

CAREER SPECIAL

How Emma van Geel became a trendsetter

COLUMN

TRY, TRY, AND TRY AGAIN

WUR-ALUMNUS AARZOO KOHRA
ABOUT JOB HUNTING

START-UP

TU-ALUMNUS MAX ROEST
FROM FLOATSCANS:
'DON'T BE AFRAID TO
MAKE THE WRONG CHOICE'

JOB HUNTING

TU/E ALUMNUS PETER SPIJKER:
'IN EACH JOB I LEARN
NEW THINGS'

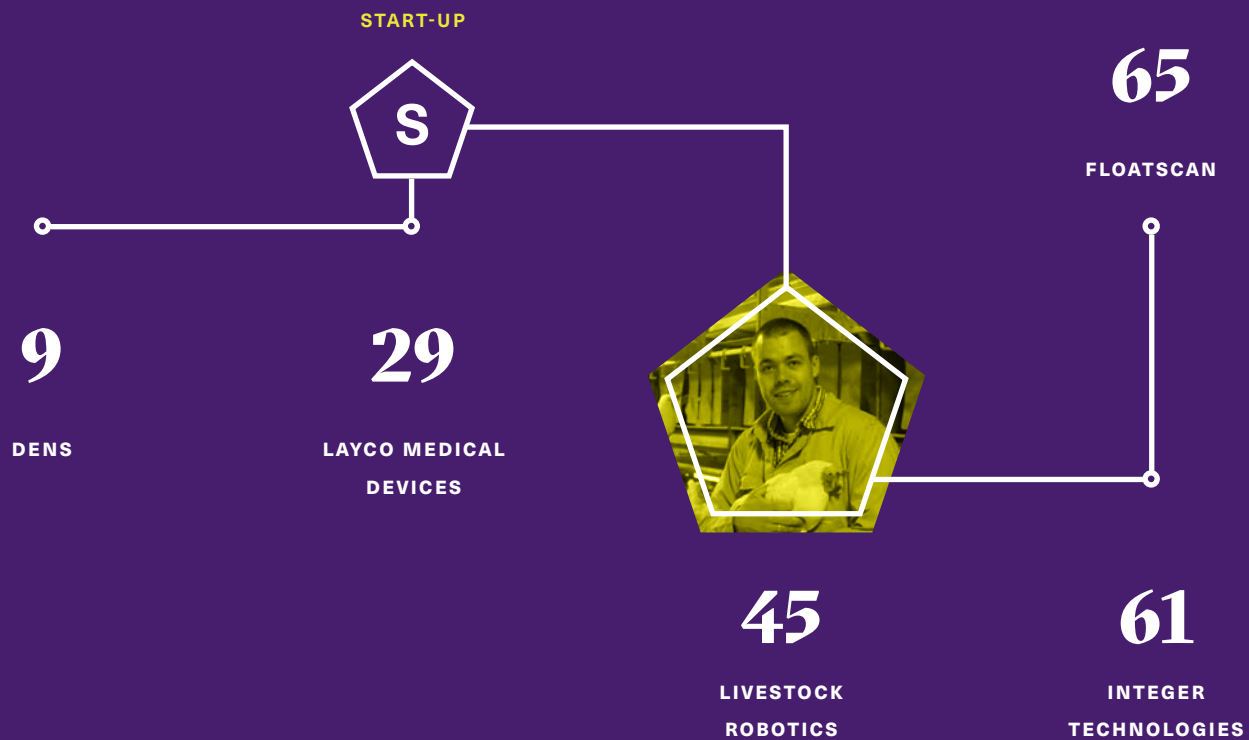
UNIVERSITY OF TWENTE.

TU/e EINDHOVEN
UNIVERSITY OF
TECHNOLOGY

TU Delft Delft
University of
Technology

 **WAGENINGEN**
UNIVERSITY & RESEARCH

CONTENT



COLOPHON

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

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Sandra Pool, U-Today

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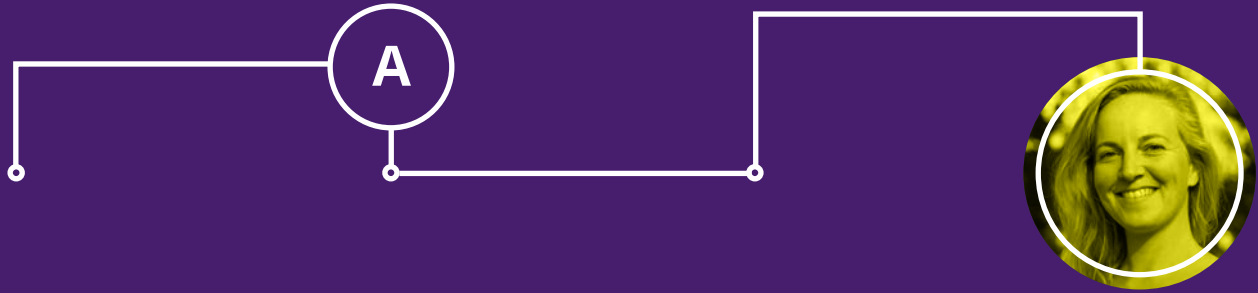
DID YOU CHANGE YOUR ADDRESS, OR DO YOU NO LONGER WISH TO RECEIVE POST FROM US?

Mail to: alumni@tue.nl / alumnirelations@tudelft.nl / alumni@utwente.nl / alumni@wur.nl

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PRINT RUN 14.000 copies were sent via post to those students who have recently graduated, and 500 were spread on each campus.

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Reporting for duty.

Damen Naval is the dedicated naval shipbuilding division of the Damen Shipyards Group, which brings together all the naval activities of the group, both in the Netherlands and abroad. With roots stretching back almost 150 years – to the Royal Schelde yard in Vlissingen – Damen Naval is the only naval original equipment manufacturer (OEM) in the Netherlands. Having delivered more than 400 vessels to customers all around the world, we are a trusted partner in the international marketplace.

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Check the video on our YouTube channel

DAMEN
NAVAL



PROF. VINOD
SUBRAMANIAM

PRESIDENT, 4TU.
FEDERATION
PRESIDENT OF THE EXECUTIVE BOARD OF THE
UNIVERSITY OF TWENTE

Where do you see yourself in ten years? That is one of the typical job interview questions. Realistically speaking, it is not a question that you can easily answer. Do I work in the same job that I am now applying for, or will I have climbed up the ladder? Will I, by then, have changed jobs several times, or do I prefer more stability? What do I expect of my private and family life by then?

● The interviewer does not expect the exact picture of your dream future, he or she wants to know if you've started thinking about this. You can see it as a travel plan with still many possible detours.

Maybe as a student, you're used to a 'carpe diem' type of life, 'seize the day' and make the best of it. Everything is still centered around finishing your thesis, doing projects and exams and leading your student life. Or are you the type that, every now and then, takes time to reflect on your future? Both approaches are fine, as long as you

keep an open mind. My own experience is that the 'ten years' question is not about the end goal, but about the journey...or, in the poem 'Ithaca' of Constantine Cavafy:

*As you set out for Ithaka
Hope the voyage is a long one,
Full of adventure, full of discovery.*

After ten (!) years of travelling, the Greek mythological hero Odysseus arrives at his home island Ithaca. In the poem of Constantine Cavafy, reaching Ithaca is not the main reason for traveling, but 'without her, you

would not have set out.' Being aware of the lessons you can learn on the way, the wise people you meet during your journey, may also mean changing directions several times.

Setting short and longer-term targets for yourself is a good thing to do. But never forget to enjoy your journey and indeed 'seize the day'. Keep an open mind and enjoy travelling!

I wish you lots of success! ■

Vinod Subramaniam



MAAIKE ENDEDIJK

So, you have completed your education and now you're ready to enter the labour market. Perhaps you feel like locking away all your textbooks in the attic – forever. 'But in a continuously changing society, every worker – including newcomers to the labour market – is expected to have knowledge that is up-to-date, and to keep it that way', says Maaïke Endedijk, Assistant Professor in the field of professional learning and technology at the University of Twente.

Get ready for the labour market of the future

The government, the education sector and the business community all say that we need to make better use of the potential of our workforce, and make sure that employees remain employable in the labour market of the future. But significant investment is required to do this properly. The government has therefore decided to allocate €167 million in funding to the Lifelong Development (Leven Lang Ontwikkelen, LLO) Catalyser (see box) in 2022 and 2023. The money will come from the government's Growth Fund, and is a financial injection that should give a significant boost to 'lifelong learning'.

It is in our nature that we always want to keep learning, says Endedijk. 'And it's also essential if we want to stay employable. But it's very important to create conditions in which people have the opportunity to carry on learning. Employees have plenty of motivation when it comes to personal development – they just need the opportunities.'

CHALLENGES OF THE NEXT DECADE

But how? The current system of lifelong learning shows that we are facing three challenges: we still do not have enough insight into the demand for workers in the future; we do not have the right supply of people to meet that demand; and our learning culture remains underdeveloped in the Netherlands. It's a complicated issue, explains Endedijk. 'That's why companies, organisations and knowledge institutions need to collaborate much more in this area.' And that is not easy. After all, professionals learn in a completely different way to students. 'You can give students a set curriculum that they need to complete. But professionals expect much more autonomy and the freedom to apply what they are learning straight away.'

TOWARDS A MORE SKILLS-ORIENTED LABOUR MARKET

How do you ensure that current employees continue to learn and get the right kind of support? Certainly not by sending them on a five-year evening course, according to Endedijk. 'We don't want to send people back to school. We need to design a curriculum that is attractive and flexible, and provide enough capacity to implement it together with our stakeholders. And that will require funding.' According to Endedijk, we should think less in terms of a qualifications-oriented labour market and more in terms of a skills-oriented labour market. 'It's important that employers can achieve this using their existing workforce.'

A CLEARER PICTURE OF THE TARGET GROUP

IJsbrand Haagsma, who is the Special Envoy for Public Affairs at the University of Twente, agrees with this. 'The employees of the future will continue developing and moving with the times,' he explains. Universities will play an important role in that respect. In Endedijk's opinion, it is important for knowledge institutions to get a clearer picture of their target group. 'Just setting up a programme and hoping that people will sign up is not enough. Universities are generally very discipline-oriented, but the issues and challenges that we face as a society are not.'

FUTURE-PROOF

An important priority for the LLO Catalyser is that it will give everyone the opportunity to continue developing throughout their whole life. But according to Endedijk, that is not necessarily an individual process. 'Alumni, for instance, can sit down with their team leader and work out which expertise the company will need in five years' time. Many companies are facing the same challenges. If we can bring them together with the knowledge institutions, we should be able to come up with something that is future-proof.'

TWENTY REGIONS

This summer, more will be made known about how the life-long learning will be structured in practice at the national level. 'So in that sense, we are going to have to wait a while longer before we can actually start working on lifelong learning,' says Haagsma. He explains that the country will be divided up into approximately twenty regions, and the LLO concept will then be put into practice at the regional level. 'Ultimately, the idea is that the national LLO organisation will make transition deals with all the regions. Then we can match the supply with the demand.'

ALL HANDS ON DECK

So why does Endedijk believe in this project so strongly? 'Look at what a challenging world we live in,' she says. 'We are going to need everybody to work on such complex issues.' The people with the highest level of education are the ones who will be able to access lifelong learning the easiest. 'But nobody should be left behind. Everyone needs to be able to participate. And the only way to achieve that is by investing in everybody and their development.' Lecture halls, essays and exams might be a thing of the past, but the employees of the future will never stop learning.



LIFELONG DEVELOPMENT CATALYSER
THE NATIONAL LLO CATALYSER IS
THE LINK BETWEEN THE BUSINESS
COMMUNITY, SOCIAL ORGANISATIONS,
EDUCATION, GOVERNMENT AND
PROFESSIONALS THEMSELVES FOR
LIFELONG DEVELOPMENT INITIATIVES.
THE CATALYSER INITIATES AND
COORDINATES COOPERATION,
PROVIDES NEW SOLUTIONS WHERE
THESE ARE REQUIRED, AND DIRECTS
RESOURCES TO WHERE THEY ARE
NEEDED IN ORDER TO ORGANISE
LIFELONG LEARNING MORE
EFFECTIVELY AND EFFICIENTLY AT THE
NATIONAL AND REGIONAL LEVELS.
THE LLO CATALYSER IS DRIVING
THE CONTINUED DEVELOPMENT OF
LIFELONG LEARNING. BY MEANS OF
THIS PROJECT, VOCATIONAL COLLEGES,
UNIVERSITIES OF APPLIED SCIENCES
AND UNIVERSITIES ARE GIVING A
MUCH-NEEDED BOOST TO LIFELONG
DEVELOPMENT, BOTH NATIONALLY AND
IN THE REGIONS.



IJSBRAND HAAGSMA



**“I like turning
science fiction
into reality”**

Karim El Assal is a Junior Scientist Innovator in TNO's Networks department. As a software developer, he feels at home in a network department as he's working on the communication applications that will be implemented in the network in the future.

“In Networks, we work on a daily basis on improving digital networks. Additionally, we're involved in the media which is sent via these, such as virtual reality, augmented reality and the new means of communication that these altered realities enable. That last part is where I come in. I'm now working on a large project called ERP Social XR, in which I lead the software development at the integration level. This is about linking components that are developed individually, such as the recording, distribution and displaying of 3D video. By integrating these, we can realise the entire pipeline from camera to display. Initially, it's all about business applications, especially for meetings. Examples include meetings in which you can look at a 3D object together or really want to feel like you're in the same room. But there's also healthcare applications, through which you can be 'in the room' with the elderly, so to speak. Or 'remote expertise', where you allow an expert to be present virtually.”

From today's film to tomorrow's world

“I first did a bachelor's in Advanced Technology at the University of Twente, followed by a master's in Computer Science with a focus on Software Technology and Data Science. I began working at TNO immediately afterwards. I remember going to the job interview wondering what I could do at a networks department. That was, until the research manager told me about the Social XR projects. I was enthusiastic right away as I like turning science fiction into reality. Extended reality is one of the steps that will ensure that we can live in a future which we now see in films.”

Find your own place

“On top of that, innovation is central at TNO, as is the desire to contribute something to society. That's the kind of organisation I want to work for. The size of the organisation also played a part: it offers so many opportunities to actually shape innovation. And TNO's flexibility appealed to me immediately: you can choose when you work and what you work on. When you're just starting out, you have to find your feet because things are not automatic here. At TNO, they don't say: here's a job, go and work on it for 4 or 5 days a week. You have to find your place yourself. To me, that's completely positive as it gets you to where you want to be. That focus on what you want for yourself is something I really like. You can simply say no to a project, not that I often do so. Instead, you're asked for the projects you want to be asked for because you've shown yourself to be enthusiastic about the subject.”

Thinking about the long term

“My work now revolves around software development, but I've also become the open-source manager for the entire ICT unit. Networks is one of the five departments of this unit. Together, we've opted for a more open-source strategy in projects where this is possible. What do I want in the future? To be honest, I have no idea yet. That's actually the phase I'm in now: thinking about what I want in the long term. I'll spend some time on that in the coming period, and TNO is giving me all the space I need for this.”

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DENS

‘Our open-mindedness was a very good thing’

What started as an inspired student project at TU/e, is now a fast-growing company. DENS makes generators that run on formic acid. ‘Looking back, we are quite proud of what we have achieved’, says CEO and TU/e alumnus, Max Aerts.

• DENS makes generators that run on formic acid. This makes them an alternative to polluting diesel generators used in agriculture, construction and mining, among other fields. In his office at the Automotive Campus in Helmond, Aerts talks about how rashly they started as students and how they learned by doing and grew into a production company. Aerts’ office looks out onto the courtyard where four containers flank the building. They were the first ones sold. The buyers? Heijmans and TBI, real estate, infrastructure, engineering and construction companies, who are replacing their diesel generators with DENS generators. They are used to charge the electric vehicles and machines on site.

