get involved in digital interaction design.

OVER ONE HUNDRED JOBS
The position at Philips fitted that profile. But, Liu turned out to be one of over 200 candidates to apply. 'Philips also required more experience than I had, as it seemed.' After Liu was

turned down, she started updating her LinkedIn profile and scanning the platform for opportunities. She also checked Indeed and Glassdoor over and over again and applied for over one hundred jobs. Eventually, she was hired as an interaction designer at ASML. She started that job in April 2021.

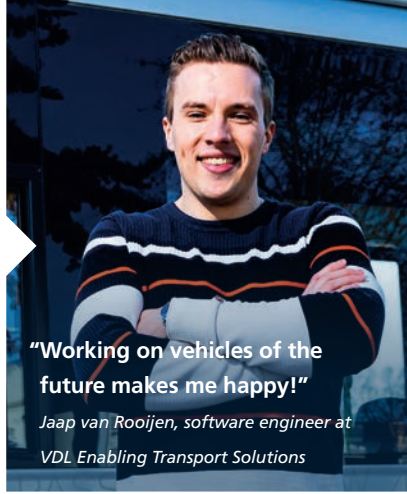
What helped Liu get there, and what did she miss due to the corona restrictions? 'Without Covid, I would have been on campus a lot more, talking to others who were looking for a job. I am sure that I would have found out about the TU Delft Career Centre sooner. They helped me doing job interviews. Online job interviews require special skills like knowing what sitting position works best and knowing where to look. Also, just like in real life, facial emotions and gestures matter.'

Liu learned to manage her 'bad habits', like not making straight eye contact and laughing. 'When I feel nervous I tend to laugh. That can make others feel that I am not being serious. So I practised job interviews a lot.'

At the time of the interview, Liu only started her new job at ASML a week ago. Getting acquainted proved to be quite a challenge. 'My new colleagues really do good things, and helping me on board. I got a buddy and there is a digital training for new employees. It makes me feel welcome. But sometimes I feel a little helpless, especially when I am trying to grasp what my contribution will be in the company. In the office you can just walk around and see what others are doing. Without that, it is difficult to adjust.' ■



YILING LIU



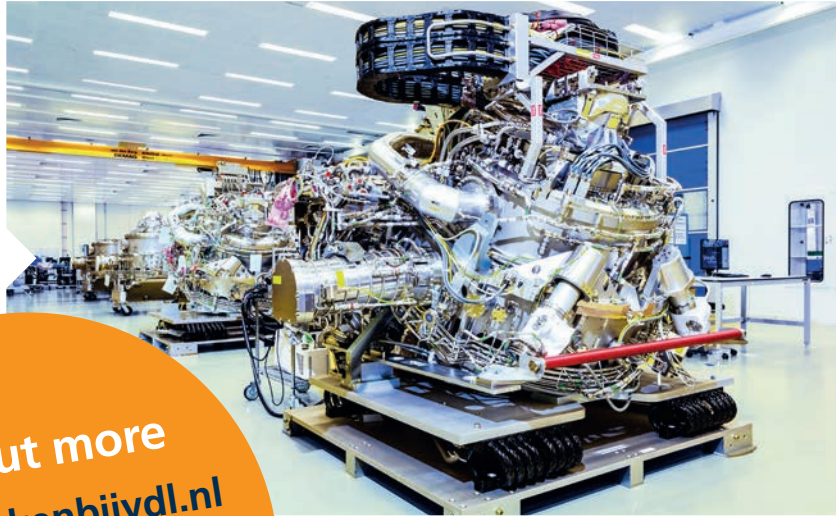
"Working on vehicles of the future makes me happy!"

Jaap van Rooijen, software engineer at VDL Enabling Transport Solutions



"It's exciting to be part of developing unique products for high-tech industry and health."

Miranda Looman, management trainee at VDL ETG Eindhoven



"VDL's culture is very open. Every colleague is important and his or her contribution is appreciated."

Puck van Buren, factory engineer at VDL ETG Almelo

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A dynamic international working environment with technical challenges in the field of mechanical engineering, electronics, mechatronics and IT. You will work in multidisciplinary teams, with a lot of room for entrepreneurship. What you design, you will see right back on the work floor. An informal, no-nonsense and open atmosphere are characteristics that are part of the VDL Groep's culture.

We make the difference together...

By thinking. By doing. And by combining craftsmanship and innovation. With more than 100 companies, 15,000 employees in 20 countries that gives you variety and opportunities. We are VDL. We stand for strength through cooperation!





DONATELLA GASPARRO

Donatella Gasparro (26) from Italy finished her study Organic agriculture at WUR just when COVID-19 took society in its grip. Finding a job was not easy. How did she do? Not conventionally and all over the place, to say the least...

Job interview in the Alps

Donatella finished her studies right at the start of the pandemic panic. 'When we thought we'd have a good story to tell our grandchildren', she says. She was lucky enough to be already juggling a few options for a possible job, although none were really the one. 'And the global crisis was proceeding hand in hand with an identity crisis of mine. You finish your studies and you are suddenly left to choose what to do with your life. Of course, my gap-year-farming-in-Costa-Rica plans all went down the drain, so it seemed there was nothing better to do than to get a job.'

While she carried on working for WUR as an assistant for three months, Donatella was busy applying and looking for jobs on all the platforms she knew. 'By June I was quite panicky about the future, and it felt very much like a job would resolve my ever-deepening existential crisis. It was July when I decided to drop it. It was summer, the pandemic seemed almost over, I had big plans to go to Italy and just relax. But it was that very summer,

while travelling around, that I want through the application process for the position I have right now. I did the first interview online from South Tyrol, in the Alps; I prepared for the second round between a friends' house in Milan, the train station and the airport; I did the second interview in my hometown in Puglia; I received the positive news while at my mum's, and I arranged work PCs and logistics while volunteering on a farm in Umbria.'

This resulted in her now being a Junior Lecturer at the Institute of Environmental Sciences of Leiden University. The position checks many of the boxes that make a good job for her, she says. 'It was a priority for me to work for a non-profit or public institution. Also, through education I have the chance to inspire a lot of young people on topics related to nature and sustainability. And: I love teaching! I think this passion of mine is what ultimately earned me the position.' Did finding a job solve her existential crisis? 'No, it

didn't. And that is my message for fresh graduates: a job is not necessarily going to give meaning to your life. The hunt for your place in the world never ends, and purpose, fulfilment and sense may lie very far away from a monthly pay check, a nice apartment and weekends in fancy cottages. ■

The hunt for your place in the world never ends'





ADVERTORIAL

‘Variety of projects is really a recommendation’

Job Mensen graduated from TU-Delft in 2017. He talks about his experiences as a software engineer at ALTEN, and how he contributes to innovations in the field of the environment and working conditions.

‘My study at TU was very theoretical. At ALTEN I am able to put this into practice. I am trained as a professional and I am well supported by both a Business and Technical Manager, who focus on my personal growth and professional development. There is a path for graduates with and without software experience, as well as for the more experienced software engineers.’

Job his career started through a friend who advised him to drop by ALTEN for an interview, because they have a lot to offer in the field of Technical and Scientific Software Engineering. ‘I really wanted to professionalise myself in software development: solving difficult calculations, simulations and algorithms. Because I only had knowledge of MATLAB, I participated in ALTEN’s

Masterclass. An intensive training on object-oriented programming in C++. After this I was working on a project for a small, but fast growing, vision and robotics client. I immediately had a good connection with the team who guided me very well.’

INNOVATIVE PROJECTS

I am proud of the variety of projects I have worked on so far, and that variety is really a recommendation. They are innovative projects that make new technology available for everyday practice. For example, I worked on a vision system for a robot that automatically unloads shipping containers. It is fairly unknown that unloading is still done manually. This is unpleasant work and too heavy. The solution I worked on improves working conditions. Because

it was such a unique project, I was allowed to present about this project at a trade fair.’

Currently, I am working on a measuring system for quality control of pipelines. I work together with various departments, such as electrical and mechanical engineering, the scientific department, and the users. The client is a very innovative organisation, where several experienced colleagues of ALTEN work. In short, a very good learning school. This way, I continue to develop myself well. After three years, I really feel that I have reached a very good level. I have been on a fast learning curve, working on a variety of projects, and they have been quite decisive for my career. I got to know new working methods, different environments, and people.’

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DO'S & DON'TS

Job hunting during COVID-19

Searching for a job is never easy, but may feel especially challenging during a pandemic. Here are some tips from the TU Delft Career Centre to get you started and keep you going.

KNOW THE VALUE YOU BRING

Yes, you may just be starting out and have lots to learn. Yet, you bring tremendous value. Get clear on your profile: what are your strengths, skills, your unique background, your drivers, etc. Such self-knowledge helps you stand out and can make searching easier.

TAILOR YOUR APPLICATION

Tailoring your applications takes time, but is well worth the effort. Especially for the roles you are really interested in. While there will be an overlap in your applications, don't miss the opportunity to target your materials: e.g. What is the most interesting about this organisation? What particular experience makes you a suitable candidate?

CHECK OUT THE TU DELFT CAREER CENTRE
THE CAREER CENTRE HAS A WIDE RANGE OF ONLINE TOOLS, WORKSHOPS, WALK-IN OPPORTUNITIES AND COACHING THAT HELP YOU TACKLE ALL THESE CAREER QUESTIONS AND MORE. GOOD LUCK IN FINDING YOUR DREAM JOB!

KEEP AN OPEN MIND

You may end up in a different role than you had anticipated. That doesn't have to be time wasted. Consider what you can learn, how you can best use your skills and what you can do to get closer to your desired role in the meantime.

(ONLINE) NETWORKING

Contrary to what you may think, not all vacancies are listed. Networking is a proven strategy to unlock these opportunities. Start with people you already know and dare to reach out beyond. People spend lots of time online these days and many people are willing to help. That increases your chance of success. Still, don't immediately ask for a job. Ask for information, advice or simply invite to connect by stressing a shared interest. The more people you have in a network such as LinkedIn, the more information you have access to. Also, people can find you more easily. Which means that your LinkedIn profile should be up-to-date and representative.



SPEND YOUR TIME AND ENERGY WISELY

Job searching can easily take up all your time and (mental) energy. Setting up a system can help. You may wish to do a certain number of hours of searching, networking and application writing every day. Or you might be more effective when you batch your tasks. Setting daily goals and curbing time helps you focus and keep momentum. You can also look for an accountability buddy and share your daily goals.



TAKE CARE OF YOU

Carve out time to take care of your body, mind and spirit. It is challenging to show up as a valuable potential employee when you burn yourself down in the search process.



‘Developing new technology through teamwork’

Canon Production Printing became the new name for Océ a year ago. It develops all the components used in production printers in-house, and offers its employees a wide variety of opportunities. Janneke Govers works at the R&D department the high-tech printing company.

Janneke heard the name Océ (which is how Canon Production Printing was known back then) occasionally during her studies. ‘I also had a nice conversation with a recruiter at one of the TU’s career events and it sounded like a really good company to work for. After graduating, I joined an agency for interim projects and the plan was that I would work at three different companies during the first three years.’

FRIENDLY COLLEAGUES

But she enjoyed the first year, which was at Canon Production Printing, so much that she left the agency and joined Canon Production Printing permanently. ‘The biggest factors in that decision were the interesting and challenging project I was working on at that time plus my friendly colleagues. Things just felt right for me at Canon Production Printing. My degree in Polymer Technology is pretty unusual, but the work isn’t compartmentalized here. Instead, you work in a multidisciplinary team and interact with all the disciplines. That keeps things

dynamic and exciting. Within Canon Production Printing, your success doesn’t just depend on the knowledge you have; it’s also about how you think, your innovative strength, your collaboration skills and how you tackle problems.’

THE COMPANY

‘There is a culture of openness,’ she continues. ‘As an employee, I feel heard. I have always had the feeling that I am taken seriously. Even when I had just arrived at the age of 22. Our department, R&D, has a flat hierarchy and we are all equals, which also creates a sense of security.’ Besides that, Govers sees Canon Production Printing as an extremely innovative company. ‘We have a huge R&D department, and everyone is innovation-minded, creative and focused on teamwork. And you can do lots of different things. I have been here for four years now and I have already been involved in various aspects of the product at both the front end and back end.’

PERSONAL GROWTH

Collaboration skills are extremely important when you are working in multidisciplinary teams, says Janneke. ‘The company provides relevant training courses. There are two main aims: to work together well and also to achieve a good team result. I like the fact that it receives so much attention within the company. It is not just



learning by doing, but also a conscious step-by-step approach to learning. We receive very good support. Personally, I have grown a lot stronger and more confident over the past few years; for example, I now feel much happier speaking up during meetings.'

One great initiative is our Change Makers project. It has been set up to encourage our employees to help make the company even better by occasionally getting together in groups to think about improvements. For example: How can we maintain better contact with one another during the COVID-19 outbreak? Asking the employees themselves to contribute their ideas is one way that the company shows it takes them seriously. Improvements don't have to come from the top either; we make use of everyone's intelligence here.'

INCLUSIVENESS AND SUSTAINABILITY

Two other striking aspects of the Canon Production Printing way of working are inclusiveness and sustainability. 'It is more common to come across people with unique characteristics in a technical environment like ours, such as employees who have a different take on things. They are very good at thinking

about certain details, for example. The company pays extra attention to them. I myself have been diagnosed with autism. That creates its own challenges that aren't always visible in everyday life but they are apparent to me and my immediate co-workers. I really appreciate how much effort my managers, coaches and colleagues have all made to help me cope with those challenges. I wouldn't have got where I am today so quickly without their support. That special guidance is taken seriously here. It's a culture of inclusiveness.'

REASONS TO APPLY

There are more than enough reasons to explore the possibility of working at Canon Production Printing, according to Janneke: 'There are so many opportunities here. Applying for a job can be daunting sometimes. But you don't have to make your final decision during the first interview! What I like about working at Canon is that you can always find something that is a 100% match with your talents and interests. You are not stuck with your initial choice. I have already worked in UV, Maintenance, Cure and Material Properties, to name but a few. You don't have to stay in your first role forever.'

JANNEKE GOVERS
STUDIED MECHANICAL
ENGINEERING AT TU/E,
DID HER MASTER'S IN
POLYMER TECHNOLOGY
WITH COMPUTATIONAL
AND EXPERIMENTAL
MECHANICS (CEM)



CANON PRODUCTION PRINTING DEVELOPS AND MANUFACTURES HIGH-TECH PRINTING PRODUCTS AND WORKFLOW SOFTWARE FOR THE COMMERCIAL PRINTING MARKET AND IS PART OF CANON, A GLOBAL PROVIDER OF IMAGING TECHNOLOGIES AND SERVICES. CANON PRODUCTION PRINTING OPERATES ON THREE CONTINENTS, WITH APPROXIMATELY 2,900 EMPLOYEES (AS OF LATE 2020) AND HAS ITS GLOBAL HEADQUARTERS IN VENLO, THE NETHERLANDS.

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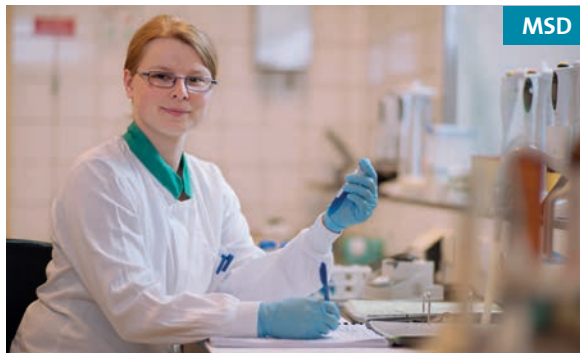
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MSD

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Organon

De befaamde naam **Organon** is terug. In de wereld, in Nederland. Een nieuw bedrijf met een belofte aan de gezondheid van vrouwen over de hele wereld. Want dat is cruciaal om een gezondere wereld te bereiken. Daar werken we aan - met 10.000 mensen wereldwijd waarvan 2.000 in Amsterdam, Oss, Brussel en Heist (BE). Volg Organon Benelux op social media.

FEA TUR ED!

FYI

Sustainable employability

Tomorrow's engineers must be prepared to face a rapidly changing work environment. They will need more than just professional knowledge. In order to encourage - and help - students to invest more time and effort in acquiring professional skills and designing a professional identity for themselves, in the coming years TU/e will be clustering and extending all its relevant resources under the banner 'Sustainable Employability for Students'.

Kathinka Rijk, policy officer for education innovation at TU/e, explains: 'The vast majority of our graduates do find a job quickly, but not necessarily one that really suits them, or that offers opportunities for progression. This is something students need to be thinking about - and start working on - while they are still studying. This is an important point in our university's Education Vision 2030, not least because both employers and alumni tell us that it is an area that needs more attention.'

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TU/e already offers students a range of possibilities for finding out about their future field of work, for continuing to develop their 'soft' skills and - with the help of coaches and mentors - for gaining an understanding of the kind of person and professional they are and/or wish to become. However, the careers resources, training courses and coaching currently available in this area are all something of a maze, in part because some elements, such as soft skills, are part of the curriculum, while others, in particular finding out about careers, are offered by the study associations. 'Students can no longer see the wood for the trees' says Rijk. Therefore the 'Sustainable Employability for Students'-program was launched.

