

CAREER SPECIAL

# The new way of working: how to make it work



INTERVIEW  
PAUL VAN NUNEN FROM  
BRAINPORT DEVELOPMENT  
ABOUT JOB PROSPECTS

COLUMN  
REJECTED

START-UP  
CHARGING-TILE FOR E-BIKES

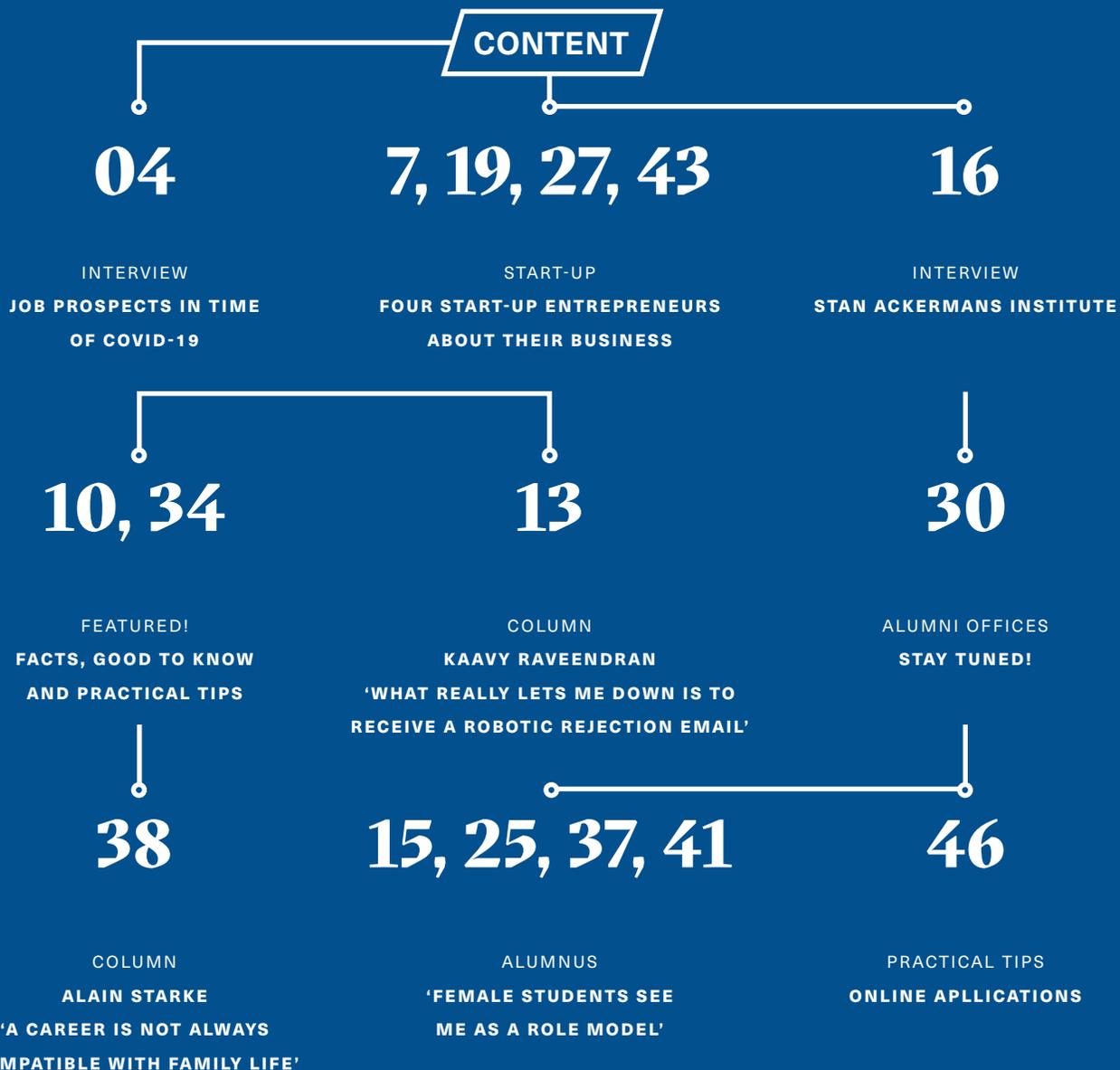
ONLINE APPLICATION  
PRACTICAL TIPS AND TRICKS

UNIVERSITY OF TWENTE.

**TU/e** EINDHOVEN  
UNIVERSITY OF  
TECHNOLOGY

**TU Delft** Delft  
University of  
Technology

 **WAGENINGEN**  
UNIVERSITY & RESEARCH



## COLOPHON

This second edition of the 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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**PRINT RUN** 15,500 copies, of which 12,000 were sent via post to those students who have recently graduated, and 3,500 copies were disseminated at the four universities.

## Creative spirit

Precisely at the moment the world's economy has come to a standstill and our campuses are closed, this career special will show our students the limitless opportunities that their education offers. Whilst this may seem paradoxical, it has perhaps never been more true than in this time of crisis. The outbreak of Covid19 and its rapid spread across the world reveals a vulnerability that we thought we had overcome. That an uncontrollable, invisible virus could deconstruct the world's healthcare systems and leave us with no protection or effective treatment is difficult to accept. Yet it is precisely in such difficult times that a creative spirit can flourish – precisely in these difficult times that there is space for innovation.



LOUISE O. FRESCO

PRESIDENT 4TU. FEDERATION AND PRESIDENT OF THE EXECUTIVE BOARD AT WAGENINGEN UNIVERSITY & RESEARCH

Such innovation is led by smart, creative, enterprising, highly educated people. Young people, who cannot wait to show the world what they are capable of with their knowledge and skills. We need those young people now more than ever and, whilst companies are currently running at decreased capacity, everywhere people are thinking of what happens next when the world is back to normal. Furthermore, we are also reconsidering precisely what 'normal' now means. Things will certainly be different. There

is space for change, for example in the area of mobility. How do we deal with our health care system, and with vulnerable elderly people? What is work? Is work always physically separate from our private lives? How do we deal with education in the long term? We can now see that online education does work, and that working from home can be successful on a large scale. This is our chance to leave the well-trodden path and accelerate transformation. When calm has returned and we will turn to face our new economic and

financial reality, there will be countless opportunities available to you: at research institutes, small and large companies, and with your own start-ups. Precisely then we will need you to help solve all of those new questions and to make the world more resilient to the next outbreak, which will inevitably come. We will persist and we will never give up. I hope that in this 4TU Career Special, you will find the inspiration to take the next step with enthusiasm. A whole world of possibilities lies before you. ■



Applying for a job in this time of COVID-19 presents a formidable challenge. What will the crisis do to the job market? What are the short-term and long-term effects? Paul van Nunen from Brainport Development in Eindhoven sketches us an e-future.

# ‘Demand for digitalisation, healthcare solutions, energy transition will remain’

WHAT DO YOU THINK ARE THE JOB PROSPECTS FOR STUDENTS WHO WILL GRADUATE AT THE END OF THIS YEAR, SO THE BEGINNING OF JULY, FROM THE TU/E?

‘The economy in Brainport is robust. The high-tech manufacturing industry is doing relatively well, also in these difficult times. Many companies are at work, adhering to production environments set up to observe the one and a half metres distance requirement. In my opinion, this will stay like this.

‘Universities, especially technical universities, are prerequisites for innovative ecosystems

Many companies and organisations in our region work in markets in which we expect to have a healthy demand in the future as well. Solutions for digitalisation? That demand will stay. Solutions for sustainably? That too, will remain. Medical equipment? That demand will also persist. We work in markets with great social demand. This gives us trust in the future. And precisely our model, in which we do not only make up patents, but also industrialise them here, seems to fit well with the geopolitical Zeitgeist. ‘

MANY OF THOSE GRADUATES – THE TU/E OFTEN REFERS TO AROUND 80 PERCENT – GET THEIR FIRST JOB IN THE BRAINPORT REGION. DO YOU THINK THAT WILL STILL BE POSSIBLE?

‘Yes, I trust this will be possible. Before corona, there was already a high demand for technical talent, and in my view,



that has not suddenly changed. In addition, a small proportion of those graduates become entrepreneurs in a start-up, and yes, for them, these are uncertain times. After all, it is currently more difficult to find external funding opportunities. Thankfully, in the Netherlands and in the region generally, we are able to set up funds to also help start-ups, not least, because their dynamism and capacity to innovate remains essential to us.'

**IS IT ALREADY POSSIBLE TO GIVE AN INDICATION OF WHETHER IT WILL BE DIFFICULT TO FIND A JOB LATER FOR GRADUATES FROM SPECIFIC EDUCATION PROGRAMMES?**

'Of course, we do not know how long the current situation will last. However, leaving that aside, I dare to predict that the demand for digitalisation, healthcare solutions, energy transition, and so forth, will remain. In those sectors, job opportunities will remain. Very specifically, you can be sure that the demand for engineers with knowledge of AI will only increase. There lie many future job opportunities.'

**DOES THE GOVERNMENT HAVE A RESPONSIBILITY TO ENSURE THAT THIS GENERATION OF GRADUATES WILL ALSO BE ABLE TO GET A JOB QUICKLY? TO PREVENT THIS FROM BECOMING A 'LOST GENERATION'?**

'That responsibility resides with all of us. First of all, we have to make sure there are enough internships and public-private assignments for students, both of which are not self-evident when companies are being more careful when making new investments. The government most definitely has a role to play in this by continuing to invest in innovation. In the long term, this will give us thousands of jobs in the manufacturing industry in ten years' time. Emergency measures are phase 1, but longer-term recovery has to come from smart investments.'

AT THE ENTREPRENEURIAL ORGANIZATION FOR THE TECHNOLOGY INDUSTRY, FME, SEVERAL (EXTERNAL) RESEARCH PROGRAMMES ARE BEING CONDUCTED INTO THE JOB PERSPECTIVE IN THEIR SECTOR. 'AT THIS MOMENT IT IS VERY DIFFICULT TO SAY ANYTHING ABOUT THE JOB MARKET DEVELOPMENT. THAT WOULD CURRENTLY BE MERE SPECULATION', SAYS THE FME SPOKESPERSON.

'UNIVERSITIES, ESPECIALLY TECHNICAL UNIVERSITIES, ARE PREREQUISITES FOR INNOVATIVE ECOSYSTEMS. I HAVE NO ACCURATE OVERVIEW OF THE EXACT NUMBERS AROUND THOSE UNIVERSITIES, BUT I DO SEE THEY HAVE A GOOD POSITION FROM WHICH TO MOVE FORWARD. ULTIMATELY, WE WILL HAVE TO STRENGTHEN THE NETHERLANDS' ECONOMIC POSITION BY LINKING NEW KNOWLEDGE WITH NEW PRODUCTS. HENCE, WE ARE VERY LUCKY TO HAVE THOSE EXCELLENT UNIVERSITIES.'

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# ‘We are planning to attract a new round of funding’

The Platform for Entrepreneurs, Sprout, announced CodeSandbox to be the start-up of the year 2019. Ives van Hoorne and Bas Buursma, both alumni from the UT, offer an online programming environment that is used by over a million programmers from all over the world each month.

- On the question of how CodeSandbox is doing now, Ives van Hoorne answers with a profound ‘good’. ‘We were already working remotely before the corona virus kept everyone at home. The advantage of this set up is that we can work together with anyone in the world, but we do have to reserve a lot of time to communicate and document what everyone is doing. Time differences are also an issue, and sometimes we have to work into the evenings. For the rest, not much has changed for us. We do notice that it is busier, and we are already planning to attract another round of funding.’ Last year, the company already managed to attract a substantial investment. Silicon Valley-investor Kleiner Perkins, the Dutch investor Arches Capital, and several other entrepreneurs, including UT-alumnus Marco Jansen from Catawiki, invested a total of 2.4 million dollars. They are now using the investment to grow their company quickly.

