Utrecht University Fund | Utrecht University

Illuster

Oct. 2021

FUTURE

Artificial Intelligence

More than futuristic technology

Creating tomorrow together with our alumni

What to do about stress and pressure to succeed among young people?

Open Science in action

Energy in the future

FOREWORD

Opportunities: pay them forward

As an Utrecht University alumnus, you hopefully cherish many pleasant and lasting memories of those days. The alma mater has always been a meeting place for talented individuals who are unafraid to think beyond borders. A place to build up one's store of not only academic knowledge but wisdom as well. Books are not the only source of learning.

When I first enrolled at the Faculty of Dutch Language and Literature in the 1980s, I had no idea of the opportunities the university would offer me. For me, the degree programme was not so much about language as it was about insight. And by the same token, the university was not so much about academic practice as it was about gaining opportunities.

Today, over thirty years later, I wish the latest generation of students at least as many opportunities as we found then. They'll need them, because the possibilities have dwindled quite a bit. Interest in studying in Utrecht is greater than ever and there is less time to do so — to say nothing of the social pressure which exists today.

In that context, alumni can also do their part to help the current crop of bright young minds transcend borders. We hope you enjoy reading this future-themed edition of Illuster. We are creating tomorrow together!

Paul Stamsnijder
Communication Sciences alumnus, founder of De Reputatiegroep and board member Utrecht University Fund

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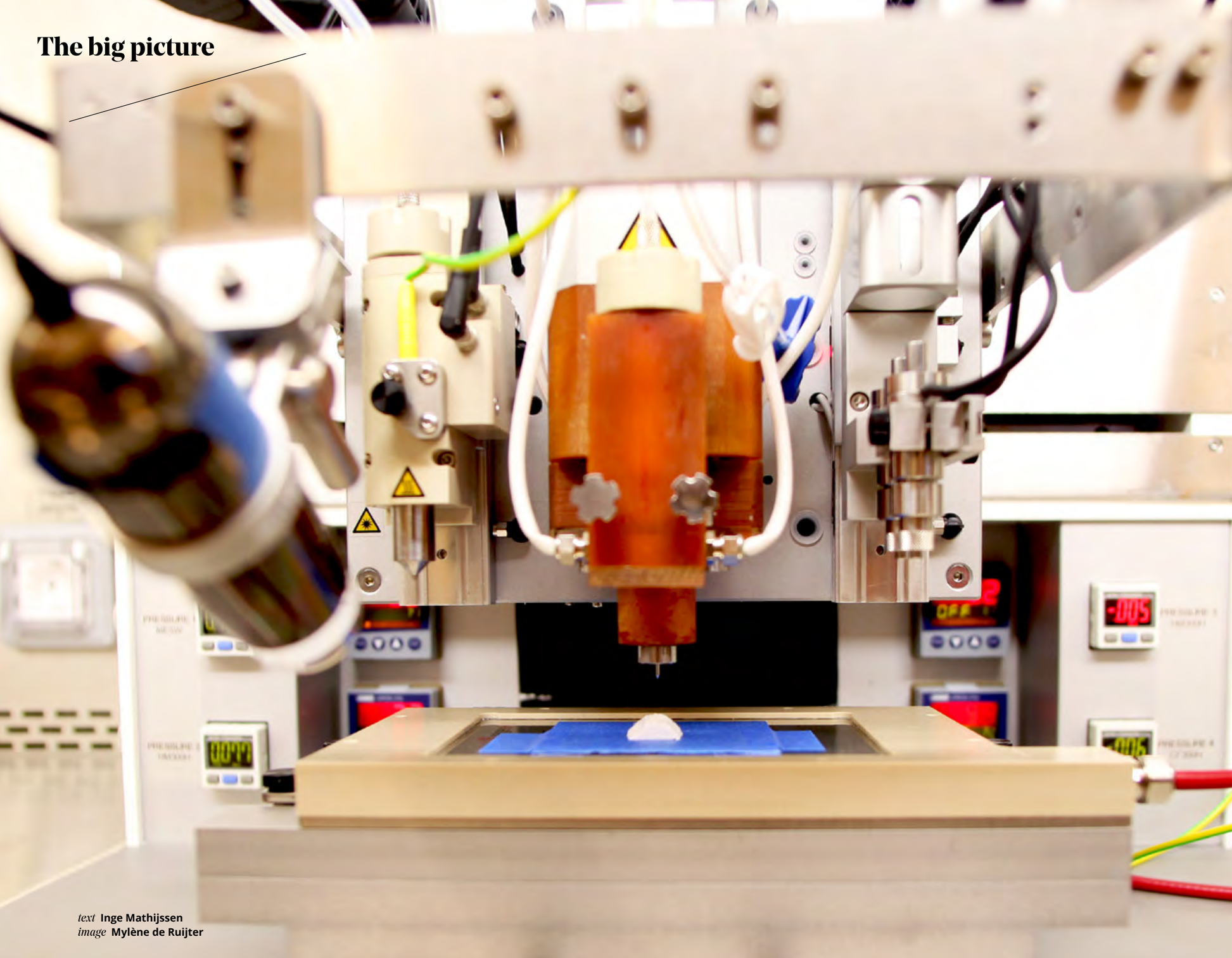
Yoka Brandt
Permanent representative to the UN



text **Inge Mathijssen**
image **Mylène de Ruijter**

PRINTING CELLS IN 3D

Making parts for people

Layer by layer, the printers in Professor of Bioprocess Technology Jos Malda's lab build structures that contain living cells. While it might sound futuristic, the technology is essentially not much different than that of regular 3-D printers. It involves a digital blueprint, a computer and ink. Bio-ink developed by Professor Malda himself, that is. The bio-ink is a material in which human cells can survive. This technology makes it possible to replicate the original tissue architecture in our bodies more accurately than ever before.

'The challenge is also to create a fully-functioning cell, so that the cells can communicate with one another and begin to function as an integral whole, a piece of tissue', Jos explains. Ultimately, the manufactured tissue can serve as a (potentially patient-specific) model on which to test the effectiveness of medicines, or be used to replaced damage tissue. 'We are working on bits of cardiac muscle as a treatment for heart failure.' The 3D bioprinters in Utrecht frequently turn out liver-specific cells and fragments of cartilage as well. While the possibilities seem endless, the ability to print entire new organs is still quite a long way off.

Would you like to know more? Watch an interview with Jos Malda about his work here: bit.ly/hartprinten.

The Hofvijverkring, a donation group established by UU alumni in The Hague, is supporting this study by providing grants for the researchers.

Short

COLLABORATION

The end of chronic pain?

Unusual Collaborations promotes cooperation between researchers, lecturers, disciplines or institutions who would not normally work together, making their collaborations 'unusual'. It is an important component of the new strategic alliance between TU/e, WUR, UU and UMC Utrecht. The alliance between the four institutions encourages and facilitates these unusual collaborations in order to arrive at innovative solutions to major social challenges.

The alliance focuses on the themes of Preventive Health and Circular Society, jointly developing teaching and research in these areas. One such unusual project is 'Defeating Chronic Pain'. Within this project, young scientists from the fields of medicine, molecular sciences, psychology, health sciences, veterinary medicine and linguistics work together in an effort to conquer chronic pain.

For more information on the TU/e, WUR, UU and UMC Utrecht alliance and its projects, visit ewuu.nl

Secondary school pupils to conduct their own research on plants

U-TALENT

Tomorrow's talented scientists

Did you know that secondary school pupils with an aptitude for science can get an early start on their learning at UU? Each year, the U-Talent programme gives talented and motivated pupils from 37 schools a chance to take part in activities on campus and at their own schools. During the programme, pupils are introduced to themes from science subjects and scientific research, with a focus on personal development as well. In this way we can connect the talented scientists of the future and our university at an early stage.

To learn more or find out whether your child's school is participating, visit u-talent.nl

Robot etiquette

Robot technology is becoming increasingly advanced. Today, for instance, there are robots that can help with education and care. But along with all those technical developments, a number of social issues are emerging as well. Behavioural scientist Maartje de Graaf is conducting research into how our systems of social norms should be applied to robots: 'We think of robots as social creatures.' And we expect social creatures to behave in a certain way. 'The study also deals with how robots should be programmed in order to optimise their interaction with us humans. We're looking to define a kind of robot etiquette.'

Would you like to know more? Watch the video of Maartje's lecture for the University of the Netherlands: bit.ly/robotslijkenopmensen

QUOTED

'What we need is to have one of those glass fibres running to every house in the Netherlands; then you could [...] deliver hundreds of television programmes at once, and a telephone connection, and video calling, [...] anything you could ever want.'

Chriet Titulaer
(Mathematics and Physics, 1967)
(1943–2017) was far ahead of his time when he said this in 1985.