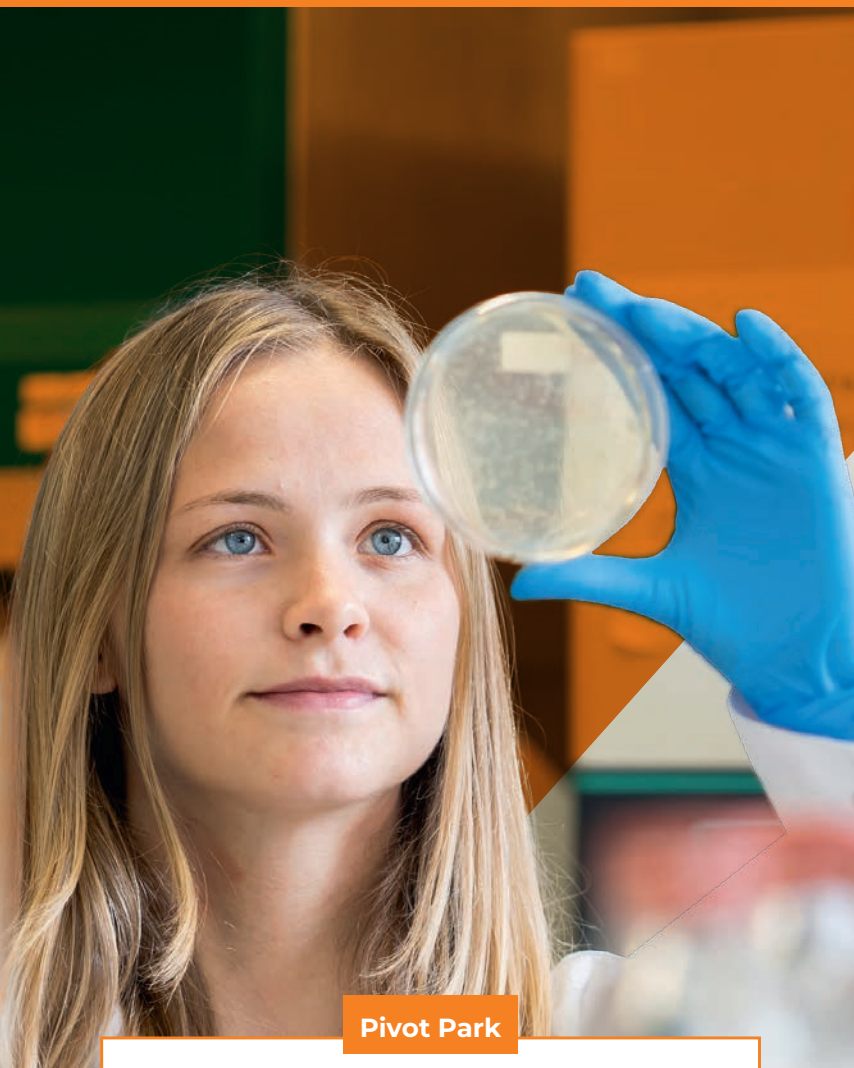
ENOUGH POWER

Inside every container is a tank. In it is about 6000 liters of hydrazine (another name for formic acid). ‘Converted, that’s about 3.5 megawatt hours (MWh) of energy’, Aerts explains. ‘That’s enough to power a construction site for a month with average use.’ There’s a heap of technology incorporated into the system, not just to generate the fuel but also to make it user-friendly. An interface on the side of the container allows the system to be set up and software indicates when a tank needs to be refilled. The company is growing rapidly. About 35 people are working on the technology. ‘And we are still looking for people; we have twelve vacancies.’

At the end of last year, the company secured investment from clean-energy conglomerate Koolen Industries and Rabobank. With this, Aerts wants to start real production. ‘If the company grows even more, it will need more space as it is already almost bursting at the seams. We now have room, with renovation, to build about 30 units annually, but if we want to go to 100 we really need to move to a bigger building.’ Aerts would have liked to be much further ahead with his company. He would probably approach things differently now than when he started. ‘But perhaps that open-mindedness with which we started as students was a very good thing. You don’t know yet what limiting factors can be; you don’t see them at all. There don’t seem to be any problems, so you just go for it. That is also necessary to be able to take steps.’ ■

THE FOUNDERS OF DENS: TIJN SWINKELS JR. (LEFT) AND MAX AERTS.





Pivot Park

Pivot Park is in 2012 opgericht om innovatieve farmaceutische bedrijven van over de hele wereld de optimale Europese locatie te bieden. Van beginnende ondernemers en snelgroeiende scale-ups tot volwassen marktleiders, helpt Pivot Park innovatieve bedrijven om de volgende stappen te zetten. Als thuisbasis van meer dan 60 bedrijven, zorgen we ervoor dat 650 hooggekwalificeerde medewerkers over alles beschikken wat zij nodig hebben om succesvol te zijn. Lees meer op www.pivotpark.com.



Aspen Oss

Aspen Oss ontwikkelt en produceert complexe, hoogwaardige Actieve Farmaceutische Ingrediënten, ofwel API's. Dit zijn de werkzame bestanddelen in geneesmiddelen. Onze producten worden verwerkt tot bijvoorbeeld bloedverdunners, spierslappers, anticonceptie en anesthesiemiddelen. Wil jij ook bijdragen aan de gezondheid van patiënten wereldwijd? Wij bieden jou de kans om de wereld beter te maken. Kijk maar eens op www.werkenbijaspen.nl





MSD

De **MSD** Biotech campus in Oss is méér dan biotechnologische productie. Dankzij onze kennis van het testen van geneesmiddelen, procesontwikkeling en microbiologie hebben we alle expertise in huis die nodig is voor biotech-productie van wereldklasse. Dat doen we in Oss, dat doen we voor patiënten en daar zijn we trots op! Wil je ook werk dat ertoe doet op een campus die ertoe doet? Kijk op werkenbijMSD.nl.



Organon

De befaamde naam **Organon** is terug. In de wereld, in Nederland. Een nieuw bedrijf met een belofte om de gezondheid van vrouwen over de hele wereld te verbeteren. Want dat is cruciaal om een gezondere wereld te bereiken. Daar werken we aan - met 9.500 mensen wereldwijd waarvan ruim 2.000 in Amsterdam, Oss, Brussel en Heist (BE). Volg Organon Benelux op social media. www.organon.nl

Oss is trots op het veelzijdige talent dat bij Osse bedrijven werkt. Lees erover op www.onsOss.nl en maak nader kennis met ons. #OssTalent

FEA
TUR
ED!

FYI

Elon Musk's interview question

If you ever consider applying at Tesla or SpaceX, beware of this head-spinning question that CEO and billionaire Elon Musk might throw at you. 'You are standing on the surface of the Earth. You take a walk one mile south, one mile west and one mile north. You end up exactly where you started. Where are you?'

The correct answer? The North Pole. Using the arctic as the start location, you will make a triangle and end up right where you began. Another potential answer could be the South Pole.

Got lost and ended up somewhere completely different? Don't worry. When interviewers ask brain teaser questions like these, they are most likely to assess your critical-think skills and ability to operate under pressure, rather than looking for the correct answer.



FACT

EUFLEX TECHNIFICENT IS A FULL SUBSIDIARY OF TU/E. THE EMPLOYMENT SERVICE MATCH TU/E STUDENTS WITH THE (TECHNICAL) INDUSTRY. JUST GRADUATED? EUFLEX TECHNIFICENT ALSO OFFERS FULL TIME POSITIONS AT TECHNICALLY RENOWNED COMPANIES. [CHECK WWW.EUFLEX.NL](http://WWW.EUFLEX.NL) FOR MORE INFORMATION.

GOOD TO KNOW

A new profession: PhD Coach

Arjenne Louter started her career as a teacher in academic skills at a university, was a senior communication advisor at a Ministry, a senior trainer and consultant at a big consultancy firm and in 2002 she started her own company, occupying herself with teaching and research. Since 2008 her sole mission is to support PhD students to finish their thesis successfully, healthily and on time. By using a combination of all the skills she learned in previous jobs, and her skills as a mediator and coach she has been very successful in supporting PhD students. Her focus is the process of a PhD, because if the process works, the content will follow!

Find more information on www.thedutchphdcoach.com or on www.louterpromoveren.nl.

QUOTE

‘I realised that you don’t need to be a know-it-all, just be a learn-it-all’



VASUDEVAN LAKSHMINARAYANAN
(TU DELFT ALUMNUS, WORKS AS
PROCESSING LEAD AT UNILEVER)

FACT

ON AVERAGE, WUR MSC GRADUATES START THEIR FIRST JOB AFTER THREE MONTHS. THAT IS A BIT LONGER THAN THE AVERAGE TIME SPENT JOB-SEEKING BY MSC GRADUATES FROM ALL THE PARTICIPATING UNIVERSITIES: 2.5 MONTHS. OF ALL THE FRESH WUR GRADUATES, 92 PER CENT FIND PAID WORK FOR MORE THAN 12 HOURS A WEEK. THE AVERAGE UNEMPLOYMENT RATE FOR GRADUATES OF DUTCH UNIVERSITIES IS LOWER: 5 PER CENT.

TIP

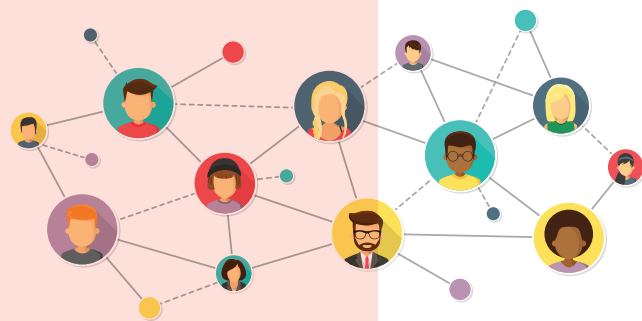
Jobteaser

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

GOOD TO KNOW

Network

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



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



The announced European recovery and resilience funds are coming into play and are being underlined in the recent announced REPowerEU initiative. Working on the energy transition and securing access to energy are going hand in hand. These developments all require a well educated workforce and provide opportunities for young engineers.

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

The European Green Deal

During the pandemic we saw a temporary positive impact on some of the measurements of for example CO₂ emissions or use of fossil fuels. When we return to "business as usual", we must ensure that the economic recovery doesn't undo all the previous hard work put towards climate goals.

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

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

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

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

The Green Recovery Alliance

The EU Parliament, together with big names from politics, industry, the European Trade Union, and the private sector – including EIT InnoEnergy's CEO Diego Pavia – have signed the **Green Recovery Alliance** that builds upon the European Green Deal. This new alliance places sustainable energy at the heart of Europe's economic recovery, creating countless opportunities in this sector for years to come, and thus jobs for trained young professionals. Dr Frank Gielen, Education Director of EIT InnoEnergy, shares:

"Turning Europe into a climate-neutral continent in three decades was already a daunting task. We will need to fill hundreds of thousands of new jobs and roles by 2030 to meet energy demands and reduce emission



Shape your future in sustainable energy

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



14 Top Technical Universities

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10 Most dynamic countries to study in Europe

1200+ Graduates making an impact in the energy transition

5 Entrepreneurs in Forbes 30 under 30

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

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

training, which now becomes even more vital.

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

With these essential elements all coming together to ensure a smooth and prosperous green recovery as well as being more energy independent in Europe, it's the perfect time to find out what part you can play in this exciting process!



ADVERTORIAL

Werk aan de toekomst

Dit zijn de makers van morgen. Zij kozen voor een duurzame carrière waarin ze niet alleen aan zichzelf denken, maar ook aan de toekomst bouwen.



DIETER BOERMANS:

Lead Engineer duurzame voertuigen

'Ik werk hier van a tot z aan producties voor duurzame elektrisch aangedreven transportoplossingen. Én ik heb uitzicht op een leidinggevende functie. Dat is alles wat ik wilde in mijn werk. Het is geweldig mooi om te zien wanneer alles in ons gebouwde en geteste prototype echt goed werkt en dat het pototype daarna als serievoertuig ingevoerd wordt om in steden door de hele wereld rond te rijden. Ik ben blij dat ik hierin een pionier mag zijn.'
Elektrisch aangedreven bussen, vuilniswagens en trucks - met elektromotor, batterijen en een brandstofcel bijvoorbeeld - die Dieter en zijn team *engineerden*, rijden nu rond in Nederland, België en ver daarbuiten. Werk om terecht trots op te zijn.

LEES MEER OP
EVOKESTAFFING.NL/MAKERS



BAS JANSEN:

Embedded Software Developer

Bas Jansen – de 25-jarige zweefvlieger, wedstrijdzwemmer en embedded software developer – weet wat hij wil. Niet sinds kort, maar al sinds zijn derde levensjaar. Nog vóór hij leerde fietsen, leerde hij omgaan met computers. Zijn doel: dáármee werken.
'Tijdens het afstuderen van mijn master Embedded Systems wist ik al dat ik niet puur richting onderzoek wilde. Tijdens mijn stage werkte ik met simulatoren en toen wist ik: ik wil iets tastbaars maken. Ik wil kunnen zien wat mijn code fysiek doet.'
Zo kwam hij terecht in de industriële automatisering, via Evoke, bij Moba, een van de grootste hightechbedrijven in midden Nederland. 'Toen we daar de proto-werkplaats opliepen, zag ik de machines. Ik dacht meteen; 'dit is heel gaaf'. Nu zit ik op R&D, in een team gericht op detectie, met machines die in house worden gemaakt, met mijn code. Echt een jongensdroom om daar aan mee te werken.'



RIK VAN KURINGEN:

Lead Designer & Bedrijfsleider

Een bijna ongelofelijk verhaal. Rik van Kuringen studeerde in 2013 af als elektrotechnicus. Sinds 2021 runt hij de dependance van de EMS provider Neways in Amerika. Hoe hij de carrière ladder – met Evoke aan de eerste trede – zo snel beklom? Dat is volgens hem een kwestie van uit je comfortzone gaan en veel pionieren.
'Als je mij in mijn schooltijd had gezegd dat ik nu Lead Designer en Project Manager zou zijn met een rol als bedrijfsleider, had ik je uitgelachen. En dan had ik gezegd: 'Ho ho, nee nee, ik ben een technaut.'
Gelukkig sluit het één het ander niet uit. Naast projecten runnen, is Rik nog steeds de helft van de tijd technisch bezig als Lead Designer voor Neways US. 'We gaan er gewoon voor. Ik heb nooit anders gedaan in de afgelopen acht jaar, op de weg hier naartoe. Gewoon weer lekker pionieren, ontdekken en ontwikkelen.'



VERA SLUIJTER

TU DELFT

STRUCTURAL ENGINEER AT

ROYAL HASKONINGDHV

‘Employers lined up for us’

● For some recent graduates, looking for a job mainly consists of eliminating possibilities. This was the case for Vera Sluijter, who started work as a structural engineer at Royal HaskoningDHV in December 2021, having graduated from TU Delft two months earlier.

‘This certainly does seem like a very rosy story. As students of technical universities, we are privileged in the job market,’ Vera Sluijter (24) says at the end of a conversation about the search for her first job. Already during her graduation internship at engineering firm Arup, the number of messages from interested companies on LinkedIn steadily grew. She also received a lot of interest during the Netherlands Civil Engineering Business Days. ‘They were really lining up for me and my fellow students.’ Sluijter started her bachelor’s

degree in civil engineering at TU Delft in 2015, after she had long doubted a career in architecture. ‘However, I found out that I would not be doing much math there. Civil engineering turned out to be the perfect combination of creativity and technology.’ Sluijter continued her education within the same faculty, obtaining a master’s degree in building engineering. In October 2021, she graduated on the subject of modular wooden bridges.

‘I was in the privileged position of knowing that I would be fine’ She never worried about her career in the years leading up to her graduation: ‘I was in the privileged position of knowing that I would be fine. I heard from the older students that finding a job was not going to be a problem.’ Consequently, she didn’t really need the board positions with the student

association and the work for the University Fund she did next to her studies to boost her resume—she simply did it because she enjoyed it.

With all that attention, how did Sluijter make sure she was not tempted to take on jobs she did not actually like? Her response is pragmatic: ‘It was not like that. I had conversations with six companies. They asked me: “What do you like to do, and then let’s see if we have something that meets your interest.”’ Things went differently at Royal HaskoningDHV, her current employer. Sluijter saw an interesting vacancy there for someone with a lot of experience. ‘I did not have such experience. However, I sent the contact person a message and it turned out that they were also looking for a junior structural engineer, so I applied.’

Now Sluijter feels like she has found her place. As a structural engineer, she makes design calculations for buildings and other structures. ‘I am learning so much. At TU Delft, I acquired technical knowledge and through my work for the board and my side job, I learned how to plan and cooperate. Now I learn things such as how, and at what point, to perform calculations in the construction process.’ In the long term, Sluijter would like to live and work abroad and do project management in addition to performing calculations. It does surprise her that companies are already approaching her on LinkedIn for her next job. ‘Once or twice a month I get the question whether I like my job. I do not respond to such requests anymore, because I have only just arrived here. I first have to try it out for a while, don’t I?’ ■



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A woman with dark hair, wearing a high-visibility yellow vest over a dark patterned top, is focused on working on a complex industrial machine. The machine features various metallic components, including a prominent purple cylindrical part. The scene is lit with warm, golden light, creating a professional and technical atmosphere.