## CONVERTING CODE

In 2016, the idea for CodeSandbox was born. Right before Van Hoorne started as a first-year UT-student in informatics, he came across a ‘code problem’ during his holiday. ‘I was working at auction website Catawiki. Colleagues were busy converting code from old technology to the more novel React. They had a question about a specific part of code. I wanted to help them, but I did not have my laptop with me. I thought: How cool would it be to also have a website that allowed you to work on code whilst you are on the move?’

After returning home, Van Hoorne started designing such a website. Buursma, a bachelor student in industrial design, was quick to join in. Together, they built a kind of Google Drive for programmers, in which web developers can collaborate live on code and are able to quickly build, exchange, and test prototypes.

CodeSandbox became increasingly popular amongst programmers all over the world. After a year, they had 500 thousand monthly users. Now they have ten employees and can count on 1.4 million programmers who use their platform each month. The formula for success? ‘Both the design and customer interaction are excellent’, Buursma explains. ‘And at the core, our platform is about sharing projects. So, every time a programmer shares something with someone else, a form of mouth-to-mouth advertisement emerges.’

Where they will be in five years? ‘Then we hope that all programmers in the world are using our platform, or are at least familiar with it’, Buursma states. ‘According to the numbers provided by Github, the world has around 30 million programmers. Still more than enough space for us to grow.’ ■





Oss is trots op het veelzijdige jonge talent dat bij Osse bedrijven werkt. Lees erover op [OnsOss.nl](https://www.onsooss.nl) en maak nader kennis met ons [#OssTalent](https://www.instagram.com/oss_talent)

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#### Verhoeven Oss



**Verhoeven** Oss is een wereldspeler op het gebied van interne transport en material handling systemen. Wij maken het verschil door innovatieve oplossingen te bieden en we gaan door waar anderen stoppen. Ben jij het technisch talent wat ons team komt versterken? Kijk dan op [verhoevenfamily.com/job-opportunities/](http://verhoevenfamily.com/job-opportunities/)

# FEA TUR ED!

FYI

## ‘Hardly anyone talks about failures’

Paul Iske (1961) obtained his cum laude doctoral degree in Applied Physics from the UT, but these days his business card reads ‘Chief Failure Officer’. His Institute of Brilliant Failures advocates for room to experiment and fail, as long as you do it right and learn from it. ‘It is my mission to create a place, a language, for failures. The academic world’s strong focus on success results in a distorted world-view. It sums up its successes, yet hardly anyone ever talks about their failures. However, you can truly learn a lot from failures.

People in organisations are afraid that a failure will haunt them for the rest of their career. That is a surefire way to kill innovation. People should be given the opportunity to fail brilliantly; you can get so much out of that.’

GOOD TO KNOW

## Online job interview

Job applicants should be aware that participating in an online job interview might affect the selection results differently from face-to-face job interview. From the research point of view, the accuracy of selection was found to be dependent on the method used. Blackman (2002) tested the accuracy of personality judgments in telephone and face-to-face interviews by comparing them with an applicant’s self-assessment, and found that face-to-face interviews resulted in more accurate personality judgments than telephone interviews. In a similar way, Straus et al. (2001) compared face-to-face interviews with videoconference-based interviews. Applicants who were interviewed using videoconferencing were not rated lower when compared to those interviewed face-to-face. Chapman and Rowe (2001) studied the use of videoconferencing technology in the employment interview and found a positive bias in favour of applicants interviewed via a desktop videoconference system. However, Van Iddekinge et al. (2006) found strong support for their hypothesis that the ratings of face-to-face interviews would be significantly higher those of videotapes of the same interviews. (Tanya Bondarouk, see also page 46)

FACT

TU DELFT HAS AN LINKEDIN ALUMNI COMMUNITY OF 100,000 MEMBERS, 79% OF THEM MALE AND 21% FEMALE (2019).





**FACT**  
**THIRSTY? ZZINGA DOES HOME DELIVERIES OF HONEY CIDER. STUDENT ENTREPRENEUR FABIAN LINDNER FROM WAGENINGEN UNIVERSITY: 'WE MAINLY SELL IT TO BARS AND RESTAURANTS, SO THE FACT THAT THEY'VE CLOSED NOW IS A BIG CHALLENGE FOR US. WE HAD TO COME UP WITH A WAY OF SELLING 6000 BOTTLES: HOMEY DELIVERY IT IS.'**

**QUOTE**

“Take opportunities and do not be afraid to fail. It’s all part of the game to sometimes fall flat on your face, but this ultimately makes you much stronger.”



IJSBRAND DE LANGE, WINNER OF THE TU DELFT INSPIRATION AWARD 2019

**GOOD TO KNOW**

## Career Services UT

Are you feeling lost? UT Career Services can help you get back on your career path. UT Career Services helps you to connect with companies in the region through the MKB scholarship program and Connect Forward project. <https://www.utwente.nl/nl/ces/career-services/>

**CAREER SERVICES**  
 UNIVERSITY OF TWENTE.

**TIP**

## Career abroad?

Looking for a job abroad? Take a look at the Careertrotter website. This recruitment agency works worldwide and helps Dutch-speaking jobseekers to find a job across the border.

The agency also gives tips on how to write a good CV and what to do before you start working and living abroad.  
<https://www.careertrotter.nl/>



# ‘Many opportunities to further develop yourself’

Koen Demkes (29) made a flying career start at Kramp, one of the largest and fastest growing technical wholesalers in Europe and transforming into an e-business company. Koen started in Kramp’s international traineeship programme which gave him the opportunity to further develop himself very quickly.

## WHY DID YOU CHOOSE WORKING AT KRAMP?

‘During my study I took several opportunities to go abroad, and because I enjoyed that very much, I was looking for an international company with the opportunity to work (partly) abroad. On the other hand I was looking for a company in a complex logistical environment, in order to apply the learnings for university and to further develop these skills using practice. With Kramp I found the perfect mix of these ingredients.’

## WHAT MAKES KRAMP A GOOD EMPLOYER TO YOU?

‘You get many opportunities to further develop yourself, not only via the Kramp Academy trainings, but also on-the-job. You can quickly get a lot of responsibilities, a lot of freedom in how you execute your tasks, and you can work on your own initiatives. Next to that the environment is very friendly and open,



and you continuously interact with colleagues from different nationalities.’

## HOW DID YOUR CAREER DEVELOP, STARTING AS A MANAGEMENT TRAINEE?

‘As a management trainee I got the opportunity to work at different departments in different countries, allowing me to quickly get to know the entire organization and to build up my network. Afterwards I immediately got the responsibility over a team, managing the availability of products in our 3 warehouses in the Nordics. At this moment I am a Program Manager for

Assortment & Supply Chain, meaning I am responsible for continuously improving the service to customers and increasing the efficiency, by initiating and managing the right projects.’

## HOW DOES YOUR STUDY AT THE UT HELP YOU IN YOUR CURRENT ROLE?

The skills to analyze complex problems and to select suitable solution approaches are still helpful. On a daily basis it helps me to quickly identify the critical issues and to make plans to solve them.

## WHAT ADVICE WOULD YOU GIVE TO OTHER (ALUMNI) STUDENTS?

‘As a starter, choose a job that gives you many future career opportunities. You are not done learning after university. Next to that, also take assignments outside of your official role to accelerate learning and to broaden your view.’

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# REJECTED

● First of all, I would like to extend my fellow feeling to all my peer aspirants waiting to kickstart their careers, and so are applying for their dream jobs right now! But let's be honest, it is not a great time to be finding employment. While we see multiple HR managers posting motivating content on LinkedIn, trying to keep up the morale of the applicants, I think we may be underestimating the current situation.

Finding a perfect job is known to be challenging (no surprise there!), but with the present pandemic, job positions are either withdrawn due to hiring freeze or, are not posted at all externally. Ordinarily, the best thing to do would be to keep calm and give your best shot anyway, or, wait until the present scenario improves a bit. Unfortunately, time is not at the expense of international candidates such as myself; exhausting our search year visa futilely being a prime concern among many. We hope the IND identifies this issue and offers a solution.

Let's now address the elephant in the room. As a starter, we practically spend all our time drafting our cover letters to perfection, writing emails, formatting our resumes and so on, until our eyes are sore. We express to impress the recruiters, convincing them with what we can bring to the table. I am 'not' complaining about the long hours, in fact, I am really glad to be doing all the research and learn so much about companies that we dream to be a part of one day. But what really lets me down after all this, is to receive a robotic rejection email sent in a mundane standard format.

Facing rejection is not easy, but it would be great to receive constructive criticism. Apart from common reasons such as lack of funds for work visa sponsorship (often heard by foreign applicants), knowing where we went wrong will not only help improve our approach but also preserve our self-esteem. The automated emails with no provision of further contact don't convey any useful information to course correct from. Maybe it is naive of me to expect this, and corporate policies may dictate otherwise, but such emails distance the company from the talent pool. It is now up to the companies to decide, whether to intimidate or invite budding talent.

Kaavy Raveendran is graduated master's student of Food Technology from the University of Wageningen and currently looking for a job. ■

'What really lets me down is to receive a robotic rejection email'

# From a military genius to an engineer

Although you can be convinced of your future at the age of 18, it can look very different after a while. We are talking to Arnold Schutter; he works as a Business Manager at ALTEN, but wanted nothing more than to work for the Ministry of Defence when he was 18.

That is why he chose to go to the Royal Military Academy in Breda to study to become an Officer of Genius. The 'Genie' is a weapon (part) within the Royal Dutch Army, derived from the French word Génie and is related to the word Engineer. The physical activities, working together and being practical really appealed to him. Part of his training was the Bachelor of Civil Engineering, which he followed through the University of Twente. 'As platoon commander, I was in charge of an operational unit consisting of 34 men and associated equipment. Our focus was mainly on supporting the combat units by building and breaking through obstacles, building bridges and more. After some time I noticed that I am more at my place in technical innovation than in the forest. Developing my own innovative techniques and thinking creatively about possibilities really appeals to me. That is why I decided to leave

the Army and study Computer Science at Delft University of Technology. The great thing about this discipline is that you can work in all fields (from naval to aviation), you can use a lot of creativity and you have a lot of freedom in the environments in which you work.' While looking for a suitable graduation internship, Arnold first came into contact with ALTEN. 'For my graduation thesis, I started working with ALTEN and TNO on possibilities to deploy unmanned recognition vehicles. This could be a drone or tracked vehicle, for example. Not only did I like the content of my thesis, but also the atmosphere and the type of work. That's why I decided to opt for ALTEN after my graduation. I worked on a wide variety of projects, such as for the naval sector on a user interface for the control of a dredger. But also on 2D/3D visualisation of industrial plant site as full stack software engineering. A very instructive time.' After having worked as a consultant for two years, Arnold switched to the role of Business Manager over a year ago. In this role, in addition to obtaining

projects, he is also responsible for a team of consultants and coaching. Arnold needed more interaction with technical companies and wanted to expand his world. 'The nice thing is that ALTEN has a training program for consultants who want to grow towards a management role. I followed it for six months, in order to gain more knowledge of, for example, business development. I was able to start in this role confidently and I am supervised by an experienced colleague. The great thing of this role is that you see everything grow. You approach clients and build your own team that works for them, you are involved in everything. Actually, just like in the army, I am responsible for a group of motivated engineers, only now in the field of software.' Finally, Arnold can give students a tip. 'Try to get the best out of yourself by occasionally thinking about where your passion lies and dare to act accordingly.' For example, a genius in the Royal Dutch Army can grow into an engineer in computer science and now work in a management role at ALTEN.

WOULD YOU LIKE TO KNOW MORE ABOUT THE OPTIONS AVAILABLE FOR YOU AT ALTEN? PLEASE VISIT OUR WEBSITE ([WWW.ALTEN.NL](http://WWW.ALTEN.NL)) AND/OR CONTACT ONE OF OUR RECRUITERS, VIA [RECRUITMENT@ALTEN.NL](mailto:RECRUITMENT@ALTEN.NL) OR CALL ONE OF OUR OFFICES: EINDHOVEN, CAPELLE A/D IJSSEL, AMSTELVEEN, APELDOORN OR GRONINGEN.