GOOD TO KNOW

Startup

Dan Jing Wu, an enterprising doctoral candidate at TU/e that defended her thesis on biomaterials for regenerative medicine successfully at the end of April, says she grasps everything that comes her way. At this moment she is busy working on a startup which plans to launch these biomaterials on the commercial market. Wu's dream is one day to get a working heart rolling off a 3D printer. Wu: 'We can already produce structures of synthetic material that serve as a sort of scaffolding within which the body's cells can grow. In time this 'bioplastic' simply disappears, leaving a piece of muscle, blood vessel or heart valve. The next step is to make the material dynamic: so that it can bend or contract under the influence of a particular stimulus.'

TIP

Jobteaser

On the Jobteaser website, companies looking for highly skilled employees, interns, or trainees can create an account where they can publish events and vacancies. Students with an account can access this information, finding job opportunities across Europe.

FACT

TU DELFT HAS AN LINKEDIN ALUMNI
COMMUNITY OF MORE THAN 100.000
MEMBER, 79% OF THEM ARE MALE
AND 21 % FEMALE.

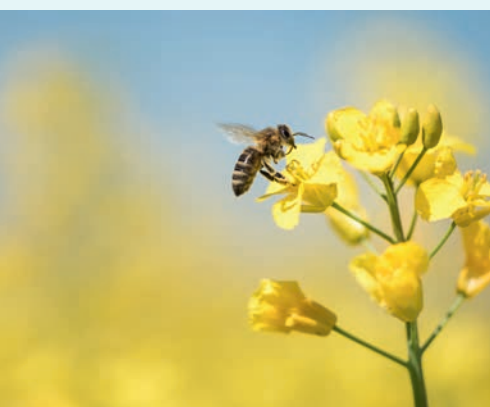


QUOTE

‘It was a dream come true to work on something so important; that’s what all your training was for’



ANDREA PRUISSERS IS WUR ALUMNUS AND RESEARCH ASSISTANT PROFESSOR AT VANDERBILT UNIVERSITY MEDICAL CENTER IN NASHVILLE, TENNESSEE. DURING THE FIRST TEST PHASE OF THE MODERNA VACCINE DEVELOPED IN THE US, ANDREA AND HER COLLEAGUE WERE RESPONSIBLE FOR THE BLOOD ANALYSES.



GOOD TO KNOW

Training bees to smell the coronavirus

InsectSense, a WUR start-up at Starthub, aims to use insects' sense of smell to detect volatile compounds associated with diseases. For instance, the founder Aria Samimi wants to use honeybees to identify people with COVID-19. 'I am designing a technology platform that can detect various compounds,' says Samimi. In addition to the insects, InsectSense is also developing a chip with the olfactory receptors of insects to do the same trick. His start-up and the WUR Bioscience group have received a grant for this. InsectSense is now 10 months old and is staffed by the two co-founders and five employees and interns. 'I like the atmosphere here on campus. Nature is a source of inspiration for me and a lot of research in Wageningen is nature-inspired.'

TIP

STUDENT POWER IS AN ONLINE PLATFORM THAT HELPS STUDENTS TO FIND RELEVANT PART-TIME WORK, INTERNSHIPS AND TRAINEESHIPS AT COMPANIES THAT CAN MAKE GOOD USE OF THEIR SKILLS. THE PLATFORM HELPS STUDENTS GAIN RELEVANT WORK EXPERIENCE AND GIVES EMPLOYERS ACCESS TO TALENT AT AN EARLY STAGE OF THEIR CAREER. THERE IS NO MIDDLE MAN, WHICH DISTINGUISHES THE COMPANY FROM EMPLOYMENT AGENCIES. STUDENTS CAN MESSAGE EMPLOYERS DIRECTLY, WHILE EMPLOYERS HAVE ACCESS TO AN EXTENSIVE CV DATABASE THAT ALSO ALLOWS THEM TO MAKE DIRECT CONTACT.
[HTTPS://STUDENTPOWER.COM/](https://studentpower.com/)

A man with a full, dark beard and mustache, wearing a light blue button-down shirt and a brown leather belt, stands with his arms crossed. He is smiling and looking upwards and to the right. The background is a blurred industrial setting with metal structures.

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Clairify has the wind in its sails thanks to corona

In part due to the pandemic, the importance of clean air and good ventilation has been raised everywhere. This has opened up a wealth of opportunities for the Clairify sensor system, which makes detailed measurements of air quality and presents these on advanced dashboards.

- A healthy building is now becoming a unique selling point in the real estate world. Whilst sensors that can measure temperature, energy consumption, CO₂, and humidity already exist, the Clairify system offers much more. For example, its sensors also measure aerosols and particulates, and they do so quickly and precisely. If values get too high, the system is also able to control the ventilation.

Clairify's founders, Tibor Casteleijn and Felix van den Horst, started the company three years ago as students. Tibor first studied Business & IT at the University of Twente and did a minor in Entrepreneurship at the University of Amsterdam. 'During my studies, I did my graduation thesis on sensor technology at the cleaning company Asito in Almelo. When cleaners finish their work, they tick off lists. However, Asito was curious to know



whether air quality sensors could be used to find out whether things are truly clean. I became fascinated by this idea and worked my way through a myriad of academic papers. When I met Felix, he was also immediately interested.' Together they developed a prototype. Wim Kamerman, who also studied Business & IT at the UT, joined them. 'I have been registered with the Chamber of Commerce since I was fourteen and immediately saw the potential of this idea. Work performance can drop by as much as half because of poor air quality—a really underestimated problem.'

AWARENESS

The three turned out to be a golden trio: Tibor with his enormous hunger for academic knowledge; Felix with his commercial insight; and Wim with technical and organisational talent. The prototype consisted of beautiful 3D-printed white 'dishes', topped by a black sphere full of sensors. The company attracted the attention of CBRE, the world's largest real estate consultancy. Currently, an ongoing pilot project, if successful, CBRE will roll out the technology to other clients. 'Covid has massively increased our awareness of the importance of clean air. Who knew what aerosols were in 2019? Or that schools are so poorly ventilated? Property owners see the importance of a good indoor climate: It increases the value of the property.'

The Dutch Student Investment Fund also recognised Clairify's potential awarding funding to the trio. 'This gives us the opportunity to grow and to add the right expertise in order to further develop both the hardware and the software. This means that the Clairify system is becoming more advanced, more accurate, and easier to produce,' says Wim. The company is still looking for more investors. ■



The municipality of The Hague has it all

As a TU student you might not consider working for a municipality. However, the work which is conducted within the municipality, is challenging and it is of imperative importance for society which makes the municipality of The Hague an interesting place to work.

The Hague is working tirelessly on creating the best future for the city, its residents and its international visitors. Millions of euros are spent each year on projects that improve safety, accessibility and habitability.

A massive project was Victory Boogie Woogietunnel. This almost two kilometers long tunnel was predominantly created underground and gives the city a new connection to its highway system. When it comes to mobility, we are also building towards a better public transportation system with Lightrail. Furthermore, we are experimenting with smart mobility, extra bike lanes and new parking regulations.

SPATIAL DEVELOPMENT

The city expects a growth of 100.000 inhabitants by 2040. As we are enclosed by the sea and other cities, expansion is not an option, and we need to find the best possible solution. This is why we have several Spatial Development Programmes. For instance, in the Central Innovation District, our economic heart, which houses a university, several NGO's, governmental branches and various other businesses and start-ups. Within this vibrant part of the city, we aim to

add 20.000 houses and 600.000 acres of other facilities. We are adding a small municipality within the busiest part of our city, while making sure it can still function properly. It is a challenging task, but vital for our city and its future.

The Hague is a unique city. It houses all branches of the government, the city has the most NGO's in the Netherlands, 13 kilometers of shoreline and even the royal family has made The Hague their home. Moreover, The Hague is a vibrant and busy city and almost all the work we do and projects we initiate are very tangible. By working for us you will always be involved in the most important, challenging, and fun projects!

Will you help us accomplish our goals? Have we sparked your interest? Or are you simply interested in the other projects we are currently working on? Then follow the QR code and let us tell you more!

FUN FACTS

- WE ARE ONE OF THE GREENEST CITIES IN EUROPE WITH MORE THAN 111.000 ACRES OF DUNES, FORESTS, AND CITY PARKS.
- THE HAGUE IS INTERNATIONALLY KNOWN AS THE CITY OF JUSTICE & PEACE AND THE SECOND UN CITY OF THE WORLD.
- WE ARE ONE OF THE MOST ETHNICALLY AND CULTURALLY DIVERSE CITIES IN THE COUNTRY.





GENERATION Z AT WORK

● In the coming years, the labour market will encounter a new group of young professionals: 'Gen Z'. The millennials (and co) will have to share the labour market with this, as yet underrepresented, newcomer. Generation Z, born between 1995 and 2010, will obtain their diplomas over the coming years and enter the job market. These Zoomers do not want to have anything to do with pigeonholing, individualism, and idealism, and feel no need to follow the beaten track. Gen Zs do not fill the shelves of Albert Heijn supermarkets, but rather sell sunglasses via dropshipping. Unlike 'sugar-coated' millennials, Gen Z grew up during a recession. This makes them pragmatic, but also at times anxious about their financial future.

What will this generation bring us? In 2019, the Dutch newspaper Trouw put forward a number of predictions and recommendations. Based on interviews with twenty thousand young Dutch people, the study was conducted by the psychologist Jos Ahlers and trend watcher René Boender. In the light of looming health, climate, and democracy crises, it is important to look towards the future with a solution in mind. Is Gen-Z coming to the rescue? One of the predictions was, 'do not dream, but act'—apt for a generation to participate in politics at an earlier age, and being more urgently aware of the problems at stake.

A generation of 'doers' is exactly what we need. The stereotyping of Gen Z as world-savers, however, will of course only come true when matched by their behaviour. Let this be an appeal, because a better world begins with yourself—including your career. Call it unbridled naivety, but it is my belief you must choose your profession to add value. Whether this means meeting the increasing demand for craft professions or perhaps simply because that scandalously exploitative Abercrombie & Fitch jumper is simply no longer cool.

There is not a more effective recipe for stress and burn-out than filling your days with work that is meaningless. So Gen Z, let's go, work for your money, but not because of it. Choose for your passion, your talent, and do your bit for a better world. The big problems of our time will be, or are already, on your plate, so you better start eating fast.

Timon Metz

Master's student in Technical Business Administration at University of Twente and President of the Dutch Student Cabinet. ■

'A generation
of 'doers' is
exactly what
we need'

Participating in the future of energy lunch lectures

Rebecca Visser is a Senior Manager Industry Development Energy, Resources & Industrials. Oscar Kraan is Manager Strategy. Both are actively involved in Deloitte's Future of Energy program. For instance, as lecturers on this topic at lunch lectures for university students. Both feel passionate about discussing this topic with the next generation.

The future of energy is a hot topic at many companies that are increasingly exploring the energy transition. 'For many of our clients it is an actual transition that requires a change in their business model', Rebecca says. 'That is why it is a key topic at Deloitte.'

Last year, Deloitte published a global flagship report on the various future of energy scenarios. Deloitte Netherlands was one of the initiators. Some future of energy publications are in collaboration with clients and aimed at specific industries. One of those is the joint publication with Shell on the decarbonisation of "hard to abate" sectors, including shipping and road freight. 'These are well-documented studies that enhance our eminence in the market and that we like to discuss with our clients', Rebecca says.

Clients are not the only sparring partners – an increasing number of students also feels responsible for sustainability. Universities are studying the energy transition in various fields.

The lunch lectures allow Oscar and Rebecca to have interesting discussions with students. 'Students have many innovative ideas that help us expand our horizon. In addition, we will need many more people to help us offer services in the field of the Future of Energy, so there is a recruitment angle as well', Rebecca adds.

Oscar: 'It is interesting to have our ideas assessed by the new generation, who will be the next "Future of Energy" leaders. Then again, for students the "business side of the challenge" can be interesting. They learn about the theories in university, but during the Lunch Lectures they get to hear about the actual issues that companies are struggling with, and how they can respond to the energy transition. For students, that is a unique opportunity.'

For the lunch lectures Rebecca and Oscar focus on universities that have their own Energy Clubs, such as the Delft Energy Club and the Erasmus Sustainability Hub. 'Students can

register for our Future of Energy community by means of a QR code on our posters. The community helps them to stay informed about developments within Deloitte in this field', Rebecca explains. Currently, these are online sessions. In-person lectures will start again as soon as this is allowed.

The lectures render in-depth questions, for instance on nuclear energy in the Netherlands and the role of oil and gas companies in the energy transition. 'And also, what the role of biomass will be, considering the balance between

'Students have many innovative ideas that help us expand our horizon'

– Rebecca Visser



food and energy production', Oscar says. 'Or whether hydrogen is a hype and if it will play a substantial role in the Dutch energy transition. NorthH2, which is the biggest green hydrogen project in Europe, is an excellent example of such a large scale project. Deloitte is one of the parties involved.'

'On the one hand, students want to hear our views on the Future of Energy. On the other hand, they want to find out what it's like to work as an energy consultant at Deloitte', Oscar says. 'Many students don't know what sort of issues companies are struggling with, and how Deloitte can help them. Often, they don't know the width and depth of our expertise and how Deloitte stands out from other parties when it comes to the Future of Energy. So we tell them about our market research, our center of excellence, and our impactful projects with clients.'

The Future of Energy impacts clients as well as the economy, society, and employment. 'The energy transition not

only requires a larger workforce, but also expertise and capabilities in different fields', Rebecca explains. 'The entire asset-heavy industry is involved in digitisation and innovation. Incumbants are connecting with start-ups and scale-ups that are specialised in new technologies. This appeals to students, who are already working on innovative projects. It's interesting to learn about their views and what worries them.'

Barack Obama once tweeted: 'This is the first generation to feel the effect of climate change and the last generation who can do something about it'. Oscar fully supports this view. 'I hope that at the end of my career, I will have contributed to carbon neutrality in 2050. The goals that are being set, are increasingly ambitious. The generation that participates in the lunch lectures will contribute largely to the most complicated part of the energy transition. We depend on them to succeed, so I hope we will inspire many students to devote their career to this goal.'

'It's interesting to have our ideas assessed by the new generation'

Oscar Kraan

FEA TUR ED!

FYI

WELCOME TO YOUR GLOBAL 4TU ALUMNI NETWORK! A STRONG, TIGHT AND WORLDWIDE NETWORK OF DUTCH ENGINEERS. THIS NETWORK, CONSISTING OF ALUMNI FROM TU DELFT, EINDHOVEN UNIVERSITY OF TECHNOLOGY, WAGENINGEN UNIVERSITY AND THE UNIVERSITY OF TWENTE, IS REPRESENTED IN THE MOST PRESTIGIOUS ORGANISATIONS WITHIN OUR DIFFERENT TECHNICAL FIELDS, BUT IN MANY CASES ALSO IN SELF-FUNDED START-UPS. THE NETWORK, THEREFORE, REPRESENTS A SIGNIFICANT SOURCE OF SKILLS, CONTACTS, AND ADVICE.

PLEASE REMEMBER THAT ALL ALUMNI ARE ALL ALSO MEMBERS OF A MUCH LARGER NETWORK OF OVER 280,000 GRADUATES FROM THE FOUR DUTCH TECHNICAL UNIVERSITIES WHICH CONNECTS YOU TO A RICH LEGACY OF INNOVATION AND EXCELLENCE. BE PROUD AND SHARE YOUR EXPERIENCES AT OUR INSTITUTIONS WITH OTHER PEOPLE. BESIDES JOINT ACTIVITIES IN THE NETHERLANDS, THERE ARE ACTIVE ALUMNI COMMUNITIES IN AUSTRALIA, CANADA, FRANCE, GERMANY, THE NORDICS, SPAIN, SWITZERLAND AND THE USA. JOIN YOUR GLOBAL 4TU ALUMNI NETWORK!

TWENTE

UTwente Young alumni Network

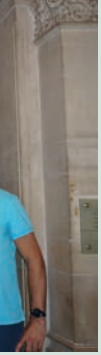
Young alumni face different challenges than someone who's career is further along. Therefore, young alumni under the age of 35 can join the UT Young Alumni Network (YAN). YAN organises readings, workshops, networking drinks and other activities. These activities are focused on personal and professional development, networking, company visits and, of course, having fun. The UT Young Alumni Network: for and by young alumni. Join us!
utwente.nl/yan | alumni@utwente.nl



TU DELFT

Stay connected to TU Delft

...and keep developing yourself! You can follow interesting online courses with a discount and get free access to scientific research at the library. Check out the TU Delft Career Centre for one of their workshops, make use of the one-to-one coaching sessions and find interesting vacancies at the TU Delft Your Career Portal. Want to know more? Join the alumni portal www.tudelftforlife.nl, visit alumni.tudelft.nl/lifelong-learning or send us an email: alumnirelations@tudelft.nl.



QUOTE

‘After our study at the UT, alumni all walk a unique path. For me it is very inspirational to connect with each other also after finishing the studies. There is still so much to learn!’



TINEKE SCHOOL, APPLIED MATHEMATICS '18 UT
AND PRESIDENT OF THE UT YOUNG
ALUMNI NETWORK

WAGENINGEN

Don't forget WUR!

With a WUR degree you are part of a worldwide network of over 55,000 alumni. Your network is much bigger than you think! Join WUR Connect (www.wurconnect.nl) to stay in contact with other alumni and to keep informed about our activities. We're also developing a programme especially for our young alumni, so stay tuned for the latest activities. Check out www.wur.eu/alumni/congratulations for more!

TU EINDHOVEN

Alumniportal of TU/e

The Alumni Portal TU/e | In Touch gives you access to an inspiring network to stay connected with other alumni, keep in touch with the Alumni Association or stay informed about the latest news in the field of research, developments and activities.