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EMMA VAN GEEL

ALUMNUS UT

BUSINESS DEVELOPER

SPORT INNOVATION

Trendsetter in Twente

An unorthodox study choice brought Emma van Geel (28) to Twente. It turned out to be love at first sight. From the Kennispark building of UT spinoff Demcon, where the alumna has worked ever since she did her internship there, she enjoys a view of her alma mater every day. 'I never felt like I was just a number in Twente.'

Life could have turned out very differently for Emma, who was born in Amsterdam and grew up in the West-Frisian town of Broek op Langedijk. 'At my local secondary school, you pretty much had two choices: you could either become a doctor or a lawyer. I figured I would go against the grain and do things my own way. The only problem was that I couldn't

find a study programme that interested me.' Luckily, her little sister was there to help. 'She came to me with a flyer on which she had taped off the names of universities and said: 'I found something that is perfect for you.' She was right! Although it was all the way over in Enschede, I knew I had to come here after attending a welcome day.'

She ended up choosing Creative Technology. 'That programme was still in its infancy at the time and proved to have been a poor choice after the first few months. My parents told me I should come home when I took a break from my studies, but I made a deliberate choice to stay here instead. During that first year, I was fortunate enough to discover what I did want

to do; using technology to help improve the health care sector. That's why I ended up choosing the Health Sciences programme.'

She was also drawn to the serious side of living an active student life. Van Geel wanted to join Solar Team Twente, but ultimately decided against submitting her application. However, she ended up

meeting her boyfriend when he was part of the student team and began helping out behind the scenes with the communication from the back office during the solar car's races. As she was also looking for an internship at the time, she decided to reach out to one of the team's main sponsors: Demcon. After completing her internship, she got a job there as a QA/RA engineer.

TRAINING THOROUGH THINKERS

As she explored the finer points of legislation and quality requirements for medical technology at Demcon, she was also working to obtain her master's degree in Health Sciences. 'During my bachelor's, I had no idea what kind of jobs were available in the region. I expected to end up working for a health care organisation or in a hospital's purchasing department. Getting my first job

at a high-tech company like Demcon was therefore very thrilling. I also thought it would be hard for me to fit in, because I don't have a technical background myself.'

She was wrong about that, though. 'What seemed like an obstacle at first quickly turned out to be a positive instead. When developing medical technology, you need to form connections. You cannot jump straight from a vague sketch to a finished medical product that is used in hospitals. In reality, this is a complex process that requires a variety of qualities.'

If it were up to Van Geel, the products being developed by Demcon will ultimately end up being used in the UT's TechMed Centre. 'We absolutely have to seek out that collaboration more. Let students and researchers go wild with it.'

VENTILATORS

The 28-year-old Van Geel has been working at a stone's throw away from the campus for almost six years now. In the meantime, Demcon has expanded its operations significantly and it now has more than eight hundred employees across five national and three international locations. Recently, she became Business Developer Sport Innovation. 'We have extremely lofty ambitions, but realising those will require the right people. Finding and retaining talent continues to be a challenge. I suspect Demcon's high-tech reputation may deter some people, even though I am living proof of the fact that you can fit in perfectly well here even with a non-technical background, if that is what you really want. It is high time we do something about that belief, which usually begins to form in secondary school.'

At the start of the corona crisis, this UT spinoff suddenly saw its brand recognition skyrocket when the company came to the aid of the Ministry of Health, Welfare and Sport and allocated a tonne of resources and manpower to the development of ventilators. 'We suspended virtually all other operations, both here and at our facility near Eindhoven. We also received help from our regional partners. In fact, this quickly became a priority for the entire region. That tells you all you need to know about the feeling of togetherness that exists here in Twente; the realisation that we are all in it together. In the end, dozens of ventilator modules passed through my hands during the final inspection of the systems. When you think about the fact that those same devices were delivered to end users last year and that each one may have saved the



'It is all well and good to say you want to change the world, but I have learned that it is best to stay true to yourself'



lives of multiple people, you realise the impact that our work has.'

STAY TRUE TO YOURSELF

She is still pursuing her professional mission of finding and retaining talent. Together with ten other women from the region, she became a shirt sponsor of the women's team of FC Twente. This season, the shirts worn by the national champion's players will read 'Future of Twente' in bold letters. 'A lot of talent - especially female talent - is lost in this region. We want to show people that there is a place for everyone here.'

That coincides with one of the life lessons she learned. 'I was always so jealous of people who had the next ten years of their lives all figured

out and who knew exactly how they were going to conquer the world. Then again, what is wrong about starting small and focusing on the things you can actually influence?' A unique example of happened in early 2019, when Van Geel - an enthusiastic runner herself - single-handedly unleashed a media frenzy when she organised a protest run against sexual violence, during a time when a molester was targeting people between Enschede and Hengelo. 'It was absurd to me that the police had 133 reports on record, so I decided to take action myself. Since that event, there have been no new reports. You know, it is all well and good to say you want to change the world, but I have learned that it is best to stay true to yourself. I always want to be able to look at myself

in the mirror and answer the question of 'Am I doing what I truly want to do?' with a resounding 'Yes!' My choices have never been very deliberate, but I have always found my way in the end: something with talent, something in this region, because I truly feel at home here. I want to become a trendsetter in Twente. There you have it: my ambitious plan for the future!' ■

'We want to show people that there is a place for everyone here'

Technologie als rode draad

Timo Geers is Management Trainee bij Kramp Group, een van de grootste leveranciers van agrarische onderdelen en accessoires in Europa. Hij studeerde aan Wageningen University & Research en wist direct dat hij wilde werken in de Agri & Food industrie.

WAAROM KOOS JIJ VOOR KRAMP?

Tijdens mijn studie aan Wageningen University & Research wist ik dat ik wilde werken in een organisatie die gericht is op de Agri & Food industrie. Op internet trok de marktleider voor onderdelen en accessoires voor de agrarische sector al snel mijn aandacht, Kramp! Bij Kramp waren het aspecten zoals digitalisatie, ondernemerschap en internationale samenwerking kernthema's die mij erg aanspraken, waardoor ik de uitdaging bij Kramp ben aangegaan.

WAT MAAKT JOUW WERK ALS MANAGEMENT TRAINEE INTERESSANT EN UITDAGEND?

Je krijgt de vrijheid om te ontdekken welke projecten echt bij jou passen. Er zijn veel verschillende projecten, van process verbeteringen in Finance tot logistieke veranderingen in Operations. Genoeg kansen dus om voor een project te gaan waar je energie van krijgt en wat ook toegevoegde waarde heeft voor Kramp en haar klanten. Momenteel ben ik bezig met een project waar we een gedeelte van onze Supply Chain herstructureren en loopt er een hr-project gericht op gebruik van data. Het interessante aan mijn werk als Management Trainee is dat ik meerdere projecten tegelijkertijd kan oppakken en mensen bij elkaar kan brengen om nieuwe ideeën uit te werken.

WAT WIL JIJ BEREIKEN?

Mijn doel binnen Kramp is om na mijn traineeship in een functie te zitten waarin ik met meerdere afdelingen samenwerk en waar technologie de rode draad is. De brug leggen tussen de vraag hoe Kramp als internationale groothandel draait en hoe technologie ingezet kan worden om het voor de klant zo eenvoudig en efficiënt mogelijk

te maken, vind ik erg interessant.

Wat ik op dit moment wil bereiken met het lopende Supply Chain project, is dat wij niet alleen onderzoeken, maar ook echt overgaan op implementatie en de mensen daarin mee krijgen. De dingen daadwerkelijk logistiek anders doen dan de afgelopen jaren. Met natuurlijk als doel om onze Supply Chain te optimaliseren en daarmee de waarde vanuit Kramp voor de klant te vergroten.

WAAROM ZOU JIJ STUDENTEN AANRADEN HET TRAINEESHIP BIJ KRAMP AAN TE GAAN?

Het traineeship is zowel geschikt voor afgestudeerden die zich nog oriënteren als voor degene die al beter weten in welke hoek zij verder willen gaan. Met het traineeship binnen Kramp kun je alle mogelijkheden binnen het bedrijf ontdekken en krijg jij de kans en vrijheid om te ontdekken waar jouw interesses en expertise daadwerkelijk liggen. Je leert daarnaast niet alleen de processen van de organisatie kennen, maar je versterkt ook juist je netwerk binnen de organisatie. Dus als jij de kans krijgt, pak hem!



FEA TUR ED!

FYI

The business guide

Finding a job or graduation assignment in Twente is not always easy for students. Partly because of this, many students leave the region after their graduation. Berry Gerrits and Robert Andringa, both former students of industrial engineering and management, came up with a solution: the Business Guide (Bedrijvenwijzer, in Dutch).

The pair found it a puzzling question: How is it possible that so many students leave Twente after their studies? They found out that Kennispark Twente in Enschede is home to more than 400 companies. 'However, the number of companies in the region does not seem visible enough. Students are not aware of what is on offer,' says Gerrits.

De Bedrijvenwijzer aims to solve that problem. Students fill out an online questionnaire and indicate their studies and interests. Subsequently, these student profiles are matched with those of companies in the area. The result of the match is sent to the students via email. 'It is important that the students take the initiative. They can indicate whether they want the company to contact them or whether they prefer to approach the company themselves,' say the UT graduates.

The goal is to translate the Business Guide, which is currently only available in Dutch, so that international students can also make good use of it.

FACT

TOP 5 COMPANIES WHERE TU DELFT ALUMNI WORK

ASML	1,083
SHELL	1,046
TNO	772
ROYAL HASKONINGDHV	716
PHILIPS	495

GOOD TO KNOW

One-on-one consultation

Are you in search for your first job, in doubt whether your current job is right for you, or unsure what to search for next, or would you just want to consult with an independent advisor about your possibilities and how to best present yourself (on paper)? Then feel free to make an appointment with the TU Delft Career Centre for an one-on-one career consultation. Consultations last one hour and can take place on Campus or Online via Teams or Zoom. For an appointment, please send an email to Careercentre@tudelft.nl, stating you are an alumnus, and what you wish to discuss.

one-on-one consultation fees:

0-1 years graduated free

1-5 years graduated: 30€





FACT

LYING? THINK TWICE
BRAGGING OR LYING TO RECRUITERS ABOUT PREVIOUS SUCCESS? THINK AGAIN. THEY MIGHT JUST USE ELON MUSK'S THEORY TO DETERMINE IF SOMEONE IS ACTUALLY TELLING THE TRUTH. THE BILLIONAIRE AND CEO OF TESLA AND SPACEX ASKS EACH CANDIDATE HE INTERVIEWS TO TELL ABOUT SOME OF THE MOST DIFFICULT PROBLEMS THEY WORKED ON AND HOW THEY SOLVED THEM. HE SAYS THE PEOPLE WHO REALLY SOLVED THE PROBLEM KNOW EXACTLY HOW THEY SOLVED IT. 'THEY CAN EVEN DESCRIBE THE LITTLEST DETAILS.'

TIP

Negotiations seminars

On 10 and 11 June 2022, the Dutch Negotiation Network is organising live negotiation seminars at the University of Twente. The seminars are for professionals and students enthusiastic about negotiation. During these seminars a variety of practical workshops and presentations are offered, covering essential topics for negotiators in this day and age. The first day is dedicated to professionals from the business community and the second day is dedicated to students from any university.

Come and learn how culture, the virtual environment, artificial intelligence, gender, and our personalities affect negotiations. Discover what role power, trust, and perceptions play, how you can plan and prepare for the process and which strategies you can employ in negotiation. View the programme and pick your favorite lectures.

GOOD TO KNOW

1 in 4 young professionals unhappy with job

1 in 4 young professionals is unhappy with their current job, says research by career platform Magnet.me. Against the background of the Covid 19 pandemic, young professionals are increasingly unhappy when it comes to their management, advancement opportunities and company culture. On the other hand, 3 in 4 young professionals are happy with their job. They especially value the contact with their colleagues. This is followed by advancement opportunities and company culture. The fact that the opportunity to develop yourself and the culture of your workplace are both main reasons for happiness, as well as unhappiness, arguably makes them even more important. Employers can clearly get this right, or not.

QUOTE

'Companies can no longer just sit back until the government comes up with a climate policy'



NINE DE PATER, ALUMNUS WUR AND CAMPAIGN LEADER AT MILIEUDEFENSIE

CANON PRODUCTION PRINTING

Working together on multi-disciplinary high-tech projects

Canon Production Printing produces high-end printers for the graphic design industry. It also develops most of the components itself, which makes Canon Production Printing an extremely interesting place to work. The company offers its employees a large and varied choice of projects involving multiple disciplines.

Jeroen Cox followed up his bachelor's in biomedical technology with a master's in mechanical engineering. 'I chose that direction for my master's because of the technological depth and also the more technical subjects. My specialization was in power & flow, which is about fluid dynamics and Energy Technology.'

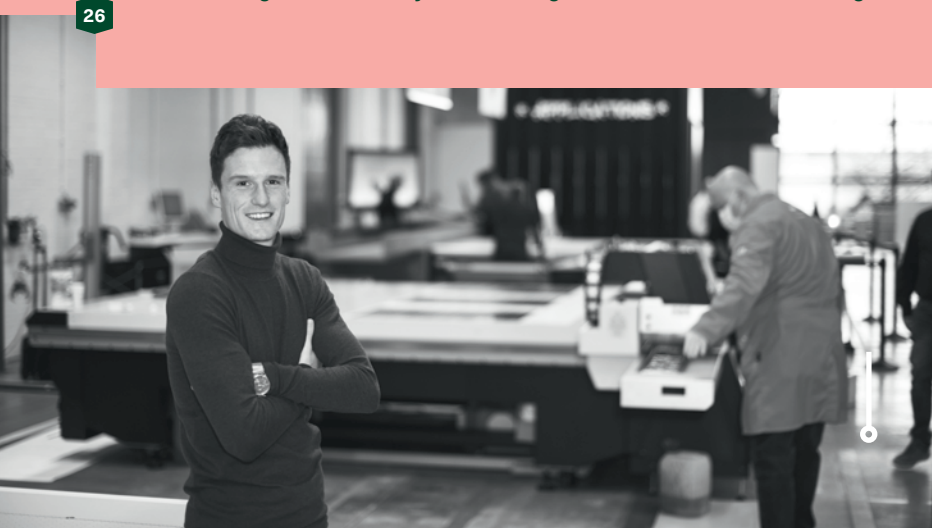
After completing his master's, he joined Canon Production Printing in August 2019. He already knew the company quite well because his father had been with Canon (which was called Océ at the time) for over 30 years. As a result, Jeroen had regularly worked at Canon Production Printing part-time during school holidays as a teenager.

He initially worked in the warehouse, but as a student he eventually progressed to a more relevant part-time role in the Production Engineering department. Nevertheless, he decided to do his internship at Tetra Pak in Sweden, and to do his graduation project at TU/e itself: 'I briefly considered doing a PhD, but I soon realized that I wanted to start working instead.'

ATTRACTED BY LARGE R&D DEPARTMENT

Jeroen started exploring the job market during his graduation phase and various companies approached him through LinkedIn. He attended several interviews, including at Canon Production Printing. He ultimately

decided to accept a role in Venlo, where Canon Production Printing produces a wide variety of printers for the graphic design industry, such as cut-sheet, roll-to-roll and flatbed printers, for use with paper and many other types of materials. 'I've now been working here for two years and I know for sure that I made the right choice. I thought about it very carefully at the time, though. The deciding factor for me was that the role at Canon Production Printing was specifically in the R&D department, and that it's such a big department. As a result, there are lots of opportunities open to you, both in terms of your own development and the wide choice of projects. Here, I have a steady flow of opportunities to work on new and different projects or to move to a different department. And such a huge R&D department within a big company also means that things are more technically advanced, so I'm really in my element here.'