THIJS BOER

ALUMNUS WAGENINGEN

DEVELOPMENT ECONOMIST

FOUNDER HOLLANDA FAIRFOODS



# ‘You know what, I’m going to set up that factory myself’

Five years ago, Thijs Boer embarked on a great adventure: setting up a crisp factory in Rwanda. ‘If the urban youth are going to snack, they might as well buy crisps made from Rwandan potatoes.’ The factory is now breaking even, while hundreds of local farmers are getting a good price for their potatoes.

Thijs Boer (33) makes crisps in a factory between the potato fields outside Musanze, the potato capital of Rwanda, a two hours’ drive from the capital city, Kigali. The potatoes of Rwandan farmers are washed, peeled, cut, inspected, fried, flavoured and weighed and leave the factory twenty minutes later in red, blue or green bags (salted, salt & vinegar, paprika). Thirty-five people are employed in Boer’s crisp

factory. ‘And the farmers get a 15 to 20 per cent higher price from me than from the local traders,’ says Boer.

Is this fatty, salty snack the right form of added value to introduce in Rwanda, though? Boer has been asked this before. ‘Crisps from big multinationals are imported from Kenya, South Africa, and even Europe. The growing middle class, especially the young urban population, buy crisps to snack on with a drink. So they might as well buy crisps that are made with Rwandan potatoes.’

## HOW DID YOU COME UP WITH THE IDEA OF A CRISP FACTORY IN RWANDA?

‘It started with field research for my Master’s in Development Economics in

Wageningen. At first I was supposed to go to Ethiopia, but when that fell through I ended up in Rwanda. I needed to look for ways of boosting the productivity of small potato farmers. And that’s when I hit upon crisps.

‘I’m a bit of an adventurer, so I thought, you know what, I’ll set up that factory myself. I got help with the investments from the Dutch ministries of Economic Affairs and Foreign Affairs.

‘We were soon collaborating with at least 10 young Rwandans graduated in agronomics, agribusiness and quality management at universities and vocational training colleges. They assess potatoes on the farms, in the field, they are quality managers in the factory, and they sell

the crisps in the city.

‘Only now, after five years, are we breaking even; we are selling more than we spend on the costs. The task now is to expand.’

## DID YOU LEARN BUSINESS SKILLS IN WAGENINGEN?

‘I took courses in Wageningen for future entrepreneurs.

I learned that 90 per cent of enterprises, both in the Netherlands and elsewhere, fold within five years. In that sense, I’ve already been quite successful, ha ha.

‘It isn’t my dream to stay here all my life. I’d like to start other businesses, preferably in the agri-food sector. And it’s important to me to change things, like I am now changing the potato value chain for the better.’ ■



# ‘Learn, gather work experience and get paid’

Ravi Thakkar successfully finished his data science PDEng program at the beginning of this year. The academic director had a little surprise for him at the graduation ceremony. Ravi was the 3000th PDEng candidate to get his diploma.

● ‘I was so surprised! Next to my diploma, I got all kinds of nice additional gifts, and some of my fellow candidates wanted to switch with me so they would be the 3000th,’ Ravi tells with a smile. He looks back on his PDEng with a good feeling. We visit him at his new employer Signify, where he started as a data scientist at their supply chain team. ‘After my bachelor in India, I wanted to increase my interest and explore other parts of the world. I was also curious

about differences in education in other places. A friend of mine studied in Germany and I liked what he told me about the country and his life. I decided to do my Masters in Computer Science at the Technical University of Braunschweig.’

When he finished that, he started looking for a job. A PDEng program wasn’t on his list at that moment. ‘I was looking for an interesting PhD programs and came across the Data Science PDEng program. I decided to apply and got an invitation for the challenge week they host to find the best candidates.’

## DATA CHALLENGE WEEK

This PDEng program isn’t part of one particular faculty but belongs to the Jheronimus Academy of Data Science (JADS), a joint initiative of Eindhoven University of Technology, Tilburg University, and the Data Science Centre Eindhoven. ‘The 24/7 Data Challenge Week was intense. The assessors look at the big picture of every candidate. Of course, you need a technical background, but they also look at skills and



attitudes like creativity, self-awareness, critical thinking, being a team player, and communication. In five days you work with your team on challenges and in the end, you present your solutions.' A big part of the PDEng program is focused on developing your personal skills. Per week 25 hours are for cases, 15 hours are for personal development. During the program, the candidates must take part in the challenge week for new candidates. 'You work with the new group and have a role as a team member or a team leader. You also learn a lot about yourself. I learned that I'm a good facilitator by making people feel at ease and giving guidance. Later on, I worked on my leadership qualities when we were asked to arrange a data science module for the TU/e. I was in charge of the project and was a team leader of one of the challenges. The goal was to give students a flavor of data science on a level that was comprehensible for them. What I really like about the PDEng program is that you work on your goals. Your group members give feedback with a coach present. Every three months you have a talk with the coach about achieving the goals and how everything is going. The courses for personal development are also aligned with our goals.'

#### **FIND YOUR HIDDEN TALENTS'**

The people at the data science PDEng are very diverse, says Ravi. 'They come from all around the world, completed all kinds of studies and have different views on assignments. The program learns you to work effectively in international teams. In one group I worked with a Dutch and Bulgarian person. In India, we are not very direct, but in this group, I learned it is sometimes better to be direct and transparent. In India, people wouldn't say 'no' immediately and give it at least a try, to tell you later

that something doesn't work out. In the Dutch daily life I learned that when you have a dinner party and the host asks if you want more food and you say no, they don't offer it again. That is something I had to get used to.'

His overall experience in the PDEng program was good. 'It is intensely challenging, but you will find your hidden talents and improve yourself. You get the benefits of being a student, learn, gather work experience and get paid. It is a really valuable program for the rest of your career.' ■



RAVI THAKKAR

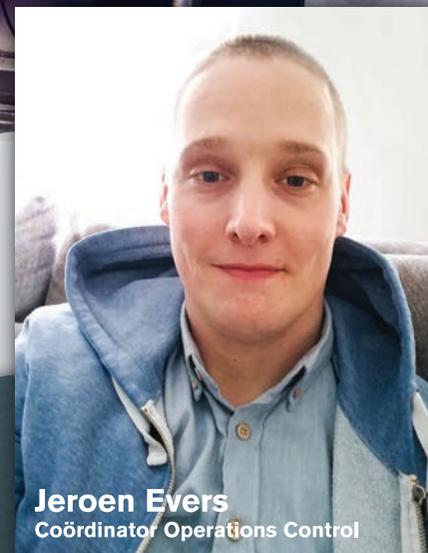
ARE YOU A YOUNG PROFESSIONAL GRADUATE, OR ARE YOU CURRENTLY COMPLETING YOUR MASTER PROGRAMME AT A TECHNICAL UNIVERSITY? ARE YOU INTERESTED IN TECHNOLOGICAL DESIGN AND DO YOU WANT TO STRENGTHEN YOUR CHANCES ON THE JOB MARKET? ARE YOU EXPLICITLY PURSUING A CAREER IN INDUSTRY OR BUSINESS? THEN PERHAPS THE POST-MASTER TECHNOLOGICAL DESIGNER PROGRAMMES FROM THE STAN ACKERMANS INSTITUTE ARE SOMETHING FOR YOU. YOU CAN FOLLOW THESE PROGRAMMES AT FOUR DIFFERENT DUTCH TECHNICAL UNIVERSITIES.

THE EDUCATION PROGRAMMES IN THE FIELD OF TECHNOLOGICAL DESIGN TAKE TWO YEARS AND PARTICIPANT WILL GET PAID. AFTER OBTAINING YOUR MASTER'S DEGREE FROM A TECHNOLOGICAL EDUCATION PROGRAMME, YOU CAN ENTER A SELECTION PROCEDURE AND EVENTUALLY ENROL IN ONE OF THE PROGRAMMES. EVENTUALLY, YOU WILL BE AWARDED A PROFESSIONAL DOCTORATE IN ENGINEERING (PDENG).

DURING YOUR POST-MASTER IN TECHNOLOGICAL DESIGN, YOU NOT ONLY DEEPEN YOUR KNOWLEDGE OF TECHNOLOGY, BUT ALSO LEARN HOW TO PUT THIS INTO PRACTICE. IN ADDITION, YOU WORK ON IMPROVING YOUR PROFESSIONAL SKILLS, THUS STRENGTHENING YOUR OPPORTUNITIES ON THE JOB MARKET. EINDHOVEN UNIVERSITY OF TECHNOLOGY PROVIDES MOST OF THE PROGRAMMES (TEN IN TOTAL), WHILST DELFT UNIVERSITY OF TECHNOLOGY OFFERS FOUR PROGRAMMES, AND THE UNIVERSITY OF TWENTE PROVIDES FIVE. IT IS CURRENTLY NOT YET POSSIBLE TO FOLLOW AN EDUCATION PROGRAMME IN DESIGN AT WAGENINGEN UNIVERSITY & RESEARCH. FOR MORE INFORMATION, SEE: [HTTPS://WWW.4TU.NL/SAI/EN/](https://www.4tu.nl/sai/en/).

# “Welcome to the world of VMI”

‘Een spin in het web’, voelt hij zich in zijn functie van Coördinator Operations Control bij VMI in Epe. Jeroen Evers, alumnus Universiteit Twente, studeerde Industrial Engineering & Management. Een studie waar planning een groot onderdeel van uitmaakt. “De praktijk is echter weerbarstiger dan de modellen”, bekent hij. “Mijn programmeerkennis kan ik bij het maken van projectplanningen ook goed gebruiken.”



**Jeroen Evers**  
Coördinator Operations Control

## Coördinator Operations Control

Zes jaar geleden kwam Jeroen bij VMI binnen als planner op de afdeling Operations Control. Na vier jaar groeide hij door naar de functie van Coördinator Operations Control. Verantwoordelijk voor de grote lijnen van de afdeling, houdt hij zich bezig met communicatie naar de andere afdelingen en vestigingen, werkverdeling, afdelingsoverleggen en in mindere mate met specifieke machineprojecten. Een belangrijke taak zijn de verbeteracties. Mooi voorbeeld is Sales en Operations Planning: een programma dat VMI heeft gebouwd. Het combineert de harde orders en Forecast uit CRM in één overzicht om de impact van levertijdafgiftes of verschuivingen op o.a. capaciteit Productie (multi-site) en Field Service te bepalen. Daarnaast beheert hij de infostroom van en naar de afdeling.

Een veelomvattende functie op een afdeling waar honderden projecten lopen. Vooral de complexiteit van de projecten ziet hij als een grote uitdaging. “VMI maakt enorme machines met duizenden onderdelen. Dat zorgt voor een complexe supply chain en planningsuitdagingen. Operations Control begeleidt de machines vanaf de opstartfase tot ze wereldwijd in het veld worden geïnstalleerd. Daarvoor is afstemming nodig met andere afdelingen zoals Commercie, Engineering, Logistiek en Productie. In geval van nieuwe machines of machines die veel specials bevatten, stellen we soms zelfs een operationeel projectteam samen, waar periodiek multidisciplinair overleg plaatsvindt”, legt Jeroen uit.

## VMI Wereldwijd

De hoofdvestiging van VMI in Epe heeft een afdeling Operations Control, maar ook de VMI-productievestigingen in China en Polen hebben een eigen planningsafdeling. Jeroen: “Met beide vestigingen heb ik veel contact. In China ben ik ook zelf geweest. Het internationale karakter van VMI maakt mijn werk zeker interessanter.”