Discover what TU/e | In Touch can mean for you, watch our inspiring videos on www.tue.nl/alumniportal and register yourself on www.alumnicommunity.tue.nl.

TU/e | In Touch, the starting point for an online Alumni Community worldwide!



3 ways in which **Europe's green recovery** will create opportunities for young engineers



With the launch of the European Union's COVID-19 vaccination strategy, it's time to look forward to beginning a new version of our former social/work lives – and to a widespread economic recovery. Europe is once again at the forefront of the energy transition with plans already underway that will create significant opportunities in the sustainable energy sector.

The following pieces are falling into place, highlighting the pivotal role of sustainable energy (and the need for well-trained energy engineers) during the post-pandemic recovery and beyond:

The European Green Deal

Yes, images showed blue skies across Europe as lockdowns came into force; however, climate experts warn against confusing air quality with climate change. When we return to "business as usual", we must ensure that the economic recovery doesn't undo all the previous hard work put towards climate goals.

The European Parliament wants Europe's future to be green and sustainable, so

members have resolved to use the **European Green Deal** as the cornerstone of the EU's recovery. They want to kickstart the economy sustainably and create jobs to protect key industrial sectors while pursuing an ecological transition. Thus, sustainable energy will play an integral part in this green recovery.

The energy storage industry alone will take centre stage. The continent expects to increase its production capability 20-fold in the next seven years. This could result in 100,000 new jobs every year. This growth will be delivered by a new wave of experts that need to be trained in the skills of tomorrow. This is where EIT InnoEnergy's role in training top talent for the energy transition comes in.

Having already introduced a **Master's in Energy Storage**, EIT InnoEnergy launched in 2020 its plan to build a Battery Academy to train and upskill 16,000 European workers in this value chain by 2025.

The Green Recovery Alliance

The EU Parliament, together with big names from politics, industry, the European Trade Union, and the private sector – including EIT InnoEnergy's CEO Diego Pavia – have signed the **Green Recovery Alliance** (on 14 April 2020) that builds upon the European Green Deal. This new alliance places sustainable energy at the heart of Europe's economic recovery, creating countless opportunities in this sector for years to come, and thus jobs for trained young professionals. Dr Frank Gielen, Education Director of EIT InnoEnergy, shares: **"Turning Europe into a climate-neutral continent in three decades was already a daunting task. We will need to fill hundreds of thousands of new jobs and roles by 2030 to meet energy demands and reduce**



Shape your future in sustainable energy

Would you like to combine top knowledge in energy engineering with training in entrepreneurship and access to the most thriving start-ups in the energy sector in Europe?



14 Top Technical Universities

94% Employment rate six months after graduation

10 Most dynamic countries to study in Europe

1200+ Graduates making an impact in the energy transition

5 Entrepreneurs in Forbes 30 under 30

Our unique European Master's programmes address the most exciting and important areas in sustainable energy and energy engineering. You will study in two different countries and obtain a dual degree from our partner universities. Interested in renewable energy, smart cities, or clean fossil fuels? Want to be an expert in smart grids, or gain a broader overview of current and future energy technologies? We have the programme for you.

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WhatsApp: +44 7407 303554

www.innoenergy.com/masterschool

emission targets. By 2050, it will be millions. This new alliance simply reinforces our resolve to utilise sustainable energy to recover post-pandemic."

An urgent need for trained energy engineers Signatories of the new alliance are committed to investing in solutions that are aligned with climate commitments while reviving the economy. With sustainable energy innovation at the very centre of the agenda of EU governments and industry – this sector is ramping up, creating an urgent need for trained energy engineers. EIT InnoEnergy Master School will continue with its mission to prepare the next generation of energy

engineers via innovation and entrepreneurship training, which now becomes even more vital.

As Dr Gielen explains, **"Right now, we are creating a scalable, networked learning infrastructure that will implement specialised learning enablers and 'Green Deal Digital Learning Spaces' tailored specifically to meet the priorities areas of the Green Deal plan."**

With these essential elements all coming together to ensure a smooth and prosperous green recovery from COVID-19 in Europe, it's the perfect time to find out what part you can play in this exciting process!



ADVERTORIAL

Ruim baan voor talentvolle onderzoekers bij het CBS

Het Centraal Bureau voor de Statistiek (CBS) is een innovatieve kennisorganisatie die maatschappelijke vraagstukken met betrouwbare statistische informatie en data inzichtelijk maakt. Er werken ongeveer 2000 mensen met diverse hbo- en wo-achtergronden, van economie tot natuurkunde en van politicologie tot sociale geografie. Nick de Wolf (links op de foto) en Tim de Jong zijn er twee van. Ze hebben een universitaire achtergrond die goed van pas komt bij hun huidige werk als onderzoeker.

Nick de Wolf studeerde kunstmatige intelligentie aan de Universiteit van Amsterdam. Hij werkte er na zijn afstuderen als junior docent en gaf les in programmeren, beeldherkenning en taalverwerking. 'Ik kende het CBS al door mijn opleiding', vertelt hij. 'De organisatie staat voor mij hoog op de lijst van instanties met interessante data. Van een kennis die er werkte, hoorde ik hoe data en kunstmatige intelligentie samen komen. Dat sprak

me aan.' Toen zijn docentenpositie niet langer ontwikkelperspectief bood, solliciteerde De Wolf bij het CBS. In april 2019 ging hij aan de slag als datascientist bij het Center for Big Data Statistics (CBDS). 'We onderzoeken in een unieke innovatieve omgeving de mogelijkheden van nieuwe data voor de statistiek. Dit doet het CBS samen met nationale en internationale partijen uit de overheid, de wetenschap, het onderwijs en het bedrijfsleven.'

SOCIALE SPANNINGEN INDICATOR

De Wolf werkt veel met externe data, zoals twitterdata, satelliet- en luchtfoto's, bestuurlijke rechtspraakdocumenten of data van bedrijven die via webscraping verzameld worden. 'Naast data heeft het CBS ook veel methodologische expertise in huis. De strikte waarborging van de privacy staat daarbij voorop. Daardoor komen ook vragen van andere instanties – bijvoorbeeld van

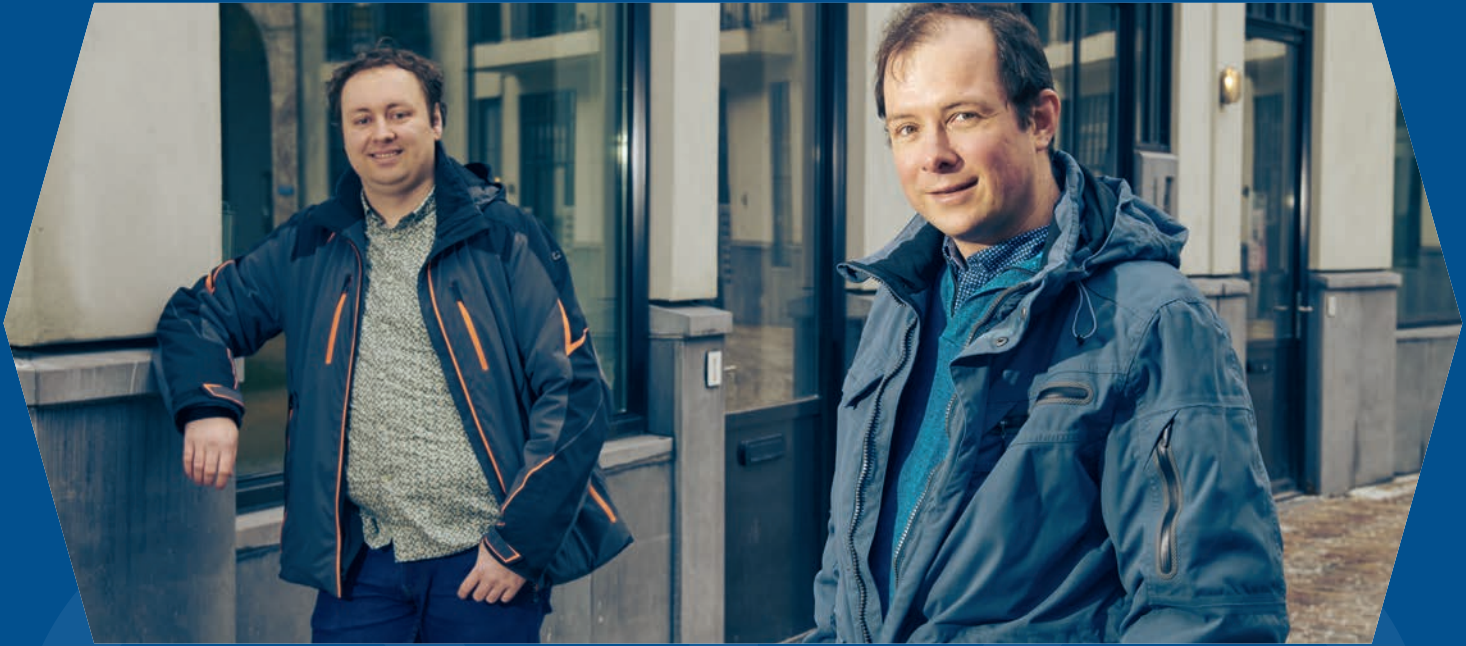
ministeries of kennisinstellingen - bij het CBS terecht. Zo werkte ik aan een sociale spanningen indicator op basis van twitterdata. Daarmee is het mogelijk om snel een actuele indicatie te krijgen van de veranderingen in sociale spanningen en emoties in de samenleving. Verder heb ik juridische uitspraken geanalyseerd in verband met de nieuwe omgevingswet. Ook was ik betrokken bij de ontwikkeling van een app die foto's van kassabonnen automatisch verwerkt voor het Budget Onderzoek van het CBS dat de bestedingen van particuliere huishoudens bijhoudt.'

VOLOP ONTWIKKELMOGELIJKHEDEN

Het werk bij het CBS is divers en De Wolf krijgt veel kansen om zich te ontwikkelen. 'Om inhoudelijk goed op de hoogte te blijven, neem ik deel aan congressen en cursussen, bijvoorbeeld over analyse van satellietdata of datavisualisatie. De onderwerpen kan

34 'Ik word aangemoedigd mezelf te blijven ontwikkelen

- Nick de Wolf



ik zelf aandragen, zolang ze maar bij mijn werk aansluiten. Ik verzorg ook lezingen en schrijf wetenschappelijke artikelen en rapporten. Via de CBS Academy - het interne opleidingsinstituut van het CBS - geef ik les aan collega's in tekstanalyse. Onlangs heeft het CBS me gevraagd of ik zou willen promoveren op het gebied van sensor-data en Smart Cities. We kijken nu of dat mogelijk is. Kortom: ik word aangeemoedigd mezelf te blijven ontwikkelen.'

WETENSCHAP EN PRAKTIJK

Tim de Jong studeerde Kennistechnologie aan de Universiteit Maastricht, met een master in Kunstmatige Intelligentie. 'Na mijn afstuderen werkte ik bij het CBS als software engineer. Daarna promoveerde ik aan de Open Universiteit op onderzoek naar de toepassing van mobiele telefoons in het onderwijs, bijvoorbeeld bij taalstudies of bouwkunde. Na mijn promotie vond ik een baan bij een ingenieursbureau waar ze apps maken voor medische toepassingen. Denk

bijvoorbeeld aan een simulator voor non-invasieve hartoperaties of voor het afgeven van signalen aan patiënten over benodigde medicatie of beweging. Omdat ik erg geïnteresseerd ben in datascience solliciteerde ik bij het CBS. Een interessante werkgever, met veel mogelijkheden. Er vindt steeds meer innovatie en fundamenteel onderzoek plaats, ook met kunstmatige intelligentie. Wetenschap en praktijk worden hier met elkaar gecombineerd.'

AFWISSELEND WERK

De Jong werkt veel met data van satellieten en luchtfoto's. 'Het CBS onderzoekt de mogelijkheden om met die data bijvoorbeeld zonnepanelen, bodemgebruik en armoede in kaart te brengen. Ik bekijk dus de praktische toepassingen van innovatieve datascience technieken. Ik schrijf daar wetenschappelijke publicaties over. Daarnaast begeleid ik stagiaires van universitaire opleidingen en geef ik cursussen over kunstmatige intelligentie aan collega's via de CBS

Academy. Het CBS is internationaal een van de vooruitstrevendste statistiekbureaus en collega's worden dus vaak gevraagd hun expertise internationaal te delen met andere organisaties, zoals statistische bureaus en de Verenigde Naties.'

De Jong vindt het interessant dat hij inhoudelijk heel erg de diepte in kan als hij dat wil, maar ook de breedte. 'Het is een groot bedrijf; je kunt verschillende kanten op. Mijn directe collega's hebben allemaal een technische achtergrond, in verschillende richtingen. Daardoor vullen we elkaar aan en hebben tegelijkertijd veel dezelfde interesses, ook buiten het werk. Ons team is een leuke club. Voor de corona-uitbraak gingen we regelmatig samen uit eten of organiseerden we spellenavonden. Nu doen we dat laatste vooral thuis online.'

Werken bij het CBS!
Ben jij er klaar voor?
www.werkenbijhetCBS.nl



DOUBLE INTERVIEW WITH DIRK LIPPITS AND RALF MACKENBACH

Breeding ground for science, top-class sport, and entertainment

Successfully combining an intensive study programme with a time-consuming career in entertainment or top-class sport? That is what Ralf Mackenbach (singer, dancer, actor) and Dirk Lippits (successful Olympic rower in 2000) have been doing. Finding their way, both in- and outside science, has afforded them unique perspectives: 'You bring together various different experiences that hardly anyone else has. That has many benefits.'



DIRK LIPPITS

● Dirk Lippits celebrated his 44th birthday last May, but along the way he seems to have lost little of his Olympic stature. As a high school pupil from Geldrop, he joined the student rowing club Thêta in 1995. Five years later he made his Olympic debut in Sydney and won a silver medal in the double-four. Upon his return, the TU/e awarded him the university's medal of honour. 'I wanted to study chemistry and that entails laboratory work and tests - more than a little inconvenient if you also want to do a lot of training. TU/e offered me great flexibility. I remember I was able to complete all of my science practicals within a week - something that would normally take half a year to complete. I was given everything I needed so that I could quickly continue with my sports training afterwards.'

JUGGLING

Ralf Mackenbach's career in show-business started long before he graduated from the TU/e. In 2009, he won the Junior Song Contest in Kiev with his self-written song Click Clack. The following five years were very busy indeed for the 13-year-old student from the city of Best. 'The Saint George College in Eindhoven has given me ample opportunity to make use of all kinds of arrangements in order to pass my tests. The TU/e awarded me the same level of freedom, because the performances continued - a constant balancing act between science and entertainment. You cannot keep juggling two balls that weigh around three hundred kilos.' For Ralf (25), this has led to the decision to leave the entertainment world



behind for now, and to focus full-time on his PhD research on nuclear fusion. His choice of Applied Physics worked out well for him. 'It primarily involved a lot of theoretical work, and that suits me best. Coincidentally, you can also absorb theory on the back seat of a car, on your way to a gig - no problem at all. Maybe I was lucky that it suited me. Or perhaps, it suited me because it was convenient', he says with a wink.

THOUGHTFUL AND MOTIVATED

Dirk: 'Of course, it was all very well-planned. I suspect it will be the same for you, Ralf. People really feel that when you say you will do it this way, you actually will - that you are not just 'throwing your hat in the ring' and that you are sensible enough; that if you know something will not fit your schedule, you will not try it. It has to be well-considered. I was very motivated, both for my studies and for rowing. If I said I was going to do something, I did

it. Conversely, if I said I was not going to do something, I did not. Do you understand? It is not the same as asking for flexibility because you had a little too much to drink the week before. That makes it different.'

Ralf: 'Indeed, flexible yet realistic, I would say. If you come up with a realistic estimate, are consistent, and your planning is sound, then nobody will stand in your way. However the entertainment business is, by its very nature, very unpredictable. One week you may be fully booked with performances, whilst the next week, your agenda might be completely empty. It is almost impossible to say what the next month will be like. I really had to use the moments between gigs - often in the car or in my dressing room - to open my study books and do my homework. Otherwise, it would just not happen.'

NOT LONELY AT THE TOP

The cliché that it is lonely at the top,

turns out to be only true in part.

Dirk: 'Certainly, I was rarely or never at the university, except to take my exams. Actually, I only attended lectures during the first academic year. So indeed, my contact with fellow students was limited. During my PhD I did have more contact, as I was part of a department. Of course, I was with Thêta, which is quite a large association. I lived in a rowing house with eight students and hence I had no lack of social contacts, and it just seemed so much more logical to live in the rowing world



RALF MACKENBACH

combination of sport - which is a very different world - and my studies. I have definitely benefited from that link.'

Ralf: 'I agree. To a certain extent, I am already experiencing the benefits of this myself. Media and entertainment are a very social industry. It is all about presenting, networking, and things like that. Those are all skills that I think are useful everywhere, including in science. You have to be able to present research results at a conference and to discuss inspiring ideas with other scientists, so my experience in show-business helps a lot.'

Dirk: 'I think it is primarily the diversity of experiences that is valuable - combining science with a background that practically no one else has. In the world of business, that can be very inspiring indeed. Your own unique background enables you to come up with innovative solutions.'

Ralf: 'I completely agree. You have a slightly different approach than other people and that can be of real value.'