CARTOON

Argibald

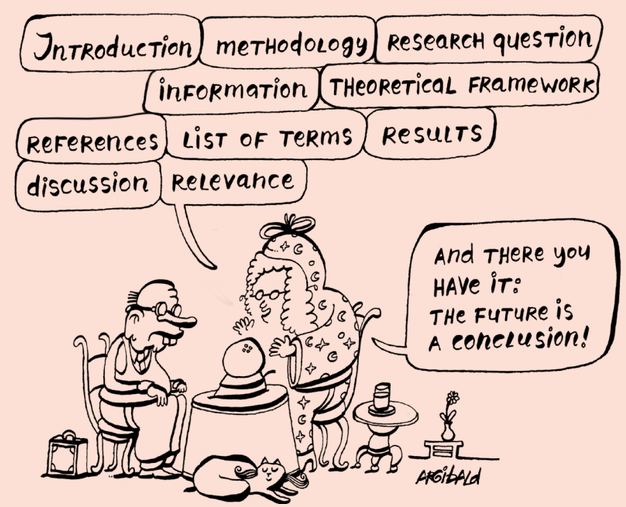


Image: Westerdijk Fungal Biodiversity Institute

FUTURE FOOD

Fungi-based meat

Researchers from our university are set to collaborate with Danish researchers to develop a method for 'upgrading' vegetable matter into food that is every bit as nutritious and flavourful as meat. They have received a grant of 7.5 million euros to support their efforts. 'We want to stop feeding vegetable proteins to animals first so that those animals can then produce food for people', says Prof. Han Wösten. 'With the help of fungi and bacteria, we can convert vegetable matter directly into nutritious, high-quality proteins. While we tend to associate fungi with decay, they are quite suitable as a substitute for meat', says Wösten. 'They are 'semi-animals' and can convert nutrients into forms our bodies are able to process. What's more, the long fibres present in fungi give them a meat-like structure.' Those eager to sink their teeth into a tasty piece of fungi-based meat will need to be patient, however, as the research project has a term of six years.

Find out more at: uu.nl/nieuws/nieuw-plantaardig-voedselconcept-gesteunddoor-miljoenenbeurs

ANNIVERSARY

Stained-glass windows were a gift from alumni

That alumni feel a sense of connection with our university, and express that connection in visible ways, has always been the case. In 1936, for example, former students presented UU with seven stained-glass windows for the Auditorium in the University Hall to mark the 300th anniversary of the university. The glazier commissioned to make the windows, Joep Nicolas, divided six of the seven windows into twelve sections. Each section contains a depiction of a virtue and a weakness, such as Wisdom versus Ignorance or Strength opposing Cowardice. At the tops of the windows we see the crests of the Seven United Provinces, the provinces which signed the treaty known as the Union of Utrecht in this room in 1579.

Illuster has explored the history and background of these remarkable windows. The full story (in Dutch) is available online: bit.ly/ramenaula

ANOTHER ANNIVERSARY

City of Utrecht celebrates 900 years

If you ask alumni of Utrecht University what they feel most strongly connected to since studying here, the vast majority of them will say the city of Utrecht. And 'our' city is holding a celebration next year, when Utrecht turns an impressive 900 years old. The emperor Henry V granted city rights to the people of Utrecht on 2 June 1122, making it one of the first cities in the country. A festive programme will be held to mark the anniversary, starting on 2 June and continuing until 11 November (St Martin's Day), 2022. We are looking forward to it already!

Keep an eye on this website: utrecht900.nl

Feike Sijbesma receives royal decoration

On 3 September of this year, Prime Minister Rutte presented a rare high royal honour to Feike Sijbesma, former CEO of Royal DSM and UU alumnus. Mr Sijbesma was praised for his role in the transformation of DSM, and for his contributions to sustainability and society in particular. Sijbesma was appointed a Grand Officer in the Order of Orange-Nassau, one of the highest possible royal decorations. Feike Sijbesma was Alumnus of the Year in 2016.

K.F. HEIN FUND

Grant for university projects

For twenty-seven years, there has been a warm connection between the Utrecht University Fund and the K.F. Hein Fund, an equity fund in Utrecht that supports Utrecht-based initiatives that benefit the city and region of Utrecht. The fundraisers from the Utrecht University Fund, for instance, submit a joint grant application to the K.F. Hein Fund each year for university projects having to do with public health. Fundraiser Lothar Blom: 'It's fantastic that this year's funding has once again enabled six remarkable university research projects to take place. One of these is a study aimed at the mental health of secondary vocational pupils during the COVID pandemic.'

To learn about the other projects that received funding, go to: bit.ly/ufondskfhein

Utrecht University is proud of each and every one of its graduates, and alumni are an important part of Utrecht University's academic community. But where do they all end up? In this section, Illuster presents some major appointments from the last six months.

Ama Boahene
Bachelor's in Law (2020) is serving as Executive Board President of the Dutch National Union of Students (LSVb) for 2021–2022. She is currently working on her Master's in law at our university. **Nol van Gerven, Bachelor's** in Environmental and Natural Sciences **(2017)** is the Treasurer for the same board.

Lodewijk Hijmans van den Bergh
Master's in Dutch Law (1988) has been appointed to the Supervisory Board of ING. He also serves as chair of the Utrecht University Fund.

Jacques van Dijken
Master's in Law (1988) is the new director of the pension fund for medical specialists, Stichting Pensioenfonds Medisch Specialisten (SPMS).

Jelle Bakker
BA in Philosophy (2015) and BA in History (2017) and MA in International Relations (2019) is 'Bicycle Mayor' of the city of Utrecht. He holds this role on behalf of Bycs, an international network aimed at promoting cycling and the mobility transition, which operates in 35 cities across the globe.

Ruben van den Brink
MSc in Mathematics and Statistics (2003) has been named Chief Technology Officer at the Amsterdam Internet Exchange.

Mirjam van 't Veld
MA in General Arts (1997) has been appointed President of the National Association of General Practitioners (LHV).

Erik Schoon
MSc in Medicine (1986) has been named Professor of Endoscopic Oncology at Maastricht University.

Ankie Hoefnagels
MA in Literary Studies (1988) was appointed Programme leader for Global Minds at Work at Zuyd University of Applied Sciences.

Britt van den Berg
MSc in Computer Science (2002) has been named Chief Information Officer at the Social Insurance Bank (SVB).

Dennis Wiersma
Master's in Governance and Policy (2012) is the new State Secretary for Social Affairs.

Sustainable young UU alumni

Each year, the Sustainable Young 100 publishes a list of young entrepreneurs, professionals and students who help demonstrate that a sustainable future is possible. We are proud of the eleven UU alumni featured on the 2021 list!

Anouk Talen Bachelor's in Liberal Arts and Sciences (2018), **Cato Bui** Bachelor's in UCU Liberal Arts and Sciences (2017), **Dylan Haanappel** Master's in Sustainable Development (2018), **Ellen van der Veer** Bachelor's in Earth Sciences (2011), **Else de Ridder** Bachelor's in Biology (2016), **Simon Rombouts** Bachelor's in Science and Innovation Management (2017) and Master's in Sustainable Business and Innovation (2019), **Laurie Kos** Master's in Cultural Anthropology: Sustainable Citizenship (2016), **Maria Fennis** Bachelor's in Chemistry (2012) and Master's in Science and Business Management (2017), **Monique Drent** Master's in Sociology: Contemporary Social Problems (2017), **Roelant Knauff** Bachelor's in Environmental and Social Sciences (2016) and Master's in Sustainable Business and Innovation (2018), **Stef Boersen** Bachelor's in Physics and Astronomy and Master's in Meteorology, Physical Oceanography and Climate (2017).

Want to be 'named'?

Email us your new position at alumni@uu.nl. Who knows? You could see yourself in the next edition of Illuster, or be named Alumnus of the Month. Every month we announce their identity on LinkedIn (Utrecht University Fund and Utrecht University), Facebook (Alumni Universiteit Utrecht), Instagram and Twitter (both @AlumniUU).

Dutch for all children

text **Femke Niehof**
image **Istock**

Dr. Manuela Pinto is studying the development of language comprehension in children and methods for testing linguistic knowledge.

Dr. Shalom Zuckerman explores questions such as 'how do children acquire language?' and works to improve the methodology used to study language.

Expats, refugees and job-seekers from abroad: they all bring their children with them when they come to the Netherlands. It is important for these children to learn the Dutch language. To that end, they also receive extra language classes before they enrol in regular education. The teachers in this special language education are eager to know how much linguistic progress these children are making. The problem is that the existing instruments for observation were created for children who speak Dutch as their first language. Linguists Dr Manuela Pinto and Dr Shalom Zuckerman want to develop a new instrument specifically for children who are new to the Netherlands.

Zuckerman: 'When a child from a Syrian background has been in the Netherlands for six months, how many words can you expect that child to know? And is that number the same for a child with a different first language, such as Polish? Does it make a difference if the child is a refugee or if their parents are expats? Our instrument is intended to enable easier, more accurate assessment of whether a child is ready to switch to regular education.' This gives the teachers better insight into the linguistic progress these children are making with Dutch as a second language (NT2) while also offering the scientists better insight into which social and cultural factors play a role in their language development.