## VMI als werkgever

“VMI geeft veel vrijheid in de uitvoering van je werk. Ook is het mogelijk om je in aspecten die je interesseren verder te verdiepen”, aldus Jeroen. “Ik ben momenteel bezig met mijn Green Belt (Lean Six Sigma), mijn theorie heb ik inmiddels afgerond.” Naast individuele studiemogelijkheden, biedt VMI ook in company trajecten aan om talentvolle en ambitieuze medewerkers verder te begeleiden in hun carrière.

## Stages en afstudeeropdrachten

VMI heeft geregeld mogelijkheden voor stages en afstudeeropdrachten voor WO-studenten.

Benieuwd wat VMI jou te bieden heeft? Neem eens een kijkje op onze website.

## VMI Group

ontwikkelt, produceert, verkoopt en installeert high tech machines voor hoofdzakelijk de banden- en rubberindustrie en is een belangrijke speler in de blik-, persoonlijke verzorgings- en farmaceutische industrie.

## Global Player

Opgericht in 1945 heeft VMI zich ontwikkeld tot een uiterst modern bedrijf met productielocaties in Duitsland, Brazilië, Polen en China en service centers in de VS, Maleisië, Rusland en Thailand. VMI werkt met wereldwijd 1600 medewerkers, en ruim 900 op het hoofdkantoor in Epe, Nederland aan innovatieve oplossingen, waarmee zij bijdraagt aan het succes van haar klanten.

## TILER

# Tiler brings 'charging-tile' for e-bikes to the market

Since last year, the two Rotterdam-based entrepreneurs, Christiaan van Nispen and Olivier Coops, have been working on a patent from Delft Technical University. Via the start-up Tiler, they put this patented knowledge into practice to enable the wireless charging of e-bikes with an induction tile.

## TOOTHBRUSH

The best-known form of contactless charging is probably the electric toothbrush, which is always ready for use after a night on its charging base. With an e-bike, charging starts when the charging tile and the accompanying stand recognise each other. The coil in the special tile provides the power, which is caught by the antenna in the two-legged bicycle stand. The power transmission operates at a relatively high frequency (in the order of 100 kHz).

• This year, the start-up entrepreneurs received a quarter of a million euros in funding from the investment foundation Uniiq. The goal is to accelerate the product's market uptake. Eventually, the dream is to realise a Tiler network, allowing people to charge their e-bikes wirelessly.

The technology is known as Contactless Power Transfer and was developed by researchers Pavol Bauer and Peter van Duijsen from the faculty of Electrical Engineering, Mathematics and Computer Science at Delft University of Technology. Almost ten years ago, as a PhD student, Van Bauer experimented in the lab with a rechargeable toy car above an electrical coil. Five years later, Bauer presented a charging station for electric bikes at the campus. Power was provided by solar panels, and there was the possibility of charging without a power plug.

## ROTTERDAM AHOY

However, how do you bring this technology on the market if no one is yet in the possession of a bike that is suitable for it? According to good Rotterdam custom, Christiaan van Nispen and Olivier Coops opt for the 'testing rather than talking' approach. They are targeting companies that are stimulating their employees to cycle more. Such bikes are fitted with a special stand, so they can be charged above the Tiler-tile when the bike is parked during the working day. Their first customer is Rotterdam Ahoy. Later this year, Tiler hopes to produce the first fifteen charging tiles and install them for pilot studies. Their target market will initially remain shared bikes at companies. ■



# ‘Always embrace a new challenge’

Vittorio Maio is an alumnus of TU Delft, enthusiastic Mathematical Engineer with a passion for finance. His driving values are teamwork and commitment. Born in Rome he now feels at home in Amsterdam, working as a senior consultant at Deloitte. He claims: ‘I believe in a working environment governed by enthusiasm, passion and empathy.’



## WHAT DID YOU STUDY?

‘After I finished High School, I thought I wanted to become a doctor, but then the big passion I have always had for maths prevailed. Eventually I chose to study pure maths, at Sapienza Università di Roma. After completing my Bachelor I did my Master of Mathematical Engineering at the Politecnico di Milano, choosing the track of Quantitative Finance. In the last year of my master I

moved to TU Delft as a participant in an Erasmus+ exchange program. During this period I had the chance to attend a class given by Pasquale Cirillo, Associate Professor of Applied Probability and Coordinator of the Financial Engineering Specialization at TU Delft. I approached him for a thesis project and we thought of a collaboration with Deloitte. This way, after the standard 3-step recruiting process, I joined the team of Financial

Risk Management (FRM) at Deloitte Amsterdam. There I wrote my master thesis about credit risk ‘Modelling the Dependence between PD and LGD’. After finishing my thesis and before officially graduating, I got the opportunity to remain in the team as a working student, combining the study with the working experience. I really enjoyed all of this, so after I graduated I immediately started as a consultant.’



# 'At the beginning I was 'just a mathematician', now I became a credit risk expert'

to real life - a feeling I will probably never forget.

At the same time I got the opportunity to join the recruitment team within FRM. In there I have a central role, with focus on recruiting events and guest lectures. It gives me the opportunity to be some sort of entrepreneur. At the moment I am also busy in the organization of a series of Online Financial Risk Masterclass sessions for students, aimed to keep creating a bridge between our work and university.'

## HOW DO YOU FOCUS?

'I've always enjoyed being outside, to grab my headphones, a book and go to study for an exam at the park rather than inside. For example now I'm studying for the GARP FRM exam. I enjoy the sun and that is something I do recognise in most of Dutch people as well. Whenever there is a bit of sun, literally everyone goes outside. Back in Italy I was so used to good weather, that I hardly noticed it.'

## WHAT ARE YOUR GOALS?

'I definitely want to stay here and help my team growing, not only in numbers but also in knowledge. That is why I combine my role as a credit risk expert with recruitment and trainings facilitation. On the long term my goal would be to become a facilitator in different fields, which can be more numerical and financial risk management related, but also from a soft skills point of view. Training people in understanding how to make an impact on society, how to make that change. That's my ultimate goal, to really become a coach to advance the career of others.'

## TELL US ABOUT YOUR WORK

'I participated in a lot of different projects since joining Deloitte in January 2018. I have developed credit risk models for several large banks in the Netherlands. During these projects, I realized that I reached a point when I was not only learning, but also sharing my experience with other colleagues and clients - that is definitely an extra motivation which helped me a lot! I have also been involved in the development of various Artificial Intelligence and Machine Learning tools, which can be used to enhance the work of a Financial Risk Manager. My favourite one is by far RegMiner: an innovative regulatory tool which makes use of AI to supervise the enormous amount of financial laws and regulations.

In all these occasions, I first really understood the difference between only learning the theory and effectively applying the methodology I studied

HOW ABOUT THE NETHERLANDS....  
'I LIVE IN DE PIJP IN AMSTERDAM, A GREAT AND EXTREMELY INTERNATIONAL CITY, BUT AT THE SAME TIME AS DUTCH AS CAN BE. THE FACT THAT I CAN EASILY REACH ANY POINT BY BIKE OR PUBLIC TRANSPORT, IS SOMETHING THAT I REALLY ENJOY. MY DAD USED TO BE A PROFESSIONAL CYCLIST AND ALWAYS TRIED TO MAKE ME BIKE A BIT MORE. BUT TO BE HONEST, IN ITALY I WASN'T BIKING AS MUCH AS I DO HERE. MY FAVOURITE NEIGHBOURHOOD IN AMSTERDAM IS EXACTLY WHERE I LIVE, BUT I'M ALWAYS UP TO DISCOVER NEW LOCAL PLACES TOGETHER WITH A NICE COMMUNITY OF FRIENDS, ALSO REALLY INTERNATIONAL. WE ARE A VERY CLOSE GROUP AND WE LIKE TO HAVE DINNER TOGETHER: ONE NIGHT WE MIGHT HAVE A SPANISH DINNER, THE OTHER NIGHT ITALIAN OR DUTCH. I'M A BIG FAN OF THE STAMPPOT.'



# FEA TUR ED!

TIP

## A career in science

A tenure track offers the possibility of building a career within the world of scientific research. It is usually preceded by a PhD or postdoc. The four technical universities all offer such a tenure track under the 4TU flag. During your tenure track, you experience whether a scientific career within the university is something for you, and whether you will eventually be able to grow into a university teacher or professor.

FYI

## What's in a name?

4TU represents the cooperation between four technical universities in Delft, Eindhoven, Enschede, and Wageningen. By combining, strengthening, and utilising knowledge and creativity to its full potential in the technology sector, the federation contributes to solving current societal challenges. It aims to deliver well-educated engineers and technological designers; conduct internationally important and socially relevant research; and stimulate cooperation between academic institutions and industry. By cooperating in the fields of education, research, and knowledge valorisation, 4TU is a conversation partner at both the national and the European level for governmental, political, and stakeholder organisations.



UNIVERSITY OF TWENTE.



4TU.

4TU

4TU is a federation of four Dutch technical universities. There are five shared Master of Science programmes, as well as 20 post-Master education programmes, all of which have been combined into the 4TU School for Technological Design, Stan Ackermans Institute. Research activities are categorised by theme in the 4TU research centres. In this way, they connect and strengthen the four technical universities, and the education and research they offer.

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FACT

THE NUMBER OF STUDENTS OBTAINING A MASTER'S DEGREE AT THE FOUR TECHNICAL UNIVERSITIES HAS INCREASED ENORMOUSLY. IN 2008, 4,829 MASTER'S DEGREES WERE AWARDED, WHILST IN 2018, THE TOTAL REACHED 8,448—AN INCREASE OF 84%.



#### QUOTE

‘It doesn’t seem big what we do here, but it is. It is unique to make an investment into so many tenure trackers in one go. We call this seed money. These researchers will ultimately start their own projects and attract their own grants.’



MARJOLEIN DOHMEN-JANSSEN IS MANAGING DIRECTOR AT 4TU CENTRE RESILIENCE ENGINEERING AND IS INVOLVED IN THE DESIRE RESEARCH PROGRAMME

FACT  
AN INCREASING NUMBER OF WOMEN ARE AMONGST THOSE OBTAINING A MASTER'S DEGREE. THE PERIOD 2008-2018 SAW AN INCREASE OF 109%, COMPARED TO AN INCREASE OF 71% IN MALE GRADUATES.

#### GOOD TO KNOW

## Research

Towards the end of last year, 4TU launched five research programmes. A total of €22 million was made available for this purpose. During the coming five years, about 22 tenure trackers and 29 postdocs will be working on five new research programmes, namely: Plantenna; Precision Medicine; Pride & Prejudice; DeSIRE; and Soft Robotics. With these programmes, 4TU is making an important investment in long-term research.



ADVERTORIAL



## A digital map of each plant

Which plant flourishes best? Of course, you could assess this with the naked eye. However, with digital phenotyping you can perform much more precise measurements on plants. This is important for breeders, who like to know which varieties are larger, more beautiful, tastier, or more resistant to pests and diseases. KeyGene in Wageningen has many years of experience in the field of digital phenotyping.

'Whilst the gut feeling of the breeder still remains very important, with digital phenotyping, we can complement this knowledge with a wealth of objective data', says Marco van Schriek, who has dedicated himself to this technique for the past eight years. KeyGene has worked for four large breeders of vegetable seeds 'Breeders often have a wealth of experience. With an experienced eye, they are able to see even the smallest differences between plants. Yet they fly between test populations, for example in Spain or in Morocco and thus, they witness only a particular moment in time. For example, it may have just rained, so they still don't know how a plant might cope if exposed to heat stress for several days', Van Schriek explains.

More precise monitoring offers a solution. At KeyGene, plants are positioned on a conveyer belt, upon which they are led through an imaging room. 'There they are photographed each day in exactly the same manner. From the side, from above, but we also take footage of the roots through a transparent pot. From these photographs, computer analysis maps over a hundred different

characteristics of each plant every day. For example, you can see which plant recovers quickest after a period of drought, or which one is a shade darker green. It is almost impossible to observe these differences with the naked eye.'