CAREER TIPS

In answer to Ralf's request for tips for a successful career, Dirk does not have to think for very long. 'Especially when you are young, it is not possible to make mistakes. Follow your heart, do things you like, and for which you have a passion. As soon as you notice that you are not doing as well as you should, go and do something else. For your career, it usually does not matter what you do until you are about 35. Only then will you be appreciated for a certain expertise or quality. The only thing that you must not do, is continue doing the same thing until you are 35, because then you literally learn very little.'

Ralf: 'Yes, that is a good point, also what you say about liking what you do. However, I actually do not mean that I have to 'skip' to work every morning. I am more interested in a challenge. It has to be stimulating. If you manage to find the answer to a difficult question, that makes it all the more fun.'

After his active sports career in 2007, Dirk did not rule out a return as a rowing coach. However, he has adjusted that ambition. 'In sport, your age is a defining factor. I have always toyed with the idea of working as a coach after my career, to share my experience with young athletes and get energy from it. Now that I am becoming older, I prefer getting back on the water myself. I am, and will always be, a sportsman.' ■

THE INTERVIEWEES

DIRK LIPPITS (1977) GREW UP IN GELDROP AND STARTED STUDYING CHEMICAL TECHNOLOGY IN 1995. AFTER COMPLETING HIS BACHELOR'S AND MASTER'S DEGREES, HE COMPLETED A PHD IN POLYMER SCIENCE FROM 2003 TO 2007 AND WORKED AS A RESEARCHER AT DSM IN GELEEN. IN 1995, HE JOINED THËTA AND BECAME THE MOST SUCCESSFUL ROWER EINDHOVEN HAD EVER PRODUCED. IN 2000, AT THE AGE OF 23, HE MADE HIS DEBUT AT THE OLYMPIC GAMES IN SYDNEY AND WON SILVER IN THE DOUBLE-FOUR. HIS PARTICIPATION IN THE ATHENS GAMES IN 2004 IN THE SKIFF YIELDED A SIXTEENTH PLACE. IN 2007, HE RETIRED FROM COMPETITION BECAUSE HE WAS NOT SATISFIED WITH THE SELECTION POLICY OF THE NATIONAL COACH. AFTER A JOB AT MCKINSEY & COMPANY (2007-2013), HE RETURNED TO DSM, WHERE HE IS NOW DIRECTOR OF THE DAIRY BAKING BEVERAGES SECTOR IN DELFT. DURING HIS SPORTS CAREER, DSM WAS ALREADY AN IMPORTANT SPONSOR FOR HIM.

RALF MACKENBACH (1995) GREW UP IN THE CITY OF BEST. DURING HIS TEENAGE YEARS. HE STUDIED DANCE AND DRAMA. IN 2014, HE STARTED STUDYING APPLIED PHYSICS, SUBSEQUENTLY COMPLETING HIS BACHELOR THREE YEARS LATER. HE THEN COMPLETED THE MASTER SCIENCE AND TECHNOLOGY OF NUCLEAR FUSION, ACQUIRING THE TITLE OF ENGINEER. IN 2020, HE BEGAN A PHD PROGRAMME IN NUCLEAR FUSION. TO THE GENERAL PUBLIC, HE IS BEST KNOWN AS THE BOY WHO WON THE JUNIOR EUROVISION SONG CONTEST IN KIEV (2009) AGED 13, WITH THE SELF-WRITTEN SONG CLICK CLACK. IN ADDITION, HE CREATED A SENSATION AS A DANCER AND ACTOR IN VARIOUS MUSICALS, TV SHOWS, AND FILMS. HE HAS ALSO PROVIDED VOICE-OVERS FOR ANIMATION CHARACTERS.

Developer salaries in the Netherlands

Honeypot is the job platform made just for developers. On Honeypot, companies apply to you, with tech stack and salary up front. Come find your next role.

Join → [Honeypot.io](https://honeypot.io)



With its unique blend of work-life balance, a large number of tech openings and impeccable bike lanes, the Netherlands has a lot to offer developers... but, for many, the big question is always 'how's the pay'?

We analysed **12,000 data points** of proprietary data from the past five years to understand what developers can expect to earn around the Netherlands.

Average offered salary by experience and role (Netherlands)

| Experience | Backend | Frontend | Fullstack | Management |
|------------|----------|----------|-----------|-------------------|
| 8+ y | € 62,000 | € 60,000 | € 62,000 | € 68,000 |
| 6-8 y | € 56,500 | € 59,000 | € 59,000 | € 66,500 |
| 4-6 y | € 54,000 | € 57,000 | € 55,000 | € 56,000 |
| 2-4 y | € 49,000 | € 52,000 | € 49,000 | € 49,000 |
| 1-2 y | € 42,000 | € 42,000 | € 44,000 | Inconclusive data |
| 0-1 y | € 42,000 | € 39,000 | € 41,000 | € 35,000 |

The impact of COVID-19

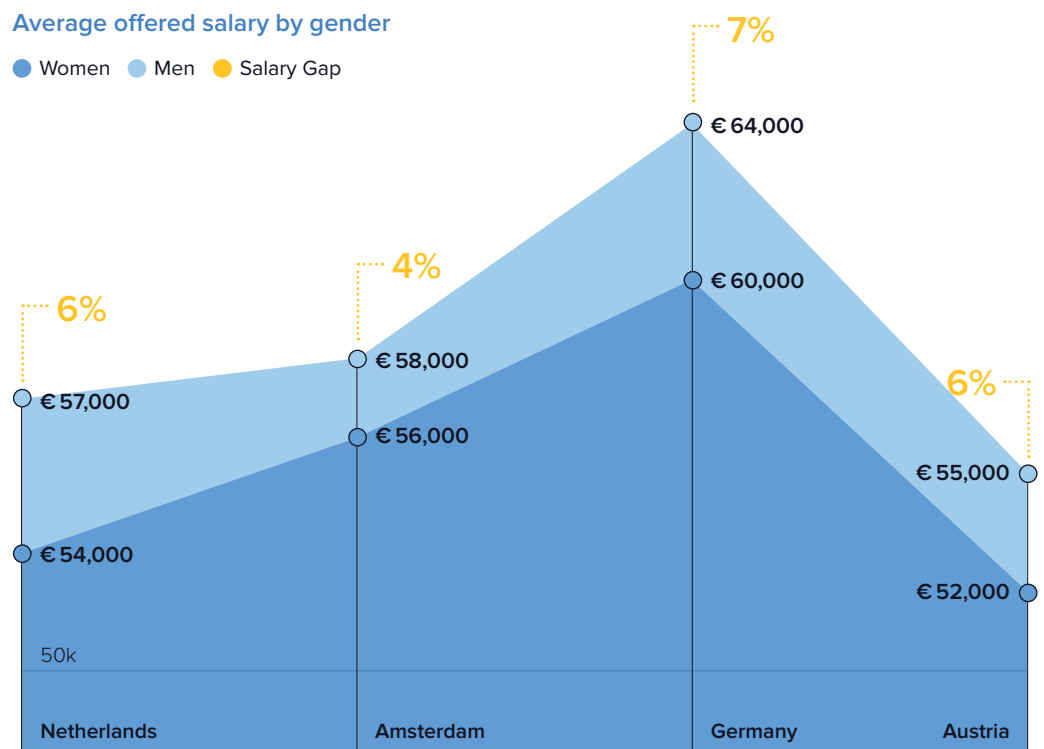
The pandemic affected developer salaries and interview offers. Both of these numbers went up and down throughout 2020, with the average developer salary ranging from €53k to €61k. Fortunately, both salary and interview invites continue to stabilize as we move through 2021.

Female developers earn almost 6% less than men

In our Developer Happiness Index report, Dutch developers reported a very high level of happiness with their country's gender equality. Nonetheless, we found that women are consistently offered lower salaries than their male counterparts.

Average offered salary by gender

● Women ● Men ● Salary Gap



Read the rest of our report here: <https://cult.honeypot.io/developer-salary-report-2021>



‘We zijn techneuten met een juridisch sausje’

Jouw hart ligt bij techniek. Maar wat als een academische carrière niet bij je past en je wel een technisch-inhoudelijke uitdaging wil? Dat kan als octrooigemachtigde bij Arnold & Siedsma (A&S). Raimond Haan, Associate Partner en octrooigemachtigde, en Roel Joxhorst, octrooigemachtigde in opleiding, vertellen.

WAT TROK JE AAN IN DE BAAN OCTROOIGEMACHTIGDE EN WELKE ROL SPEELT TECHNIEK IN DIT WERK?

Raimond (werktuigbouwkunde TU/e): ‘Ik kwam per toeval met dit bijzondere vak in aanraking. Het is voor TU-studenten vaak onbekend dat technische kennis nodig is om uitvindingen goed te begrijpen. Octrooigemachtigden zijn primair techneuten met een juridisch sausje om het zwart-witdenken om te toveren in de wetenschap dat alles grijs is.’

Roel (natuurkunde RUG): ‘Het enige wat ik richting het einde van mijn studie wist, is dat een academische carrière niet bij mij paste. Toen een recruiter mij benaderde voor deze functie, had ik nog nooit van een ‘octrooigemachtigde’ gehoord. Al snel ontdekte ik hoe interessant en leuk het is. Bij A&S beschermen we intellectueel eigendom: uitvindingen, merken en modellen. Een boeiend vak.’

WAT MAAKT JOUW FUNCTIE UITDAGEND?

Raimond: ‘De afwisseling. Van partitculier, via start-up, naar een directeur van een mkb-bedrijf of een hoofd R&D bij een multinational: je spreekt ze

allemaal. Als generalist vind ik het leuk om met klanten te sparren over hun uitvinding, vooral tijdens een rondleiding met inside information. Ook het doorgronden van een uitvinding en dit goed verwoorden in een octrooiaanvraag geeft mij veel energie.’

Roel: ‘Een octrooi zodanig opstellen, dat je de essentie van de uitvinding beschermt. Voor een echte bèta als ik, is ook het klantcontact een mooie uitdaging.’

WAAR BEN JE TROTS OP?

Raimond: ‘Betrokkenheid bij uitvindingen met veel publieke aandacht is natuurlijk leuk. Zo heb ik destijds de octrooiaanvraag voor de Senz Stormparaplu geschreven en meerdere juridische procedures voor hen gewonnen.’

Roel: ‘Als trainee kan ik nog niet claimen dat ik grote rechtszaken heb gewonnen. Maar toch: het gevoel dat je dagelijks het beste advies geeft aan

klanten, toegespitst op hun specifieke situatie, geeft mij veel voldoening.’

WAT ZIJN DÉ PLUSPUNTEN VAN A&S?

Raimond: ‘De werksfeer. Meerdere, kleine, hechte kantoren met de slagkracht en faciliteiten van een groot kantoor: het werkt. Specifiek voor trainees onderscheidt A&S zich doordat trainees bij ons al vroeg bij het gehele proces worden betrokken. Van het eerste contact met de cliënt, tot de gerechtelijke zitting.’

Roel: ‘De onderlinge betrokkenheid is groot. Jaarlijks organiseert A&S het examendiner om geslaagde trainees te huldigen. Daarnaast zijn er kantoor-dagen en barbecues waarbij je ook je collega’s van de andere vestigingen beter leert kennen. Dat mijn kennis van (en passie voor) techniek hier alle ruimte krijgt, is ook een groot pluspunt. Ik raad TU-alumni zéker aan om met A&S in gesprek te gaan over dit traineeship.’



MEER WETEN
OVER (WERKEN BIJ)
ARNOLD & SIEDSMA?
SCAN DE QR-CODE!



SALMAN SHAHZAD

ALUMNUS UT

PROJECT MANAGER

OF IN-NO-PLASTIC

Boosting the blue economy

UT alumnus Salman Shahzad (Master degree Energy and Environment Management) began searching for opportunities in the field of social entrepreneurship. As a non-European, he struggled to find a job and decided to start his own company. Now he is a project manager of In-No-Plastic, a large EU funded project focused on the removal of marine plastics and litter.

'During my studies I became fascinated by using social entrepreneurship for sustainable development. I applied and many companies were interested, but in the end nobody wanted to hire me as a non-European. I didn't want to leave it all up to chance, so I decided to start my own

company. I started in 2019 with the first job of writing an EU proposal and now I am full-time contracted with BlueXPRT, start-up based in Enschede specialized in bringing innovation to market through project development and execution.'

IS THAT HOW YOU BECAME INVOLVED IN THE IN-NO-PLASTIC PROJECT?

'Yes, we managed to acquire large funding for this project. It revolves around removal and reuse of plastic from water sources. We will target industrial hotspots as well as beaches. We have selected sites across Europe and will develop and apply clean-up technologies to remove macro-, micro- and nanoplastics.'

PLEASE EXPLAIN....

'For instance, at industrial sites we will use so called SepaRaptor – a piece of technology that allows nanoparticles to agglomerate, become bigger and therefore easily separated. This has been tested and proven in air, now we will test its use in water. For the clean-up of beaches, we will use Seeker robot, autonomous robot that identifies and collects plastic waste. On top of that, we will be using smartphone applications to encourage locals to collect litter in exchange for money or gifts.'

IS THIS WHAT YOU ENVISIONED AS YOUR CAREER PATH?

'It's definitely fascinating to see how things are

researched and developed. It gives me a glimpse of what the future could be. I never had a five-year plan, so to speak. I take it step by step. So far there have been opportunities on my doorstep that I'd never anticipated.' ■

FUNDING

INNOPLASTIC STARTED OCTOBER 2020 AND IS A THREE YEAR PROJECT FUNDED WITH A 7.4 MILLION EURO GRANT FROM THE EU H2020 RESEARCH PROJECT, FUNDED UNDER THE CALL "PILOT ACTION FOR THE REMOVAL OF MARINE PLASTICS AND LITTER", TOPIC ID: CE-FNR-09-2020 (GRANT AGREEMENT 101000612)."



PDEng: putting what you learn into practice

After completing your master's, are you keen to gain some practical experience while continuing to study? You can do just that during a two-year PDEng programme at the 4TU.School for Technological Design, Stan Ackermans Institute (4TU.SAI). After completing a double master's in Architecture and Human Technology Interaction, Anne Grave decided to do a PDEng in order to put her knowledge into practice on a major project.



Whereas the more familiar PhD entails spending four years doing research, a two-year PDEng is focused on the direct application of knowledge in practice. During the programme, trainees not only study various subjects but also receive payment for their work on a real-life design project. That project can be focused on process optimization or product design.

Anne Grave did two master's degrees simultaneously – one in Architecture and the other in Human Technology Interaction (HTI). 'In traditional architecture, the architect is usually in charge and it revolves around aesthetics and physical buildings, but I often find there is a lack of focus on the user. That is why I chose to do a minor in HTI, to learn how people experience and interact with spaces. It was such an interesting combination that I subsequently decided to do a second master's in it. For my thesis, I set up a project to research how patients' rooms can be designed so as to minimize patient stress.'

RESEARCH AND DESIGN

Anne finished both her master's degrees in 2017. 'I felt as if I had come to a crossroads at that point; I either had to choose architecture, designing buildings from behind a desk which would mean missing out on the scientific side, or stay in science which would mean letting go of the design aspects. While I was struggling to decide, one of my lecturers nominated me for this PDEng position. I was asked whether I was interested in this research opportunity within Engineering to explore how to develop accommodation for people with dementia – so two years of both research and design.'

'Due to my unusual double master's programme, I had spent my whole final year of my studies working alone. That is pretty uncommon within architecture because you tend to work on your own assignments within a group of around 15 people. I knew that if I decided to do a PhD, it would mean working alone for another four years. That was one advantage of the PDEng: here, I could

conduct research in collaboration with other partners, businesses, universities of applied sciences and healthcare institutions, and it only takes two years. But what appealed to me above all was the topic, plus the chance to combine research with design.'

Anne spent two years working on the research project and in parallel she did various courses related to professional development and entrepreneurship. 'For me, the PDEng was also a way of further broadening my knowledge, because I felt I didn't have a strong enough foundation to enter the world of work and try to combine both research and design straight after my master's. I have now gained two years' experience of working in a team with various companies, the universities of applied sciences in Arnhem/Nijmegen and Amsterdam (HAN and HvA), and various healthcare institutions. We worked on a prototype for a smart home that supports the day/night rhythm of dementia sufferers





‘For me, the PDEng was also a way of further broadening my knowledge’

using projections, light and sound signals to accompany everyday activities such as getting up in the morning, eating meals and going to bed.’

VALUABLE STEPPING STONE

‘I am really pleased to have been able to do a PDEng, not least because I had the chance to work in a large, multi-disciplinary team. I learned a lot, not only about real-life processes – both within healthcare institutions and businesses – but also about the use of ICT and AI within our project. So it just goes to show that even if, like me, you have done two master’s degrees, you still don’t really know much about how things are actually done in practice. The PDEng bridges the gap between high-level education and real-life applications. That is a good learning goal for yourself, but it also benefits the institutions you collaborate with; in reality, businesses and organizations often don’t have time to conduct research and implement new methods.’

‘For a lot of graduates, a PDEng can be a valuable stepping stone to their future career. It gives you the opportunity to gain experience, meet new people in your field and exchange knowledge, which expands your professional network. It is a great way to strengthen your position in your chosen field, plus to apply your scientific knowledge in practice even if you haven’t finished learning yet.’