Colouring pink elephants

The method Pinto and Zuckerman plan to use builds on the 'Colouring-book method' previously developed by the duo. The researchers previously applied that method in 'Wealth of colour', an observation instrument for vocabulary development introduced by Boom Uitgevers and suitable for use in years 1 through 4. Pinto: 'The children are given colouring sheets and asked to colour the table in red, for example. Or to colour in the sheet to illustrate a sentence, such as "the pink elephant is scratching the green elephant". This offers a playful way for the teachers to see how far along the children are in their language development. But because the vocabulary lists used by the researchers were developed for Dutch children, they are not always suitable for NT2 children. The researchers now plan to compile vocabulary lists for this target group. In doing so, they are consulting with teachers from language-training schools. Pinto: 'We ask them which words they use. They told us that they don't teach the children the names of all the different trees. Their approach is pragmatic: the most important thing is for the children to become self-reliant in the Netherlands. For instance, they don't distinguish between an oak, a beech or a fir — a tree is a tree.'

Doing something good for society

This observation instrument will also make it possible to offer children better guidance and support. Pinto: 'For example: a teacher might use our data to check a given pupil's progress throughout the school year, to confirm that the pupil is ready to enrol in regular education. It can also help them make sure that children who came to the Netherlands under different circumstances, and with different first languages, aren't simply lumped together in one group.' The researchers need money to make this project a reality. 'We need advice from a methodologist in order to calculate the predictive value of various factors. We also need new test material, like colouring sheets and recordings, as well as assistants to gather the data at schools', Zuckerman says. According to Pinto, the researchers are extremely enthusiastic about the project: 'Because it makes our field less abstract and theoretical. Our knowledge is being used to do something good for society — a society that is becoming increasingly multilingual.'

Funding through fundraising

The Friends of the UU Faculty of Humanities fund and the Utrecht University Fund are dedicated to raising the funding needed for this study. The crowdfunding campaign runs through November 2021. Thanks to financial commitments from the Janivo Foundation, the Elise Mathilde Fund foundation and the funds' joint working group on Refugees & Education, the research project will be able to start before this academic year is out.

Lend a hand!

You can do your part to help Zuckerman and Pinto's research as well. The 'Dutch for all children' project is among the causes selected for the Utrecht University Fund's annual Pay it Forward campaign. Personalised language education contributes to equal opportunities for every child. Visit uu.nl/doorgeven or donate directly:

Spending Prof. Van der Maas' legacy

Last year, the Utrecht University Fund received a very special legacy from Professor Joop van der Maas, who was affiliated with Utrecht University for the entirety of his academic career. Influenced by the circumstances of his own life, his work always included particular attention for students who were struggling in some way. He helped them when possible, and thanks to his legacy — which will be well over one million euros after settlement — the Utrecht University Fund will be able to carry on this important task on his behalf for many years to come.

The Utrecht University Fund will place the money in the Right to Learn Fund and will expand the scope of the Fund's objective so that even more young people can turn to it for aid. From this year on, the Right to Learn Fund is open to prospective students, current students *and* young researchers. They can request financial assistance from the Fund in cases when a lack of resources presents an obstacle to their further academic development. The Right to Learn Fund also focuses on refugees and other disadvantaged groups in order to help them make the most of their talents.

For more information on how the various objectives of the Utrecht University Fund contribute to equal opportunities for students, visit uu.nl/doneren.

KNOWLEDGE CENTER

Stress and pressure to succeed among young people

Double interview

Social scientists **Margot Peeters** and **Michelle van der Horst** are both UU alumni and are collaborating on a theme that is now proving especially relevant in the Utrecht region: stress and school drop-out. Margot works at the university within what is known as the 'regional Knowledge Centre Youth & Family Central'; she focuses primarily on secondary-school pupils. After graduating from UU, Michelle took a job at the Trimbos institute and her contribution to the research is concerned with students.

text **Armand Heijnen**
images **Bas van Hattum**

Michelle van der Horst studied what used to be called General Social Sciences and is now Interdisciplinary Social Sciences in Utrecht, where Margot Peeters was one of her lecturers. Michelle's Master's thesis dealt with interventions and policy in connection with substance use among students. She has worked at the Trimbos institute, where she serves as an academic staff member on the alcohol and drug prevention team, since 2019.

The Knowledge Centre strives to bring together existing knowledge on contemporary social themes. It is a network in which young people, parents, educators, youth care professionals and institutes such as the Public Health Services, schools and municipalities participate and cooperate. The purpose of the Knowledge Centre is to involve these target groups and institutions both in the identification of such social issues and in the search for solutions.

Surely gathering existing knowledge isn't the only goal of such a Knowledge Centre: will the next step be action? 'Absolutely', Margot answers. 'The knowledge gained can lead to anything from adjustments in municipal policy to interventions by mental health and youth care institutions, or to learning programmes at schools and so on. Those actions, in turn, will then be evaluated within the Knowledge Centre to see whether they are suitable for broader application. i.e., in other cities or at other schools.'

Michelle: 'We work with monitor studies at the Trimbos institute to gain a picture of pressure to succeed among students. To that end, we also cooperate with parties such as the Association of Universities in the Netherlands (VSNU), the Netherlands Association of Universities of Applied Sciences (VH) and student organisation. But we emphatically want to talk *with*, rather than *about*, the stakeholders, i.e., the young people themselves. In that way, we are like a similar study Margot conducted at the university, which dealt with stress among young children ages 10 to 18.'

'Young people are increasingly struggling with the pressure to succeed and unhealthy levels of stress', Margot confirms. 'I specified "unhealthy" because there is also such a thing as "healthy stress", of course. Learning to live independently, learning how to plan, starting your life as a student... these are steps you have to go through, and a bit of stress can be helpful in that regard. But for some adolescents, stress gets in the way of their ability to go to school or pass their classes or complete their education. By gathering existing knowledge in this area, we hope to do our part to enhance the mental resilience of young people.'

Both Margot and Michelle are exploring not only the pressure to succeed among young people, but their use of substances as well. Does a correlation exist between that theme and the pressure to succeed and stress? 'Absolutely, but that's something we need to be more aware of', Margot says. 'Many institutions currently view substance use and stress as independent phenomena. Within city governments, for instance, drugs fall under the heading of 'Safety' and school drop-out rates are a matter for the 'Youth' department. And as a result, you have many public officials working on the same topic without knowing what their counterparts are doing.' ▸▸

Margot Peeters completed her Research Master's in Behavioural Science at Radboud University Nijmegen in 2009. In 2014, she took her doctorate from Utrecht University cum laude for a study that explored alcohol use among young people. As Assistant professor of Youth Studies, she now conducts research into the development of risk behaviour in adolescents and explores how social context may explain individual differences in this development.

Stress and pressure to succeed are phenomena that seem to have become especially glaring in the last five years or so. And perhaps even more so, post-COVID: the social and behavioural sciences have apparently added the term 'lockdown stress' to their vocabulary. Michelle: 'In recent years, stress has certainly played a greater role in students' lives, a development that has only been magnified by COVID-19. Some students have blossomed during lockdown; they really enjoyed being able to study quietly at home and not having to watch what they say and do in order to fit in. But on the other hand, there's another group that experienced loneliness and had trouble sleeping. The pitfall here is that we think that as COVID becomes less of an issue, those problems will resolve themselves as well — but that's not the case. Stress was there before the pandemic, as various local student monitors have shown, and it will still be there even after COVID is gone.'

But where do that stress and pressure to succeed come from? And why have they increased in recent years? Margot suspects this has something to do with Dutch culture. 'More and more adolescents are growing up in families with parents or siblings who have university degrees. That places a certain pressure on the young people.

'Stress will still be there even after COVID is gone'

Preparatory secondary vocational education (VMBO) is no longer "enough"; it's dismissed as subordinate to or less valuable than pre-university secondary school, even though society is highly dependent on those with vocational training. It's how our bricklayers and plumbers get their skills. We hear this in the interviews we conduct as well, when young people say: "I've only got a VMBO diploma, so I'm not worth much." That's a terrible thing. Children are no longer allowed to pick something that makes them happy, that's a good match for their knowledge and talents.'

Michelle: 'And once their studies begin, that pressure continues. At that point, students are working hard to build their CVs. It's no longer enough to just get your degree. You need to have worked part-time, spent time abroad... There's an urge to say: *take it easy, enjoy your time at uni*. But that won't work — they feel they have to succeed, or else.'

The research being conducted within the Knowledge Centre is seamlessly aligned to what is now called 'Open Science', one of the key themes of the university's Strategic Plan for the next four years. Open Science is research that is not only conducted in cooperation with social partners, but where those partners also have a hand in determining the research agenda, designing and evaluating the research and where the newly-gained insights may lead to policy adjustments. How does this working method affect the scientist?