POSITIVE ATMOSPHERE

However, the high-tech environment was not the only reason why Jeroen chose Canon Production Printing. 'While working here part-time, I'd already noticed how friendly everyone was. There's a very positive atmosphere and people are always willing to help you. You just have to ask! You're expected to take the initiative; your colleagues don't constantly check whether you need anything, but as soon as you ask they are immediately open to giving you a helping hand. And if they can't help you themselves, they point you in the direction of someone who can. I really like that approachability here, the sense that we're all just regular people.'

OWN DEVELOPMENT

'Your meetings with your direct manager are also very open. For example, you can say that you'd like to work on the other side of mechanical engineering in a future phase, or that you want to look beyond R&D... you can talk to your manager about anything. We rotate through the projects here, working in a different role from one project to the next. You always have a say in that,

based on your personal preferences and what kind of manpower is needed for the specific project. If you want to go into the more structural side of mechanical engineering or perhaps want to do something completely different, you can feel free to make it known. I've been at Canon Production Printing for two years now and I'm currently working on my third project, but projects can sometimes take longer. My first project was aligned with my master's specialization which helped me to settle in.'

COMPANY CULTURE

'The company culture is based on lots of freedom. You can largely shape your own role. You have a set task – an assignment – but as a mechanical designer you decide for yourself how you want to tackle it. That's quite a big responsibility, but I really like that. Additionally, the projects are multi-disciplinary so you work together with lots of different types of people and a mix of specialists and generalists. Everyone works on a particular function of the printer. Those dynamics are what make Canon Production Printing such a great employer, in my opinion.'

ABOUT US

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

ITS PRODUCT OFFERING INCLUDES CONTINUOUS-FEED AND CUT-SHEET PRINTERS FOR HIGH-VOLUME PRINTING AND PUBLISHING, AND LARGE-FORMAT PRINTERS FOR DISPLAY GRAPHICS AND TECHNICAL DOCUMENT SYSTEMS.

MORE INFORMATION:
[HTTPS://CAREERS.CPP.CANON](https://careers.cpp.canon)

A TRAINEESHIP AT TMC IS THE IDEAL NEXT STEP TO DISCOVER WHERE YOU WANT TO GO AFTER YOUR GRADUATION



ABOUT IVO

After having completed his bachelor's in Industrial Engineering and Management, Ivo hesitated whether he wanted to enroll in a master's degree or to start working. "I chose the TMC traineeship because I still have a lot to learn, but at the same time I wanted get a job in the field. I can now quickly get a picture of what kind of company suits me and what type of position I would like to work in."

It is our ambition to keep a high value of bettering what we offer to our employeneurs. Not precisely knowing what the future holds in store, we want to offer qualitative broader education with focus on personal skills and more ways for employeneurs to connect with TMC and other entities. TMC is the hub that brings professionals together. TMC thus works on creating more possibilities for the people who bring their talent to task for TMC and society.

THE RIGHT BALANCE BETWEEN THEORY AND PRACTICE

During the traineeship you develop new skills that you can then apply in your project at one of TMC's clients. You will upgrade your technical skills, but also your soft skills. For example, you will learn how to get people with different priorities to think along the same lines, thereby lifting your work to a higher level. Since you will be working on different projects, not only will your CV get an enormous boost, but you will also develop as a person.

COACHING ON THE JOB

"What I like about TMC is that they are involved in my development and that I can exchange ideas with a professional coach", says Ivo. Trainees can indeed turn to an experienced coach from the field who really understands what challenges technical consultants face. And they coach each other. TMC trainees form a group of people who share the

Ivo Stevens is following the Manufacturing Support traineeship at TMC, The Member Company. The three-year program offers him a great combination between theory and practice within his position as a junior project engineer at ROCKWOOL® insulation.

same ambitions and run into similar problems. Through structural peer review, you reflect together on the skills you learn in your current customer project. Ivo: "I like the fact that we are a small, close group with people I can trust."

Curious about our traineeships?
Scan the QR-code.



ABOUT TMC

TMC is an international high tech consultancy organization with a unique community of entrepreneurial technical professionals.

LAYCO

Layco introduces 'the Goodscope' for mechanical ventilation

More than ninety percent of all medical equipment is made in high-income countries. It is difficult for low-income countries to acquire affordable equipment. TU Delft alumnus Dieuwertje Drexhage hopes that her start-up Layco Medical Devices will help to close this gap.

● It was never Drexhage's plan to become an entrepreneur. 'I never saw myself as a true entrepreneur, as I hate negotiating.' Yet it crossed her path during her Master's programme in Biomechanical Design at TU Delft. 'I did my internship in a hospital in Kenya. There I saw what a lack of affordable equipment means for the hospitals there.'

The TU Delft research programme Surgery for All was already working on an intubation tool that the doctors really needed, but was too expensive. A junior researcher who was leaving asked Drexhage to continue with the product.

In 2020 that resulted in the start-up that Drexhage is now running, together with her financial partner Thom Weustink. They now have eight employees. Drexhage: 'We started out just trying to find our way, stalking everyone we vaguely knew who was working in Africa or in the medical world, to ask them for tips. Thom still had

a full-time job and we spent Fridays and Sunday evenings writing the business plan.' Meanwhile they have landed a substantial grant and Weustink has been able to give up his job at Friesland Campina. Drexhage: 'We are in the R&D phase and aim for our products to be ready for sales in March 2023. We have already sparked some interest in the market.'

GOODSCOPE

The product is the video laryngoscope, 'a horrible word', thinks Drexhage, which is why she has renamed it the Goodscope. Doctors use a laryngoscope to intubate a patient for mechanical ventilation during an operation.

A video camera helps to guide the tube between the vocal chords and into the airway. 'There are already a lot of video laryngoscopes on the market, but they are very expensive and not really suited to the local context', explains Drexhage. 'We have disconnected the screen, so the doctor can also use a smartphone or tablet. The product is fully reusable and works more intuitively, meaning less training is required.'

Hospitals and knowledge institutions were and are happy to give Drexhage constructive input. 'But once you start looking for a business partner to purchase parts or make agreements, you realise you are still very young', says Drexhage. Businesses find it tricky to invest. 'Ultimately, you just need to find that one person who is crazy enough to go for it.'

The dream is to expand Layco with many more products. 'That can also be a pitfall, there are so many products awaiting development.' The Goodscope should be ready in March 2023. Then it needs to go through the certification process. 'We expect to be able to sell the first Goodscope in around a year's time.' ■



CHOOSE
**AMBI
TION**

CHOOSE
**GRO
WTH**

CHOOSE
**EXCEL
LENCE**

What are you going to change?

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Even though Nedap is a technology company at heart, our strength is that we always put people first. 'First people, then technology' is what we call it. We do so by observing people – and what they need to perform better – before we start developing technology.

We observe. We create. We scale.

At Nedap, design and technology work closely together to meet people's professional needs. We create elegant solutions that are easy to use and beautiful to look at. These solutions enable interactive shopping experiences from Adidas to H&M, and provide security for major landmarks such as the Eiffel Tower and the Burj Khalifa. We help farmers take care of their livestock and even find you a place to park your car in Amsterdam.

People. Culture. Leadership.

'First people, then technology' does not only apply to the markets in which we operate, it also applies to our own organization. We invest in developing talent. At our beautiful campus in Groenlo we challenge 'Nedappers' to realize their ideas and ambitions and to achieve more than they could ever imagine. At Nedap, you are challenged to take the lead from day one.

What we find important

At Nedap you get all the space you need, literally and figuratively. But we also expect you to do something with it. We believe in the power of ideas and the energy of your own initiative. And so our entire organisation is designed to do just that.

We work with the relevant people to resolve specific issues. Since we often do this in small, targeted teams, you may sometimes get the impression that you're working with a small organisation at Nedap. However, the extensive options and resources that you can find only in a large organisation will always be available to you. So, we're actually big and small at the same time.

Working at Nedap is being part of a flock. You have the power to change your course and to inspire others to follow. We work together on our fantastic campus in Groenlo in various business units and teams, and we share a common ambition. Together we develop technology that helps people to be more productive and successful in their work.

Start your journey: www.nedap.com/students



TRY, TRY, AND TRY AGAIN

● ‘These are the challenges of life’s journey – you keep trying girl.’ This is what I said to myself when I was receiving one rejection after another. Finding a job was not at all an easy experience for me. And the increasing competition in various fields, the work experience requirements, and other things only make it more difficult. Of course, the pandemic has added another level of difficulty by putting many jobs online, and reducing the offline employment options. That’s another hurdle for graduate researchers with a hands-on mentality.

I remember the struggle of searching for jobs. But I did not lose hope and I always kept trying. Honestly, I think that is one of the most basic things to do in that situation. I spent a lot of time drafting a nice CV and cover letter, but I think another thing that helped was the weekly target I set for applications. No wonder keeping track of my applications was a job in itself! But receiving rejections or even no follow-up at all was always a big disappointment. On the advice of my Dutch friends, I also tried calling companies with open applications. I found this a nice way to approach it because you get a quicker answer than with emails. I still remember being kept on the line and repeatedly calling back to follow up.

Well, it was a phase, because now I am happily writing this column for my aspiring peers as a researcher in a good company. Finding this job in my field was like suddenly hitting the bull’s eye after a lot of tries. I graduated in September last year and started applying for jobs right away. I searched for jobs via LinkedIn (of course), Glassdoor, Google (never underestimate the power of Google) and other job search engines. And Google took me to this company’s website with the job position that I proudly occupy today. It was in October that I was invited for my first interview, but even then, I still kept trying for other jobs as a backup. Going from the first interview to the second and third amidst rejections from other places, gave me a mixture of hope and disappointments. It was a difficult phase at the time, but at least now it’s a great experience to share. My suggestion for job-seekers is not to hesitate to call companies with open applications and to ask for some follow-up or critical feedback about rejections. Above all, never lose hope. You never know what is waiting for you.

Aarzo Kohra

WUR alumnus of the MSc in Plant Sciences, is currently working as Research Assistant in Crucifer Plant Physiology at Hazera Seeds, The Netherlands. ■

FUTURE OF MOBILITY

A smart and sustainable approach to the future of mobility

As a Consultant Operations Transformation at Deloitte, Bob Groenhuijsen is deeply involved in realizing the ambitious strategies of large Dutch and international businesses. But there's more. Within the Future of Mobility theme, he also coaches and supports innovative student teams, including a team from TU Delft. 'We join forces and together we move the mobility industry forward.'

'As a global firm, we see a number of societal challenges that no business or government can solve on its own. It takes a group – or actually, an ecosystem. Deloitte is a vast organisation, with all kinds of expertise and a large network. That's why we have initiated six key themes', Bob (28) explains.

DELOITTE'S
KEY THEMES:
FUTURE OF FOOD, FUTURE
OF ENERGY, FUTURE OF
WORK, FUTURE OF HEALTH,
FUTURE OF SECURITY AND
FUTURE OF MOBILITY.

'The future of mobility is all about how we are going to move people and goods from one place to another in the future. This involves various challenges, such as changing consumer expectations and travel behaviour, even more crowded cities, and an increasing demand for more sustainable mobility. But it also includes the incessant ordering and returning of packages. There are so many vans in our streets and so many vessels and airplanes moving around the world. We need a smart and sustainable approach to address these issues.'

SHARED SCOOTERS

Of course, innovative solutions keep popping up. 'We are already familiar with products and services like the 9292 app, Uber, shared scooters, and the OV-chipkaart (public transport chipcard) for any kind of public transport', Bob says. 'But the developments continue, and Deloitte is very much

involved in co-developing new solutions. What will the OV-chipkaart of the future be like? What does it take to connect future modes of transport? If you leave your home, what do you come across during your journey? These are fascinating issues that I really wanted to know more about. That's why I joined Deloitte's Future of Mobility theme two years ago. I coach and support innovative student teams from TU Eindhoven, Universiteit Twente, and TU Delft. It's very inspiring, as these teams develop hugely innovative technological solutions that large companies cannot or dare not develop.'

FLYING ON HYDROGEN

For instance, AeroDelft (the TU Delft student team) is developing the very first staffed airplane in the world that flies on fluid hydrogen. 'Obviously, that's amazing', Bob says excitedly. 'Student teams are being enabled to invent something without the interfering





opinions of shareholders, managers, or clients. That way, they are able to develop the innovations that the industry needs to move forward, without any inhibitions. That is something that Deloitte, as a partner, loves to contribute to. With our expertise we support the teams to realise their ambitions. Whoever has driven an electric car knows how long it takes to charge, and what that means for your travelling scheme. But what if we could speed up the charging – so it might only take six minutes? Student team InMotion is working hard on this issue. It would make a world of difference, just like airplanes flying on hydrogen. It will mean a huge shift for the entire industry, which is great to watch from up close and to be part of.'

FOLLOW YOUR OWN PATH

Bob does not have a technological background himself. But the projects that he is involved in, next to his regular work, have added to his expertise. 'I studied Finance & Investments at Erasmus University Rotterdam', he smiles. 'But during my first job interviews at Deloitte it became clear to me that I could go any way I wanted within



the firm. You get plenty of opportunity to follow your own path and do exactly what you like. Deloitte may once have started as a financial services provider, but nowadays, services stretch from strategy to designing and implementing new solutions. We are an innovative firm and we are involved in many revolutionary projects, with state of the art technologies. For instance, there's an AI team, a Cloud Engineering team, an Applied Design team, and so on. As a Consultant, my job is to help large companies realise their ambitions and strategies. But in order to do that, I work with engineers and developers, which helps me to understand these technologies. I'm the link between technology and business, so I need to be able to understand both sides. We join forces – and that is exactly what the Future of Mobility ecosystem is all about. Collaboration helps us further along the road than trying to do everything ourselves.'

'With our expertise, we support student teams to realize their ambitions'

Gezocht: veelzijdig talent met brede maatschappelijke interesse

Het CBS is voortdurend op zoek naar nieuw personeel op WO- en HBO-niveau. Sinds het begin van de coronapandemie wordt er al 2 jaar door de medewerkers van het CBS voornamelijk vanuit huis gewerkt. Sinds dit jaar werkt het CBS hybride, deels op kantoor en deels thuis. De uitdagingen op het gebied van onderzoek zijn echter dezelfde. Methodoloog Lianne Ippel en accountmanager Walter Idema vertellen over hun ervaringen.

Lianne Ippel begon haar loopbaan bij het CBS een kleine 2 jaar geleden. Daarvoor behaalde ze haar bachelor Sociologie aan de Universiteit Tilburg en deed ze een researchmaster Statistiek. Ze volgde ook een post-doc bij de universiteiten van Luik en Maastricht. In Maastricht verdiepte ze zich met name in het complexe onderwerp Privacy Preserving Techniques (PPT). Dat zijn nieuwe cryptografische technieken waarbij data beveiligd bij de bronhouders kunnen blijven en analyses door derde partijen op

afstand kunnen worden gedaan. 'Het onderwerp privacy wordt vaak alleen vanuit wetgeving of IT benaderd, maar ook methodologie speelt hierbij een belangrijke rol.'

MAATSCHAPPELIJKE RELEVANTIE

Vanuit haar werk bij de Universiteit Maastricht leerde Ippel via een collega het CBS kennen en was de overstap snel gemaakt. 'Mijn interesse in de maatschappij is groot. Ik vind het daarom belangrijk werk te doen dat maatschappelijk relevant is. Ik wil geen nota's schrijven die in een la belanden.' Bij het CBS was zij aan het goede adres. Collega's startten daar drie jaar geleden met een experiment rond PPT, samen met TNO, CZ en het Zuyderland ziekenhuis. 'Naast dat het technisch mogelijk is om veilige analyses te doen, is het belangrijk te onderzoeken of de informatie die je over die beveiligde verbindingen verstuurt óók veilig is. Dat geldt eveneens voor het PPT-project van het CBS met de Universiteit

Maastricht en de Rijksuniversiteit Groningen. In dit project willen wij de samenwerking opzoeken om een data-infrastructuur te realiseren, waarbij onderzoekers data die zich bij het CBS bevinden op een veilige manier kunnen combineren met de data waarover hun eigen instelling beschikt.'