Anne completed her PDEng in December 2019. In 2020 she got a job in the TU/e’s Smart Architectural Technologies department as a researcher on various projects. ‘I have now decided to do a PhD after all, and hope to be finished by early 2025. I started my doctoral research in January 2021. That is a slightly unusual step after a PDEng, but it is a great opportunity for me to continue working on this topic – improving the quality of life for people with dementia.’ ■

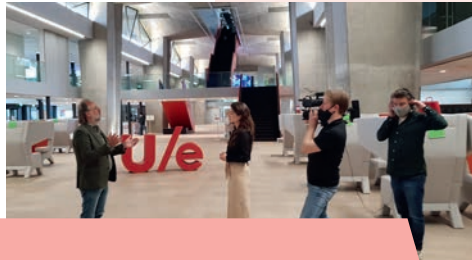
THE 4TU.SCHOOL FOR TECHNOLOGICAL DESIGN, STAN ACKERMANS INSTITUTE OFFERS AROUND 20 EDUCATIONAL PROGRAMMES RELATED TO TECHNOLOGICAL DESIGN AT THE TECHNICAL UNIVERSITIES IN DELFT, EINDHOVEN AND TWENTE. EACH PROGRAMME LEADS TO A PROFESSIONAL DOCTORATE IN ENGINEERING (PDENG) QUALIFICATION. [TINYURL.COM/YV5GVOO](https://tinyurl.com/yyv5gvo0)

HOW TO APPLY
ARE YOU READY TO EMBARK ON A PROFESSIONAL DOCTORATE IN ENGINEERING (PDENG) TRAINESHIP AND WOULD YOU LIKE TO WORK TOWARDS BECOMING A TECHNOLOGICAL DESIGNER? AT 4TU.SAI WE ARE ALWAYS ON THE LOOKOUT FOR TALENTED ENGINEERS WHO HAVE A MASTER OF SCIENCE DEGREE IN A TECHNICAL SUBJECT AND WHO ARE KEEN TO FURTHER DEVELOP THEIR DESIGN SKILLS. WE CURRENTLY HAVE VARIOUS OPENINGS IN DELFT, TWENTE AND EINDHOVEN. FOR A COMPLETE OVERVIEW OF THE OPPORTUNITIES, TAKE A LOOK AT OUR WEBSITE: [HTTP://WWW.4TU.NL/SAI/VACANCIES](http://www.4tu.nl/sai/vacancies)

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FEA TUR ED!



FYI

TU/e presents second season of 'Driven by Challenges'

Not only tell potential new students what they can become after they graduated at your university, but show them in a docuseries, so that they can get inspired. That was the goal of the docuseries 'Driven by Challenges' that consisted of six episodes and was funded by TU/e, last year. Now, just like all those successful Netflix series, there is a second season of 'Driven by Challenges'. Presenter and TU/e alumni Liselotte Graas (28) will once again be looking for groundbreaking technologies which have been developed partially through the involvement of (former) students of TU/e.

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TIP

WUR CONNECT IS THE WAGENINGEN ONLINE ALUMNI PLATFORM TO STAY CONNECTED FOR ALL ALUMNI, STUDENTS AND EMPLOYEES OF WAGENINGEN UNIVERSITY & RESEARCH. DURING THE COVID-19 PERIOD, WUR CONNECT'S ONLINE PLATFORM HAS GROWN A LOT, AND NOW HAS NEARLY 10,000 USERS.

GOOD TO KNOW

'Whack a mosquito and mail it'



In February, WUR researchers called on the Dutch to 'whack a mosquito and mail it' to help them study dead mosquitoes. And they did...

The Entomology Mosquito Radar project received almost 6000 envelopes containing dead mosquitoes, says PhD candidate Rody Blom. His job is to open them, with the help of colleagues who have a few hours to spare. They have processed some 3500 envelopes so far. First, they check whether the envelope contains a mosquito – people send in all sorts of insects. They distinguish between Culex, Culiseta and Anopheles mosquitoes. The latter are also known as malaria mosquitoes because they belong to the genus responsible for transmitting malaria in large areas of the world (not including the Netherlands). Because all the contributors submit a form with information, Blom can identify the origin of the mosquito based on the postal code. This enables him to discover whether more mosquitoes survive the winter along the coast or inland. With the DNA found in the blood, they hope to discover what animals the mosquito has recently bitten. Ultimately, the mosquitoes will be transferred to Erasmus University, where researchers will determine whether they carry pathogenic viruses such as the West Nile virus. 'We aim to better understand how viruses propagate through mosquito populations', says Blom.



FACT

WUR ALUMNI ARE TRAVELLERS, WITH A HIGH PROPORTION GOING ABROAD. 36 PER CENT WORK ABROAD, COMPARED WITH 17 PER CENT OF THE RESPONDENTS FROM OTHER UNIVERSITIES.

FYI

Preparing TU/e students for the job market

As of this academic year at TU/e MyFuture Activities have become part of the bachelor's program, which means that students have to attend a minimum number of career activities during their degree studies.

It started in 2018 when a working group of students took the first steps towards MyFuture: a website on which all the career activities organized by various TU/e bodies are being brought together. 'Signposting of sorts for your future,' said Daan van Boekel, one of the students that started this initiative, at the time.

Aimed mainly at students (PhD candidates are also welcome), the site intends to help its users look further afield than the activities program of their own study association or department.

This year the theme is of My Future is 'Launch Your Career! Melissa Baars, student of Sustainable Innovation, is this year one of the organizers. 'We are hoping with this initiative to give all TU/e students a flying start in choosing their career path,' she says, 'not just bachelor's students.'

Within the program students can select all types of activities, ranging from skills workshops to company visits to study trips. But the program is more than just a good way for students to find out about all the possibilities after they graduate, Baars points out. 'A lot of workshops can give you the soft skills you'll need even while you are still studying and the introduction to the job market can also really help you decide which master's will suit you.'



TIP

ARE YOU A WUR ALUMNUS AND WOULD YOU LIKE TO HAVE YOUR CV, MOTIVATION LETTER OR LINKEDIN PROFILE CHECKED? OR ARE YOU IN NEED OF CAREER ADVICE? CONTACT STUDENT CAREER SERVICES AND WE WILL HELP YOU NAVIGATE THE LABOUR MARKET. WE SUPPORT YOU BY: GIVING PERSONAL CAREER ADVICE, PROVIDING YOU WITH A PLATFORM WHERE YOU CAN MEET EMPLOYERS AND EXPLORE YOUR WISHES AND TALENTS THROUGH WORKSHOPS AND CAREER EVENTS. BOTH STUDENTS AND RECENT GRADUATES ARE WELCOME FOR UP TO THREE YEARS AFTER GRADUATION.

GOOD TO KNOW

Online Career Cafés

Since the start of the corona crisis, the UT's Career Services has been offering Online Career Cafés. This is a collaboration between Career Services and the Alumni Bureau. Students are given the opportunity to talk to alumni. Due to its nature as an online event, students can easily get in touch and speak with former UT graduates who are working elsewhere in the country or abroad. For the next edition, check the website: www.utwente.nl/careerservices.





Development of high-tech mechatronic systems

Prodrive offers you a huge amount of freedom to shape your own career. With your enterprising approach, you can work on products, solutions and innovations in various technical areas, surrounded by colleagues who all share the same drive: a passion for technology.

Pim Duijsens (30) has been working at Prodrive for nearly five years.

'After graduating, I applied in various places and attended interviews with multiple companies, but Prodrive really stood out', says Pim. That is partly due to the fact that Prodrive is such a good fit with my background in developing mechatronic systems, but it is also because of the company's way of working and the freedom you have to pursue your own ideas. Here, you are given responsibilities rather than tasks. As a result, you are involved in the whole process from beginning to end.'



PIM DUIJSENS (30) STUDIED MECHANICAL ENGINEERING AT FONTYS UNIVERSITY OF APPLIED SCIENCES, DID HIS MASTER'S AT TU EINDHOVEN AND GRADUATED WITH A SPECIALIZATION IN DESIGN PRINCIPLES.

'I have always been able to challenge myself to the max. Thanks to working on various projects, I have been involved in the end-to-end development process: the conceptual phase, detailed design and realization of prototypes and/or batch products.'

Pim loves the atmosphere at Prodrive: 'No matter what project you work on, you always find yourself in a team of colleagues who are all technically motivated. My background is primarily mechanical, but I have learned a lot of significant things from my colleagues since working here, such as electro-technical knowledge. Learning from and inspiring one another is important internally too. There is a strong culture of that; everyone is on the same wavelength in that respect.'

Additionally, Prodrive stimulates an enterprising approach. 'The whole company is open to you coming up with your own new ideas rather than just building on the existing methods.'

You are definitely not discouraged from carving out your own path.'

MOTION PLATFORM

Prodrive develops and produces essential high-tech components, subsystems and – increasingly – complete mechatronic systems for many different customers and markets, such as medical/healthcare, semiconductors and mobility. Pim is currently working on one such project to develop

DO YOU HAVE A PASSION FOR TECHNOLOGY? GET IN TOUCH:

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a complete mechatronic system. 'It is a motion platform, the basis for a machine to produce electronics, and we are developing – and will ultimately be producing – all the moving machine axes in line with our customer's wants and needs. For example, one of the customer requirements is that we must achieve sub-micrometre positioning accuracy over a distance of almost three metres. That demand – in combination with the volume restrictions and the high payloads – creates some interesting challenges. My role as a mechanical engineer in this project is to design the mechanics to make the system behave in a predictable way: a statically determined construction with the right degrees of freedom and the right combination of mass and rigidity. At the same time, I need to pay close attention to the feasibility of my design so that the system can actually be manufactured in the end. Developing and combining everything ourselves results in an integral system with better performance at lower costs. The nice thing about a total project like this is that you see that every aspect is equally important. When it all comes together at the end, everyone involved shares a sense of pride.'

TECHNICAL CHALLENGES

Prodrive offers careers in a variety of disciplines including mechanics, electronics, software and physics as well as in various markets such as semi-conductors, healthcare, infrastructure and energy, mobility solutions, etc. Because Prodrive actually manufactures many of its products itself in

PRODRIVE TECHNOLOGIES IS A PRIVATELY OWNED COMPANY. WE AIM TO PROVIDE MORE THAN JUST SHAREHOLDER SATISFACTION. WE OPERATE UNDER A HEALTHY AMBITION TO BE OF RELEVANCE AND TO CONTRIBUTE TO MEANINGFUL INNOVATION THAT TACKLES MAJOR CHALLENGES IN SOCIETY. WE CREATE TECHNOLOGIES THAT ARE ESSENTIAL LINKS IN THE SYSTEMS WHICH FORM THE BASIS FOR TODAY'S AND TOMORROW'S WORLD. OUR TECHNOLOGY IMPROVES THE QUALITY OF MEDICAL IMAGING, CONTRIBUTES TO REDUCING THE GLOBAL DEPENDENCY ON FOSSIL FUELS, AND TO GLOBAL DIGITALIZATION. OUR SHARED MISSION IS TO CREATE MEANINGFUL TECHNOLOGIES THAT MAKE THE WORLD WORK.

ARE YOU AS AMBITIOUS AS WE ARE?

WE DO EVERYTHING IN-HOUSE. WE COVER VIRTUALLY EVERY CONCEIVABLE MARKET AND WE USE THE VERY LATEST PROCESS TECHNIQUES, MANY OF WHICH WE HAVE DEVELOPED OURSELVES. AS A RESULT OF THIS INNOVATIVE APPROACH, WE ARE AMONG THE FASTEST-GROWING TECHNOLOGY COMPANIES IN EUROPE. WITH AN AVERAGE AGE OF 28, AND OVER 70% OF OUR EMPLOYEES HOLDING BACHELOR'S, MASTER'S OR PHD DEGREES, OUR WORKFORCE IS YOUNG AND VERY WELL EDUCATED. WITH OFFICES IN SIX COUNTRIES AND AS MANY AS 26 DIFFERENT NATIONALITIES, PRODRIVE IS A DIVERSE AND INTERNATIONAL COMPANY.

addition to doing the development work, the company needs a wide range of in-house expertise.

Pim: 'The work is even more interesting because of the diversity – from working on a total system to developing sub-systems and components. System integration – the integration of products we have developed ourselves into a bigger system – is another aspect we have to take into account. Because we do everything under one roof, we are better able to meet our customers'

needs, deliver competitive engineering solutions and tackle problems faster.'

'I love working at Prodrive because of the highly technical challenges and the fact that we are always pushing the boundaries of technology. It is hugely stimulating to have so much freedom and responsibility. And equality is a key priority within Prodrive too; we don't have senior and junior roles – everyone's contribution is important here. I can wholeheartedly recommend Prodrive for all those reasons.'

'You are always learning'

Inge Nahuis works as a Product Owner at Kramp Group, one of the largest suppliers of agricultural spare parts in Europe. She studied Communication Sciences at the University of Twente and is now working on the Kramp App.

Kramp Group has one of the largest web shops in agricultural spare parts, more than 95% of its turnover comes from online orders. The company exist for 70 years this year, but has always realized that innovation and customer experience are crucial to success. 'That really appealed to me personally,' says Nahuis. 'There is a lot of investment in innovation and there are also many opportunities for improvement. As a result, everything you do has an immediate impact.'

Nahuis works in the e-business marketing team. 'We work with other teams from all over Europe. That's something I really like about Kramp, working with so many people from different backgrounds in so many different locations. You are always learning. I also noticed from the first meeting that the culture is a very warm family culture.'

'What I enjoy most, is the collaboration with colleagues and customers. On an average day I am in contact with many departments, cultures and nationalities. Every morning starts with a stand-up with the development team about



where we are and where we can help each other. I talk to a product specialist about an idea he has for the app, I call a customer to ask what he/she meant by the feedback they gave. I am also thinking about new experiments with UX and conversion specialists.'

Nahuis is Product Owner of the Kramp App with product recognition. 'We built it from scratch and we involved customers closely from the start. This allowed us to use innovative machine learning technology to really help customers. In their world, every minute counts and it gets more and more difficult to find qualified employees. That is why we introduced product

recognition in the app. Customers can take their phone, take a photo and be guided to the right product. Of course we also offer all known e-commerce functionality in the most user-friendly way possible.'

Thanks to the help of everyone in the organization, the launch was a great success, says Nahuis. 'I worked with developers, customer service representatives, product photographers, marketers, and so on. Together we even won a golden Dutch Interactive Award and a golden international CX award!

My tips to students looking for their first job? 'There is so much more than a company's name or reputation that counts. Think carefully about what is important to you in a job and in the culture of a company. Start doing internships and talk to people to find out where your ambitions lie.'



CASTING OFF THE PHD BOAT



● Fewer than 1% of adults in the Netherlands can boast of having a PhD. Clearly, this arduous journey is not for the faint of heart. Truth be told, I originally figured it was not my cup of tea either. That is, until my professor put forth the idea in the wake of my master's thesis. 'You need to be a real glutton for punishment', a friend and doctoral candidate warned me when I confided this news in him. His recounting of his experiences of drowning in work left me troubled. So why did I get on board anyway? A myriad of reasons.

First and foremost, I relished working with my assigned team and supervisors. I was fortunate to be mentored by them during my MSc, and hence, only too glad to sustain the relationship. Second, the PhD topic was one I was accustomed to, and more importantly, not yet weary of. I reckoned that this familiarity would save me precious time in learning the ropes of the job. Third, I recognized that in my chosen discipline of automotive human factors, a doctorate added considerable value to one's profile, since the sector was preoccupied with research. Hence, it was prudent to pursue a PhD from a career standpoint. Fourth, I surmised that a tumultuous job market wrought by the coronavirus and Brexit was imminent, and that a four-year doctoral contract would provide me stability and tide me over until the turbulence settled. Fifth, and finally, I looked forward to the ample leeway in working hours and locations that a PhD offered.

It is now a full year since I embarked on this odyssey and – so far, so good.

Especially considering it is my maiden voyage upon the seas of a professional career, and a daunting one at that! It is not all smooth sailing, however; I often navigate the rough waters of research and bureaucracy, but the ship holds steady and her heading remains true. And every day, I send up a sailor's prayer for favorable winds to bear me away to distant shores, where I hope a PhD thesis and a position at an automotive company await me.

Vishal Onkhar

PhD candidate working in the Cognitive Robotics department of TU Delft ■

'The ship holds steady and her heading remains true'

Working together on plants 2.0

How can you improve crops as quickly and as specially as possible?

This is precisely the question that Rik Op den Camp and his colleagues at KeyGene in Wageningen engage with every day.

Like the other 150 employees at KeyGene, Rik Op den Camp works both with and for clients all over the world, often on the cutting edge of biology and other disciplines. 'My father is a biologist and professor in Nijmegen, so as a child, I already encountered biology. I started at KeyGene after completing my PhD research at the department of molecular biology at Wageningen University & Research. Having followed an internal training programme, I am now a team leader.'

One of his team's focal points are so-called clonal seeds. These arise from spontaneous seed setting, rather than from fertilisation. The resulting seeds are identical to the mother plant and do not require pollination. 'Plants in the offspring are identical to the mother plant, in fact already occurs in nature, for example in dandelions. Today, we have more or less unravelled this process, and we are translating it into applications in breeding. This will enable plant breeders to create new varieties faster and as a result, seed production will become cheaper and simpler. Often, we focus on the practical application of research, both from the academic world and from our own, more fundamental research,' Op den Camp explains.