Michelle: 'The university is actually doing the same kind of research we are at the Trimbos institute. We often publish our results in a factsheet which "the field" can then apply in their own work. The recommendations for municipal governments, neighbourhood centres, schools, Public Health Services or the young people themselves all call for different means of communication. For instance, a student organisation might say: "We don't need the memo, just send us a video".'

'In Open Science, the research question comes from society'

Margot adds: 'Normally, it's the scientist who comes up with a research question. Then, to answer that question, the researcher collects data or compiles a survey. But in Open Science, the research question comes from society, and then we start looking around to see which data is available. Can the question be answered using that data; will we need additional data to do so; and can we apply the results in a larger context, not only locally but maybe nationally as well, or even at a European level? To actually do this, though', Margot continues, 'your employer has to allow you the space to work in that way. These days, many scientists are judged by how many articles or citations they have, but those aren't the type of results you achieve with this kind of research. In Utrecht, fortunately, I'm given that space.'

Open Science at Utrecht University

Open Science is an international movement that is initiating the transition to open research and educational practices. To increase our impact, we are making our data and publications accessible and consulting with social parties, citizens and governments regarding the chosen topic of research, how it is conducted and the potential application of the results. The Utrecht University Open Science Programme (OSP) has been established in order to accelerate this transformation and facilitate the cultural shift within UU. The structure of the programme reflects the role of the research community and the diversity of its practices across the various strategic themes, faculties and disciplines. The transition to open science is one of the five pillars of the Strategic Plan 2021–2025 (entitled 'Open outlook, open attitude, open science') which was adopted by our university: Utrecht University.

The UNESCO definition of Open Science: 'Open Science is aiming to make scientific knowledge openly available, accessible and reusable for everyone, to increase scientific collaborations and sharing of information for the benefits of science and society.'

text **Floor Peeters**
image **Henk Veenstra en Ivar Pel**

Same degree ...

Marianne Heida (32)

Degree programme: Astronomy
Work: Postdoc fellow at ESO (European Southern Observatory) in Munich

'I knew I wanted a natural science programme, so I chose Astrophysics. At the Open Day for Physics and Astronomy, I immediately felt at home among the nerdy folks there, and with the particle accelerator in the basement. Plus, it just sounds cool. Compared to other physics disciplines, astronomy is the most "tangible": it's all real. People have been looking at the stars for such a long time. Even now, I'm still fascinated by how much you can learn just by looking at the light. When I was a postdoc in California, I was the one actually peering through the telescope. Now I write detailed programmes telling the telescopes in Chile what I want them to observe, and then I review the digital images from my desk in Munich. After finishing my Master's thesis in Utrecht and my PhD in Nijmegen, I stayed with science. At the moment, I'm researching paired stars known as X-ray binaries. How do stars live when they are in groups of two or more? This can teach us so much more about the lives of stars and the births of planets.'

Daniel Roy (45)

Degree programme: Astronomy
Work: Director and co-founder of Infi, an ICT company

'I enrolled in Physics and Astronomy because that's what my best friend was doing. I thought it was a really cool programme. Astronomy is physics on a massive scale. It's a different way of arriving at theories. In physics, you create an experimental set-up, put something in it and observe what happens next. But there's obviously no way to make two black holes collide with one another. Still, I thought of astronomy as something to do in the meantime. Computers were already around, it was inevitable that I'd end up working with them. I did learn a lot of valuable things from my degree programme, though: an ability to learn and think abstractly is essential in IT. And I met the three co-founders of Infi at the faculty, too. Even the name of the company comes from the course catalogue. There was just one course that all four of us took: Infinitesimal calculus, "Infi" for short. Using IT, we're making futuristic dreams a reality. When you read about IT, it's often in a negative light: never-ending money pits in the form of failed projects, trouble with privacy and so on. Despite the fact that you can put it to some amazing uses! I take a lot of satisfaction from the idea that our software enables other people to achieve their dreams.'

... different career

Yoka Brandt

1971
Decides to attend pre-university secondary school

1976
Enrols in Social Geography programme

1980
Fieldwork in Kenya

1985
Chooses SNV over UNDP

1992
First Foreign Affairs posting in South Africa

2012
Begins job as deputy director of UNICEF

2016
Takes office as Secretary General of the Ministry of Foreign Affairs

2020
Permanent Representative to the United Nations

Connection as a recurring theme

How can I become a Permanent Representative to the UN? That's a question Yoka Brandt certainly never asked herself. More than anything, the steps in her career — diplomat, executive, high-ranking public servant — were a logical, organic progression. On top of which, her mother also played an important motivating role.

text
Hanneke Olivier
image
Marieke van der Velden

Speaking from a New York in the throes of a heatwave, Yoka explains how she received a recommendation for pre-university education but (to her mother's dismay) chose to attend a junior general secondary school in Ridderkerk instead. 'All my friends were going there and I didn't want to have to bike to Rotterdam by myself. But a teacher at the secondary school managed to change my mind. At home, I casually mentioned it, saying: "Mom, I'm going to do pre-university education after all", at which point my mom burst into tears. I had no idea why she was crying, but now I'm very grateful to that teacher, because that decision has allowed me to walk the path that's best for me.'

In secondary school, Yoka was struck by the question of why so much inequality exists in the world and decided she wanted to do 'something' that dealt with the problems in developing countries. She decided on the Social Geography of Developing Countries programme in Utrecht. Yoka was very much looking forward to fieldwork. 'I got to go to Kenya and immediately loved it: this was what I wanted. Not a career in academia, but being on the front line solving problems and hopefully being able to make a modest amount of difference.' As a brand-new graduate, Yoka chose to work for the relatively small Dutch Volunteers Foundation (SNV) rather than taking a job with the UN development programme, and she returned to Kenya.

Understanding where the other person is coming from

'The work I do requires you to keep an open mind. You need to be able to establish contact with women in rural Kenya and then switch gears to attend a meeting at a ministry. You have to understand where the other person is coming from. If the points of view are really different, as in the case of women's rights and LGBTI rights, it isn't helpful to just keep forcefully repeating your own opinion. You'll get a lot further if you stop and think, "where can we find common ground?"

I'm always looking for ways to connect. That's been a recurring theme in my work. Now, as a Permanent Representative to the UN, I've taken on the exciting challenge of making sure the Netherlands' priorities make it onto agendas here, so that attention for those matters will start to catch on. The UN is the only forum in which 193 countries sit down together and luckily more and more of them are realising that many problems cannot be solved alone. COVID-19 and climate change are two clear examples of this. We will need to pool all our expertise and from there, work together to find a way forward. There is simply no other option.'

'A nudge from my mother'

'I don't think it's possible to map out a detailed plan for your career in advance. At least it wasn't in my case. Something that is helpful to me, and perhaps to many other women as well, is daring to move out of your comfort zone. Every time I asked myself if something was possible, my mother would nudge me and say: "If you can't do it, there's no shame in that, but you'll never know if you could have if you don't try."'

> ***'where can we find common ground?'***

So stay open to possibilities and try to be true to yourself. Where do you personally find value, enjoyment and fresh energy? In my own career, I'm quite glad to have had the opportunity to examine things from different perspectives, just like I used to do when I was a Geography student. That can be enormously enriching.' ◂◂

Yoka Brandt (1958) (her name in Dutch is Joke Brandt) graduated from Utrecht University with a degree in Social Geography of Developing Countries in 1985. She then did development work in Kenya with the Dutch Volunteers Foundation (now the Netherlands Development Organisation) and went on to hold positions including civil servant with the Ministry of Foreign Affairs, ambassador to Uganda and Eritrea, Director General of International Cooperation for Foreign Affairs, deputy Executive Director of UNICEF and Secretary General for Foreign Affairs. Yoka Brandt currently serves as Permanent Representative to the United Nations in New York.

Future

Artificial Intelligence

Even though we cannot be sure what tomorrow holds, some things seem almost inevitable, like the rise of artificial intelligence (AI). Still, that does not mean we should just sit around and wait for the world to change around us. Utrecht University researchers **Dong Nguyen** (computer science) and **Sven Nyholm** (philosophy) are working to shape the future of AI to benefit society in the best possible way. We asked them about their insights into the past, present and future of artificial intelligence.

text **Nieske Vergunst** *image* **Ed van Rijswijk**

'An interdisciplinary approach is absolutely essential for AI'

'A lot of ideas that people have about robots and AI are a mix between science and fiction'

Sven Nyholm: 'It's difficult to make good predictions about the future of artificial intelligence. Even among experts, there are a lot of different ideas about what will be possible, when and how. An interesting consideration is that the idea of robots doesn't actually originate from science: the word "robot" first appeared in a theatre play in 1921. On the other hand, the term "artificial intelligence" was coined by scientists in the 1950s. Accordingly, a lot of ideas that people have about robots and AI are a mix between science and fiction.'