In addition to companies that breed vegetables, KeyGene also caters for breeders who are involved in the production of rice, soy, corn, and the flower sector. In total, the company has experience in the digital phenotyping of 35 plant species. KeyGene also helps breeders by analysing the DNA of plants in order to enhance their characteristics, such as taste, drought resistance, resistance against diseases and pests, and a longer shelf life in new breeds. 'One of our customers brought a type of salad to the market that is both tasty and resistant towards aphids. We have also helped to extend the shelf life of cucumbers. For the more complicated processes, such as drought resistance, we now see the first effects of digital phenotyping and we are expecting a lot more of this.' Working at KeyGene, at the crossroads of biology, technology, and

programming, offers Van Schriek an enormous challenge. 'The work is very varied, and amongst others, you help to enlarge harvests or breed healthier crops. That is the beauty of this profession.'



RESEARCH COMPANY KEYGENE IN WAGENINGEN OFFERS PLENTY OF OPPORTUNITIES FOR GRADUATES FROM TECHNICAL UNIVERSITIES. YOU CAN THINK OF AI AND DEEP LEARNING USING BIG DATA, FOR EXAMPLE FOR THE DEVELOPMENT AND USE OF GENETIC AND PHENOTYPIC KNOWLEDGE FOR PLANT BREEDING COMPANIES ALL OVER THE WORLD. THE COMPANY IS ALSO CONDUCTING RESEARCH INTO THE USE OF HIGH TECH FOR INNOVATIVE CROP BREEDING, FOR EXAMPLE IN THE DEVELOPMENT OF APPLICABLE ADVANCED PHENOTYPING TECHNIQUES USING MULTISPECTRAL CAMERAS.



JASON VAN EUNEN

ALUMNUS UT

CO-FOUNDER PLAYGROUNDVR

ENTREPRENEUR

# 'I see a slide, I want to go there!'

Two UT alumni and a student of Creative Technology developed a virtual playground for sick children. The virtual-reality goggles are used for the first time at the Wilhelmina Children's Hospital in Utrecht. 'The children believe they are in a completely different world.'

It is a busy day at the Intensive Care department of the Wilhelmina Children's Hospital. Nurses are rushing to and fro, families sit with the young patients. In one of the big hospital beds lies a young boy of around four years old. He looks up when the VR goggles are brought into the room. 'Would you like to try them out?' The boy nods his head excitedly. The large goggles are strapped

onto his head. While his nurse busies herself with injections and tubes, the young patient leaves for a virtual world. 'What do you see?' A brief silence. 'I see a ball, a bridge and a river. And I see a slide. I want to go there!'

## PLAYGROUND

Jason van Eunen watches with a satisfied look on his face. Together with Freek Teunen, Koen Vogel and Emiel

Peperkamp, he came up with and developed PlaygroundVR, a virtual playground for sick children. Since November, it is being tested in the Wilhelmina Children's Hospital in Utrecht. 'What we offer is a playground for children who cannot go outside themselves. It is a virtual world in which they can play together and forget about their illness and their treatment for a while.'

Van Eunen explains they had

their idea some four years ago. 'We all love virtual reality. We asked ourselves where VR can have the biggest impact. Anywhere you don't really want to be, right? Imagine what a child stuck in a hospital bed feels like. They want to play outside, and PlaygroundVR allows them to experience this without even having to get up.' 'We developed this virtual world ourselves from scratch, both the design and the code. We try to make everything as accessible as possible in our world. The game is easy to control. There is no starting point or game-over screen. After all, a real playground doesn't have that either.' ■



# ‘It’s 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. His working domain spans all processes that encompass the activities to define, develop and produce a new or improved product for his customers.

NTS is a strongly vertically integrated first tier supplier with a global presence. It is a one stop shop in development and engineering, component manufacturing and assembly for machine builders in the global high complexity, low volume and high mix markets. ‘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, which factually requires the same competences.’

NTS subsequently take 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 experience that are required to develop a new system from scratch with industrial quality.



Outsourcing system architecture - instead of doing it yourself - is all about achieving more with less, for example by saving on lead time or costs to growing into an organization that actually produces systems. The actual benefits however, states Rens, vary and are dependent on the role NTS is asked to play. ‘In my job you have to be able to understand the complex physics and designs of the products of customers, discuss requirements and interfaces and come up with sane solutions and alternatives. Simultaneously there is an importance in contributing to the balance between risk profiles - the uncertainty on technical feasibility and workmanship - time to market and commercial agreements. Next to that my work for example entails proposing

system architecture that enables the integration of technological, market and business strategy of customers, and engineering requirements for sub systems and interfaces to the customer’s core technology. At the same time it is not all about technology, but also about organizing an optimal process. That means working closely together with customers, our project and sales managers, and playing my part in our multidisciplinary new product introduction teams into series production is key. And all those dimensions makes working at NTS very rewarding for me, especially when I see an idea being transformed in concrete and successful product and customers flourish.’

NTS SPECIALIZES IN THE DEVELOPMENT, MANUFACTURING, AND ASSEMBLY OF (OPTO-)MECHATRONIC SYSTEMS, MECHANICAL MODULES, AND CRITICAL COMPONENTS. OUR EXPERTISE? PRECISION AND MANEUVERABILITY. OUR (OPTO-)MECHATRONIC SYSTEMS AND MECHANICAL MODULES CONTRIBUTE TO FUTURE TECHNOLOGIES. FIND OUT MORE AND ACCELERATE YOUR FUTURE.

[NTS-GROUP.NL/CAREER](https://www.nts-group.nl/career)

# Making the digital world more accessible

‘At my high school, digital literacy wasn’t on the agenda at all’, says Glenn Bergmans, founder of CodeSkillz. With his company, he wants to prepare the next generation of high-school students. To enable this vision, he developed a unique teaching method.

- Glenn Bergmans graduated from the faculty of Electrical Engineering at the Eindhoven University of Technology. Both himself and his employees at CodeSkillz, all of whom studied at TU/e, he explains, are self-taught in the field of programming, although ‘that is definitely not true for everyone’, he thinks. ‘Universities often expect students to possess certain knowledge and skills. This is why we want to prepare the next generation for the future.’

## FOUR PILLARS

Addressing the question of what high-school students will learn thanks to CodeSkillz, Bergmans explains: ‘We have developed a complete teaching method that supports teachers. The method consists of four pillars: basic digital skills, media savviness, computational thinking, and information skills. With media savviness, you may think of how to keep



your data safe, or how to recognise fake news. Basic digital skills include teaching students how to write a decent email, or how to make a good presentation. Computational thinking is about thinking logically and solving problems. We also provide students with a basic knowledge of programming. Information skills include looking for references, determining the reliability of sources, and preventing plagiarism.’ Bergmans admits that it was difficult to find a suitable investor. ‘We noticed that companies in the Brainport region around Eindhoven primarily finance high-tech inventions. The fact that we were able to get a favourable loan from Simac Techniek was very welcome; it enabled us to make a start. Towards the end of 2019, three experienced figures in the business—Erwin van den Bosch, Henk Cloudt, and Hen Snackers—invested a €100,000 in our company. This enabled us to move forward. Moreover, they are very critical of our plans, and we are learning a lot from them.’

## PROMISING REACTIONS

CodeSkillz developed the first two chapters of the online teaching method based on input provided by both teachers and students. They also tested the method in practice at five schools in the region. ‘We received many enthusiastic reactions.’ At the beginning of this year, CodeSkillz entered the market with their first finished, one-year teaching method. Four hundred students are following the method, and the reactions they have received thus far are promising. At the moment, the coronavirus pandemic is making contact with the high schools a little difficult, but according to Bergmans, it also shows just how important good digital skills are. ▣

## ‘Done with learning? Certainly not at TNO’

Nora Fahrenfort is a system engineer at the Quantum Technology department of TNO. There, she helps to make quantum technology usable for the daily applications of the future. Wessel van der Deijl is junior innovator wind energy at the Energy Transition. He made a conscious choice in opting for the variety of projects at the company.

‘The underlying goal of our department is to reduce the cost of wind energy’, says Van der Deijl. ‘In the beginning we focused mainly on the design of the turbine itself, both aerodynamically and structurally. Now that the designs have steadily improved, we are also looking for benefits in the prerequisites, such as the operational aspect of wind turbines and their maintenance. The main question is then: how can we design future offshore wind farms efficiently? And in addition: how can we get maintenance teams out to them as efficiently as possible? These are important questions, because the sea is a demanding environment. Wind farms need ten to twelve maintenance visits each year, so there’s a lot to gain if you are smart. To this end, we are also investigating the role robotics can play in creating even more efficiency. We have developed a lot of our own

software. This helps us with our own research, but we also sell the software to industry.’

Van der Deijl studied aerospace engineering in Delft. ‘After that I did a master’s degree in aerodynamics, specifically in the field of wind energy. The work at TNO is extremely varied, but I made a conscious choice to do this. In the past year I have had the opportunity to try many different things: not only research, but also writing proposals and consulting with clients. The great thing about TNO is that you can go in any direction. For myself, I can well imagine staying happy as a researcher. But who knows, maybe in a few years, I’d like to be more involved with clients. The good thing is that at TNO you can do that.

TNO does so much! If something needs to be investigated in the Netherlands,

TNO does it. That’s why we’re in the news so much. I see the power of TNO in connecting. The organisation is very good at bringing people and research together. It really feels like we’re in the middle of that triangle between university, business and government. Moreover, TNO offers a very relaxed working environment, with pleasant working conditions. You have a lot of freedom and are allowed to organise a lot of your work yourself, although that also requires responsibility. It’s not always easy, but it’s more fun in the end.’

‘I have had the opportunity to try many different things’



Fahrenfort: 'Quantum technology is in its infancy, but it's the technology of the future. Our department's task is to bring this technology to a higher level to make it suitable for use in the business community. In order to achieve this, we do a lot of things together within QuTech, a joint venture of TNO and TU Delft.' A team is working with KPN on the creation of a quantum internet between Delft, the Hague, Leiden and Amsterdam. 'I myself am a member of the Quantum Inspire team. We're building a demo version of a quantum computer, which means working with technology developed at the university – from the chip to the control equipment. We're bringing these components together to create a real, working quantum computer. I contribute to five sub-projects, one of which I'm the lead system engineer of. In this project, we're developing a super-stable magnet that will allow other researchers to make reliable measurements of quantum mechanical effects.'

Why did I definitely want to work here? Come on, TNO is great, isn't it? I see it every time I read something in the paper that makes me think: hey, someone should figure that out. I then read a few lines later: TNO has researched it! If I were to do my job purely to make money, I wouldn't

derive much enthusiasm from it. TNO wants to make society better and help small and medium-sized enterprises in the Netherlands move forward. And although the practical usefulness of quantum technology is still far in the future, developing the societal value of the technology is the approach of my work here.'

TNO is a knowledge institute which appreciates people and stimulates them to acquire more knowledge. You can develop yourself in the direction of your choice and you'll get a lot of help with that. For the first two years, they plan personal development courses for you, and that really is a wide range of useful courses. Whenever I've wanted to learn more about technology, I've never been refused a single course. They sometimes say: after university, you're done with learning. That's certainly not the case at TNO. All projects are set up in such a way that you learn something from them. It's also very easy to change departments. You then do something in the same line of expertise but on a completely different theme.

That's another way to learn. It's what makes TNO so strong: there is so much expertise in so many areas. If there's a question, there's always someone who has the answer.'

FAHRENFORT STUDIED APPLIED PHYSICS AT TU DELFT WITH A MASTER'S DEGREE THAT GARNERED A CONSIDERABLE AMOUNT OF PUBLICITY. 'THE RESULT OF MY MASTER'S RESEARCH WAS THE SMALLEST COMPUTER MEMORY EVER MADE. THIS WAS ATOMIC MEMORY, ALTHOUGH WE HAD ALREADY USED QUANTUM TECHNOLOGY FOR ITS OPERATION. AFTER ALL, QUANTUM MECHANICAL EFFECTS ARE ALSO PRESENT AT THE ATOMIC LEVEL.'