SOYBEANS

Through breeding, crops may also become more resilient to climate change, for example by improving drought tolerance. This is very important for the world's food supply. KeyGene are also working on breeding protein crops, such as beans. 'At present a lot of soybeans is imported as cattle feed. We are investigating the potential of faba beans—a kind of garden bean—examining how to breed this crop so that it can be improved in order to produce higher and better yields. This will allow us to use modern varieties as a soya substitute, in cattle feed as well as in vegetarian products for consumers.'

Even a common garden and kitchen plant like the dandelion may have something special to offer: The roots of some dandelion species contain natural rubber. 'For the past ten years, molecular biologists, statistical geneticists, and breeding specialists at KeyGene have been working with other partners to improve this crop to such an extent that the 'rubber dandelion', grown in Europe, can serve as an economically attractive and sustainable source of natural rubber. This will make us less dependent on other countries for this raw material.'

Other exciting KeyGene projects include gene editing, in which the DNA of plants is changed very accurately in order to better understand which genes are responsible for which characteristics. In addition, the company is collaborating with the University of Twente, in which 3D printers are being used to study and use plant cells. 'With us, you work on the applications of the future. You can do this via your own research, because you have a good idea, but also in response to market demand. In addition, the mixed project teams offer you links with many other disciplines.'

www.keygene.com

ELECTRIC AVIATION SCHOOL

Industrial Designer starts electric aviation school

The two aircraft have arrived. From 1 May onwards, you can learn to fly electrically at the e-Flight Academy at Teuge Airport. The Netherlands' first electric aviation school is an initiative of industrial designer and entrepreneur Matthijs Collard and flight instructor Evert-Jan Feld (pictured right).

After an initial meeting last November, and after taking legal advice and meeting with the Chamber of Commerce in January, a month later, they bought two electric planes—Pipistrel Velis Electros—and opened their doors at Teuge Airport. The first students have started their theory lessons and from 1 May onwards, Collard expects it will be busy.

It takes an awfully long time to come from a design to a building, Collard reasoned as an aspiring student. Hence, in 1995, he opted not for Architecture, but Industrial Design in Delft, where surely the lead time would be shorter. Then came the Internet, which ensured everything went much faster still. In 1997, he created a website for the windsurfing club Plankenkoorts using html and from that moment onwards, his course was set. He made websites next to his studies and as a student, he also became a small-scale entrepreneur. In 2001, he graduated cum laude in what would later become known as Design for Interaction.

INTERACTION DESIGNER

Having travelled around the world for a year and a half to visit the most beautiful surfing spots, it was initially difficult to find employment at a company as an interaction designer. As a result, Collard fell back on making websites until he was asked by a large agency to work as a freelance interaction designer. That is when things started rolling. In 2008, he and Rick le Roy founded a design agency, now called Hike One, which focuses on design for large websites such as marktplaats.nl, funda.nl, and nu.nl. In addition, they designed a fully digital baggage handling system at Seoul airport. For the technical realisation of the system, in 2013, Collard and Le Roy set up a separate company, De Voorhoede. The company grew, the people grew with it, and the customers came naturally. Two years ago, Collard began to make himself 'expendable' to free himself up for something new.

He was searching for more meaning and wanted to do something to combat climate change. At home, he had already started to follow a different diet, installed solar panels, and drove an electric vehicle. Professionally, however, he saw no possibilities for the design office to take a more sustainable direction. 'That is why I made the choice to leave Hike One behind and follow my own path.'

Whilst he immersed himself in science—specifically policy and fuels in sustainable aviation—he was looking for something more practical. Then he met flight instructor Evert-Jan Feld, who wanted to start a flying school. 'I thought: That is just perfect. If we go electric, I can build the website and design the customer experience. Then we are simultaneously helping to make aviation more sustainable and making a healthy profit.' ■



‘Deze baan is de ideale springplank voor mijn carrière’

Hij had niet durven hopen dat hij zich zó snel zou ontwikkelen. Na zijn studie aan de TU Delft koos Emre Ilgin (25) voor Capgemini. Hij merkte al snel wat ‘onbeperkt ontwikkelen’ inhoudt. En al die nieuwe kennis past hij nu toe als full-stack software engineer bij de overheid. ‘Ik krijg veel ruimte om met nieuwe tech te experimenteren.’

Als het om software engineering gaat, is Emre een echte enthousiasteling. ‘Ik h ou van mijn werk. De kracht van slimme technologie heeft me altijd geboeid. Je kunt er zoveel moois mee doen in het leven van mensen. Mijn keuze voor de studie Computer Science & Engineering lag daarom voor de hand. Naast mijn studie was ik al volop bezig met computer science, bijvoorbeeld het bouwen van een website voor de bakker om de hoek.’

GOED GEVOEL

‘Na mijn studie ging ik op zoek naar een ideale start. Ik nam de tijd om me te ori nteren. Via een familielid en een oud-medestudent hoorde ik mooie dingen over Capgemini. Over de relaxte cultuur in het bedrijf. En dat er onbeperkte kansen zijn om je te ontwikkelen. Dat sprak me allebei enorm aan. Bij Capgemini staat de technische  n persoonlijke ontwikkeling van

werknemers voorop. Dat gevoel kreeg ik heel sterk mee.’

BIJZONDER ONBOARDING

‘Ik g ng ervoor en in maart 2020 begon ik als young professional bij Capgemini – op de Java-afdeling van Custom Software Development. Mijn onboarding was best speciaal. Na  n week werken, begon de lockdown. Ik werk nu al dertien maanden vanuit huis. Daarnaast mocht ik samen met een andere developer een nieuw soort start-traject voor software engineers volgen.

Dit nieuwe traject biedt extra veel ruimte voor snelle ontwikkeling en certificering. Al snel kon Emre het Oracle Certified Associate-certificaat aan de muur hangen. ‘Ik kreeg een premium account op Pluralsight en volgde cursussen over onder meer Java Spring, Kubernetes en Docker –cutting-edge tech die nu overal heel gewild is. Ook

was er alle ruimte om me te verdiepen in onderwerpen buiten Java. Kortom: ik kwam terecht in een paradijs voor iemand die zich graag snel ontwikkelt!’

FULL-STACK

Ontwikkelen is volgens Emre pas  cht leuk als je die kennis ook meteen kan toepassen. ‘Na mijn proeftijd ging ik aan de slag voor een overheidsdienst. Eerst als Java-ontwikkelaar, maar inmiddels werk ik full-stack. Ik bouw vanuit verschillende kanten mee aan een online platform dat allerlei digitale producten onder  n dak brengt. Zodat gebruikers makkelijker kunnen vinden wat ze zoeken. Precies waar ik zo van houd: technologie die echt waardevol is in het dagelijks leven van mensen. En dat ook nog eens met veel ruimte om te innoveren. Alles is voor mij perfect op z’n plek gevallen.’



LEKKER INFORMEER

'Op afstand werken bevalt me goed. Elke dag begint voor mij met een lekker kopje koffie en mijn mail doornemen. Om 11 uur is er de daily standup waarin we elkaar als teamleden bijpraten over wat we aan het doen zijn. Mijn collega's zijn voor het grootste deel mede-Cappers. De sfeer is lekker informeel en ik voel me er helemaal op mijn gemak. De meeste van hen heb ik trouwens nog nooit in het echt gezien. Ik heb er zin in om eens samen met hen op kantoor te werken – dat is nu voor mij nog een onbekende wereld.'

OUT OF THE BOX

'Ik vind het heel tof dat ik naast mijn gewone werk nog in een project meedraai om met innovatieve tech te experimenteren. De bevindingen delen we vervolgens met andere teams, om te zien of zij iets aan die innovatie hebben. Zo deed ik laatst onderzoek naar Elasticsearch, een framework met API's die behoorlijk 'out of the box' oplossingen bieden. Dit leidde ertoe dat ik later in dit kwartaal de zoekbalk op ons platform ga upgraden.'

TOEKOMSTROMEN

'De komende jaren wil ik allereerst m'n technische kennis verder ontwikkelen. Daarnaast ga ik ook aan de slag met mijn soft skills. Ik zie mijzelf doorgroeien naar een rol als senior consultant, zodat ik ook op andere gebieden van waarde kan zijn in een project. En ik zou later ook graag nieuwe young professionals begeleiden. Capgemini heeft duidelijk het netwerk en de resources om deze gedroomde ontwikkeling mogelijk te maken. Ze hebben echt heel veel te bieden, ook mogelijkheden om zélf je kennis te delen. En mijn ervaring is dat je vanaf het begin supergoed wordt begeleid. Voor net afgestudeerden is Capgemini de ideale springplank voor je carrière.'

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VERANDEREN MEE. BIJ ONS WERK
JE VANDAAG MET DE TECHNO-
LOGIE VAN MORGEN, MAG JE
ONBEPERKT TRAININGEN VOLGEN
EN MEEBOUWEN AAN EEN BETERE
WERELD. EN DE SUCCESSEN?
DIE VIER JE NIET ALLEEN, MAAR
SAMEN MET JE COLLEGA'S. LIGT
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“Welcome to the world of VMI”

VMI serves the world’s largest tire suppliers and wants them to be successful with our machines. Kevin Miltenburg plays a role in this as hardware engineer.

Hardware engineer

Kevin Miltenburg has been working at the VMI Group for more than eight years. During this time, he has evolved from an electrician to an electrical supervisor. Four years ago, he was approached for the position of hardware engineer in the Order Engineering Passenger Tire department. A nice job that he is very enthusiastic about: “Electronics and control technology have always fascinated me. These interests blend together very nicely in my position as a hardware engineer. You are the interface between the software and the mechanical movements, and you assume the perspective of the operator who will ultimately operate the machine.”

Mechatronic project teams

VMI employs between 300 and 400 engineers. Kevin’s Order Engineering Passenger Tire department, with its 60 employees, is one of the largest engineering groups within VMI: Two-thirds of them are mechanical engineers and a small part are hardware and software engineers. “All mentioned disciplines are represented in our mechatronic project teams. The multidisciplinary projects give you all-round capabilities and enhance product improvement”, says Kevin. The lead time of the orders depends on the size and can be up to 10 weeks. He usually works on a number of orders at the same time, which are in the production phase or in the installation phase at the customer site.

The lines are short

Kevin: “Our tire building machines are based on a standard developed and managed by R&D and then implemented by Order Engineering. Based on the standard and the specification of our customer, we determine the machine configuration. The lines are short. As an Engineer, you get feedback from the field and from production. Many things can be traced back to the standard. For example, I act as an interface between engineering and the VMI standard.” However, Kevin’s greatest satisfaction comes from projects that call for deviations from the standard and customer-specific solutions. In doing so, he contributes to VMI’s mission of making our customers more successful through innovative technology.’

What does VMI offer?

“I don’t think you’ll easily find another company that makes machines where so much technology is used, and such diverse technology. VMI also offers the opportunity to contribute in a broader sense: Good ideas are encouraged and there is room for one’s own interpretation. Training and growth are encouraged within VMI.” As an example, he mentions the EPLAN software, for which he has attended various training courses and the coaching of a senior engineer in his transition to Hardware Engineer.

Kevin’s experience is that “the international scope also adds an extra dimension to working at VMI. At the start of our site in Poland, I trained the first fitters and for other projects I provided assistance in the USA and China.”

Internships and final projects

VMI offers ongoing opportunities for internships and graduation projects for university students. Curious about what VMI has to offer? Please contact hr@vmi-group.com



VMI Group

VMI Group develops, manufactures, sells and installs high-tech machines mainly for the tire and rubber industry and is a major player in the canning, personal care and pharmaceutical industries.

Global Player

Founded in 1945, VMI has developed into a state-of-the-art company with production facilities in Germany, Brazil, Poland and China and service centers in the US, Malaysia, Russia and Thailand. VMI works with 1,600 employees worldwide and over 900 at its headquarters in Epe, the Netherlands, to provide innovative solutions that contribute to the success of its customers.



LOES MOOR-HULSHOF

ALUMNUS WAGENINGEN

FORMER OPERATIONAL DIRECTOR

AT THE VEGETARIAN BUTCHER

‘I want to make sure factory farming is soon superfluous’

‘It makes no sense that we kill and eat animals’, says operational director Loes Hulshof of The Vegetarian Butcher, the Dutch company that makes meat substitutes that look and taste like real meat. Still, when Hulshof was studying in Wageningen, she was a carnivore. Until one day, when she went trout fishing with her family. ‘I didn’t mind catching the fish. But I couldn’t kill it. Soon after that I stopped eating meat.’

Hulshof first studied Food Technology at Van Hall Larenstein University of Applied Sciences in Leeuwarden. After that she enrolled to do Food

Technology in Wageningen, majoring in Food Process Engineering. Atze Jan van der Goot, now professor of Protein Structuring and Sustainability, was her supervisor. She found out, though, that she was not really a born technologist; her minor about integral food logistics management appealed to her more. Hulshof: ‘Thinking in terms of supply chains felt like a homecoming.’

After graduating, Hulshof worked for Unilever as a trainee, and went on to a job with Mars. One day she read an article about her former supervisor, Van der Goot, who spoke of his latest project: developing new meat substitutes.

‘I wanted to get involved and contribute something to that plant protein transition.’

BIG PLANS

Van der Goot put her in touch with the entrepreneurs Korteweg and Koffeman, who had big plans. ‘I talked to them, was taken on, and we started setting up the organization.’ Friends said she was crazy to give up a good, permanent job at Mars. ‘They have gone quiet about that now.’ The Vegetarian Butcher invested in Van der Goot’s research on the structuring of plant proteins using shear cell technology, a way of processing plant proteins from soya or wheat to create a structure like that of beef steak.

Several companies, including Unilever, were participating.

‘At the beginning of 2019 we were taken over by Unilever and we started working on upscaling. We want the whole world to start enjoying our vegetarian meat, making factory farming superfluous. So the takeover was very welcome’, says Hulshof.

Her own career will always be driven by the higher goal. ‘More and more people are buying vegetarian products as a matter of course. That is the start of a major change, and it was really great to be part of it. But currently, I am exploring possible next steps.’ ■

Developer happiness in the Netherlands

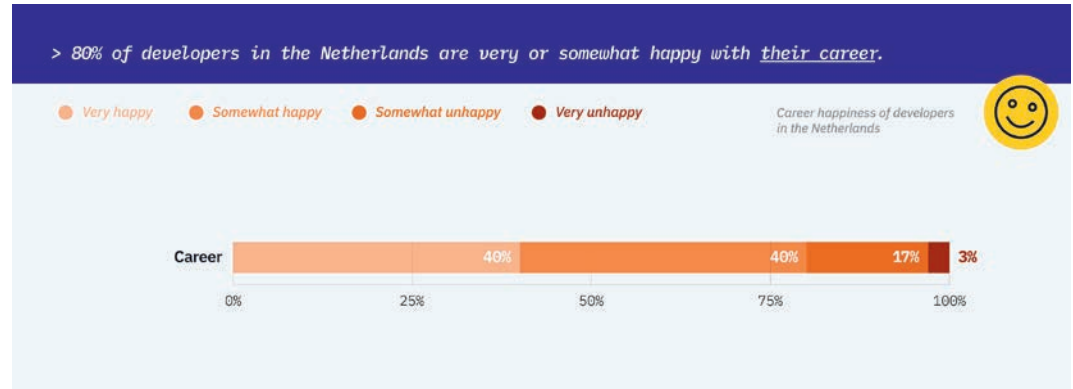
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How do you define happiness? In our recent study, we used four factors: career, quality of life, social freedom and community.

We surveyed **4,000** developers across numerous countries, roles, and backgrounds to learn more about developer happiness. Here's what we found.



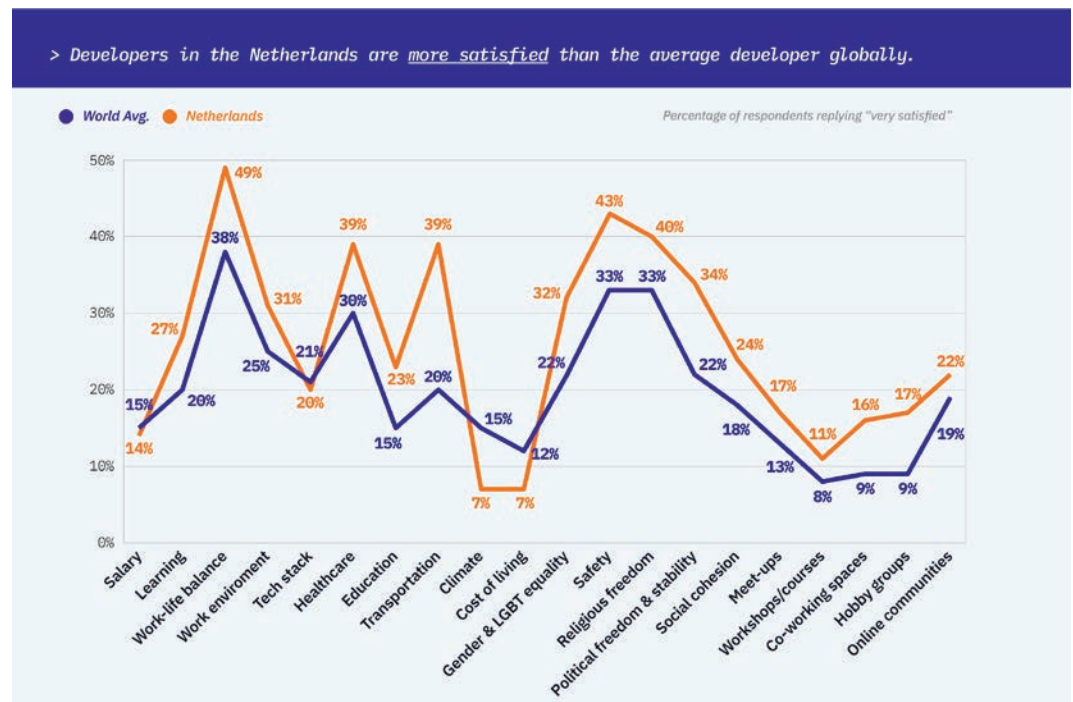
Work-life balance for developers in the Netherlands

Work-life balance is important for developers around the world, but developers in the Netherlands ranked it as the most important factor to their career happiness. Perhaps more importantly, they're also very happy with it.