Dong Nguyen: 'I agree that it's very difficult to make good predictions about the future of AI. A more immediate problem is that AI systems with good intentions may have unforeseen consequences. Fortunately, researchers and companies are taking that concern very seriously. An important new research direction is explainable AI, meaning that decisions made by AI systems should be understandable for humans, instead of being a "black box".'

Nyholm: 'One example of such an unforeseen consequence is an incident in 1983, when a Soviet satellite warning system falsely indicated that the US had launched a missile attack. Only the fact that an officer distrusted the system and didn't raise the alarm kept the Soviet Union from starting a nuclear war.'

Nguyen: 'I think an important matter in AI right now is educating the users. My main take-home message would be: don't be overly distrustful of artificial intelligence, but be aware of its shortcomings.'

Nyholm: 'As a sidenote, there's another unforeseen danger of AI that I don't hear a lot of people talking about: its carbon footprint. AI systems require so much computation that the environmental consequences are also considerable.'

Getting into an emerging research field

Nguyen: 'I studied technical computer science, but with a minor in psychology and courses on language technology, so in a way, I assembled my own AI programme. I've always been interested in making computers understand language, mainly everything below the surface, for example: how do you make computers understand social context?

Nyholm: 'After studying philosophy, I gradually got more interested in applied ethics. In 2014, I wrote one of the earliest articles on the ethics of self-driving cars, based on a famous thought experiment called the trolley problem. Say, a car is about to hit a group of people, but by diverting the car, you can save the group and kill only one person instead. Are you a bad person because you deliberately took an action that killed someone, or are you a good person because you saved a group of people? It was still hypothetical when I wrote it, but the year after that, the first accidents with self-driving cars started to happen. All of a sudden, everyone was interested in the ethics of AI, and I was one of the experts. One of the fun things about working in AI is that people are endlessly interested in it, much more than in traditional philosophy.'

Dong Nguyen
is an assistant professor in computer science. She conducts research into natural language processing: the processing and analysis of natural language with computers.

Nguyen: 'And it is such a quickly changing field. Even as a researcher, I feel like I'm always catching up. That's not a bad thing at all. It just means it's never boring and I'm always learning new things.'

Not just a technical problem

Nyholm: 'It seems like, in recent years, technical people have become more and more open to the ethical aspects of AI. They might not always like it, but there's a general consensus that it's important.' Nguyen: 'We're very aware of the impact of AI, and that makes it important to think about the consequences. For example: should AI reflect the world as it is or as it should be? If you do an image search on "CEO", you mainly get pictures of white men. Should that be different, even though this reflects the situation as it currently is?'

'Technical people have become more and more open to the ethical aspects of AI'

Nyholm: 'Even if you do agree that AI systems should paint a fairer picture of the world, you'd still have to agree on what fairness is, and that differs between countries and cultures. A few years ago, psychologists started studying how people actually think about different variations of the trolley problem. ▸▸

'The Bachelor's and Master's programmes in AI at Utrecht University are interdisciplinary at their core, and that's quite unique'

Sven Nyholm
is an assistant professor in philosophical ethics. His main areas of research are applied ethics (especially the ethics of technology), ethical theory and the history of ethics.

In some cultures, older people are prioritised over young people, and in other places, it's the other way around. You see similar cultural differences in the way the coronavirus pandemic is handled: are the coronavirus measures intended to give more safety to risk groups or to give more freedom to younger people?'

Nguyen: 'This means it's very difficult to make AI systems that are usable worldwide. Mainly, I think it's important to be clear about the assumptions on which you build an AI system. I don't believe in neutral systems. This is one of the reasons why an interdisciplinary approach is absolutely essential for AI. Any time I'm working on a research problem, I quickly realise it's not just a technical problem. You have to take into account factors like privacy, ethics, data collection, social context and so on.'

Human or super-human?

Nyholm: 'Another matter on which people have different opinions is whether AI systems should imitate human behaviour. People aren't exactly great drivers, so should self-driving cars make the same mistakes we do? And if all human drivers on a highway are driving over the speed limit, should a self-driving car follow suit and also speed up, even if that means it's breaking the law?'

Nguyen: 'Human aspects like emotions are very difficult to put in an AI system, especially if you are only working with written text. One very recent change in my research field is that we also look at audio and video to see what useful information we can get that way. Of course, audio and video analysis are different research fields in themselves. That's another example of why it's unavoidable that AI is such an interdisciplinary field.'

Nyholm: 'For humans, it's also hard to really gauge emotion from written text. Even online teaching already makes it harder to feel the mood in the room. Emotions and moods are such complex phenomena. Can you really feel angry if you can't feel your heart racing? I believe that really feeling emotions requires having a human or animal-like body, and I don't think we'll get there within our lifetimes. But again, there are very different opinions and predictions about that.'

'Human aspects like emotions are very difficult to put in an AI system'

Artificial Intelligence in Utrecht

Jan Broersen and Mehdi Dastani

The research focus area Human-centered Artificial Intelligence bundles Utrecht University's various activities in the field of AI. A sizeable group of AI researchers, including Sven and Dong, is engaged in attempts to understand, reproduce and even improve human intelligence. This can only be achieved through interdisciplinary cooperation. The main drivers of this research focus area are Jan Broersen, Professor of Logical Methods in Artificial Intelligence, and Mehdi Dastani, Professor of Intelligent Systems. Illuster asked them to respond to the interview with Sven and Dong.

Jan Broersen and Mehdi Dastani: 'Artificial Intelligence (AI) is a rapidly evolving scientific discipline and a disruptive form of technology with an immense and still largely uncharted impact on society. Artificial Intelligence is set to impact our economy, scientific community and many aspects of our daily lives. It has become an irreplaceable part of life and forms the basis for numerous innovations that help us meet the challenges of our time and contribute to the further progress and prosperity of our society.

UU's Human-centred Artificial Intelligence focus area aims to promote cooperation between researchers across the boundaries of traditional disciplines. The notion of human-centred AI has been gaining a lot of national and international attention and recognition lately. The development of AI technologies and innovations and exploration of the relevant legal, social and ethical aspects are integral to human-centred AI. As chairs of this focus area, we greatly appreciate the topics and views raised in this interview with two of our leading researchers. We feel the interview is a great example of the sort of interdisciplinary debate we hope to see more of in the near future.'

Creating future-proof students

Nguyen: 'The Bachelor's and Master's programmes in AI at Utrecht University are interdisciplinary at their core, and that's quite unique. That also means the student population is very diverse, which is incredibly inspiring. We continuously adapt the study programme to fit new developments, and it's very interactive.'

Nyholm: 'In a quickly evolving field like artificial intelligence, the million-dollar question is how you create future-proof students. The newest developments when they start studying will already be outdated by the time they finish their studies. I think the most important thing is to teach students to take an interdisciplinary approach. In Utrecht, we're taking an incredibly broad stance on AI: from the technical to the ethical and everything in between.'

Nguyen: 'I think it's important to teach my students to read scientific literature and to be critical thinkers. I'm not just teaching knowledge, I'm teaching them to learn. A lot of AI research is about creating self-learning systems, and in a sense, AI education is about creating self-learning humans.'

Want to know more about this and other Utrecht AI Labs? Visit uu.nl/onderzoek/ai-labs

Solving sustainability issues with AI

What's the most effective way of watering agricultural crops? How can we store renewable energy carriers such as hydrogen? Should municipalities really be closing certain roads in order to reduce local air pollution? The answers to these kinds of questions tend to be hidden in large volumes of data: an ideal challenge for computer scientists with a specialisation in artificial intelligence.

Utrecht University launched a new lab this year in an effort to capitalise on these developments: the AI & Sustainability Lab. Collaboration with computer scientists could revitalise our approach to several long-standing issues, argues dean of the Faculty of Geosciences and lab co-founder Wilco Hazeleger. 'We use a lot of statistical methods in our research and there are obviously 'geo-informaticians' — scientists with a special interest in computer science', he explains. 'Still, the field of artificial intelligence offers so much more valuable expertise that can help us improve our research.' Conversely, AI also offers added value for the geosciences. AI Labs Director Thomas Dohmen: 'The geosciences are facing some very challenging questions involving various types of data, and our computer scientists are ready to take them on. This will contribute to the evolution of our field and other disciplines — the knowledge we're developing here also tends to have broader applications.'

Several energy companies, municipalities, tech companies and consultancies have expressed interest in joining the lab. The initiators also encourage other interested parties to get in touch. Dohmen: 'Anyone facing a challenging sustainability issue is welcome to come on board.'

National AI Police Lab

Sifting through millions of gigabytes of data on a seized smartphone with the click of a button. Analysing police reports in a fraction of the time. It's all possible with Artificial Intelligence (AI). However, the police will need state-of-the-art knowledge in order to use this technology safely. This led to the establishment of the National Police Artificial Intelligence Lab (NPAI) in January 2019: a partnership between the Dutch police and several universities, including UU. The Police Lab aims to develop state-of-the-art AI technologies that will improve safety in the Netherlands in a socially, legally and ethically responsible manner.