# FEATURED!

## Stay connected with TU/e

As a TU/e graduate, you are part of a worldwide network consisting of nearly 45,000 TU/e engineers. Do you want to benefit from the technological expertise, networks and facilities of the TU/e? Would you like to stay informed about the latest news, receive our magazine Slash and much more? Get the most out of your connection with TU/e and register in Alumninet ([www.alumninet.tue.nl](http://www.alumninet.tue.nl)) and/or participate in activities of the Young Alumni Network ([www.tue.nl/yan](http://www.tue.nl/yan)). You can continue to use the services of the TU/e Career Academy until 6 months after graduation to find your way to the labor market. So, stay connected with other alumni in our worldwide TU/e alumni community and with your alma mater. [www.tue.nl/alumni](http://www.tue.nl/alumni) | [alumninet@tue.nl](mailto:alumninet@tue.nl)

FYI

## Welcome to your global 4TU alumni network

A strong, tight and worldwide network of engineers with different backgrounds and expertise. This network, consisting of alumni from the 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.

As an alumnus/alumna you can benefit from various facilities your alma mater offers you, which can bring you further in your career. Make good use of it and stay in touch with your alma mater.



STAY IN TOUCH!  
 JOIN 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. YOU CAN ALSO FOLLOW INTERESTING ONLINE COURSES WITH A DISCOUNT AND GET FREE ACCESS TO SCIENTIFIC RESEARCH AT THE LIBRARY. WANT TO KNOW MORE? JOIN THE ALUMNI PORTAL [WWW.TUDELFTFORLIFE.NL](http://WWW.TUDELFTFORLIFE.NL), VISIT [ALUMNI.TUDELFT.NL/LIFELONG-LEARNING](http://ALUMNI.TUDELFT.NL/LIFELONG-LEARNING) OR SEND US AN EMAIL: [HYPERLINK "MAILTO:ALUMNIRELATIONS@TUDELFT.NL"](mailto:HYPERLINK_MAILTO:ALUMNIRELATIONS@TUDELFT.NL) [ALUMNIRELATIONS@TUDELFT.NL](mailto:ALUMNIRELATIONS@TUDELFT.NL).

GOOD TO KNOW

## UT Young Alumni Network

Young alumni face different challenges than someone who's career is further along or even ended. Therefore, young alumni under the age of 35 can join the UT Young Alumni Network, which organises readings, workshops, networking drinks and other activities. The focus of these activities are personal and professional development, networking and, of course, having fun. The UT Young Alumni Network: for and by young alumni.

Join us! [utwente.nl/yan](http://utwente.nl/yan) | [alumni@utwente.nl](mailto:alumni@utwente.nl)



QUOTE

‘Being part of a worldwide alumni network helps me to connect to a network of (new) people and experiences. This can lead to new opportunities and beneficial and valuable relationships which will foster my own (career) development.



THIJS VAN STIPHOUT  
APPLIED PHYSICS, 2016, TU/E

TIP

# Join WUR Connect

With a Wageningen University degree you are part of a worldwide network of over 54.000 alumni. Your network is much bigger than you think. Join WUR Connect ([www.wurconnect.nl](http://www.wurconnect.nl)) to come into contact with other alumni and to stay informed about our activities. We’re also starting a program especially for our young alumni, so stay tuned for the latest developments. Send us your current contact information at [alumni@wur.nl](mailto:alumni@wur.nl) or visit [wur.eu/alumni](http://wur.eu/alumni) to stay connected!

FACT  
PLEASE REMEMBER THAT ALL ALUMNI ARE 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. JOIN YOUR GLOBAL 4TU ALUMNI NETWORK!

## ‘Veel aandacht voor kwaliteit bij het CBS’

Het CBS brengt jaarlijks cijfers, nieuwsberichten en rapporten naar buiten. Over uiteenlopende onderwerpen. Van financiën, verkeer en vervoer tot welzijn en gezondheid. Ook wetenschappelijke artikelen zijn afkomstig van het CBS. Hoe is het om te werken bij deze onderzoeksinstelling? Fannie Cobben en Jacqueline van Beuningen vertellen er meer over.



Blijven leren, dat is de kern van de carrière van Fannie Cobben. In 2004 startte zij als promovenda bij het CBS en sinds kort is zij leidinggevende van een team onderzoekers. ‘Mezelf blijven ontwikkelen, nieuwe kennis en vaardigheden opdoen: dáár word ik enthousiast van. Binnen het CBS zijn daar veel mogelijkheden voor.’ Van onderzoeker in de survey-methodologie groeide Cobben door naar achtereenvolgens project-leider, managementtrainee, manager

van een team en nu afdelingshoofd. ‘Inhoudelijke kennis is belangrijk voor me. Als projectleider merkte ik dat het me goed af gaat om inhoudelijke onderwerpen met elkaar te verbinden en om mensen met elkaar in contact te brengen.’ Haar eigen leidinggevende werd een belangrijke inspiratiebron voor Cobben. ‘Hij had een goede balans tussen inhoud en mensgericht zijn.’

Als leidinggevende van het team arbeid en lonen, dat statistieken over de arbeidsmarkt maakt, heeft Cobben veel impact. ‘Ik zorg dat ik goed op de hoogte ben van de onderwerpen in mijn team, zoals CAO’s, ziekteverzuim, vacatures of de Polis-administratie. Dat is belangrijk om inhoudelijk te kunnen sparren, intern en extern, bijvoorbeeld over de loonbelastingketen met de Belastingdienst en het UWV. Inhoudelijk houd ik me vooral bezig met het totaal plaatje. Hoe meten we

dat de arbeidsmarkt verandert en wat is de beste manier om dat te doen? Daarnaast ondersteun ik mijn team bij calamiteiten, prioritering en keuzes maken. Ook houd ik me bezig met personele taken zoals coaching van medewerkers.’ Cobben is trots op wat het CBS doet. ‘Er is veel aandacht voor kwaliteit en we vinden goed de weg naar het maatschappelijke debat. Dat is belangrijk voor me.’

Ook voor Jacqueline van Beuningen is maatschappelijke relevantie dé reden om bij het CBS te werken. Na een loopbaan als promovenda en postdoctoraal onderzoeker aan de Universiteit Maastricht maakte ze in 2010 de overstap. ‘De onderwerpen en werkzaamheden bij het CBS zijn divers en de onderzoeksresultaten direct relevant voor de buitenwereld. Daar zocht ik naar.’ Van Beuningen is - ook na tien jaar - nog altijd enthousiast als





cijfers waaraan zij meewerkte in de Tweede Kamer worden besproken of in de media verschijnen. 'De Monitor Brede Welvaart bijvoorbeeld is belangrijk voor Verantwoordingsdag. En toen het CBS de cijfers presenteerde over de toename van het aantal daklozen had dat veel impact in de media. Kranten legden relaties met de ontwikkelingen op de woningmarkt; journaals interviewden mensen die op straat woonden. En de Raad voor Volksgezondheid en Samenleving (RVS) presenteerde afgelopen april een advies over dakloosheid aan staatssecretaris Blokhuis. Dit advies werd naar aanleiding van de cijfers over daklozen van het CBS door het ministerie van VWS aangevraagd.'

Van Beuningen houdt van afwisseling in haar werk en nam al aan verschillende projecten en onderzoeken deel. 'Ik heb veel vrijheid, bepaal zelf hoe ik mijn werk indeel en uitvoer. Ook op de inhoud heb ik invloed: voor goede ideeën is altijd ruimte. Als je aangeeft welke richting je op wilt met je loopbaan zijn hier veel mogelijkheden. Zo ben ik bij een aantal innovatieprojecten

betrokken geraakt.' Ze houdt zich momenteel onder andere bezig met het ontwikkelen van een maat voor welzijnsongelijkheid. 'Voor inkomensongelijkheid bestaat al een coëfficiënt: de Gini. Maar ook voor welzijn wil je weten hoe groot de ongelijkheid tussen mensen is en of die verandert. Overheden kunnen zo'n coëfficiënt gebruiken voor beleid.'

Bij het CBS werken mensen met uiteenlopende achtergronden: van psychologen tot wiskundigen en data scientists. Van Beuningen heeft veel aan haar studie communicatiewetenschappen, die ze volgde aan de Universiteit Twente, waar ze onder andere leerde vragenlijsten te ontwikkelen. Op het CBS werkt ze veel samen met andere disciplines, bijvoorbeeld op het gebied van big data projecten. 'We zijn bezig te onderzoeken of we met machine learning op basis van registerdata kunnen inschatten wat de kans is dat mensen binnen twee jaar gaan verhuizen. Dat is belangrijke informatie voor het Rijk om beleid te maken over de woningmarkt. Ook doen we in een multidisciplinair team onderzoek naar het gebruik van

overheidswebsites. Digitale inclusie is voor de overheid een actueel thema. Wij kijken of we daar op een innovatieve manier onderzoek naar kunnen doen. Bij het CBS zijn genoeg kundige en enthousiaste collega's die met je mee willen denken en samen willen werken.'

Wil je meer weten over werken bij het CBS? Kijk dan op [www.werkenbijhetcbs.nl](http://www.werkenbijhetcbs.nl)



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FYI

## TU/e career support

MyFuture is the platform where all the career parties at Eindhoven University of Technology (TU/e) share their career activities. All events that might help you to orient and develop yourself at the job market, are found on the MyFuture website.

The career parties offer close contact with companies. Visit a career expo, improve your soft-skills and be assisted in arranging an internship or side job. Additionally, some of these parties organise symposia, inhouse-days and cv-checks. Some associations from the TU/e offer career support. Here you can find help checking your CV or motivation letter, and join many skill related workshops.

<https://www.tue.nl/en/our-university/about-the-university/myfuture/>

## How to develop a COVID-19 vaccine?

Wageningen virologists and process engineers are working on a vaccine against the coronavirus. The first step have been taken. Virologist Gorben Pijlman who obtained his MSc in Biotechnology and Bioprocess Engineering at Wageningen University in 1999 has, together with Linda van Oosten, made the first adapted baculovirus with which they can simulate the spikes of the coronavirus in insect cells. Bioprocess Engineering is going to culture the spikes in a small bioreactor. If that works, these proteins will then be refined by the Biochemistry chair group. The spikes of the coronavirus are very large, complex proteins with a lot of saccharides on them. 'The insect cells can simulate this protein,' says Pijlman, 'but we still have to see how many of them they can make.'

Pijlman is also continuing to work on optimizing the function of the baculovirus in insect cells, to obtain stable proteins that don't change shape. That stability is important for a good immune response, Pijlman thinks.

TIP

## CV clinic

UT Career Services provide workshops and tailored advice. For example, they have CV clinics. Currently, because of the current corona pandemic, the service is only available online. You will receive tips and advice regarding your CV. You can apply via the website. We also offer a two day workshop salary negotiation given by professor Aldis Sigurdardotti, assistant professor at the BMS faculty of the UT.



GOOD TO KNOW

# Strong increase in proportion of women scientists

In the space of ten months, TU/e has succeeded in recruiting 35 new women scientists under its Irène Curie Fellowship program. Most of these appointees are assistant professors and three-quarters come from abroad. With its eleven fellows, the most successful department has been that of Industrial Engineering & Innovation Sciences. Women now account for a quarter of TU/e's permanent academic staff. In four years' time that proportion will, it is hoped, have risen to 30 percent.



FACT  
WHICH ARE YOUR CAREER GOALS AND HOW CAN YOU TAKE A NEXT STEP IN YOUR CAREER? THIS EXTENSIVE TOOLKIT OFFERS HELP.



QUOTE

‘Universities around the world should issue uniform diplomas for better and quicker integration of refugees in society’



MARK ROOSJEN, GRADUATED WITH A PHD IN BIOCHEMISTRY FOR HIS STUDY OF PROTEINS INVOLVED IN AUXIN SIGNALING IN PLANTS

FACT  
TOP 10 EMPLOYERS WHERE TU DELFT ALUMNI WORK: SHELL (906), ASML (818), RIJKSWATERSTAAT (687), TNO (660), ROYAL HASKONING DHV (606), PHILIPS (476), KLM (285), ARCADIS (278), ING (255), ABN AMRO (227).