Developers report above average levels of happiness in most categories

Developers in the Netherlands reported higher levels of happiness than the global average. They also reported the highest levels of happiness in the OECD, particularly in terms of safety, transportation and work-life balance. However, satisfaction with climate and cost of living were noticeably lower.



Read the rest of our report here: <https://cult.honeypot.io/developer-happiness-index>



JAN VAN DER TEMPEL

ALUMNUS TU DELFT

MANAGING DIRECTOR

OF AMPELMANN OPERATIONS

‘The patent protects our concept’

● TU Delft alumnus Jan van der Tempel developed the Ampelmann gangway. This allows safe passage between ships or between ships and platforms, even in heavy seas (up to four metres wave height).

Since its first production in 2007, some 65 systems are now in use worldwide and have transferred an estimated six million offshore workers and 17 million kilograms of cargo. Its inventor, Jan van der Tempel, has been the Managing Director of Ampelmann Operations since its founding. He has now been nominated by the European Patent Office (EPO) for the European Inventor Award in the industry category. The jury’s criteria is inventions that

offer solutions to prevailing problems. How did this work out for his innovation, which is named after the iconic Berlin traffic light man: der Ampelmann?

Trained as an offshore wind engineer, Van der Tempel attended a specialist conference in Berlin in 2002. There, he came up with the idea of a dynamic hydraulic walkway for offshore applications. He envisaged an inverted aircraft simulator that would not make movements that corresponded to the screens, but that would nullify the movements of a ship on the waves.

Van der Tempel then developed the technology which has a motion sensor the size of

a shoebox on board the ship. A fast computer system converts the ship’s movements into the controls of six hydraulic cylinders that compensate for each movement by adjusting their lengths. Van der Tempel says offshore workers now go to work as easily as they cross the street. In 2007, he founded the company Ampelmann Operations.

After the success of his prototype developed at TU Delft, Van der Tempel applied for a patent to protect his invention. He received his first European patent in 2012, followed by a second in 2014. Two more followed in 2019 and 2020.

‘Our solution is the only one with cylinders that work in six

directions and reach a fully stationary point with only milli-second delays,’ says Van der Tempel. ‘The patent protects our concept, and this gives our company a huge advantage in the marketplace over the competition. It allowed us to grow and make our company what it is today: a company with 350 employees.’

Ampelmann Operations started off in supplying the oil and gas industry, but now also has a good track record in the offshore wind industry – a sector that is expected to grow significantly until 2050 and will require maintenance thereafter. ▣



“In 2018, I started at Kadaster as a graduate. I wanted to do research into the housing market and knew this would be the right place. Kadaster has a wealth of housing market data. After graduating, I started as a trainee as I wanted to learn new skills, focus on personal development and explore different departments within Kadaster.

Nowadays, I work at the Emerging Technology Center within Kadaster. Together with colleagues, I keep track of technologies and trends, make these applicable for Kadaster and share this knowledge within the organisation. In my work, I also deal with the ethical side, like the responsible use of algorithms and safeguarding privacy. In our team, I provide structure and take the lead in several tech topics.

We are currently investigating the possibilities of secure multi-party computation (MPC). This is a privacy-by-design toolbox that allows multiple parties to jointly compute data, without sharing the underlying data. Through a pilot with various organisations, we gain insight into the technological opportunities and we look at legal questions. Thinking in opportunities, developing myself and working together with other organisations, that’s what appeals to me!”

Janneke Michielsen | 26 years old | Emerging Technology Center Kadaster | Msc Complex Systems Engineering and Management

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MYLIUM

Mylium makes textiles out of fungal threads

A lot of our clothing comes from animals - leather, silk and wool, for example. Iris Houthoff's aim is to create plant-based alternatives for these textiles using mycelium, the root system of fungi. She can actually create a new type of textile with these fungi that will take its place alongside existing plant-based, animal and synthetic textiles. Houthoff has been working on this in her company, Mylium, since 2018.

● Houthoff studied at Wageningen University and then taught part-time in the Bioprocess Engineering chair group alongside her business. Since February this year, she has been working fulltime at Mylium. 'I took an entrepreneurship course at Startlife last year. I got a lot out of it and I now have a marketing strategy and a financial plan for the next five years.'

'THINGS ARE MOVING FASTER'

Since 2019, she has had her own lab at the Agro Business Park in Wageningen, where she can test various fungal threads and production processes. Up until February, she was doing this with a team of volunteers, but she now has a co-shareholder and has taken on two employees. One volunteer and two student interns are working at Mylium as well. 'Combining running a business

with teaching was nice for a while, but eventually it wasn't working anymore. The team of volunteers had grown a lot, so the startup took up more of my time. Now that I've hired people, it has become more businesslike and things are moving faster.'

The fungal threads that constitute mycelium are suitable for use as a textile fibre. Mylium has the expertise on how to grow these fungal threads and how to turn them into textiles. 'That is our product. We sell textiles; other people make end products out of them.'

Fungal textiles are a highly sustainable product, says Houthoff. 'Fungi grow fast on waste streams and convert them into biomass. They are nature's circular engine, and we make use of that.' Houthoff is making use of biotechnological knowledge to increase production and establish a sound production system. She has also developed special techniques for processing mycelium into textiles. The team is still working on improving the product characteristics, and there is no Mylium textile on the market yet.

TEXTILES FOR LUXURY BAGS

Houthoff targets the fashion industry as her main customer. 'There is a lot of demand for sustainable luxury textiles in the fashion industry. Many companies are looking for non-synthetic leather substitutes. Our material will offer the same quality as leather but will have its own natural look as well. To start with, we are focusing on textiles for luxury bags.' Mylium is talking to financiers about upscaling the business. Houthoff is also looking for new student interns. In particular, she could use some support in making further improvements to the production process at the Wageningen lab, and in doing market research. ■





engineering your career



Michiel



Read Michiel's story here.

“ If you see something, go after it, because so much is possible.

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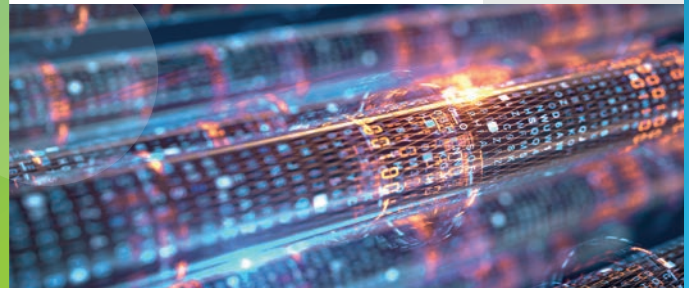
“ As a new hire, VIRO gives you a wealth of opportunity to continue to learn and develop.



Jelmer



Read Jelmer's story here.



VIRO: We are a multidisciplinary engineering firm specialising in project management and engineering. Our offices in the Netherlands, Belgium and Germany employ over 750 people who work on projects worldwide in many markets.

TEAM CORE

Recycling e-waste in a sustainable way

Dirk van Meer, TU/e student and founder of Team CORE, wants to convert the ever-increasing waste stream of batteries, mobile telephones and other such waste into raw materials. Their oven is an important step towards that goal.

Planet Earth is quickly running out of very precious materials such as rare metals. This is a result of our current consumption practices, especially with electronics, which exist in a cradle-to-grave fashion. At the moment only 15 to 20 percent of all the e-waste is being 'recycled', meaning that the rest ends up in landfills in Asia or Africa. And the amount of e-waste is expected to grow by 8 percent per year. Team CORE is working on closing this cycle. Next to the growing landfills which are very harmful for the environment and the people, there is a significant socio-economical value within this 'waste' in the form of metals and minerals. To separate materials in e-waste, Team CORE wants to build factories with ovens that run on energy-rich waste, such as sludge residues, waste generated by the recycling of automobiles, and circuit boards. It takes a carefully thought out mix of waste streams that can be inserted into an oven at a high temperature. The first oven was completed last year and was built especially for practical research.

Into the oven goes a brew filled with e-waste, and at a temperature of no less than 1600 degrees Celsius, the metals contained in the mix will sink to the bottom. A layer of slag is then formed on top of that with obsidian and basalt. Together with ProRail, CORE is currently investigating whether this can be reused in infrastructure. The metal can be used by the metal industry as recycled material. The oven is located at Team CORE's new accommodation in the town of Son. Team captain Van Meer, also a master student Chemical Engineering and Chemistry at TU/e, is happy with it. 'It's a wonderful space of 250 square meters, with the oven beautifully placed at the center.'

GREENDEAL

'We process plastics as fuel, which leads to CO₂ emission, even though it is more environmentally friendly than the current methods for plastic incineration,' Van Meer says. 'We were unhappy with the fact that our method isn't sustainable yet, and that's why we are glad to have entered into a contract with the Trees for All foundation.'

Team CORE will compensate for all the CO₂ we emit with our factory by planting trees in areas that were affected by mining. 'Our goal is to become a competitor of the existing mining industry, and we hope to offer employees of that industry an alternative in forestry. We are launching a project in Congo with Trees for All.'

CORE, founded in 2018 from the TU/e Honors Program, has serious ambitions. Van Meer: 'We will open our first factory in Delfzijl this year. We are also setting up installations in Amsterdam, Moerdijk and Duiven, and we are looking into the possibilities at Chemelot in Bladel.'

core-chemistry.com ■





For someone who didn't actually know what he wanted when he finished his degree, Thomas Plantenga has done well for himself, and that is an understatement. This TU/e alumnus of the Department of Biomedical Engineering is now into his fourth year as CEO of Vinted, Europe's largest online marketplace trading in second-hand clothing.

Make second-hand

the first choice

A modern Don Quixote in second-hand chain mail - bought on Vinted, of course. Thomas Plantenga has no intention of playing the moral crusader, but he does feel a strong sense of responsibility for ensuring that in a hundred years' time the world is still a great place. Universities - especially universities of technology - have a fundamental role to play in this respect, so Plantenga believes. By way of the knowledge they generate and, in particular, the engineers they produce. 'We carry the responsibility for improving the world and society. This is both important and useful, I feel. I get shots of energy and happiness when I know that what I am doing is useful, that it makes things a little better.'

His career at Vinted amply provides this feeling of happiness since this is somewhere that sustainability is highly prized. This is reflected in the slogan of the successful startup: Make second-hand the first choice worldwide. 'The fashion industry creates a massive amount of pollution. If we can make it circular by selling clothes we no longer wear, the impact will be immense.' When he joined Vinted in 2016 he wanted to prove himself. 'Show that I could get a rapidly growing company back on the rails. But there comes a point when you have earned so much that you are no longer doing it for the money. Then other elements become the reason why you are working late into the night. Within our team we believe that in ten years' time people will find it incomprehensible that there was a world in which you bought all your clothes new. That's why I have no trouble at all sacrificing another weekend for the greater good.'

'The work I produced to graduate from Fluid Dynamics & Soft Tissue Mechanics was certainly decent, but I wasn't the department's next high flyer. I wanted to make myself useful and bring about a change for the better. My future didn't lie in science, but neither did it lie with a Shell, for example. I decided to take a year off and spend it surfing. I was an enthusiastic surfer, was even keen to perhaps turn professional.'

'If you choose technical engineering, then you also have to take responsibility'

After eighteen months of surfing and pioneering in the world of the internet, the penny dropped for Plantenga. 'Programming, looking for solutions, optimizing online processes; it all fascinated me. Effortlessly, I was spending weeks on end delving into some or other issue, finding it hard to drag myself away from my pc. In science there were any number of people who would make better professors and postdocs than me, but this I was good at. I could see myself holding my own in the top echelon.'

This top echelon is also where he sees a place for students of universities of technology. 'I am convinced that people who have done hardcore technical engineering are precisely the people we need in the top echelon. They are the ones who innovate, who know what's going on on the technical side of things.' But students must work hard if they want to become future leaders, Plantenga is keen to stress. 'Ask yourself this: do you want to stick to what you are good at and be treated with reverence, or do you want to really count? If so, your communication and social skills will need attention, you'll need to leave your comfort zone. Show us those superpowers engineers have, come out of your shell and step up. Because we need leaders with technical understanding, just think of the energy transition.'

EXCLUSIVELY TECHNICAL STAFF

For years now Plantenga's life has been in the Lithuanian capital Vilnius, where the head office of the European startup is located. The majority of the staff are Lithuanian nationals and most have a technical education. 'A remnant of the Soviet era, when exact sciences were held in extremely high regard. This is still the case, and it has hugely benefited us a company. Having people who are so technically literate at every level of our company means we can run Vinted in the analytical and technical way we do.'

MORAL APPEAL

He rounds off with a message for our students. 'Your student years are, of course, the best time of your life. It's a magical time and you shouldn't take everything too seriously.' But at the same time he makes a moral appeal to the engineers of the future. 'You get the chance to learn incredibly valuable knowledge during your years at TU/e. Make sure you develop as a person so that you can use this knowledge in a useful way. Challenge yourself to do this, you owe it to yourself. What's more, you will be at your happiest when you feel you are useful, contributing something to make the world a better place.'



VINTED

VINTED IS THE LARGEST ONLINE CUSTOMER-TO-CUSTOMER-MARKETPLACE IN EUROPE FOR SECOND-HAND CLOTHING, HAVING A COMMUNITY OF 37 MILLION USERS SPREAD ACROSS 13 COUNTRIES: FRANCE, GERMANY, BELGIUM, SPAIN, ITALY, THE NETHERLANDS, AUSTRIA, POLAND, THE CZECH REPUBLIC, LITHUANIA, LUXEMBURG, THE UK AND THE US. THE EUROPEAN STARTUP IS HEADQUARTERED IN VILNIUS, AND HAS OFFICES IN BERLIN, UTRECHT AND PRAGUE. IT HAS MORE THAN 600 EMPLOYEES IN TOTAL.

Ontwerpen van beeldscherm naar weiland

TU alumnus Ties van Loon (25) is tekenaar/constructeur van landbouwmachines. Hij houdt van grove mechanica en het tot stand zien komen van grote machines. 'Wat op dat veld rijdt, heb ik gemaakt, denk ik dan.'

Van Loon is iemand die zich niet snel verveelt. Zelfs niet tijdens de lockdown. Hobby's te over, waarvan muziek favoriet is. 'Dat past goed bij mijn baan. Op mijn werk moet ik veel schermkijken, nadenken en oplossen. Muziek maken is daar een perfecte tegenhanger van.' Een passende balans, voor deze tekenaar/constructeur van landbouwmachines. Een functie die hem op het lijf geschreven is en die hij al tijdens zijn afstuderen voor de master Mechanical Engineering fikste.

Ties werkt bij KUHN, een internationaal bedrijf gespecialiseerd in het maken van machines en diensten voor de landbouw. Hij kwam er eind vorig jaar terecht via technisch detacheringsbureau Evoke. Nog tijdens zijn afstuderen. 'Ik had eerlijk gezegd nooit van KUHN gehoord, tot Luuk van Evoke me belde. Er was een functie die goed bij mij paste. Ik zat nog midden in mijn afstudeerverslag, letterlijk. Terwijl ik aan het typen was, kreeg ik het telefoontje. Er bleek een goede match van beide kanten en vier dagen later was het contract ondertekend. Ik wist dat een baan vinden makkelijk zou zijn. Maar dat het binnen een week geregeld was, nog vóór ik mijn diploma op zak had, dat had ik nu ook weer niet gedacht.'

Waarom Ties precies voor deze baan koos, was zeker geen gevalletje 'het eerste, het beste'. Hij deed grondig eigen vooronderzoek tijdens zijn studie. Zo had hij een bijbaan in de techniek en assisteerde hij een promovendus in zijn testopstelling. Samen met het netwerk en de kennis in de bedrijfsweld van Evoke kwam hij zo tot de gegronde overtuiging dat KUHN écht goed past. Het allermooiste aan zijn werk - zo zegt hij zelf - is dat de machines die hij bedenkt letterlijk tot stand zien komen onder zijn ogen. Naast de R&D afdeling van KUHN-Geldrop zit namelijk de fabriek waar de machines gemaakt worden. Een ontwerp gaat zo van zijn beeldscherm naar de assemblage en vanuit daar naar het veld van de boer. Elke fase van het proces is zichtbaar en onderdeel van zijn werk. 'Het is heel mooi te zien dat hetgeen je op scherm ontwierp, in de fabriek gemaakt wordt. Dat is waarom ik van dat grofstoffelijke hou, de grote machines waar we aan werken. Er is heel veel werk in fijnmechanica te vinden in en om Eindhoven, maar bij grove mechanica kun je letterlijk zien waar je aan werkt. Wat buiten op het veld rijdt, dat heb ik gemaakt, denk ik dan. Dat is echt bijzonder.'