INTERNATIONALE PROJECTEN

Ippel houdt zich niet alleen bezig met PPT. Zij is ook betrokken bij allerlei internationale projecten. 'Zo ondersteun ik onze vestigingsdirecteur Rob van Kan bij zijn voorzitterschap van het taskteam van de Verenigde Naties: *Global facilitation of access to privately held data*. Dit team organiseert samenwerkingssessies om te onderzoeken welke data van private sectoren interessant kunnen zijn voor officiële statistieken en hoe we toegang tot dit soort data kunnen krijgen. Verder ben ik als internationaal coördinator Methodologie betrokken bij de afstemming van de internationale bijdrage van



LIANNE IPPEL



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2492 JP DEN HAAG 6412 EX HEERLEN
TEL: (070) 337 38 00 TEL: (045) 570 60 00

WERKEN BIJ HET CBS!
BEN JIJ ER KLAAR VOOR?
WWW.WERKENBIJHETCBS.NL



WALTER IDEMA



het CBS aan allerlei projecten. Denk bijvoorbeeld aan de vergaderingen van het Europese statistiekbureau Eurostat en de instituten die binnen de EU-lidstaten verantwoordelijk zijn voor de ontwikkeling, productie en publicatie van Europese statistieken.' De internationale component van haar werk vindt Ippel erg interessant en die wil ze in de toekomst graag uitbouwen. 'Het lijkt me mooi om bij het CBS een spin in het web te kunnen zijn als het om internationale onderwerpen gaat. Dat ik kansen daartoe krijg, daar ben ik het CBS erg dankbaar voor.'

GEK OP CIJFERS

Walter Idema koos ook heel bewust voor een baan bij het CBS. 'Ik ben na een studiezoektocht uiteindelijk in de communicatie afgestudeerd, maar ben altijd gek op cijfers geweest. Wiskunde was dan ook mijn favoriete vak. Daarnaast vind ik het fijn om mensen

en organisaties verder te helpen.' Zijn carrière begon Idema bij een markt-onderzoeksbureau, waar cijfers en communicatie een belangrijke rol speelden. 'Het was een uitdagende maar ook intensieve baan met veel overwerk. Dit bleek steeds moeilijker te combineren met een gezin met jonge kinderen. En na 7 jaar was ik ook toe aan een nieuwe uitdaging. Toen heb ik besloten de overstap naar het CBS te maken. Het CBS stond bovenaan mijn lijstje van favoriete werkgevers. Het is een mooie organisatie in dienst van de maatschappij en ook hier spelen cijfers een cruciale rol.'

EXPERTISE

In 2016 begon Idema aan zijn eerste baan bij het CBS. Die was vooral projectmatig van aard, maar ook daar stond het contact met externe opdrachtgevers centraal. 'Bij het CBS is er veel expertise over heel veel onderwerpen en data. De buitenwereld heeft hier lang niet altijd zicht op. Ik breng organisaties dan ook graag in contact met het CBS om vanuit onze wettelijke taak statistische diensten te verlenen voor het maatschappelijk debat, onderzoek, beleidsontwikkeling en besluitvorming.' De overstap in februari 2020 naar de functie van accountmanager voor de ministeries van Binnenlandse Zaken (BZK) en Financiën was dan ook eigenlijk een logisch vervolg. 'We werken veel samen met BZK. Zij hebben een aantal maatschappelijke uitdagingen - denk aan de woningmarkt, de energietransitie en digitalisering - waarvoor

zij specifieke expertise en data nodig hebben. Ik adviseer en ondersteun daarbij om een goede samenwerking op verschillende organisatieniveaus tot stand te brengen. Bij het ministerie van Financiën ligt onze focus vooral op afstemming, bijvoorbeeld als het gaat om statistieken van overheidsfinanciën.'

THUISWERKADVIES

Anderhalve maand nadat Idema accountmanager werd, moesten de 2000 CBS-medewerkers in verband met de uitbraak van de coronapandemie allemaal vanuit huis gaan werken. 'Dat was wel even slikken. Als accountmanager bij de ministeries wil je je laten zien en zoveel mogelijk mensen fysiek ontmoeten en gesprekken voeren, zowel intern als extern. Door het thuiswerkadvies werd dat dus veel kennismaken via het scherm.' Idema ziet echter ook de voordelen van thuiswerken. Zo vindt hij het online vergaderen met meerdere organisaties laagdrempeliger. Wat zijn de ambities van deze accountmanager voor de toekomst? 'Ik heb geen uitgestippeld carrièreplan. Ik laat mij verrassen door wat er op mijn pad komt. Als het dienstverlenende element en de cijfers maar terugkomen in mijn rol.'

'Mijn interesse in de maatschappij is groot. Ik vind het daarom belangrijk werk te doen dat maatschappelijk relevant is'

FEA TUR ED!

FYI

Scientific career

Are you thinking about obtaining a PhD? It could be a great option! There are several things to consider. You have to make sure that you love the topic you are going to work on, you have to make sure that you and your supervisor find a good way to cooperate, and you must be willing to learn a lot of new things and be able to deal with the unexpected. Contrary to what is often said, a PhD is more about personal development and getting to know yourself, than about the content of your topic. Although that is important as well of course. To find out more, talk to other PhD-students, they can share their first-hand experiences. Getting your PhD can be very rewarding, but it can also be equally tough, in the Netherlands less than 15% of all PhD students finish their thesis within the required time. Within 5 years, half of the PhD- students has finished. What is the main reason for this? Most PhD students are ambitious and perfectionists. Nothing wrong with that, but for finishing on time, you also need to learn to ask for feedback and reach out to ask questions. It is important that you learn to focus on the process. If you handle the process well, you will have an exciting journey, being at the frontier of science. Arjenne Louter, the Dutch PhD Coach

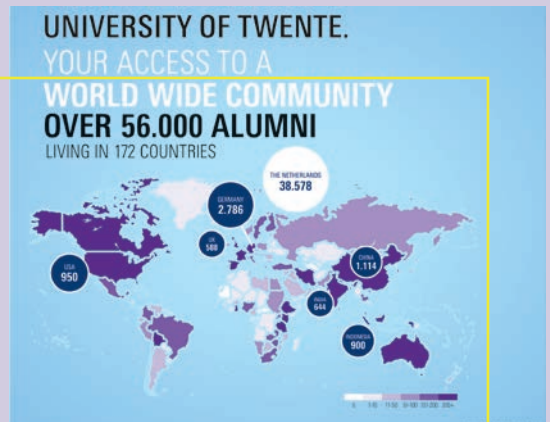
GOOD TO KNOW

Bridge the gap!

Fifty percent of the technically educated professionals do start working in the technical labor market (SER, 2014), while tech companies are often looking for good technical talent. Thus, there is a "gap". So far is unclear why so many students do not choose a technical profession.

In the research project "Bridge the Gap", 4TU focuses on Science, Technology, Engineering and Math (STEM) students in higher education (hbo and wo) during the transition from study to work.

Bridge the Gap! develops and test tools and interventions to help students and professionals to gain insights in and confidence in their own professional identity and as such contribute to a deliberate and appropriate study and career choices.



FACT

TIP

Career Portal

In the first year after graduation, alumni have access to all career workshops of the TU Delft Career Centre, for example Improve your interview skills, jobsearch strategies, Define your Career Values, Career Planning, CV& Motivation letter, What's the deal with negotiations and many more.

[Please check the overview of career centre for the current workshops and to register. Can't register?](#)

Send an email to careercentre@tudelft.nl



FACT

A FLAX BRIDGE

A FLAX BRIDGE FOR PEDESTRIANS AND CYCLISTS CAN BE FOUND AT THE FLORIADE INTERNATIONAL HORTICULTURAL EXHIBITION IN ALMERE. RIJK BLOK, ASSISTANT PROFESSOR OF THE DEPARTMENT OF BUILT ENVIRONMENT AT TU/E WHO DIED SUDDENLY ON MAY 7 OF THIS YEAR, HAS BEEN LEADING THE EU-PROJECT THAT IS CALLED 'SMART CIRCULAR BRIDGE'. BLOK SAID PREVIOUSLY ABOUT IT: 'THIS PROJECT AND THE MATERIALS WE HAVE USED HAVE A GREAT FUTURE. THE INTENSIVE COOPERATION BETWEEN SCIENCE, INDUSTRY, AND COMMUNITIES HAS GIVEN A BIG PUSH TO THE MATERIALS DEVELOPMENT.'

THE PEDESTRIAN BRIDGE IS 15 METERS IN LENGTH AND CAN EASILY CARRY THE WEIGHT OF 275 PEOPLE AT ONCE. AT THE FLORIADE IT CONNECTS TWO PARTS OF THE EXHIBITION.

APART FROM THE 100 PERCENT NATURAL FLAX FIBERS, THE RESIN USED TO HOLD THE FIBERS TOGETHER ALSO COMES FROM NON-FOSSIL SOURCES AS MUCH AS POSSIBLE.

QUOTE

'People with an interest in ICT, technology and water are a real rarity'



ABEL HEINSBROEK (TU DELFT ALUMNUS, PROCESS TECHNOLOGIST AT VITENS)

GOOD TO KNOW

Start up: sales figures gone through the roof

Sjuul Berden and Thijs Verheul were only in the first months of their degree course in Business and Consumer Sciences at Wageningen when they discovered they would never be scientists. They wanted to go into business. 'We were fascinated by the up-and-coming companies of the time, such as Facebook and Twitter. The incredible speed at which they succeeded in bringing millions of people together through websites and apps, building communities that way,' recalls Berden. It was the dream of everyone starting a new business, and the Wageningen students managed it: their company's sales figures have gone through the roof. Last year, the Lithuanian multinational Vinted bought up their company, United Wardrobe – a kind of eBay for second-hand clothes. 'In a few years' time less new clothing will be needed; and we will have contributed to that. How cool is that?'

AIVD

‘Werken bij de AIVD is bijdragen aan de veiligheid van Nederland’



NIELS WIL WAARDE TOEVOEGEN AAN DE SAMENLEVING

Toen Niels hoorde dat de Algemene Inlichtingen- en Veiligheidsdienst (AIVD) een borrellezing zou verzorgen bij zijn opleiding zorgde hij dat hij in de zaal zat. Het onderwerp van de lezing, cybersecurity, sloot niet geheel aan bij zijn studie artificial intelligence. Hij was wel op zoek naar een interessante plek om een scriptie te schrijven. De vonk sprong over.

Hij had al besloten dat hij niet op zoek was naar een baan in het bedrijfsleven, want aandeelhouderswaarde zegt hem niet zoveel. Niels wil waarde toevoegen aan de samenleving. Zijn ouders werkten ook al voor de overheid. Bij de borrel – die lezingen gaan ook over pizza's en pils - sprak hij de man aan die de voordracht had gegeven. Die

bleek verrassend open en benaderbaar. Daarna wist hij zeker dat hij een poging zou wagen om af te studeren bij de dienst. Via de relatiemanager zat Niels snel op de plek waar hij wilde zitten. Natuurlijk moest hij een veiligheidsonderzoek ondergaan, zoals iedereen die in het gebouw van de AIVD in Zoetermeer werkt, maar die twee maanden vlogen om.

GEEN ZWARTGELAKT WOORDJE

Het onderzoek van Niels gaat over hoe je grote hoeveelheden tekst doorzoekt op begrippen en hoe je ervoor zorgt dat je die begrippen ook op de juiste manier aan elkaar relateert. Het is eenvoudig om tekst te doorzoeken (CTRL + H ;-)) op begrippen. Deze begrippen vervolgens met elkaar in verband brengen, is een stuk moeilijker. Hij heeft in zijn onderzoek gewerkt aan het inzichtelijk maken van informatie die

aanwezig is in de grote tekststromen die de AIVD binnenkrijgt. En in tegenstelling tot wat iedereen altijd denkt, werd er geen zwartgelakt woordje in zijn scriptie gevonden.

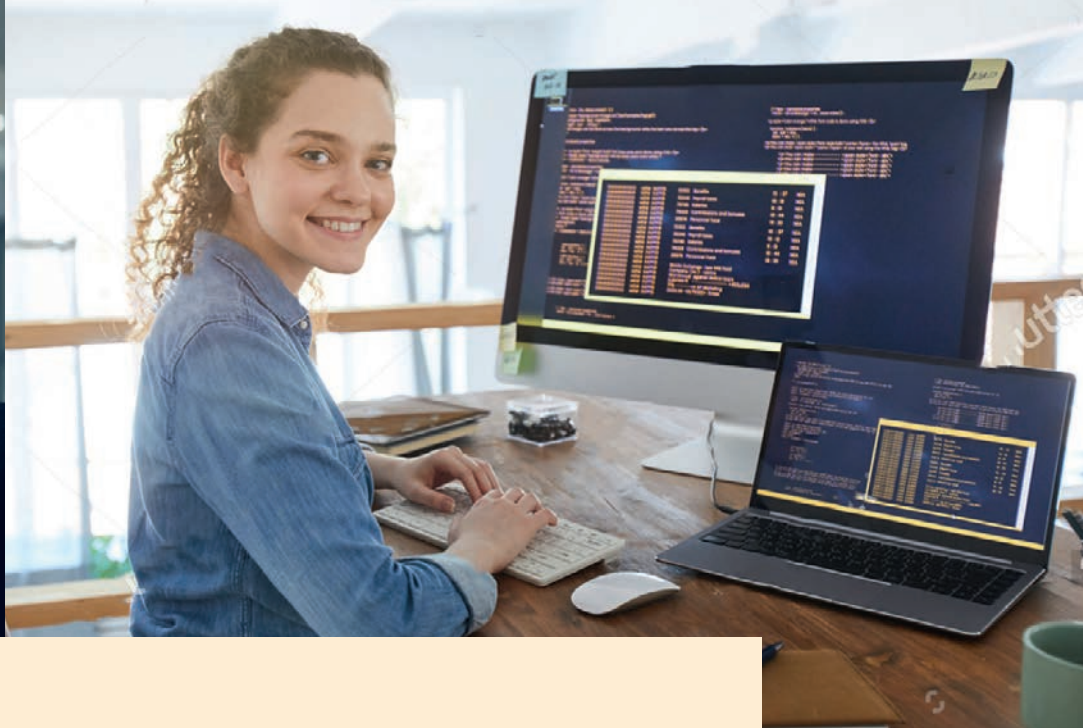
Aansluitend op zijn afstuderen trad hij in dienst bij de MIVD, daar hoefde hij fysiek niet voor te verhuizen. De AIVD en de MIVD werken op een paar plekken dagelijks samen. De Joint Sigint Cyber Unit is zo'n plek waar je alleen aan iemands loonstrook kunt zien waar hij werkt.

AANSLUITING BIJ DE WETENSCHAP

Niels heeft het naar zijn zin. Na zijn studie heeft hij nu het salaris om eens na te denken over een echt goede gitaar, want dat is zijn grote hobby. Het is fijn dat zijn werk dagelijks bijdraagt aan de oplossing van praktische, maar wezenlijke problemen. Zijn collega's komen veel sneller tot de kern door de oplossingen die hij verzint. Wij vinden het normaal dat hij een substantieel deel van zijn tijd besteed aan lezen om de aansluiting bij de wetenschap niet te verliezen. Kom daar maar eens om in het bedrijfsleven.

WERKENBIJDEAIVD.NL
WERVING@MINBZK.NL





Voorlopig denkt Niels niet aan verkassen. Misschien gaat hij die PhD nog wel eens doen bij de AIVD of de MIVD en misschien zou hij daarna ook nog wel eens leiding willen geven, ooit. Nu is hij heel tevreden met zijn baan, het onderzoek dat hij kan doen en de mogelijkheden die zijn baan hem biedt.

KARIN WIL HET ALGEMEEN BELANG DIENEN

Het allerleukste aan haar werk is dat Karin bij veel verschillende teams over de vloer komt en dan hoort wat ze doet. Dat was ook al zo bij haar vorige werkgevers. Ze is begonnen bij de producent van een bekende applicatie voor kantoorautomatisering. Daar solliciteerde ze na haar stage. Ze was er inmiddels achter dat het werken in projecten met een kop en een staart haar goed beviel. Projecten die geen vijftien jaar in beslag nemen. Deze IT-werkgever nam ook mensen aan die geen opleiding hadden in de IT. Dat kwam goed uit voor deze oud-biologiestudent. Ze werd ingezet om de applicatie in te richten bij klanten. Het was leuk werk, maar niet heel technisch. Dat vond ze jammer.

Via een tussenstap bij een technisch en veel commerciële werkgever kwam ze terecht bij de AIVD als projectmanager. De AIVD voldoet aan alle eisen die ze stelt aan een werkgever. Ze was op zoek naar een andere reden om op te staan iedere dag dan die uitstekende loonstrook. Die vond ze in het dienen van het algemeen belang en het bijdragen aan de veiligheid van Nederland. Zoals wel vaker bij de AIVD werd haar pas verteld wat ze ongeveer ging doen, toen ze een gesprek voerde over haar arbeidsvoorwaarden. Gelukkig viel dat zeker niet tegen.