# Technisch Traineeship ProRail

Annemiek en Mark volgen een technisch traineeship bij ProRail. En zo'n traineeship biedt veel mogelijkheden, keuzevrijheid en ruimte voor je eigen inbreng. 'Werken bij ProRail betekent dat je een plek krijgt in een omgeving waar veel mogelijkheden liggen op het gebied van techniek, maar ook dat je een rol speelt in het maatschappelijk belang.'

Als Aardwetenschapper en geoloog werkt Annemiek op de afdeling Civiele Techniek binnen Assetmanagement. Samen met een aantal systeemspecialisten werkt ze aan het programma Baanlichaam. Het baanlichaam is de ondergrond van het spoor. 'Als we meer of zwaardere treinen willen laten rijden, of de treinen moeten sneller, dan kan het baanlichaam een beperkende factor zijn. Sommige sporen zijn namelijk al meer dan 100 jaar oud. Die zijn niet berekend op twaalf treinen per uur. Mijn programmteam is opgericht om te onderzoeken of het baanlichaam de treinen aankan en welke maatregelen we kunnen nemen als het baanlichaam bijvoorbeeld een risico vormt.'

Mark heeft, met zijn opleiding Industrial Engineering & Management en een logistieke specialisatie op zak, een hele andere rol. Hij werkt op de afdeling Treinbeveiliging, waar hij zich bezighoudt met de beste manier om de ontwikkelde innovaties binnen ProRail te laten landen in de

organisatie. Technisch, maar ook logistiek. 'Ik wilde me graag met allebei bezighouden op een tastbare manier. Het is goed mogelijk dat de dingen waar je je vandaag de dag mee bezig houdt, over een tijdje ook daadwerkelijk kan zien in het spoor of op de stations. Verder is de relatie tussen techniek en management ook vet.'

## OPEN MINDED

Er gaan dagelijks 1.3 miljoen reizigers met de trein en in de toekomst worden dat er alleen maar meer. 'De maatschappelijke impact die ProRail heeft, is dus heel groot. De kans om daaraan bij te dragen, trekt mij aan.' Annemiek kreeg daarnaast ook een goed gevoel van de open en gezellige sfeer tijdens de selectiedag. Ook bij Mark is de sfeer blijven hangen. Hij vindt het leuk dat iedereen zo open minded is en met je meedenkt. 'De collega's zijn heel enthousiast en met vragen kan je overal terecht. Daarnaast heb ik in korte tijd al veel gezien binnen ProRail en aardig wat verantwoordelijkheid gekregen.'

HET TRAINEESHIP: JIJ BEPAALT HET TRAINEESHIP BESTAAT UIT 3 PROJECTEN EN DUURT IN TOTAAL 2 JAAR. JE HEBT VEEL VRIJHEID, WANT JIJ BEPAALT WELKE PROJECTEN JE VOLGT. NAAST DIE PROJECTEN KRIJG JE COACHING EN VOLG JE SAMEN MET JE TRAINEEGROEP VEEL VERSCHILLENDE TRAININGEN. FOCUS LIGT NIET ALLEEN OP JE PROFESSIONELE, MAAR OOK OP JE PERSOONLIJKE ONTWIKKELING.

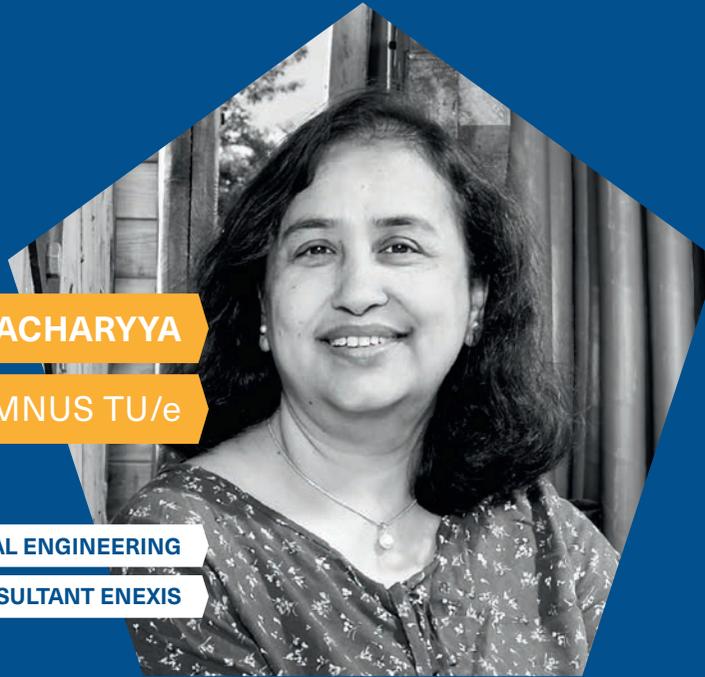


SHARMISTHA BHATTACHARYYA

ALUMNUS TU/e

PHD ELECTRICAL ENGINEERING

SENIOR CONSULTANT ENEXIS



## ‘Female students see me as a role model’

● Sharmistha Bhattacharyya thought that sustainability would become a promising sector in which to work. She chose to follow the master programme Sustainable Energy Technology at TU/e, where she also obtained her PhD in electrical engineering. She now works as a senior consultant with network provider Enexis.

Sharmistha Bhattacharyya came to the Netherlands 21 years ago. Her husband gained employment here at Philips. ‘In India, I had completed a bachelor in electrical engineering from Jadavpur University. Subsequently, in the Netherlands, I worked at Smit Transformers as a software designer, and later at KEMA as a power system analyst.’ Following the long-term vision

set out by the Dutch government and noting trends in academic journals, she formed the impression that sustainability offered a promising, upcoming sector in which to work. Therefore, she decided to follow the master programme Sustainable Energy Technology. ‘In 2006, I officially became the first student to graduate from the programme. Not only did I learn how to put technologies into practice, but also how you can collaborate with others successfully.’ Sharmistha finds it important that society benefits from academic studies. ‘For example, you may think of a well-designed house that limits energy waste, or ways to make people aware of the fact that washing at lower temperatures works just as well.

### POWER QUALITY

Her PhD research concerned power quality – a line of inquiry she continues to pursue: ‘As increasingly, we use more and different electrical equipment, the network has become subject to increased levels of induced noise. Sometimes, equipment starts to behave differently; it can in fact be very sensitive. In this sense, it is important that both the network operator and the user take their responsibilities seriously. This means you have to use qualitatively sound equipment. In addition, it is important that we also have a close look at how our network changes, and what influence equipment such as heat pumps, car chargers, and solar panels have.’

At her current employer Enexis in Eindhoven, as a senior electrical consultant, Sharmistha is responsible for the power quality of the electrical networks of the company. ‘I work together with many other departments, with external network providers, and other companies. I regularly share my knowledge at conferences, and I publish articles in international journals.’ Sharmistha expresses the sincere wish that more women would opt for electrical engineering as their chosen career: ‘Overall, more women should enrol in technical education programmes. People respect me in my role, and female students often see me as a role model.’ ■



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# TRAVELLING

● I cannot say I am a walking travel guide. I cannot tell you which local bakery you have to visit if you are visiting Cambodia and are suddenly gripped by the need for a croissant (like Chris Zegers), nor am I able to reproduce the names of three species of penguin on a uninhabited South American Island (like Floortje Dessing).

As I write, everyone is throwing themselves at their quarantine work. However, as an academic, this is precisely the moment in my life when I am expected to go out into the world in order to qualify for a permanent job. 'Gain experience somewhere else.' Not a short internship or a journey abroad, but by working in a research group abroad for multiple years.

The world is full of people who enjoyed studying so much that they turned it into their career. Yet, they use hollow phrases more reminiscent of the business world, such as: 'Broaden your horizons' and 'Leave the beaten track' in order to 'Gain life experience'. If the academic world ever had a motto, it is to make sure you escape your home university.

For some, this is a lovely prospect. There are people who missed their gap year after finishing high school, who want to relive their Erasmus, or who have become jealous of those camper-driving elderly people from the television programme 'We zijn er bijna' ('We are almost there') from Omroep Max (a Dutch television channel for people above 50). For those of us who have already laid down their roots, however, it is pretty difficult to suddenly have to talk about the weather with a canteen lady from a different university.

I too have answered this call. Completing my bachelor, master, and PhD at Eindhoven University of Technology, I won a scholarship to visit the University of Bergen in Norway for a year. A beautiful city, wonderful colleagues, but also the start of a long-distance relationship, only six months after getting married.

It has become clear to me that a career is not always compatible with family life. However, without my current position in Bergen, it would be virtually impossible to get a permanent contract. This is not something that everyone takes into account: The things you have to give up at the start of a career—the unwritten, secondary employment conditions, if you will.

Floortje Dessing now has a programme in which she, for a change, stays 'at home'. Unfortunately, not everyone has that luxury.

Alain Starke ■

'It has become clear to me that a career is not always compatible with family life'

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**THIJS MATHOT**

**ALUMNUS TU DELFT**

**FOUNDER & CEO BRIGHTER INVESTMENT**

**AEROSPACE ENGINEER**

# From aerospace to helping students

● He's never had any doubts about his choice of aerospace engineering. But after spending a few months at Dutch Space, Thijs Mathot started to wonder: what now? He decided to do a business degree in London and to explore a completely different industry.

His new work took him to Mexico. There, the seed was planted that would ultimately lead to the start of his company Brighter Investment. In Mexico, Mathot met a talented school student who, because of financial reasons, was unable to go to university. Mathot and some colleagues

managed to raise funds for him. It seemed a modest sum compared to the promising future ahead. The issue continued to preoccupy Mathot. 'How can you create value without financial resources? I spotted a business opportunity there.' The alumnus wanted to find out which personality traits are the best predictors of whether a student will be successful and pay back his or her student loan. He put these indicators into a model, added macroeconomic data and came up with a number of scores.

## **CROWDFUNDING**

Mathot decided to pursue the business model further and

spoke to students, lecturers and banks in Africa, Asia and South America. At a university in Ghana, he met Richard Adarkwah and they became business partners. A crowdfunding campaign in 2014 raised the capital needed to start up with 24 selected students.

'A hundred students have now successfully completed the programme and there are 400 still studying', says Mathot. 'Only one has dropped out prematurely, because he got a scholarship and no longer needed a loan.' Mathot can see some areas for improvement, though. 'Only 15% of participants are women. In

poor countries, people give preference to sons who want to study. This is despite the fact that our research shows that daughters often prove to be better students. They have to combine multiple tasks from an early age and are highly motivated.'

The long-term aim of Brighter Investment is for local banks to take over the role. But that is still some way off. Brighter Investment is happy to welcome new investors. ■

**FACT**  
**ANNUAL TURNOVER:**  
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# Producing animal-free egg-whites

The Wageningen start-up, FUMI Ingredients, will produce proteins for vegetarian meat replacers on a large scale. Two venture capitalists invested 500.000 euros in FUMI in the beginning of this year.

People who make hamburgers themselves, know that they need egg-whites as binder. In fact, this egg-whites contain special proteins that make bindings and foam. FUMI can make these proteins from yeast and micro-algae. The start-up wants to deliver these proteins to the food industry in order to make vegan meat.

Suarez developed a novel technique during his PhD to produce food ingredients from microorganisms. He developed a proof of principle and wanted to scale up the process to factory level. Last year, FUMI developed a market validation plan. They plan to send several kilos of proteins to potential customers in the food industry to test the proteins. After receiving feedback from the industry, they plan to move to demonstration scale.

During the Startlife programme, they learned about investment strategies and the IP strategy, because parts of the production process they developed are going to be patented. They also extended their network of potential investors. This resulted in the investment of 500.000 euros.