TIES' TIP VOOR JOU

'GA AAN DE SLAG MET WAT JE INTERESSEERT, ZOALS IK DEED MET MIJN BIJBAAN, HET ONDERZOEK EN EVOKE. ZO BLIJF JE NIET ALLEEN BIJ DE THEORIE VAN JE VAK. DE IDEALE BASIS VOOR JE UITEINDELIJKE BAANKEUZE.'



Thuis bij TAUW



‘De bodem is de basis van alles.’ Het zijn de woorden van Marissa Frambach, Junior Projectmedewerker bij de afdeling Stedelijke Transformatie van advies- en ingenieursbureau TAUW. Een werkplek waar ze als student waarschijnlijk niet direct voor gekozen had.

Marissa heeft een brede achtergrond: een bachelor in Aardwetenschappen en een master in zowel Marine Sciences als Milieuwetenschappen. ‘Heel eerlijk: ik dacht eerst dat stedelijke transformatie niets met natuurlijke processen te maken had. Maar door het werk te doen, realiseerde ik me dat alles wat boven de grond een plek moet krijgen ook onder het maaiveld gepland moet worden. De bodem is dus de basis van alles.’

Traineeship

Deze en andere inzichten deed Marissa op tijdens haar traineeship bij TAUW. ‘Het traject sloot goed aan bij mijn brede studieachtergrond, want ik ging aan de slag bij drie verschillende afdelingen. TAUW dacht actief mee over welke goed bij mij zouden passen.’

Ze werkte op de afdelingen Bodem, Circulaire Economie en Duurzaamheid en Stedelijke Transformatie. Die laatste beviel zo goed dat ze er nu een permanente functie heeft. ‘Ik heb tijdens mijn traineeship veel inzichten opgedaan. Nu werk ik aan de mooiste klussen met als doel het toekomstbestendig maken van ons woonmilieu. Projecten waar je letterlijk in woont.’

Technisch of procesmatig

‘Als projectmedewerker werk ik vooral met overheidsinstanties, zoals gemeenten. Samen met mijn collega’s voorzie ik onze klanten van advies’, vervolgt Marissa. ‘Mijn

kennis als aardwetenschapper komt in stedelijk gebied heel goed van pas. Hier zijn de problemen van het natuurlijk systeem ook groter. Denk aan kabels en leidingen onder de grond, onder meer in het kader van de energietransitie.’

‘Dit sluit bijvoorbeeld naadloos aan op het grote overheidsproject waar ik nu aan werk: ‘Ondergrond InZicht’. De focus ligt hierbij op het visualiseren van informatie en data. Het is net als een puzzel, waarvan je zelf bepaalt hoe technisch of procesmatig je het aanpakt. Je hebt procesbegeleiders die bedenken wat je moet zien bij een visualisatie en je hebt de techneuten die dat voor elkaar krijgen. Zo staan we samen sterk!’

Verbinden

TAUW investeert in de persoonlijke ontwikkeling van haar medewerkers. Bijvoorbeeld door tijd beschikbaar te stellen voor activiteiten, zoals bestuurswerk, maar ook voor het volgen van opleidingen bij TAUW University. ‘Daardoor kreeg ik scherp dat ik energie krijg van verbinding brengen. Door jongerenplatforms een boost te geven, maar ook in mijn ambitie om binnen mijn werk verbinder te worden tussen verschillende werkvelden. Een ontwikkeling die TAUW actief stimuleert.’

Marissa is onder meer betrokken bij Young@TAUWInternational. Een intern, internationaal netwerk dat jonge

medewerkers van TAUW in verbinding met elkaar brengt. Samen met andere leden werkt ze momenteel aan het opzetten van een internationaal platform dat het perspectief van jongeren vertegenwoordigt bij symposia en congressen. Ook is Marissa bestuurslid bij JongBodem, een netwerkorganisatie voor jonge professionals in de vakgebieden bodem en ondergrond.

Inmiddels is ze goed geland bij TAUW. ‘Ik werk dagelijks samen met een leuk en ervaren team. Collega’s delen hun kennis en expertise met mij en samen werken we dagelijks aan mooie projecten. Ook past de TAUW-cultuur, waarbij winstgevendheid en maatschappelijke impact hand in hand gaan, helemaal bij mij. Ik voel me thuis bij TAUW.’



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‘Bij Topicus bouw ik IT-oplossingen die ertoe doen’

Na het afronden van zijn master Software Technology aan Universiteit Twente in 2019, lagen voor Tim Blok (25) de banen voor het oprapen. Hij koos voor softwarebedrijf Topicus in Deventer. ‘De maatschappelijke impact die ik bij Topicus zou gaan maken, gaf de doorslag.’

‘Al op de middelbare school was ik gefascineerd door IT, en dan vooral het programmeren’, vertelt Tim. ‘In mijn vrije tijd was ik vaak bezig met mijn eigen IT-projectjes, zoals servers bouwen en games bewerken. De bachelor Technische Informatica met aansluitend de master Software Technology waren voor mij een schot in de roos. Na mijn afstuderen besloot ik meteen te gaan werken. Nieuwe dingen maken, waar mensen echt iets aan hebben, dát wilde ik doen.’

Inmiddels werkt de alumnus alweer bijna twee jaar bij Topicus en ontwikkelde hij zich tot een echte specialist in hypotheeksoftware. Hij werkt vooral met C# en Microsoft SQL. ‘Mijn grootste uitdaging is het up-to-date houden van onze applicatie. De afgelopen vijftien jaar zijn er veel nieuwe componenten

en codes toegevoegd. Ik zorg dat de applicatie blijft meegroeien met de vele innovaties in de hypotheekwereld.’

INS EN OUTS VAN HYPOTHEKEN

Tim moest zich wel verdiepen in het hypotheekvak. ‘Technisch inhoudelijk was ik vliegensvlug op stoom. Maar het onder de knie krijgen van het hypotheekproces, zonder financiële achtergrond, vond ik best pittig. Je moet natuurlijk wel snappen waar de klant mee bezig is, voordat je een passende software-oplossing kunt bouwen. Ik volgde een introductiecursus over hypotheek aan ons opleidingsinstituut Topicus University. Daarnaast leerde ik veel van kennisdelingsessies, waarin collega’s uitleg gaven over onderwerpen zoals het hypotheekproces, rente en betalingen en de link met ons systeem.’

‘Waarom ik voor Topicus koos? Tijdens mijn sollicitatiegesprekken voelde ik meteen de klik, zowel persoonlijk als inhoudelijk. En die klik is gebleven. De cultuur en de werksfeer zijn relaxed. Ik heb veel raakvlakken met mijn collega’s en dat werkt fijn samen.

Het ene moment sparren we over complexe codes, het andere moment bespreken we het laatste Formule 1-nieuws. Daarnaast zijn er veel toffe evenementen, zoals de kennisdelingsevents TopiConf en TopiCraft en het legendarische eindejaarsfeest. En natuurlijk is er de maandelijkse borrel, compleet met ons eigen gebrouwen bier en lekkere pizza uit onze eigen steenoven. Ook met mijn team doe ik vaak leuke dingen zoals karten, uit eten gaan en weekendjes weg.’

Topicus ontwikkelt innovatieve software voor de zorg, het onderwijs, financiële instellingen en het sociaal domein. Tim is trots op de maatschappelijke impact van zijn werk. ‘Eigenlijk komt iedereen op een bepaald moment in zijn leven wel in aanraking met onze producten. Bijvoorbeeld als je bij de huisarts zit, die jouw dossier op zijn scherm tevoorschijn tovert. Of als je als scholier je toetsresultaten checkt in het schoolstelsel. Dan is de kans groot dat dit via Topicus-software gaat. Het geeft mij energie te werken aan oplossingen die de maatschappij steeds een beetje beter maken.’



FRIDO SMULDERS

A toolbox to teach about innovation

'That's impossible' is the frequent response to the wild ideas of company employees. A pity, says Professor of Entrepreneurial Engineering by Design at TU Delft, Frido Smulders. He believes that most innovations that are needed to solve social problems should come from existing companies. They are the ones, after all, that have the finances, knowledge and experience. And the people. At least 90% of all TU Delft students work for existing companies after they graduate.

● Frido Smulders believes that there is a problem with real radical ideas in companies such as listed companies. These companies are not designed for new ideas and do not encourage entrepreneurship. They often view wild ideas as unfeasible, too expensive and a potential threat to their current products.

Smulders wants to change this. He wants to give teachers the tools to teach their students to operate in entrepreneurial multidisciplinary teams. To design the online courses for this, he will receive starting capital of EUR 50,000 from the 4TU Centre for Engineering Education, an alliance of the four technical universities in the Netherlands.

Radical innovation is hard for existing companies because it is hard to take a decision, Smulders says. 'This is usually based on rational criteria, on what is at that point an irrational idea. Firms are often driven by financing, market share, and the in-house knowledge and expertise. If an unorthodox idea emerges and you don't know if it fits in your company and if so how, it is simply too left field and is either shot down or ignored.'

According to the Professor, companies need a multidisciplinary team in which each discipline regularly sticks out its neck to come up with new ideas, if they want to collaborate for innovation. 'And this is challenging. People who come up with different ideas in companies are often put down with arguments such as 'it will take too long', 'it's too expensive', 'it's impossible' or 'he's at it again'. You therefore make yourself vulnerable if you come up with a wild idea. But in reality, it's the environment in which

you work that has not learned to deal with ideas. This can affect your career in a company. We teach our students to think like monodisciplinary engineers and fall well short in terms of thinking as a multidisciplinary corporation.'

'I would like to work with my 4TU team on designing a framework which will help teachers to include this in their teaching. This will be the online module. What they will teach as validated knowledge will in fact be the outcomes of the process of a technological innovation. If they can demonstrate how the innovation process was underpinned by entrepreneurship, they will learn from this and will be able to identify the underlying theoretical framework. This may not be the case in every subject. They will go a long way with just one or two subjects in a master's and we will be able to reach all the engineering students.' ■



‘High-tech system development is not all about technology’

Rens van den Braber has been working as a System Architect at the NTS Campus in Eindhoven for over five years. He leads the development of cutting-edge modules and systems.

Rens is working with multiple customers to translate their sometimes conflicting or even unknown requirements in functionality, timing, and budget into agreed specifications to realize concept, design and prototype, before moving on to pilot and volume production. ‘As a system architect I focus on new systems development; the conversion of functionality, technical requirements and interfaces in a concrete and verifiable design. Next to that I am involved in translating this design into qualitative and cost efficient production.’

NTS takes the lead in introducing the new design into the manufacturing organization. ‘For the most complex new modules, a system architect supports this introduction by reviewing the translation of the module’s functions to requirements and the development of the tooling required for the product qualification. Smaller companies however - who typically have a new technology and idea, but not the means nor expertise to rapidly create a machine - usually also use our capabilities and experiences that are needed to develop a new system from scratch into a system with critical industrial quality.’

‘In my job you have to be able to understand the complex physics and designs of the products of customers, discuss requirements (which are sometimes conflicting or even unknown at the start), and come up with pragmatic solutions and alternatives. Simultaneously, there is an importance in balancing the technical –risks, to time to market and commercial goals. Next to that, my work for example entails proposing a system architecture that enables the integration of technological, market and business strategy of customers, but also interfaces to the customer’s current core technology.’

At the same time it is not all about technology. To make co-development across business boundaries a success, mutual understanding and a high level of trust is required. ‘In practice, that means working closely together with customers, with project and sales managers, and playing my part in manufacturing teams to drive products into series production. And all those dimensions makes working at NTS very rewarding for me.’



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WATTLAB

Innovative solar products

Wattlab was launched in 2017. Three years later, the founders already had dreams of Wattlab hubs worldwide, developing innovative solar products with local partners. Bo Salet, David Kester and Siebe Roefs are Wattlab's founders. Their aim? To kickstart new solar energy applications and accelerate the energy transition.

- They all studied in Delft; Roefs studied Applied Physics, Kester studied Electrical Engineering and Salet Aerospace Engineering. Salet: 'We met as part of the Nuon Solar Team. We hit it off and, after the project, felt compelled to do something alongside our degrees. That became Wattlab.'

'During the World Solar Challenge, we wondered why solar panels are so large and cumbersome and not as light as the panels we use in the solar car', Salet says. 'If you integrate solar panels in existing structures, you can keep them ultralight. You still often see panels being installed on roofs, but a roof is already a sturdy structure and if you put a panel on top of it, that is also structural. It is duplication.'

JUST A FEW MILLIMETRES THICK

Wattlab has a different approach. As an example, Salet cites a pilot involving the inland vessel De Oleander. Together with Blommaert Aluminium, Wattlab designed solar panels just a few millimetres thick and integrated them into the ship's hatches. That kind of structure is capable of meeting 10% of the energy needs of a ship with 850 m² of available surface. For the online supermarket Picnic, Wattlab integrated ultrathin solar panels into shopping trolleys in order to cool them in summer.

Whereas it used to be Salet, Roefs and Kester who were approaching other companies, it is now the other way around. 'And earlier than expected', Salet says. In April 2017, they registered at the Chamber of Commerce and Wattlab started life in Kester's student room, doubling up as an office and production facility. A year on, Wattlab already had the funds to rent a workshop and buy their first machine. What was the biggest obstacle in the early years? Salet sighs. 'You imagine you will just develop a product and sell it. But there is more to it. We found ourselves facing all kinds of administrative hassle. I tried to go through a 200-page book on payroll accounting, but it is just gobbledygook to me. Fortunately, we have now outsourced that.'

They also noticed that close contact with your client is essential in enabling growth. Salet outlines his vision for the future: 'We want to see Wattlab hubs across the world working together with local partners. Our aim is to push innovations.' ■



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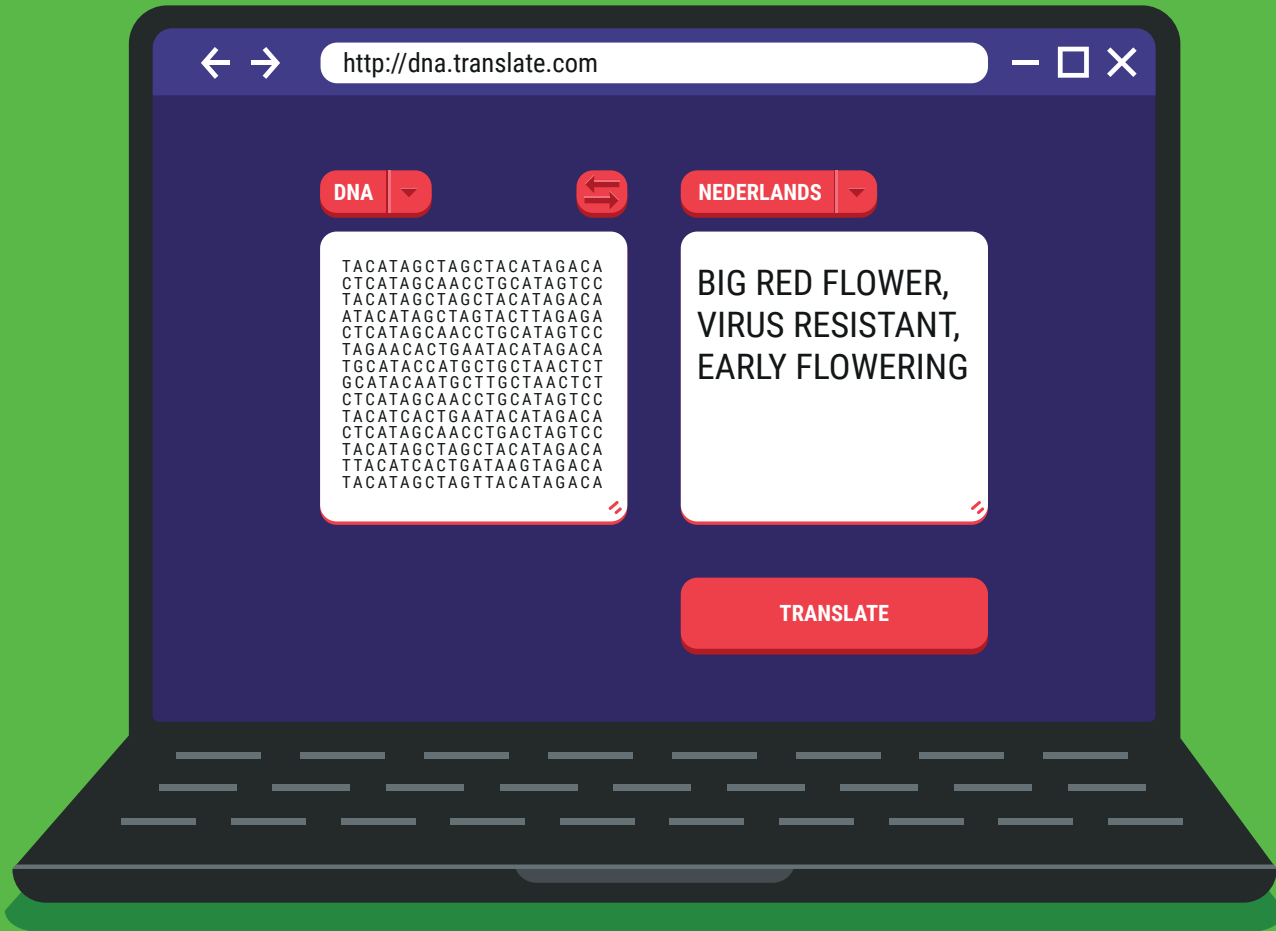
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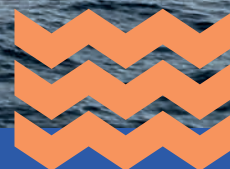
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