Many UU PhD candidates and alumni are involved in the research activities of the Utrecht-based Police Lab. These include Bas Testerink. As an AI Scientist, he helps to bridge the gap between science and the realities of day-to-day policework. His team works to improve existing systems and identify future AI applications for the police. Their ultimate goal: Making the Netherlands a safer place. 'It's great to have an immediate impact on the world around you.'

Lifelong learning

New knowledge is developing at a phenomenal rate. Your job undoubtedly requires knowledge that was not covered during your studies. Utrecht University's Continuing Education programme provides the up-to-date knowledge and skills you need to remain permanently employable on the labour market, all based on the latest academic insights. From short courses to Master's degrees, Utrecht University offers a wealth of opportunities for lifelong learning.

text **Sabine de Lucht**
image **Aad Goudappel**

Roos van Leeuwen (26)
Academic education: Bachelor's in Philosophy (2017) and Master's in Applied Ethics (2021) at Utrecht University
Position: Educational Innovation and Public Values Project Manager at SURF
Course: Responsible data practices uu.nl/professionals/programmas/verantwoorde-datapraktijken

'Getting your degree doesn't mean you've finished learning'

Technology and data are changing every aspect of the world around us. Alumnus Roos van Leeuwen works with academic and other data as part of her job at SURF. She and two of her colleagues decided to take part in Utrecht University's Responsible Data Practices course.

Roos was thrown right in at the deep end with a challenging real-world case: should we be using algorithms to predict who will drop out of high school? 'We used the Ethical Data Assistant (DEDA) to assess the issue's ethical impact. We tried to identify any potential problems and see if we could overcome them. We came to the conclusion that it all depends on the way you collect the data and the context you apply it in.'

Why did you choose the university?
'Going back to my academic roots felt like a natural step in my professional development. The university offers the kind of knowledge I needed. It was also important to me that we didn't just receive practical lessons — we explored public values in data practices on the basis of academic research. We could all relate to the issues being discussed, and everyone felt encouraged to share their practical experiences. With participants from various fields — from municipal policy officers to ICT specialists — we had a great opportunity to compare the way different organisations use data.

A step along the way
As far as this alumnus is concerned, the degree certificate is just a step along the way: 'I was eager to start working after my studies. I thought I knew everything about my field. When I joined SURF, I discovered there were lots of other subjects I wanted to learn more about. I think it's a pretty outdated idea to think you're done learning when you get your certificate . That piece of paper doesn't mean you don't need to keep developing. You also don't necessarily have the opportunity to take all the courses you want as a student. It's great to have that chance later on in your professional career.'

The influence of non-genetic factors on disease

START: 2 November 2021
DURATION: 15 hours
COST: free

What causes diseases? Exposome research aims to identify the non-genetic drivers of health and disease. Learn more during the Exposome course by researchers from Utrecht University and/or the NWO Gravitation Programme.

uu.nl/exposome-mooc

Unlocking solutions for the food of the future

START: 2 November 2021
DURATION: 15 hours
COST: free

This Massive Open Online Course (MOOC) will see more than ten food researchers from Utrecht University explore some of the key issues surrounding our food consumption. The focus will be on two main topics: food shortage and healthy choices.

uu.nl/future-food-mooc

Want to keep learning?

Visit uu.nl/professionals for our full range of Continuing Education programmes.

CREATING TOMORROW TOGETHER

385

YEARS OF SCIENCE AND ACADEMIA IN UTRECHT

This year, Utrecht University and UMC Utrecht are celebrating 385 years of science and academia. As a part of our 'Creating Tomorrow Together' initiative, we met with several alumni to find out how they are working together to create a better world. We also asked some of them to draw questions from a ball pit — you can watch the videos at **uu.nl/alumni-tomorrow**. You will get to know some of our alumni from Veterinary Medicine, Law and Physical Geography over the next few pages.

text **Hanneke Olivier en Jurgen Sijbrandij**
image **Roderik Rotting en Bas Huissen**

Pandemic provides new impetus for collaboration

The COVID-19 pandemic turned Dutch virologist Marion Koopmans into a national celebrity. Newspapers, radio and TV programmes have been asking her to comment on the latest pandemic developments for over a year and a half now in her capacity as professor of virology, advisor to the European Commission and member of the Outbreak Management Team and WHO research team. She was awarded the 2020 Machiavelli Prize in recognition of her articulate commentary during various media appearances.

Marion first moved to Utrecht at the age of 17 to study veterinary medicine. She worked for Anatomic Pathologist Professor Wensvoort and others during her time as a teaching assistant. 'Wensvoort was fascinated by pathogenesis, and his enthusiasm really inspired me. People who love what they do are always inspiring, their enthusiasm is really contagious.'

Now, all these years later, Marion is working tirelessly to help fight pandemics. 'There are definitely limits to the way we treat this planet. We're facing some major challenges in terms of veterinary and human medicine and the environment. If the COVID-19 pandemic has taught us anything, it's that we can't just stay focused on our own particular corner of the world. We need solutions from every possible discipline. Thankfully, we are seeing more interdisciplinary collaborations and projects at both national and international level. For example, I'm currently working with various medical experts, such as Marc Bonten. Collaborations — both within and outside of your own field — really force you to reflect a lot more. You're constantly feeding each other unexpected questions, and that really keeps you on your toes.

I choose to be optimistic and believe we'll always keep coming up with solutions. I mean, come on: we're landing rovers on Mars! We can achieve a lot if we really put our mind to it.'

'We need solutions from every possible discipline'

Marion Koopmans
(Veterinary Medicine, 1983) has been contributing much of her knowledge and experience to the fight against pandemics.

Marc Bonten
started his career as an internist at UMC Utrecht and has served as head of the Medical Microbiology department since 2008. Like Marion, he has served as an expert on the OMT since the outbreak of the Coronavirus and has made frequent appearances in the national media.

Professor Wensvoort
served as professor of General and Rare Animal Diseases at the Faculty of Veterinary Medicine throughout the 1960s, 1970s and 1980s. Marion served as his student assistant and was impressed by his passion for the field.

Eva González Pérez
(Dutch Law, 2000) is a lawyer at Advocatencollectief Trias in Helmond and also serves as a member of the East Brabant administrative law committee.

‘Teachers always seemed surprised that I wanted to become a lawyer’

Journalists **Pieter Klein** (RTL) and **Jan Kleinnijenhuis** (Trouw) were collectively voted Journalist of the Year in 2019 for their publications on the childcare benefit scandal involving the Dutch Tax and Customs Administration.

Dutch MPs **Renske Leijten** (SP) and **Pieter Omtzigt** (CDA) played a key role in bringing the childcare benefit scandal to light.

Searching for the truth together

Lawyer Eva González Pérez made headlines in 2019 with the revelation of the childcare benefit scandal, in which the Dutch Tax and Customs Administration wrongly required parents to pay back their allowances. Though she has been working on the case since 2014, she says every day still brings new surprises. ‘You start immersing yourself in laws and regulations during your first year as a law student. It was shocking and demotivating to find out that a government institution itself was breaking the law.

Eva dreamt of being a lawyer from an early age. ‘Unfortunately, they used to send all the migrant kids to a domestic school after primary school. The teachers there always seemed surprised that I wanted to become a lawyer. Undeterred, Eva did what it took to make her dream come true. ‘After that first year of domestic school, I just kept climbing up the ladder: preparatory vocational secondary education, senior general secondary education and pre-university education. After that, I went on to study Law in Utrecht.

As a lawyer, she has found that it can be extremely challenging to get people on board in the fight against injustice. She managed to gain the support of both journalists and Dutch MPs during the childcare benefit scandal. As Eva explains, she wouldn’t have managed to expose the case without the scrutiny of Pieter Omtzigt, Renske Leijten, Pieter Klein and Jan Kleinnijenhuis. ‘The scandal was ultimately exposed because they kept asking questions and investigating. It was crucial to tackle this challenge together and search for the truth together.’

Improving extreme weather warnings

Rob’s work involves a unique focus on the world of tomorrow. He serves as programme manager of the new Early Warning Centre at the KNMI. This centre was established to provide earlier and more detailed warnings about the impact of extreme weather conditions, which are increasing in frequency and severity as a result of climate change. ‘Climate change has to be tackled at its source, but the fact is that we are seeing extreme weather more and more often. ‘Climate change has to be tackled at its source, but the fact is that we are seeing extreme weather more and more often. Part of this involves improving our extreme weather warnings.’

And these warnings are crucial for many sectors. Warning centre staff are working to create weather alarms and set expectations for specific parties like aviation authorities and the fire service. Alumnus Yvonne Schavemaker plays a key role in this process. She focuses on the quality of the measurements. ‘Her work forms the basis for the new weather services’, Rob says. ‘The better the measurements, the better the services we can provide.’