ALTIJD INGEWIKKELD

Ze is als projectmanager verantwoordelijk voor de bouw van een nieuwe datacenter. Dat is zo'n fijn project omdat de opdracht heel duidelijk is en de uitkomst uitermate makkelijk meetbaar. Het kost ook geen jaren om het te af te ronden. Een ander project is de realisatie van enkele honderden nieuwe werkplekken. Dat is zo van de buitenkant beschouwt een normaal project. Bij de AIVD is het echter altijd ingewikkelder, bijvoorbeeld omdat zelfs de aannemer niet mag weten hoe de indeling er precies uit gaat zien. Wat je

niet weet, kun je ook niet verklappen met een biertje te veel op tijdens een leuke etentje. Het derde project is het automatiseren van bepaalde processen bij de unit Veiligheidsonderzoeken. De AIVD voert zo'n 100.000 veiligheidsonderzoeken per jaar uit voor de overheid en voor commerciële partijen. Automatisering moet aan strenge veiligheidseisen voldoen, alleen al omdat er met zeer privacygevoelige gegevens wordt gewerkt.

Het was wel iets dat ze goed met haar partner heeft moeten bespreken. Het werken bij de AIVD heeft natuurlijk impact op je persoonlijk leven. Inhoudelijk kun je niets meer delen met je naasten. Thuiswerken is meestal geen optie. En dat zijn van die dingen waar je enorm aan went. Nu ze er eenmaal werkt, merkt ze dat het ook voordelen heeft, zeker voor iemand die het moeilijk vindt om niet met een half oog naar haar werkmail te kijken als ze thuis is. Nu kan ze lekker gaan sporten of onderuit zakken voor een fijne serie.



MET EEN TEAM MAAK JE IMPACT!

Geef je carrière een vliegende start! Als Young Professional kun je bij ons in korte tijd veel zien, leren en ervaren. We geven je de ruimte om te ontdekken waar jouw talenten liggen en helpen je om ze verder te ontwikkelen.

Dit avontuur ga je niet alleen aan, maar samen met andere Young Professionals. Tijdens een opleidingsprogramma dat op jou is afgestemd, word je klaargestoomd om het verschil te gaan maken in je vakgebied.

Benieuwd hoe jij ons team kan komen versterken? Bekijk nu de mogelijkheden!





PETER SPIJKER

ALUMNUS TU/e

INSTITUTE MANAGER

AT SRON

‘In each job I learn new things’

● Peter Spijker is institute manager at SRON, the Netherlands Institute for Space Research. He studied and gained his PhD at TU/e at the faculty of Biomedical Engineering. As a postdoc, he worked in Lausanne and Helsinki. However, a permanent position as a researcher ultimately remained out of reach.

‘Many people do not succeed in doing so, and after several attempts I too have come to

the conclusion that it just was not going to happen. It can depend on many factors, such as the subject you are studying or simply that you do not meet the right person at the right time. The research world is a pyramid and not everyone can reach the top.’

AMBITION

However, as befits an ambitious researcher, Spijker went abroad to broaden his horizons as a postdoc. He ended up in Switzerland at EPFL (one of Europe’s most vibrant and cosmopolitan science and technology institutions) and went on to study in Helsinki at Aalto University. ‘Wonderful research positions at great institutions, where I worked on modelling techniques.’

Yet, such an existence does take its toll on your personal life, he says. ‘My wife was also

making career as a researcher, and at the time she was working in Paris and Munich. For five years we had some kind of scientific LAT-relationship.’ Ultimately, all that effort did not result in a permanent scientific appointment with more personal responsibility.

A FRESH START

Spijker made the move to FOM, which soon merged into NWO, and this was the start of a new career. He was now sitting on the other side of the table. He no longer submitted project proposals, but instead supervised the assessment process. ‘Only then does it become clear how much time and energy scientists have to put in, always with the great risk that the application will not be successful. It also gave me an insight into how an organisation like NWO is structured and how it works.

As a researcher, you are hardly aware of that.’

Spijker was also assigned a complex strategic dossier: how the twenty research institutes of NWO and the KNAW should approach future research topics. ‘That means trying to understand how certain fields will develop, and what their importance will be in a few years’ time.’

His current position at SRON, also part of NWO, is temporary. ‘It is a temporary placement, but in each job I learn new things. Currently, that is mainly in the area of business operations, such as how to deal with human resources, ICT, and finance. Whilst it does take time and energy each time to get to know a new organisation, it is more than worth it, and is certainly a personal enrichment.’ ■

‘The research world is a pyramid and not everyone can reach the top’

LIVE YOUR AMBITION

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

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

TRAINEESHIP

Deze en andere inzichten deed Marissa op tijdens haar traineeship bij TAUW. 'Het traject sloot goed aan bij mijn brede studieachtergrond, want ik ging aan de slag bij drie verschillende afdelingen: Bodem, Circulaire Economie en Duurzaamheid en Stedelijke Transformatie.' Die laatste beviel zo goed dat ze er nu een permanente functie heeft. 'Ik werk aan de mooiste klussen met als doel het toekomstbestendig maken van ons woonmilieu.'

MAATSCHAPPELIJKE OPGAVEN

'Als projectmedewerker werk ik vooral met overheidsinstanties, zoals gemeenten. Samen met mijn collega's voorzie ik onze klanten van advies. Mijn kennis als aardwetenschapper komt in stedelijk gebied goed van pas. Hier zijn de problemen van het natuurlijk systeem ook groter. Denk aan kabels en leidingen onder de grond, onder meer in het kader van de energietransitie.'

PERSOONLIJKE ONTWIKKELING

Wat Marissa ook zeer aanspreekt, is dat TAUW investeert in de persoonlijke ontwikkeling van haar medewerkers. 'Bijvoorbeeld door tijd beschikbaar te stellen om opleidingen te volgen bij de TAUW University en andere activiteiten. Zo ben ik bestuurslid bij netwerkorganisatie JongBodem, redactielid van vakblad Bodem en actief voor het programmabureau van de TAUW Foundation.'

'Ik werk dagelijks samen met een leuk en ervaren team. Ook past de TAUW-cultuur, waarbij winstgevendheid en maatschappelijke impact hand in hand gaan, helemaal bij mij.'



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IMPACT

● Every year, *Wervingsdagen* organizes career events at the Eindhoven University of Technology (TU/e). The major event is the Career Expo, a two-day career fair where students can connect with over 180 companies. In March 2020, COVID-19 had just raised its ugly head, the expo was cancelled at the end of the first day. It made a big impact.

The first COVID case in the Netherlands was confirmed on February the 27th. With the upcoming Career Expo on the 10th and 11th of March on our minds, we contacted the TU/e crisis team. What should we do? At that time nobody knew how the virus would react. We decided to go ahead. The expo was only ten days away. What could happen?

The event was kickstarted by Dutch comedian Arjen Lubach. He made a joke that he had entered the 'red zone' in Brabant and would be washing his hands for the rest of the day. After that, over two thousand students visited the companies. Late in the afternoon we got the following message from the Executive Board: 'The major of Eindhoven called. He asked us to stop the expo'. Two hours later, NOS came with their camera's, and we were a national news item. Five days later, the Netherlands were in a total lockdown.

The cancellation hit us like a bomb. As the organizing team, together with all study associations, we worked for a full year towards this event. Due to the pandemic, we couldn't deliver our service to the companies. Therefore, a financial agreement had to be set up with them. Meanwhile, we had to schedule different scenarios for next year's edition of events. Moreover, a new organizing team had to be recruited and prepared. Try doing all this combined when you as a team just worked for a year, over full-time weeks, for a cancelled event. In the end, the agreement was made, new plans for next year's online edition were set up, to be executed by a new board.

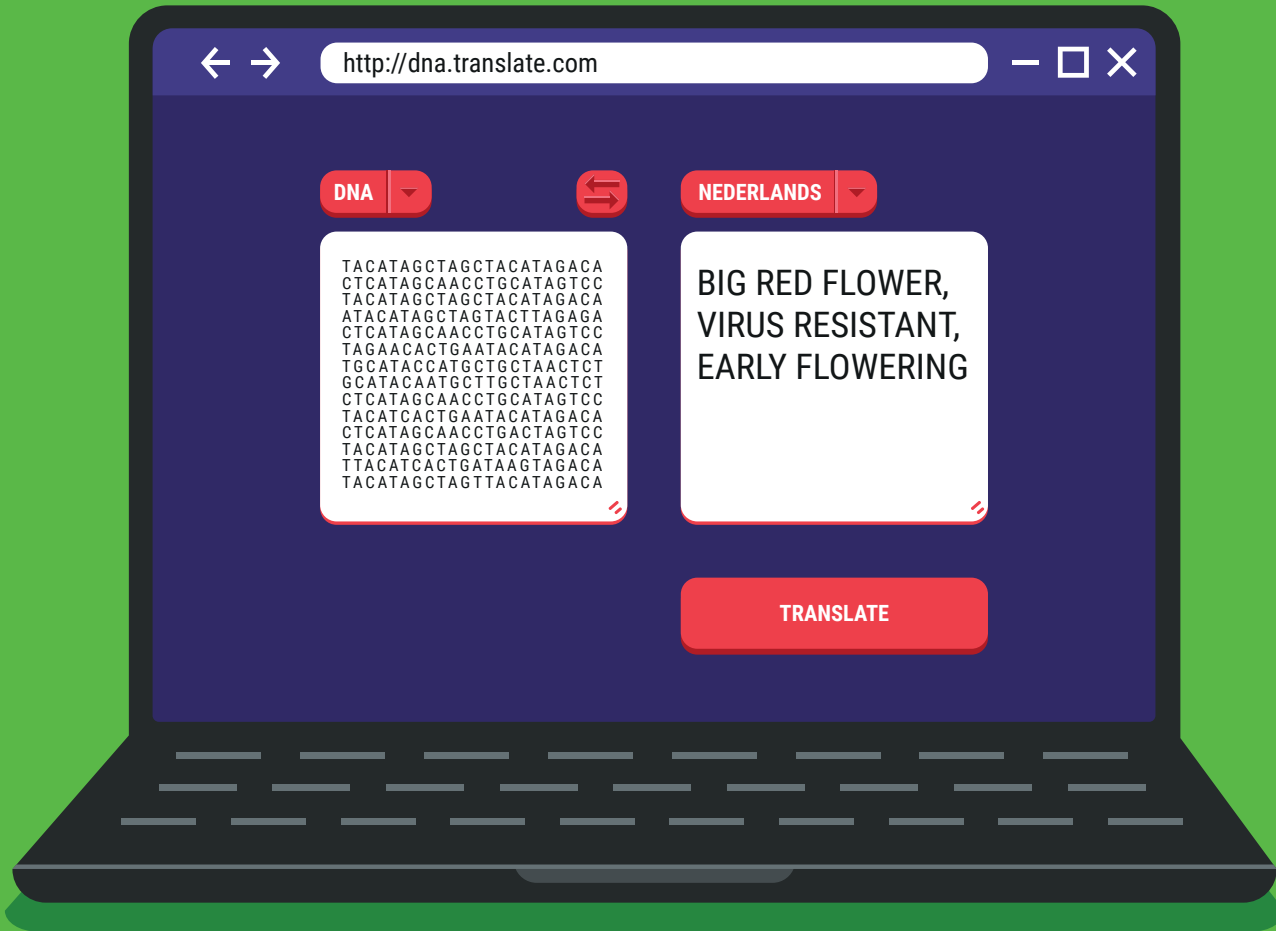
This year the Career Expo could take place off-line again. Real life connections were being established again between our students and the companies. As chair of the *Wervingsdagen* in that disastrous year 2020 I can only say to you: start your career orientation in an early stage, even if you are still a bachelor. Because it will help you in finding the job that you will love the most.

Boris Zwaan

Master's student in Chemical Engineering and Chemistry at the Eindhoven University of Technology and Board Member of the GO Green Office at TU/e ■



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Inventors between lab and barn

From a jukebox for chickens to a self-propelled wheelbarrow that follows you around. As a country boy, Bastiaan Vroegindewij has an unerring instinct for inventions that can make the life of farmers or farm animals - and preferably both - more pleasant. Devising and making them is the core business of his company, Livestock Robotics. 'Really, we are just inventors who are bridging the gap between the lab and the barn', is how he sums it up.

- Livestock Robotics stems from Vroegindewij's PhD research at the Farm Technology Group at Wageningen University & Research. He succeeded in developing an egg retrieval robot that detects and collects eggs fully automatically in cage-free layer barns - without breaking the eggs or running over the hens. Nobody doubted the usefulness of this PoultryBot. But profit margins are narrow in the poultry industry, and the relatively long payback period made investors reluctant to back the upscaling of Vroegindewij's invention.

BREAKTHROUGH

But who knows, a breakthrough may yet come for the PoultryBot. And if not, that is no disaster, because Livestock Robotics has now broadened its scope to almost anything at the cutting edge of robotics, vision and agriculture.



Sometimes to help carry out technically complex scientific research, sometimes to help implement an agro-food entrepreneur's innovative idea, and of course also to work out the details of the company's own innovations. 'As long as we get to do fun stuff and can earn a decent living', says the founder.

FROM FLOOR TO CEILING

Livestock Robotics, with its staff of three plus a trainee, will keep its office on the Wageningen campus until this summer, before moving to Vroegindewij's home town in the Betuwe. 'We are gradually outgrowing the start-up stage and are running out of space here', he explains. A glance into the small office confirms this: it is stuffed from floor to ceiling with boxes full of screws, sensors, wiring and other inventor paraphernalia. One door down, prototypes of the PoultryBot and the aforementioned self-propelled wheelbarrow are parked. 'Electric wheelbarrows are starting to become quite common', says the self-styled inventor, 'because especially on rough terrain, the motor saves a lot of physical effort. But we thought it was a bit primitive that someone has to walk behind that wheelbarrow. Let the wheelbarrow follow you. That can easily be done with modern technology.'

Other inventions that Livestock Robotics is working on include a weeding machine - of course one that detects which plants are weeds - and innovations for the rapidly developing world of insect breeding. There is plenty of room for this at the new location, in terms of both physical and mental space. 'Livestock Robotics always has room for new ideas. So if there are any other parties we can help with solving a technically complicated agrofood problem...? That's what we like doing best!' ■

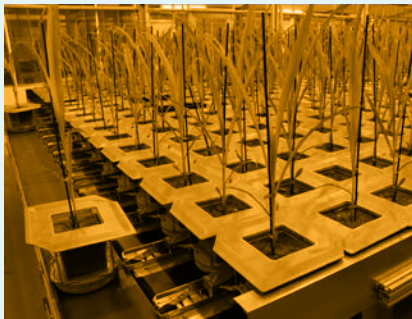
'Livestock Robotics
always has room for
new ideas'



Developing computer models for improving crops

Anna Freudenreich and her colleagues at KeyGene in Wageningen develop artificial intelligence methods to accelerate the improvement of food crops.

‘Eventually, our work contributes to feeding the world’, she says.



Although she works in bio-informatics department, Freudenreich is neither a biologist nor a computer scientist. She studied physics and astronomy in Leiden and worked as a teacher and in the energy business before she came to KeyGene via an open application. ‘I have always had a strong inner drive to understand how things work, and I realized I wanted to work with complex problems’, she says. ‘As a researcher in bioinformatics I get to analyze complex biological systems and model them in a way that helps our clients to improve their crop breeding programs.’

MODELS AS A TOOL

Through breeding, KeyGene’s partners aim to develop plants and crops that are more resilient to diseases or drought caused by climate change. The bioinformatics team helps them to select plants with the right characteristics. ‘In many plants several to hundreds of genes contribute to certain desired plant

characteristics’, Freudenreich explains. ‘We develop complex computer models based on artificial intelligence and deep learning as a tool to facilitate the selection of plants for breeding. We ‘feed’ these models with a wide variety of data types, such as whole genomes or gene expression datasets, but we also use imaging data, like photographs of plants that have grown under different circumstances.’