FUMI has developed a new technique that can produce functional proteins from micro-organisms, including algae and yeast. These proteins can replace chicken-proteins that are being used now to bind the meat in hamburgers. FUMI wants to sell these proteins to the food industry for the production of 'vegan meat'. Two investors, Innovation Industries en Shift Invest, funded the Wageningen start-up in January 2020 with 500.000 euros to start producing these proteins. The founders of FUMI Ingredients, Edgar Suarez and Corjan van den Berg, found each other at the Bioprocess Engineering group in Wageningen. Colombian Suarez did a PhD and Dutchmen Van den Berg was his supervisor. Suarez was developing a technique to produce vegetable proteins for vegan meat. After his graduation, Suarez and Van den Berg decided to develop these proteins in a company.

FUMI needs to compete with other companies who already produce plant-based proteins for the food industry. Some competitors extract the proteins from plant materials, others use genetically modified micro-organisms to produce the proteins. Suarez and Van den Berg claim that their technique is the most sustainable and economical way of producing animal-free egg-whites.

'The potential market is very big', says Van den Berg. 'The global market in egg-whites as a food ingredient is 30 billion dollar annually. We want to concentrate on the vegan meat market in The Netherlands. This growing market in vegetable proteins is worth a few million euros a year. That is feasible.' 'Our technique is the most sustainable and economical way of producing animal-free egg-whites' ■





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LIDEWIJ  
VAN DEN BRINK



ANNA  
ENGELBERTINK



**LIDEWIJ VAN DEN BRINK (34)**  
Business intelligence consultant |  
Master Climate Studies | Wageningen  
University & Research

‘I followed an education with much attention for data analysis, but I never thought I would end up working in ICT. After my studies, I started working as a scientific programmer. However, I missed innovation in my work. At Unica, ICT is very innovative. I can build my own models and use my creativity. As a consultant, I use my brain in a practical manner, solving a problem for a customer. At Unica ICT Solutions, they asked me during my job interview what kind of work I would like to do. The working activities were made to fit me as a person, rather than the other way around. Now, I specialise in subjects that interest me. In the coming years, I will be following

training courses to develop myself further in the field of data science. Unica is a wonderful company for people who have just graduated. You are not fobbed off with standard assignments, you have to think for yourself, and execute your own projects. In addition to the content of the work, the secondary employment conditions are good: a lease car, a decent salary, and a permanent contract. That comes in quite handy, if you want to buy a house.’

**ANNA ENGELBERTINK (28)**  
Office 365 change and adoption  
consultant | Master Business  
Administration | University of Twente  
‘In the past, I always said I didn’t want to follow the same path as the rest of my family and work in the catering industry although I did attend catering college. Yet, I missed a challenge, and decided to study further. This became a master’s degree in business administration with a speciality in entrepreneurship, innovation, and strategy at the UT. I did not take the step towards ICT consciously. After graduating, I still did not know which role best suited me. A traineeship raised my interest in ICT. Already after the second conversation, Unica ICT Solutions called me, whilst I was still on my bike cycling back to the station. They hired me as an adoption consultant. There was a click immediately. The

friendly, down-to-earth, pragmatic culture at Unica ICT Solutions immediately spoke to me. My experience with minor change management and hospitality come in very handy with this job. It is all about customer service and taking the client along in changes. You get the opportunity to learn about numerous companies and learn a lot in a short period of time – interesting for someone who has just graduated. One also has a lot of freedom to carry out one’s own projects and receive the necessary coaching and training. It is hard work, but rewarding, both in terms of learning and salary.’

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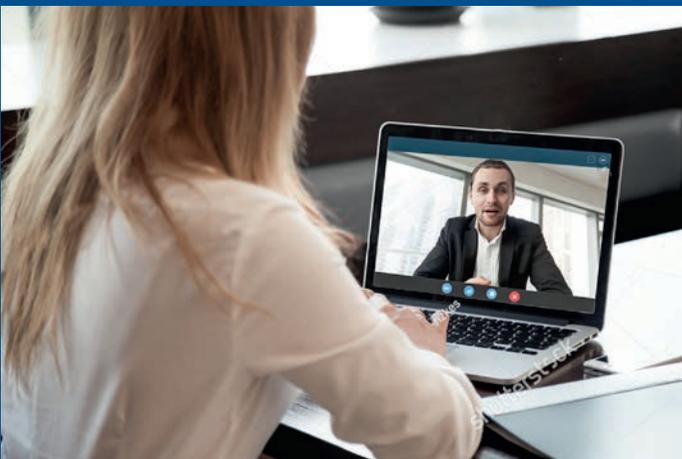
Online job interviews have been studied for years, but now of course, they get an extra attention. Tanya Bondarouk, Professor Human Resource Management at the University of Twente, provides you with some practical tips and tricks for job applications.

# Practical tips and tricks for online applications

- Preparation for the online job interview becomes crucially important, maybe it will take even more effort than a “normal” interview, says Bondarouk. ‘If you are ill prepared, you are definitely in a disadvantaged position. Remember that it is an “inter-view”, in other words: an invitation for an inter-views exchange. Just because it is a video-enabled conversation, it doesn't mean it can go easy on appearance.’

Whatever trends for work clothes and appearances are, it is very wise to carefully choose of attire for a video-based job interview. Some recruiters say, “It might seem strange to wear your shoes during a video interview, but it has an important psychological effect on you.” Also, solid colors will help, as stripes and complex patterns can look awful on video. The main differences in an online job interview are as follow:

**ALL EYES ON YOU** Candidates need to prepare the environment. Eliminate Distractions. Close the door and windows in your room. Shut off the TV and music somewhere further down the hall. Silence your cell phone and all pop-ups.



**FIND A NEUTRAL BACKGROUND** Professionals recommend more than any other tip, to pay careful attention to the background. A bedroom with a sloppy bed, a home office full of clutter, a kitchen table with steaming pans... all of these connote information about you to the committee members/ interviewers, none of it good. It's not only unprofessional, but it also distracts the interviewer, who'll be busy analyzing your dirty laundry instead of listening to what you have to say.

**CHOOSE A SMALL CHAIR** Slouching on a couch or in a big armchair will make you look less polished. And take care that this chair doesn't creak when you move.

Take care of light: Getting perfect lighting for video can be very difficult in a home environment, but ideally: use natural light where possible; get plenty of light overall so it doesn't look like you're cowering in the dark; position two lights, if possible, at a diagonal in front of you, one a bit to your right, and one a bit to your left. Table lamps work fine; but avoid fluorescent bulbs or other "cool" light sources.

Prioritize the camera, not the screen: This tip may sound counterintuitive, but it's most important that the interviewer see you clearly, not the other way around. That means prioritizing the device with the best camera in your possession, not the best display.

**AND FINALLY - KEEP YOUR EYES FORWARD** This takes some practice and feels unnatural, but during your interview you should look at the camera as much as possible, not the picture of the other person on the screen. Looking at the camera is as close as you can get to making eye contact with the interviewer, while looking at the screen will appear to the other side like you're staring off into space. The good news is that, on a small phone screen, this effect is minimized.

**CONSIDER TO WEAR SOME EARBUDS** It's great that the interviewer can see you clearly, but if she can't hear you, you're sunk.

**MAKE EXTRA NOTES** Remember that the interviewer can't see what's not on camera, so use your interview space. Stick a Post-It Note cheat sheet with notes, questions, or needed inspiration directly to the screen or to the wall behind your camera.

And, as for the face to face interview: job seekers need to be ready to answer trivial questions. See the next page for some examples. ▶



TANYA BONDAROUK

#### PREPARATION IN ADVANCE IN 4 STEPS

1. **ASK IN ADVANCE ALL THE DETAILS ABOUT THE FORMAT. WHAT FORMAT WILL THEY BE USING? HOW LONG WILL THE INTERVIEW BE? WHAT ONLINE SERVICE ARE THEY USING? HOW MANY PEOPLE WILL BE THERE INTERVIEWING YOU? DON'T EXPECT THE INTERVIEWER TO SHARE MUCH, SO ASK AND CALL BACK A SECOND TIME IF YOU NEED CLARIFICATION.**

2. **USE YOUR DESKTOP OR LAPTOP BUT NOT YOUR PHONE. PHONE CONNECTIONS CAN MORE EASILY DROP THE CALL AND NOT HAVE GOOD RECEPTION WHEN YOU WANT IT MOST. YOU WILL NOT LOOK GOOD HOLDING YOUR CELLPHONE, WHICH WILL SHAKE OR MOVE AROUND AS YOU HOLD IT AND BE ANNOYING TO THE VIEWER. YOUR DESKTOP COMPUTER (FIRST CHOICE) AND LAPTOP ARE THE BETTER OPTIONS.**

3. **DON'T START BY APOLOGIZING FOR YOUR BEING UNFAMILIAR WITH ONLINE TECHNOLOGY. THAT IS NOT WHAT THE EMPLOYER WANTS TO HEAR. IT'LL MAKE YOU COME ACROSS AS TECHNICALLY INCOMPETENT. GO TO YOUTUBE AND WATCH SOME HOW-TO VIDEOS. PRACTICE SEVERAL TIMES USING THIS TECHNOLOGY, SO**

4. **DO YOU HAVE ANY QUESTIONS? IT IS CRITICAL TO HAVE A COUPLE OF INSIGHTFUL QUESTIONS READY TO ASK. USUALLY THIS COMES AT THE END OF THE INTERVIEW. IT MAKES A WEAK IMPRESSION IF A CANDIDATE DOES NOT HAVE QUESTIONS, OR ASKS ONLY ABOUT NEXT STEPS IN THE PROCEDURE.**



## TRIVIAL QUESTIONS:

### TELL ME A LITTLE ABOUT YOURSELF

The key thing to remember is to be sharp, concise and to target answers to the job description.

### WHY DO YOU WANT THIS JOB?

This is where the homework comes into play. Recruiters and/or job interview committee members expect that an applicant knows enough about the job and the company before he/she sits down for the interview. The best if the applicant explains very sharply what he/she can do for a company and in the position he/she applies for.

### WHY DO YOU THINK YOU ARE THE RIGHT CANDIDATE FOR THIS JOB?

The key answer is to highlight relevant competencies and unique selling points, something that can be different from all other candidates

### WHAT MOTIVATES YOU?

Motivation is crucial in every job. Applicants may expect this question to pop up at any moment during the interview. Here, not only the content of the motivation, but also the passion and energy stemming from the answer are very important.

### WHY DO YOU WANT TO LEAVE YOUR JOB?

There are some key pitfalls to avoid when answering this online interview question. It does not make a good impression if an applicant says anything negative about the current/previous employer. This question usually targets at the future plans.

### DO YOU HAVE ANY QUESTIONS?

It is critical to have a couple of insightful questions ready to ask. Usually this comes at the end of the interview. It makes a weak impression if a candidate does not have questions, or asks only about next steps in the procedure. ■

# Ready for the next step after your master?



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Robert van der Kraan (26) | Development Engineer Logistics

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

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.



**WE NEED YOU TO REMAIN GLOBAL LEADER**

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 chance to become project lead of an ambitious development project. Challenging, but a great opportunity to learn!

### **About Marel**

We’re the leading global provider of advanced end-to-end processing systems and services for the poultry, meat and fish industries. We’re innovators and pioneers. 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.

Marel has a strong presence and a rich heritage in the Netherlands. Over 1800 of our 6300 employees work at one of our Dutch sites:

Boxmeer, Lichtenvoorde or Dongen. Marel is only as good as the people within it. We hire people who are passionate, dedicated, and ambitious. We want candidates who understand and appreciate our values, and who combine teamwork, ingenuity, and enthusiasm to maintain our reputation as the leading name in food processing.

*We offer a dynamic and challenging atmosphere in which individuals are valued, nurtured and given the tools to thrive. Whether you would like to travel the world representing Marel or would prefer to work at one of our sites: everything is possible.*

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