Rob’s studies laid an important foundation for the work he does today. ‘As a physical geographer, you learn to think in terms of processes and systems and to identify relationships.’ That interdisciplinary perspective also came in handy during Rob’s work on the Bos Climate Atlas. As part of his work on the atlas, he also collaborated with a UU alumnus from an entirely different field: publisher Peter Vroege, who studied Dutch at our university. ‘The publishers are really good at outreach: they know how to make clear visual representations of all the systems and convey each concept in a nutshell.’

Rob Sluijter
(Physical Geography, 1990) has worked as a climatologist at the KNMI since 2000. Prior to that, he worked at the National Institute for Public Health and the Environment (RIVM).

Peter Vroege
(Dutch, 1982) is a senior publisher of Bos atlases at Noordhoff Uitgevers. He collaborated with Rob on the development of the Bos Climate Atlas.

‘We obviously need to address climate change at the source, but we’ll inevitably have to adapt to the current situation’

Yvonne Schavemaker
(Earth Sciences, 2002) is team leader of Data Quality and Partnerships at the KNMI.

Future energy

The energy transition The term is becoming a real buzzword, but what does it really mean? And is it really inevitable? Although we may not have noticed, the process is already in full swing. It is being driven, in large part, by climate change. The challenge we're facing is both clear and complex: making renewable energy our dominant source of energy, and reducing emissions to zero. Clean and renewable energy, in other words. We are on the verge of a genuine revolution. From electricity to heat, storage and transport: get ready for energy 2.0.

text **Maartje Kouwen**
illustrations **Annemarie Roos**

Imagine waking up in the year 2050. The light switches on automatically when it's time to get up and the coffee machine is already brewing before you go downstairs. As you drive off in your electric car, the heating in your house automatically switches off and the robot hoover springs into action. This is no longer some futuristic vista: the future is here now. All innovations have one thing in common: they need energy. This will inevitably become one of our greatest challenges in the years ahead: how can we generate and use energy in sustainable way? How do we make sure there's enough energy to go around? UU researchers are working on these problems today in order to safeguard the future for everyone.

In my back yard, please!
Solar is expected to become our main energy source, along with wind energy. However, we will need to install a lot of solar panels along the way: 80% of our energy is still generated from oil, coal and gas. 'If we install solar panels on every roof, we'll have enough energy for every household in the country', explains Professor of Solar Energy Wilfried van Sark.

We used to have a '*not in my back yard*' attitude when it came to generating solar energy. These days, we're increasingly eager to want solar panels in our back yard — or on our roof. 'The ultimate form of democracy', Van Sark calls it: generating your own energy. Resistance to solar panels has never been so low and the aesthetics are improving. 'Energy-neutral houses aren't that uncommon these days', Van Sark points out. In fact: 'I expect we'll be increasingly moving towards houses and flats that actually produce energy.'

However, the diversity and unpredictability of solar and wind energy presents us with a new challenge. The sun doesn't always shine and actually overloads the grid during hot periods, making it crucial to use and store electricity at peak times.

Cars for climate
While cars have been a major part of our emissions problem up to now, they may soon become part of the solution. In addition to helping avoid the use of fossil fuels, electric cars can also store electricity at peak times and feed it back into the grid during shortages. This allows them to absorb fluctuations while serving an unexpected dual purpose.

It all starts with smart charging, explains energy scientist Wouter Schram: 'You need to charge the car when CO_2 emissions are lowest.' For example, you can set your battery so that it only charges when there's plenty of sun and wind; this will also prevent the electricity grid from overloading during peak periods. 'Your full car battery can then supply enough electricity to power your house for more than a week', Schram explains.

> ***'A full car battery can actually power your house for a week or more'***

A major overhaul
We're not there quite yet, though... After all, some cars and charging stations still aren't equipped to feed energy back into the grid. Can you already cook or heat your home with electricity? Many households can expect to see some major changes: we're set to stop using natural gas in 2050. This will also involve the installation of new infrastructure, new heating and cooking systems and more effective insulation. We'll have to speed things up considerably if we aim to be ready by 2050. 'Just do the math: 7 million homes in 30 years' time means we'll have to adapt over 600 homes a day', says Robert Harmsen, who is currently researching the transition to gas-free energy. 'It's an enormous challenge that's only getting bigger by the day.'

While home owners are free to start the transition today, some aren't enthusiastic about the idea or simply don't have the necessary financial means or their own roof or driveway. In addition to posing a major a technical challenge, the energy transition is also a social issue and could potentially lead to greater inequality. Political scientists Sanne Akerboom and Jesse Hoffman are researching civic engagement, opportunities for intervention and energy poverty in an attempt to address this challenge. Hoffman: 'It's actually quite difficult to link the current energy challenges to our social targets in a meaningful way. We help policymakers to make that connection in practice by engaging with residents in an active and inclusive way.' ◂◂

Want to learn more about the energy transition? Check out the longread at uu.nl/organisatie/verdieping

The art of entrepreneurship

text **Inge Oosterhoff**
images **Robin Alysha Clemens**

Marek Sustak
(27) once dreamed of a future as a diplomat; instead, he found himself drawn to the art world after studying economics and completing a master's in European Governance in 2020; His start-up MAPA helps to showcase emerging artists' work online.

Marek Sustak (27) ended up in the art world after studying economics and earning a Master's degree in European Governance. Sustak co-founded MAPA, a nomadic online gallery, with a close friend. Despite being a creative thinker, he never could have imagined he would end up working in this field a few years ago.

So how did you end up choosing your degree programme?
My parents are from the Czech Republic. They studied economics and eventually became diplomats, so they travelled a lot. Their degree programme seemed to offer a lot of freedom, so I also decided to study economics. I eventually did a Master's in European Governance because of my fascination with European politics. Ending up in the art world was just a coincidence, but I still apply some of the concepts and strategies I learned at university on a daily basis. As an entrepreneur, an economics degree definitely comes in handy.

So you've travelled a lot. What did you think of Utrecht?
We lived all over the place when I was a kid — it was fun, but it was lonely too. I really found a home in Utrecht. The people, the nature, the architecture, I love it all. I also really enjoyed my days as a student here. I hope to travel a lot more, but I think I'll always be drawn back to Utrecht.

How did you end up in your current job?
I was waiting to hear about a traineeship at the European Commission in late 2020 when my friend Paul Makarov from Latvia approached me with the idea of an online gallery. I immediately loved the idea and didn't have much to do at the time anyway. That's how we ended up founding MAPA. I eventually did a traineeship in Brussels, but I'm an entrepreneur at heart.

What do you enjoy most about your work?
I'm not an artist myself, but I like to think creatively. We're trying to make galleries fairer and more future-proof. I really enjoy that challenge. I also get to meet a lot of interesting and inspiring people through my work.

So what's next?

Startups are always unpredictable, but things have been going really well so far. It's good to take risks when you're still young. I'd love to see MAPA become a major player in the European market. That way, I could combine all my interests in my work. ◂◂

A longer version of this interview will also be published on DUB, Utrecht University's independent news site. Visit dub.uu.nl for all the latest news and background information on our academic community.

'We're trying to make galleries fairer and more future-proof'

CROWDED LECTURE HALLS

From lecture hall to hybrid classroom

1985

Crowded lecture hall benches, folding chairs and collapsible desks. Many of our alumni will have attended lectures like this during their own student years. This photo from the 1980s depicts the then state-of-the-art Faculty of Veterinary Medicine lecture hall in the Androclus building on Yalelaan. In those days, the desks were still covered with lecture notes, pens and cups of coffee rather than laptops or mobiles in silent mode.

2021

Students certainly didn't have any opportunity to pack into crowded lecture halls over the past year, and attended most of their lectures online from their student rooms or parents' homes. While Utrecht University was already actively experimenting with digital education before the start of COVID, the pandemic did accelerate the developments. The first virtual classroom — whereby the lecturer can see and *interact* with up to 36 students or researchers on large screens — was launched in the autumn of 2019. This photo shows the current hybrid education facilities: some of the students are on campus, while others are attending online. The aim is to ensure that lecturers can offer both groups the same quality of education. 44 of these hybrid classrooms are currently in use.

text **Floor Peeters, Jurgen Sijbrandij**
images **Het Utrechts Archief en Roderik Rotting**

'The future of work is online'

text **Arjan van Rooijen**

Linda Kunertová
(BSc Economics and Business Economics, 2017 and MSc Economic Policy, 2019) serves as 'Social Policy research assistant' at RAND Europe. She also holds a part-time position as 'equality and diversity in the workplace analyst' at the Czech Business for Society organisation.

'Although I enjoyed a wonderful childhood and education in the Czech Republic, the move to Utrecht really helped broaden my horizons. Still, my future is in Brussels where I'm currently doing research on the future of work.