FEEDING THE WORLD

Crop breeders often look for a combination of desired characteristics to improve their plants. Freudenreich mentions bananas as an example. ‘There are many different varieties of bananas, but only some are suitable for export. The bananas we used to eat in Europe had a taste we can now still find in banana candies, but that variety has become extinct due to a fungus infection. Breeders were unable to make their crops resistant to that fungus and we have grown used to a different kind of banana.’ Because bananas are such an important food crop and export product and because a variety of the fungus has emerged, breeders now aim for crops that are fungus resistant, can feed local people, and are suitable for long distance transport. Computer modelling helps to find the plant hybrids that are most promising, or even detect specific

genes involved in fungus resistance. ‘Our work is often a technical challenge and it is very satisfying when we manage to solve a puzzle with our modelling work’, Freudenreich says. ‘It also feels very rewarding that our work may eventually contribute to help feeding the world.’

COLLABORATING

KeyGene works for several clients in crop breeding and close collaboration with these clients is essential for being able to offer them innovative solutions and insights. This also requires close contacts with academia, to ensure that the latest knowledge can be used for new innovations. Within the company, Freudenreich works with colleagues from other departments, because KeyGene’s project teams are always interdisciplinary. ‘We are all experts in our own field, so our conversations are very efficient and different perspectives allow for new and innovative ideas to emerge’, she says. ‘Apart from that, we have a very pleasant working atmosphere, and continuous opportunities for developing.’

www.keygene.com





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TU EINDHOVEN

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QUOTE

'Don't be afraid to return to academia'



AFTER A FEW YEARS OF WORKING AS A PROJECT MANAGER TIMO GERRES (MSC SYSTEM ENGINEERING, POLICY ANALYSIS & MANAGEMENT AT TU DELFT) STARTED HIS PHD AND IS NOW A RESEARCH ASSISTANT PROFESSOR

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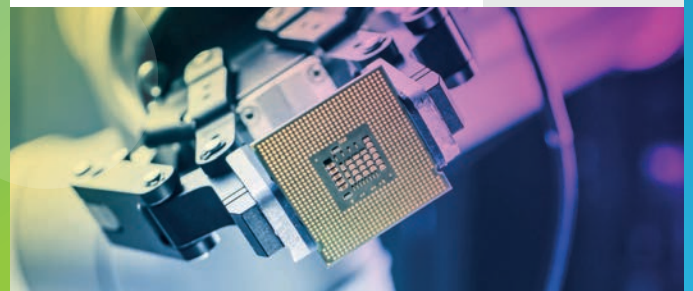
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ELSKE HAGERAATS

ALUMNUS WAGENINGEN

GARDENER, TEACHER

AND WRITER

‘It can be done, a fair wage for farmers’

● While supermarkets compete with bargain prices, some farmers earn no more than a pittance. Gardener Elske Hageraats, WUR-alumnus, devised a solidarity payment system that enables a farmer to earn a fair wage.

Vegetables, herbs, edible flowers, in the beds of the Ommuurde Tuin (walled garden) in Renkum, near Wageningen, some 450 varieties are grown. ‘We are busy getting ready for the new season’, Elske Hageraats explains. She points to a strip of land: ‘We have just tilled the soil there so the compost gets thoroughly mixed into it.’

Hageraats is a self-employed gardener at this centuries-old market garden where pesticides and artificial fertilizers

are banned. The vegs that are grown here go into the 90 boxes that customers collect every week. These boxes are not sold one at a time. The customers, the 200 members of the garden, pay a sum of money to the growers at the beginning of the season. ‘Instead of asking for money for the vegetables, I want to see my costs covered and receive an average hourly wage’, explains Hageraats.

In this Community Supported Agriculture system (CSA), the customer is a harvest shareholder. ‘That way we share the risk. If part of the harvest should fail due to a hot summer, members will get slightly smaller quantities of vegetables in their boxes. In a good harvest year, the boxes will be fuller.’ The members pay according to

their means. ‘Our target price for a single box is 16 euros, the minimum hourly wage for a self-employed person. But ideally customers pay the hourly wage they earn themselves.’

Hageraats idea of solidarity payments is a way for farmers to bypass the supermarkets. The latter ‘are so powerful that they can negotiate low prices. The Court of Audit calculated in 2019 that a third of all farmers in the Netherlands earn less than the minimum wage. Without subsidies it would be half the farmers.’

The fact that it doesn’t pay well did not put Hageraats off going into farming after graduating from Wageningen. ‘I have always had a great love of nature. That is why I studied

biology.’ Hageraats took two Master’s degrees: biology and sociology. ‘I really like the combination of natural and social sciences. It enables you to talk to people from both disciplines. In the case of GMOs, genetically modified organisms, for example, I know exactly how they are created and what their social impact could be.’

For people who want to start their own garden Hageraats teaches courses on agroecology. And she wrote the book *Eerlijk loon!* (Fair wage!), which contains inspiring examples of farmers’ campaigns for a better income. ‘All these examples from home and abroad gave me the confidence that it can be done, a fair wage for farmers.’ ■

Mechanical engineering students inspire NTS team by refreshing and original ideas

Avans mechanical engineering students Jelle van den Heuvel and Tim Versteeg have been part of a project team at NTS. Their assignment: to realize a cost-down for two modules of a wafer processing machine. In doing so, they were given plenty of room to think differently. And with success. The students proposed various original ideas for reducing costs.



'A cost-down that I came across was powder coating,' says Jelle. 'NTS Singapore produces frames and after production, they are powder coated. Together with NTS Singapore I mapped out whether the same coating, would generate savings at another supplier. In the end I found a supplier for the coating in Singapore that is significantly cheaper.'

'An example of what I've achieved, is a reduction of costs on larger parts of the module that need to be turned or milled,' Tim continues. After the necessary research it turned out that switching from aluminum to steel would mean significant cost savings.'

Their proposals for cost savings will be shared with the customer by the NTS project manager. 'The best result of our internship would be when some of the savings we have come up with will be executed.'

Looking back, they found it really cool to be part of an existing team. 'That does not often happen during internships,' Jelle says. 'You usually only work on a defined assignment. That is what we also hear from other students during internship markets. The fact that you work on a project in an existing team is unique and really cool. You feel like you are really part of the company.'

Tim: 'Although it was an existing project, we had a lot more freedom to think originally and come up with out-of-the-box ideas than the engineers working on the project. An experienced engineer has to save a certain amount per hour. That did not apply to us. We could inspire the team with original ideas.'

'Altogether, this internship has been a really positive experience,' concludes Jelle. 'NTS as a company, the assignment and the supervisors have all been great. The supervisors did everything in their power to guide us as well as possible and were close to our process.'

“Every day I learn something new on the job – when I’m working at the office, from home, as well as on site at customers.”



**Thijme Hijink (27)
Process Technologist**

Interested in biology I started my Bachelor Animal Sciences at Wageningen University. Becoming more and more invested in livestock production, the way we raise and produce the food we eat, I proceeded with the Master Animal Sciences after finishing my Bachelor. I choose the major Adaptation Physiology, which in short asks the question: How can production animals adapt to their environment and how can we create the best possible environment for them?

After graduating, Marel became my second employer after working for three years as a research assistant. During my study I loved looking at the biological side of production animals in highly technical environments. Marel unites my biological interests with state-of-the-art technology and equipment, from live farm animals to products for sale at your local supermarket. As I've only recently started at Marel as Process technologist, I'm still going through an extensive training program to get me prepared for future tasks. Among others, providing technical support with novel prototype machines at customers, gathering performance data, and subsequent optimization advice.

Growing numbers of people are interested and concerned about the welfare of the animals that provide them with food. We have a responsibility to treat the live animal as humanely as possible during its life, which includes the final part at the abattoir to avoid unnecessary suffering. Even though slaughter forms only a brief period



within an animal's life. As a Process Technologist at Marel, together with all my colleagues, I get the chance to help improve animal welfare with practical and innovative solutions related to live animal handling and stunning. As well as working on subjects related to improving food hygiene and meat quality or related to the environmental impact food processing has.

I'm a very curious person and I like to understand how things work and learn new things. Working with people who are as curious as I am, and that are more skilled, makes my work the best learning environment there is. Every day I learn something new on the job – when I'm working at the office, from home, as well as on site at customers.

About Marel

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

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

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

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

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Five tips on how to get your very first job

To help graduates with getting a job, we talked to UT alumnus Mark Bonvanie (Psychology and Educational Science & Technology). He works as a technical recruiter at Eqib | The Human Factor, an HR business partner, where he recruits people for jobs, does HR consultancy, helps with employer branding and gives workshops. Here are 5 tips to launch your career.

‘Don’t just take the first offer, but make sure the function and company interest you’

1

KNOW WHAT YOU WANT TO DO

‘It is important to know what you actually want to do. What kind of technical jobs are you interested in? Do you want to work in a technical organization or do you want to have a technical job in another field? In which sector do you want to work? What kind of company and company culture would you feel comfortable in? What kind of function do you want to do? Here it is important to know that many functions are called differently in different organizations. Do you already know what kind of tasks you like or don’t like in a job?’

‘One question I always ask in interviews is: what was your favorite project or course during your study? The answer to this usually says a lot about the applicant and their interests. If you don’t really know what you want to do, you can always go to an open interview with a recruiter to see where your strengths and interests lie - that’s also how I got my job.’

2

ONLINE PRESENCE

‘Having a LinkedIn page is essential. Make sure that you have everything on your page: your education and jobs that you have done so far - even if they were jobs that don’t match with what you want to apply for - and a picture of yourself. This should be professional but does not have to be too serious. When you smile, you directly seem more approachable. If you just graduated, you could also add your courses to show what specific knowledge you have. Also, add in your description what you are looking for in a function. You can also mention your hobbies and interests, so you give a better picture of whether you would fit into a certain organization.’

Another thing you should keep in mind is that before you post on other (social media) platforms, everyone can find it.’

3

GETTING INVITED

‘In order to get invited, you of course need to apply for a job. You can find vacancies online and see whether you

are a fit or not. If they ask for requirements that you do not have (yet), don't give up immediately. You can still call the organization and ask if you can apply regardless.

Another way is through a recruiter. If you want to have a job nearby, it's best to go to a local recruiter to see if there are any open functions. Technical students especially receive many messages from recruiters with invitations as well.

Once you get an offer, don't just take the first offer, but make sure the function and company interest you.

When sending your application, check that your CV and LinkedIn are in line with each other, which mainly means that the times and descriptions should be the same; you don't have to mention every summer job on your CV. Furthermore, when writing your motivation letter, don't just cover the basics - everyone will do that. Try to stand out by thinking outside the box, why are you the best fit for the job and the organization?'

4 PREPARE FOR THE JOB INTERVIEW

'Inform yourself about the organization - what do they do, what do they stand for, and things like that. Prepare questions that you can ask, but make sure that you cannot find the answers already online. Examples could be 'how big is the team?', 'which functions work together?' or 'how is the work atmosphere here?'. Also, prepare honest answers in advance for tough questions. For example, it's no problem if you have some study delay, or you didn't work next to your studies, but be honest about it. Often answers to these

questions also show that you know how much you are capable of and that you are aware of your stress tolerance. Even if you say that it was because you partied too much and add that you know now that it wasn't the best idea, we still see growth in that.

When choosing an outfit, don't underdress. If you are not sure about what to wear, it can help to look for pictures of other employees of that organization to see how they are dressed.'

THE INTERVIEW

'When you finally made it to the company for the interview, be polite to everyone, not just the person conducting the interview. Smile at everybody you pass, because if you give an unfriendly impression to the receptionist or another employee, they might mention it to the interviewer. If someone offers you a drink before the interview, always accept it. In this way, you already have something to talk about. Keep eye contact and try to be yourself. If you're nervous, it helps to remind yourself that it's not just you presenting yourself to the company, but also that you see whether the company is a fit for you or not. The interviewer will mostly care about whether you have the required knowledge, but also whether you could fit in.

Everything you say that you have knowledge of or can do will set an expectation, so if you lie about this, your potential co-workers will be annoyed later on. The organization will expect that someone who just graduated will still need a lot of help, so accept that you will most likely start working in a junior function. Again, be as honest as



MARK BONVANIE

5

possible because every lie will come out at one point.

If after the interview, you feel uncomfortable, think about why this is and whether you really want to work for that organization. When you are invited for a second interview but still have doubts, you can just go. Just because they want you, and you agree to come back, does not mean that you also must accept a job offer.' ■

IF YOU HAVE MORE QUESTIONS OR WANT TO LEARN MORE ABOUT HOW TO GET A JOB IN GENERAL, YOU CAN ALWAYS CONTACT EQIB | THE HUMAN FACTOR ([HTTPS://EQIB.NL/OVER-ONS/STUDENTS/](https://eqib.nl/over-ons/students/)) OR FOLLOW ONE OF THEIR WORKSHOPS.

A photograph of two men in a technical workshop. The man on the left is wearing a light blue button-down shirt and holding a green folder. The man on the right is wearing a dark blue uniform with gold epaulettes and holding a tablet. They are both looking intently at the tablet. In the background, there is a large, metallic, curved object, possibly part of an aircraft or a large piece of machinery, and a large, golden, spherical object hanging from the ceiling.

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MARINE LANDMACHT LUCHTMACHT MARECHAUSSEE



Zorg jij als burger dat onze militairen werken met veilig materiaal?

Voor een hoogopgeleide technicus als jij is Defensie dé werkgever. Je werkt met geavanceerde technologie en je krijgt alle ruimte om je verder te ontwikkelen in je vak. Je gaat aan de slag als burgermedewerker bij de Defensie Materieel Organisatie (DMO). Je draagt geen uniform, maar je werkt wel intensief samen met militairen. DMO biedt je uitdagend werk met veel moderne techniek, een stabiel toekomstperspectief en concurrerende arbeidsvoorwaarden.

Bij DMO lever jij een bijdrage aan de missie van de organisatie: zorgen dat militairen altijd kunnen werken met modern, robuust en veilig materiaal. Hoe uitdagend dat is? Lees de verhalen van onze DMO-collega's!

SARA (JOINT INFORMATION COMMANDO): "Ik wilde iets voor de maatschappij betekenen. Dat kon binnen DMO. Ik speel een belangrijke rol bij het in stand houden, door ontwikkelen en beheren van kritische systemen die dagelijks door Defensie-medewerkers worden gebruikt."

FERDINAND (AFDELING MARITIEME SYSTEMEN): "Toen ik begon, waren maritieme onbemande vliegende systemen nieuw voor de marine. Ik kreeg de vrijheid om dit op te bouwen."

RICK (GRONDGEBONDEN WAPENSYSTEMEN): "Ik onderzoek de bruikbaarheid van hybride en waterstoftechnologieën voor Defensie. Mooi voorbeeld is de bouw van een elektrisch verkenningsvoertuig: E-Fennek."

ERIK (GRONDGEBONDEN WAPENSYSTEMEN):

"Bij DMO krijg je de ruimte om je ambities waar te maken. Zo heb ik met een team een nieuw voertuigconcept ontworpen én gebouwd."

LUC (LUCHTVAARTSYSTEMEN): "Na mijn technische universitaire opleiding ging ik aan de slag bij DMO. Ik werk nu aan het certificeren van een nieuw en duurzamer draagbaar blussysteem voor de Chinook. Uit eigen ervaring kan ik vertellen dat het veel voldoening geeft wanneer je als engineer een zelfverzonnen technisch ontwerp mag vertalen naar de realiteit!"

COLLIN (GRONDGEBONDEN WAPENSYSTEMEN):

"Ik wilde bijdragen aan de veiligheid van Nederland. Dat doe ik nu als burger binnen DMO. Ik werk aan technisch complexe systemen. Ik heb veel verantwoordelijkheid en krijg veel vertrouwen. Daarnaast kreeg ik de mogelijkheid om mij technisch verder te ontwikkelen door parttime een masteropleiding te volgen. Het leukste vind ik om aan kennisopbouwprojecten van idee tot en met realisatie te mogen werken."

Meer weten over het werken als burger bij Defensie? Kijk dan op onze website voor alle informatie en vacatures:

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JANNEKE VOORDOUW IS TEST AUTOMATION ENGINEER AT ALTEN NEDERLAND

'A job with 360° view of the software development cycle'

Janneke gives an insight into her career at Alten. 'Robotics is the most tangible line of work possible: it's incredible to see an application that we helped develop come to life through a machine and serve a common interest.'

When software development meets testing activities, their automation, robotics and innovation, Janneke believes that all the ingredients are there for a project to be as stimulating as it is useful. This biomechanical-engineering enthusiast let us know the reasons why she decided to put her technical expertise at the service of sustainable innovation.