Growing up in Olomouc, I never really knew what I wanted to do with my life. Then, I realised how much I could contribute as an economist. When you're working in economics, it's all too easy to get caught up in oversimplified profit maximisation models. The thing is, though: the discipline can also be used to benefit society.

I mastered the subject by studying Economics in Utrecht. I'd been there before as a 16-year-old on school exchange. I had these strong memories of cycling, smiling people on the street and always imagined myself among them.

I learned critical thinking skills in Utrecht, which are obviously really useful if you're researching ways to improve the world. For example, policies on the future of work tend to revolve around the question: how many of our jobs will eventually become obsolete because of technology? However, the EU is also focused on the quality of those jobs. In order to explore those aspects, RAND in Brussels has been researching the impact of artificial intelligence (AI) on our working lives.

As expected, AI will create both risks and opportunities. While we may eventually have more freedom to work remotely, technology will inevitably come to play a bigger role in management and HR. That's why we recommended the following: at a minimum, employers need to be transparent as to when they're using AI for monitoring purposes. They also need to put their employees' interests first.

'The employee's interests should come first'

I hope we can build a society in which we all enjoy the benefits of social progress, and I hope my research can ultimately contribute to that goal. Ideally, I'd like to focus on the interface between gender and employment in future.'

Tips

50 x

Anniversary 385 years of science and academia

Utrecht University and UMC Utrecht will be celebrating their 77th anniversary this year. With the pandemic now largely under control, we can finally celebrate the occasion with a host of activities. Visit the anniversary website for an overview of activities: creatingtomorrowtogether.nl

ANY QUESTIONS?

UU Research Agenda

Our researchers are looking for questions that could inspire new research or trigger surprising developments in existing projects. Take part and ask your own question today. Open for submissions through February 2022.

EXHIBITION

Celebrating with our city

An exhibition on past UU anniversaries, where the entire city of Utrecht joined the university in celebration. On display through November 30 in the Utrecht Archive.

GIVEAWAY

Anniversary alumni tote bag

While our 'regular' alumni tote bag is already quite unique (exclusively issued to recent alumni upon graduation) this version is truly a collector's item. The anniversary alumni tote bag will only be available for the duration of this anniversary year. However, you can also get one if you graduated well before this year: Illuster is giving away 50 tote bags!

Visit bit.ly/Winactietas to take part.

PODCAST

Talking Utrecht

A series of podcasts and round tables in which students, alumni, staff members and policy makers from Utrecht discuss some of the controversial social issues that will ultimately shape our city's future.

CITY WALKS

Utrecht Time Machine

Scan the QR code tiles all around the city and immerse yourself in Utrecht's history. You can also just download the map, print it out and have a nice old-fashioned stroll.

Anniversary crowdfunding for equal opportunities

The Utrecht University Fund will spend this year working to increase the number of scholarships: studying is no longer a given for everyone. You can help out too!

CREATING TOMORROW TOGETHER

Photo: Photocase.com

SCIENCE AND THEATRE

What if we were no longer free to choose our own professions?

The workforce is shrinking. The population is ageing as birthrates decline. The effects are already being felt in the healthcare and education sectors, which are experiencing staff shortages. The question is, what does this spell for the distant future? What if we could only choose from so called critical occupations in future? The Futurists sees theatre makers and researchers explore the future in the form of an interview and a special performance created over the course of a single day. This edition features Professor of Labour Economics Joop Schippers.

Tuesday 23 November. Details: sg.uu.nl/agenda/2021/futuristen-4-wat-als-je-je-beroep-niet-meer-mag-kiezen

COMPLETING THE ARCHIVE

All Illuster editions available online

Our alumni magazine Illuster is now in its twenty-sixth year. The University Library has now digitised all editions published over the first 25 years. Our archive is finally complete and accessible to everyone online.

You can access the entire Illuster archive at: uu.nl/illuster

BOOK

Thinking like a student

Student life is a period of independence, change and personal development. UU students Daniel van Wyngaarden, Luuk Brouns and Veronique Scharwächter explore this fascinating period in the book Studentendenken (Thinking like a student). Their 'philosophical guide to life' covers issues such as performance anxiety, loneliness, motivation and choice overload.

Studentendenken was published by Prometheus Publishers and is available for purchase via bit.ly/boek-studentendenken

LOOKING BACK

Never waste a good crisis

Crises like the COVID-19 pandemic have a major impact on both society and individuals. So how do we adapt before, after and during an emergency? Studium Generale has organised a digital lecture series entitled 'Adapt! Researchers from various disciplines will discuss the dynamics of crisis, the way in which disasters connect people, and the impact of extreme events on democracy.

Watch the lectures at sg.uu.nl/series/adapt

PODCAST

First-year stories

Painstaking quests for student rooms, unexpected events, faceless lecture halls and homesickness. The First-year stories podcast features students and alumni discussing their first year as a student in Utrecht. A carefree period in a distant past for some, and a year that has only just ended for others. Guests include cycling commentator Maarten Ducrot, UIT press officer Merel Smeets and terrorism expert Beatrice de Graaf.

DUB's First Year Stories is available on Spotify and YouTube.

GIVEAWAY

UUnited Music Festival

Photo: Pierre Banoori

Don't miss this one: The third edition of the UUnited Music Festival is set to take place in TivoliVredenburg on Thursday 24 March 2022. Nine Parnassos student music societies will be rocking the house with some well-known special guests! In search of unexpected collaborations, they managed to land some big names for the lineup. For example, gospel singer Dwight Dissels will share the stage with Dekoor and the Kunstorkest will perform with young composer Sarah Neutkens. The UUnited Orchestra and Trijntje Oosterhuis will close the event with a spectacular final performance. You don't want to miss this! The Utrecht University Fund took part in the fundraising effort and made its own contribution.

Illuster is giving away 2x2 tickets for UUnited. To take part, go to bit.ly/IllusterUUnited
UUnited website: uu.nl/organisatie/uunited-muziekfestival

Save the date

Kids' Museum Night Utrecht

20 November 2021 *University Hall* Forget about bedtime... It's Museum time! Go on an 'expedition' around the University Hall and find out everything there is to know about research at UU.

museumnachtkids.nl/utrecht

Science Café: Old age

6 December 2021 *TivoliVredenburg, Hertz* Everyone wants to get old, but no one wants to be it. Psychologist Prof. Liesbeth Woertman and molecular biologist Dr Peter de Keizer discuss our troubled relationship with ageing.

uu.nl/agenda/sg-science-cafe-over-ouderdom

Faculty Club: New Year's Reception and Winter BBQ

13 January 2022 *Faculty Club Living Room* The Board and programme committee would like to ring in the new year with all our members. Guests can enjoy a winter BBQ with fire baskets and mulled wine in the garden afterwards.

uu.nl/agenda/faculty-club-nieuwjaarsreceptie-met-winter-bbq

Visit uu.nl/alumni/agenda for an overview of physical and online alumni events.

The future

'Faith, hope and love. But the greatest of these is love.' This bible quote from Paul's first letter to the Corinthians (chapter 13, verse 13) is famous enough to be widely known beyond the ranks of Theology alumni. Present, past and future are equally inseparable. After all, all pasts were once futures, and the same goes for every present. By the same token, all our futures will eventually become the present before fading into the past. In analogy to Paul's classic quote, I found myself wondering: which of the three is the most important? And which is there more of?

I'll leave that last question to the philosophers. Is there more future, or more past? Anyone who read the IPCC climate reports last summer would be tempted to answer: more past. Still, that's a very human perspective. Having spent some 200,000 increasingly reckless years on Earth, humanity may be past the halfway mark. Still, the Big Bang happened 14 billion years ago (a rounded number, I'm told). Let's say you've got a sandbox with 70,000 grains of time sand: one of them would represent mankind's entire history. (We should point out that a sandbox containing 70,000 grains really isn't much of a sandbox. If you assume each grain is 1 cubic millimetre — which is already quite large — 70,000 grains would equal 70 cubic centimetres, which isn't much bigger than a Rubik's cube. The universe will have some way to go after we're gone. If time never ends, there will always be more future than there is past. After all, time has a starting point. That means the amount of past is finite, and the amount of future is infinite.

The question is: which of the three is best? Which is of most use to us? The present is an indivisibly small moment. Infinitesimally small, as a mathematician would say. Our life is the sum total of an infinite number of infinitely short presents. While you may only have one past and one future, you will have experienced an infinite amount of presents while reading this article! To be honest, you shouldn't really try to live in the past anyway. We'll just keep it at those three then: the past, the present and the future. But the greatest of these is the present.

Jan Beuving

Jan studied at Utrecht University for nine years, completing a Bachelor's programme in Mathematics (2008) and a Master's programme in the History and Philosophy of Science (2009). After that, he became a comedian and cabaret artist. See janbeuving.nl for his performance schedule.

image **Maartje ter Horst**