It was at Delft University of Technology where Janneke developed her interest in biomechanical engineering, the area of expertise which works on the analysis, modelling and design between biological and technical systems. Janneke obtained a master in Mechanical Engineering with a Biomechanical Design track, with specialisation in robotics and control. While studying, she came across simulation software and programming platforms. After a masterclass given by ALTEN, Janneke obtained several training certificates in this field and worked on her first



projects as a Test Automation Engineer. 'In this role within a development team, you can approach the technical aspects of coding and interact with the stakeholders of the projects, taking an interest in the design prerequisites. It gives you a 360° view on the software development cycle, to reach better software quality and aim for the best product for our customers', says Janneke. 'For over a year, I have been working as a Test Automation Engineer with a Dutch client, which specializes in robotic systems for farmers and, in

particular, dairy farmers. I support them with setting up the test processes for a highly innovative project, a multi-robot system that reduces nitrogen emissions by more than 70%. The system separates mineral flows from manure and urine, by treating it and enabling farmers to reuse it as a natural circular fertiliser on their land. I work primarily on the development of the ventilator with nitrogen filter and the control of its chemical process. My role is to continuously improve the quality of the fan robot's software.'

'As a child, I dreamed of being an inventor, I wanted to give life to the things I imagined. But as I grew up, I realised that I preferred to find solutions to improve existing concepts or systems, especially if they can be useful to us on a daily basis: it's very challenging to try to understand how we can continuously do better, and that is – to a certain extent – a form of inventiveness!'



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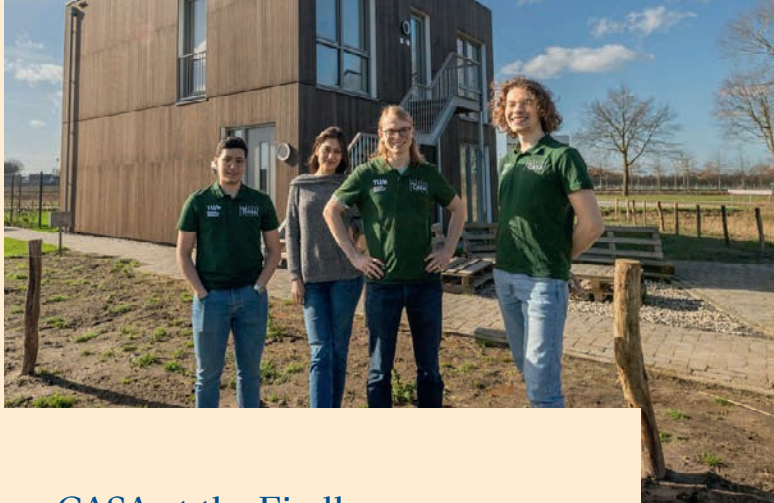
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STRENGTH THROUGH COOPERATION



ANTOINE
POST IS THE
SECOND
FROM THE
RIGHT



Antoine Post, manager of student team CASA at the Eindhoven University of Technology (TU/e), has been living with his girlfriend in a self-designed sustainable home since the end of 2021. Construction company Hurks completed the student team's home in October and after months of finetuning, adjusting and testing things, everything seems to be working properly.

Living in a self-designed sustainable home

● To Antoine Post, who got a Master's degree at the Department of Applied Physics and one at the Department of Electrical Engineering, CASA 1.0 'simply' feels like home these days. He now rents the ground floor of this remarkable building on the outskirts of Helmond from housing corporation Woonbedrijf.

Together with co-founder Pau Brossa Rodriguez Post started the start-up Integer Technologies. This company presents itself as an end-to-end system designer and integrator of new sustainable concepts for combined heating, cooling and electrical installations in residential buildings. Together with construction company Hurks, this start-up will continue to scale up and commercialise the concept and optimise the next version (CASA 2.0).

When Post opens the door to the service core of CASA 1.0 in the middle of the building, you can see what makes it so special. Post explains: 'Here all the systems, which are completely attuned to one another to make the home work as efficiently as possible, come together.'

These systems primarily concern themselves with cooling and heating the home. CASA 1.0 has a fully autonomous climate system composed of solar panels, a heat pump and an enormous underground water tank. During the summer, the system stores heat with which it cools the home. Similarly, it uses that heat to keep the home warm during the winter months.

WATER TANK

Solar panels on the roof provide the heat pump with energy and heat. The

pump then transfers the heat to the underground tank of 104 cubic meters filled with water where it is stored. As soon as it becomes necessary to heat the building, the collected heat is transferred to the floor heating. It takes very little energy to power the small pump that transfers it. This way, CASA 1.0 doesn't need any power from the regular electricity grid for its climate control system. The home's lighting and a phone charger are also connected to the solar panels.

With this system, there is no surplus energy in the summer and there is no shortage in the winter, thus preventing a peak load on the electricity grid. In addition, the building has demand-controlled ventilation. Sensors measure the air quality and temperature and ventilate when necessary. ■

‘You can do things that wouldn’t be possible in the outside world’

Floor van Schie studied civil engineering at the TU/e, with a specialization in architecture and a second master’s in construction. Van Schie: ‘Just before I graduated, my supervisor asked me whether I’d like to become involved in a PDEng project. The longer start-up time meant that I could first take a year out as I had intended, and then my PDEng started in November 2018.’

PHOTOS KEVIN BEHANGMOTIEF AND BART VAN OVERBEEKE

‘Although I wasn’t initially planning to do a PDEng, I soon became enthusiastic, especially about the GEM project (see below) and the person supervising it, associate professor Faas Moonen. I’d done a previous project related to festivals with Moonen during my master’s and that had worked very well. Plus I’d already heard lots of good things about the PDEng from a fellow student.’

‘In effect, a PDEng enables you to do very practical research. You spend two years working on a project and you continue to learn a lot while you work. Additionally, thanks to still being at the university, you can do a lot of things that wouldn’t be possible in the outside world. You have the scope to develop something completely new here, without having to worry about market dynamics or profitability. I’ve since completed my PDEng and have been working at the TU/e as a research & education officer for the past year. I’m still involved in the GEM project, plus I also supervise current students.’

GEM PROJECT

The GEM project is a green energy solution offering festivals and events an alternative to diesel-powered generators, Van Schie explains. ‘It brings together wind power and solar power - a wind turbine at the top and coloured LSC solar panels in the structure itself - in an easy-to-assemble tower called the Green Energy Mill (GEM), combined with a battery to store the energy. Festivalgoers often don’t realize just how much electricity it takes to power a festival. With the GEM-tower, we wanted to show people at festivals that there’s an alternative. The tower looks great, so rather than being hidden away along with the generators it can be given a prominent place at the festival. This promotes dialogue and helps to get the energy consumption message across. That was the deciding factor for many of the festivals who agreed to work with us. It’s still a small-scale solution right now, of course, but it can be expanded for use on a bigger scale.’

THE GEM-TOWER AT THE BOOMTOWN 2021 FESTIVAL IN GHENT, BELGIUM



STEPPING STONE

Why would Van Schie recommend other students to do a PDEng after their master’s? ‘I think that it’s a nice stepping stone between studying and the world of work. When I finished university, I had a strong sense that I wasn’t entirely ready to start my career, but a PhD didn’t seem like the right choice for me. A PDEng is more practically oriented, but you’re still doing research. I did this project on behalf of the TU/e itself, but nine other businesses were also involved. And in many other PDEngs, you do an assignment for a company while receiving support from the TU/e.’



What have been the benefits of the PDEng for Van Schie? 'I gained lots of organizational experience. And needless to say, a PDEng is heavily focused on your own development, especially in the case of such a new project in which you're working with so many different parties. One thing I learnt was how to find your own path and navigate all the opinions to achieve something concrete. Another important and defining aspect was that the project ran from the initial idea right through to actually building it. I realize that I'm unlikely to be involved in all of those steps again in the early part of my career. It was a very valuable experience.'

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KEEN TO KNOW MORE ABOUT PDENG PROGRAMMES, THEN GO TO WWW.4TU.NL/SAI TO WATCH THE VIDEO.



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VMI serves the world's largest tire suppliers and wants them to be successful with our machines.

Tim Preeker, Supply Manager at VMI Group, realizes that his Supply department has a huge impact on the company: "The scope of our department is large; Supply purchases all materials and services for both new build projects and retros (adding new technology or features to existing systems) and spares. In the Supply Chain crisis – with all the shortages that we are currently experiencing –this is clearly noticeable."

Supply's global impact

"However, every improvement we make within Supply has a very quick impact on the profitability and success of the company", says Tim. "At VMI, the global effect also plays a role. We buy from all over the world and, in addition to our site in Epe, we also have production sites in Germany, Brazil, China and Poland, where we ship all materials."

Career in Supply

Tim has earned his stripes in supply chain management at VMI. Tim's story is a great example of the opportunities at VMI to grow and for people to continue to be challenged. After graduating in Technical Business Administration, he started the minor in 'Doing Business in China'. A preparatory company visit to VMI, which has had a branch in China since 1996, was his first introduction. "VMI made such an impression that I immediately arranged a final internship there. Then I chose a master's program in Supply Chain Management at VU, while VMI continued to fascinate me."

He contacted VMI again, which led to a job as a Supply Chain Engineer in the Supply Chain Innovation department. Tim thinks that is a great challenge: "To look at the Supply Chain processes with a team and try to make improvements in it: for example, how do we procure, what

systems support us in that and how are they set up, how can we communicate with our suppliers? We also talk to them about automating order processing together."

However, supporting a team and organizing it seemed to be really fascinating to him. His next step was to become the Supply Chain Innovation Coordinator. In addition, he managed the warehouse for a short time with more than 100 employees. "Managing such a diverse team demanded other managerial competencies", says Tim, who, after this experience, moved to the position of Supply Manager: from abstract level to operational purchasing. "I now divide my time between coaching my team of 11 employees, aligning plans and projects, discussing and improving processes and thinking about the supply chain of the future."

Personal attention and trust

Tim tells us that the young team with diverse study backgrounds under his leadership is self-managing. "I find personal attention to my employees very important, in addition to giving team members their own responsibilities. I myself have also had all the help, opportunities and trust from my own manager. I see trust as the basis for growth."

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Global player

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FLOATSCANS

‘Don’t be afraid to make the wrong choice’

Max Roest was already an entrepreneur when he was still studying in Delft. After a successful internship and a subsequent job at the Boston Consulting Group, he sacrificed stability to start his own business—with significant success. The Dutch newspaper *Financieele Dagblad* (‘financial daily’) sees enough potential in his start-up FloatScans to label him as one of its so-called FD Talents.

MAX ROEST (LEFT) AND BOB KETTING AT THE LAUNCH OF THEIR 3D SCANNER AT THE MUSEUM OF THE TROPICS IN AMSTERDAM.



● Web 3.0, the metaverse: when the hyper-realistic 3D world that Mark Zuckerberg has promised the world arrives, Max Roest (30) wants to make sure that the museum world is ready for it. It is safe to say that Roest’s mission—who graduated cum laude with a degree in aerospace engineering from Delft—is nothing short of ambitious. Even as a student he already had several businesses, one of which, the web shop for sheet music, ‘Guitarist Tabs’, was the most successful. Alongside these endeavors, he wanted to graduate on a project to create a composite guitar that sounds like a wooden one. He successfully looked for a supervisor who was willing to go along with his plan—a little unconventional for an aeronautical engineer. As an intern at the Boston Consulting Group (BCG), Roest travelled to the Imperial College in London to organise workshops for climate experts. A while later, employed by BCG, he was at the cradle of the Fashion for Good Center for sustainable innovation in Amsterdam.

TURN AROUND

As a consultant, he came into contact with the Boerhaave Museum depot in Leiden. What he saw there, led to a major turnaround in his thinking. ‘I was stunned by the amount of valuable art that is kept behind closed doors. More than 95 percent of museum collections are only seen a few times a year at the very most, by museum staff.’ The idea for FloatScans was born: the 3D scanning of art objects, so lifelike that they can appear in games or TV series. Museums can develop digital revenue models for them, and once the metaverse is born, people can even ‘put’ them on display in their homes.

VENTURE CAPITAL

Roest quit his well-paid job in the Zuidas, the famous financial district of Amsterdam. He moved into an old school building in Amsterdam, withdrew his savings from the bank, and started building. His prototype was so successful that he and his business partner Bob Ketting managed to attract venture capital to build a real device—a shiny, sleekly designed 3 square-meter box. The process of designing both a smaller and a larger variant is now underway. What lessons can Roest share with those just entering the job market? Roest explains: ‘What has helped me is not to see a job as something permanent. Then you also don’t have to be afraid of making the wrong choice. After one, two, or three years you can just make another switch.’ In addition, Roest sets himself learning goals. ‘As an employee, you don’t just come to give, you also come to gain. At BCG I wanted to learn how decision-making works at the highest level. When my learning curve started to flatten, I knew it was time for a new challenge.’ ■

Werken aan een nieuw stukje Amsterdam

Met een Master Environmental Engineering van de TU Delft op zak ging Jacintha Tjia anderhalf jaar geleden aan de slag bij de gemeente Amsterdam. Als assistent projectleider van het Ingenieursbureau werkt ze mee aan een groot mobiliteitsproject en de gebiedsontwikkeling van de Sluisbuurt op het Zeeburgereiland.



Jacintha vertelt: 'Bij het Ingenieursbureau houden we ons bezig met veel verschillende projecten. Momenteel werk ik aan het verbeteren van de bereikbaarheid van het Zeeburgereiland, voor zowel het openbaar vervoer als de fiets. Het Zeeburgereiland is een nieuw stukje Amsterdam. Er is al heel wat ontwikkeld, maar er staat nog een nieuwe hoogstedelijke wijk met woontorens en meerdere scholen op de planning: de Sluisbuurt. Er rijdt een tram naartoe die al aardig vol zit. En bewoners hebben aangegeven dat de fietspaden te smal zijn.'

20 VARIANTEN

'We werken nu aan de onderzoeksfase', gaat Jacintha verder. 'We doen een variantenstudie waarbij we onder meer kijken naar een optimale route voor een nieuwe ov-lijn. En ook wat er nodig is

om het gebied nu en in de toekomst beter te ontsluiten voor fietsers en ov, via de Amsterdamsebrug. Er waren ongeveer 20 varianten in beeld, die we trechters om tot 4 varianten te komen. Uiteindelijk is het de bedoeling dat er een voorkeursalternatief uitkomt.' Er is contact met behoorlijk veel partijen, vertelt ze. 'Het Zeeburgereiland is omringd door water, legt ze uit. 'We zitten dus regelmatig met Rijkswaterstaat aan tafel. Als we de huidige brug geschikt willen maken voor een tramlijn, dan gaat Rijkswaterstaat daar ook over. Daarnaast hebben we contact met het Gemeentelijk Vervoersbedrijf (GVB) over mogelijke effecten op het openbaar vervoer. De gemeenteraad van Amsterdam beslist over de uitvoering, dus daar doorlopen we een bestuurlijk traject voor. En de Commissie Milieu Effecten Rapportage (MER) kijkt mee of we zorgvuldig omgaan met de milieueffecten. Natuurlijk vinden we het ook belangrijk om de bewoners bij de plannen te betrekken. Dat doen we met bewonersavonden en een enquête.'

PROEVEN AAN EEN ROL

Als assistent projectleider kon Jacintha binnen het project verschillende integraal projectmanagement (IPM)-rollen uitproberen, zoals die van projectmanager, technisch manager of omgevingsmanager. Omdat ze na

haar studie niet zo goed wist wat voor werk ze wilde gaan doen, vond ze het fijn om aan al die verschillende rollen te kunnen proeven. Een mooie manier om erachter te komen wat goed bij haar past. 'Inmiddels weet ik beter wat ik leuk vind', vertelt ze. 'Ik ga mij nu verder ontwikkelen als technisch manager.'

OPEN CULTUUR

De begeleiding bij het Ingenieursbureau ervaart Jacintha als heel prettig. Ze legt uit: 'Zodra je een beetje geland bent in de organisatie, start je met andere beginnende collega's van het Ingenieursbureau een inwerk- en opleidingsprogramma. Je volgt trainingen om erachter te komen waar je goed in bent, wat bij je past en waar je plezier in hebt. En bouwt gelijk een mooi netwerk op.'

Jacintha kreeg meteen haar eigen verantwoordelijkheden. 'Zo kon ik op een prettige manier veel leren. Gelukkig is er altijd wel iemand om mee te sparren. Mijn collega's zijn open, hebben veel kennis en iedereen is heel benaderbaar om even mee te denken.'

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