

UM Magazine



February 2024

on education and research at Maastricht University

Computer Science
programme off to a
flying start

p 4

*All my characters end
up in the graveyard*

Portrait of Frank Nellen,
associate professor of Tax Law
and novelist

p 12

PURE3D

Costas Papadopoulos and Susan
Schreibman are developing an
infrastructure for the preserva-
tion and publication of 3D
scholarship—and a new future
for cultural heritage.

p 7



Maastricht University



p 16

Bridging the gap between technology and clinical practice

Lee Bouwman, a vascular surgeon and endowed professor of Clinical Engineering, specialises in the implementation of groundbreaking healthcare technologies. Innovations range from the use of robotics in aortic stenting and knee replacement surgery to the localisation of breast tumours using magnetic seeds and iron oxide.



p 24

Child-friendly cities benefit everyone

What will the sustainable city of the future look like? To answer this question, we shouldn't just ask experts, says postdoctoral researcher Özlemnur Ataol. The youngest users of the urban environment—children and young people—should get a say too. Creating cities in which they can thrive will benefit people of all ages.

Further

04

Education

Mark Winands: Computer Science programme off to a flying start

07

Portrait

Frank Nellen: "All my characters end up in the graveyard"

13

Sciences and society

Susan Schreibman and Costas Papadopoulos: PURE3D—cultural heritage, scholarship and computing

19

Region

Juan Palacios: Veni grant for research on impact of home renovations on residents' health

Alum Natalia Westermann

Her interest in health, nutrition and sustainability eventually led her all the way from Groningen to Maastricht for the master's degrees in Healthcare Policy, Innovation & Management and Sustainability Science, Policy & Society. Now she runs Dotnsquare on the Heggenstraat in Maastricht, a vibrant vintage clothing store.



p 36

2

22

Spread

Hidden pearl: the catacombs below the Student Services Centre

27

Professor – student

Anne Roefs and Leo Pimpini: Tackling obesity through behavioural change

30

International

Roberta Haar and Hylke Dijkstra: Maastricht University and multilateralism

33

Soul kitchen

David Baiao Barata: "Everything starts with a splash of olive oil and some garlic"

38

Alum

Brian and Rob Timmermans: Kicks, punches and throws

40

University Fund Limburg

Erik Steen Redeker and his SublimeStone team

11, 12 and 42

News



Cover

For the cover image, photographer Arjen Schmitz was inspired by the interview with Susan Schreibman and Costas Papadopoulos on their project PURE3D. They are developing an infrastructure for the preservation of 3D scholarship and the platform may also provide a new way of accessing cultural heritage.

www.arjenschmitz.com

Foreword

Maastricht University

Executive Board

Rianne Letschert, Pamela

Habibović and Nick Bos

Closer collaboration between Maastricht University and Maastricht academic hospital

Doctors involved in research at the Maastricht academic hospital (azM) often speak in glowing terms of their fruitful and harmonious collaboration with colleagues at Maastricht University (UM). This partnership is aptly symbolised by the skywalk connecting the two buildings—doctors couldn't do without it, they say. They study questions arising in patient care together with their academic colleagues, who in turn benefit from concrete input from professional practice and access to patient data for their research. It might just be the most effective approach to bringing about innovation and progress.

We now want to apply this successful formula to more of our fields and knowledge domains. Working more closely together will help the hospital and the university face the challenges ahead—the rapidly ageing population, relatively poor health, severe labour shortages and low socioeconomic status in our region. These social issues demand a broad, long-term vision based on the latest insights and innovations across as many disciplines as possible.

Along with our MUMC+ colleagues, we are currently exploring the best way to achieve this. Together, we will determine which themes to prioritise, spanning the entirety of both organisations. Where our goals align, we aim to work more closely together; where the development of one institution is key, we will support each other. This will allow us to benefit from each other's strengths—the ideal form of symbiosis.

In the years to come, UM plans to maintain its focus on strategic themes related to the EU and circularity. The university's broad profile and strong European identity will, in turn, help the MUMC+/azM to strengthen its existing European partnerships and its

reputation in European health. Additionally, we see opportunities for joint strategy development in terms of policy and operations. Consider digitisation projects such as building a data-driven research infrastructure, or HR policies to address the tight labour market, leadership development and social safety.

We will continue to explore the opportunities in the coming months, with a view to sketching out our shared future by the summer. We will keep you informed of our progress in these exciting times! <



3



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Mark Winands studied Knowledge Engineering and Artificial Intelligence at Maastricht University. He has worked as a researcher in machine reasoning and gaming for institutions such as Paris Dauphine University, Reykjavik University and Maastricht University, where he was appointed professor of Machine Reasoning in 2019.

Last year, Maastricht University further strengthened its profile in science and technology by launching a Bachelor in Computer Science. The response exceeded all expectations, with the first cohort of 300 students from all over the world starting the programme in September. “Computers and automation have incredible appeal,” says Professor **Mark Winands**, chair of the Department of Advanced Computing Sciences (DACS). “And that’s a good thing, because well-trained specialists are in high demand.”

Computer Science programme off to a flying start

Education

Text
 Jos Cortenraad

Photography
 Sem Shayne

In 2019, the Faculty of Science and Engineering decided to add Computer Science to its rapidly expanding range of study programmes. But for various reasons, including the pandemic, it wasn’t until 2022 that accreditation was secured. Mark Winands then began assembling a group of teachers and locating the necessary facilities.

“The idea was to launch the programme in 2023 in a modest way, with 50 to 100 students,” he says. “We deliberately did very little marketing—no international fairs or advertising. Even so, the response was overwhelming. Nearly 2000 prospective students requested information, and we ended up admitting just over 300 applicants. Around 20% of our students are from the Netherlands, 60% from elsewhere in

Europe and 20% from other continents. It’s clear that young people are interested in pursuing careers in software development, improving the quality and security of computers and apps. That’s the main focus of our programme.”

Separate programme

Winands, who specialises in artificial intelligence, wasn’t entirely surprised. As programme director and lecturer in the Bachelor in Data Science and Artificial Intelligence, he’d seen interest in the field grow over the years. “It makes sense that it’s a popular programme—these days everyone’s talking about data and AI. Back in 2019, the education advisory board of Data Science and AI already recommended that we introduce a separate Bachelor in Computer Science, so we were

well aware of the demand. Companies and governments face a severe shortage of developers. But the response exceeded our expectations. Computer Science is genuinely a different discipline, more driven by technology and hardware.”

High-level maths

In particular, Winands had anticipated fewer Dutch applicants. “One of the admission requirements is a high level of secondary-school maths, which fewer and fewer Dutch students have. This is an unfortunate result of the profile system in high schools, and it’s partly why we have such a STEM skills shortage, as universities are all too aware. So more than 60 Dutch students is, relatively speaking, quite a large number. We also have lots of Germans and Belgians, particularly

from border areas. There are good opportunities for them in this region, where computer technology is increasingly important. Take the Einstein Telescope project in Maastricht, which needs hundreds of specialists. We’re already providing them with Data Science and AI specialists; now we’re training developers as well.”

Challenges

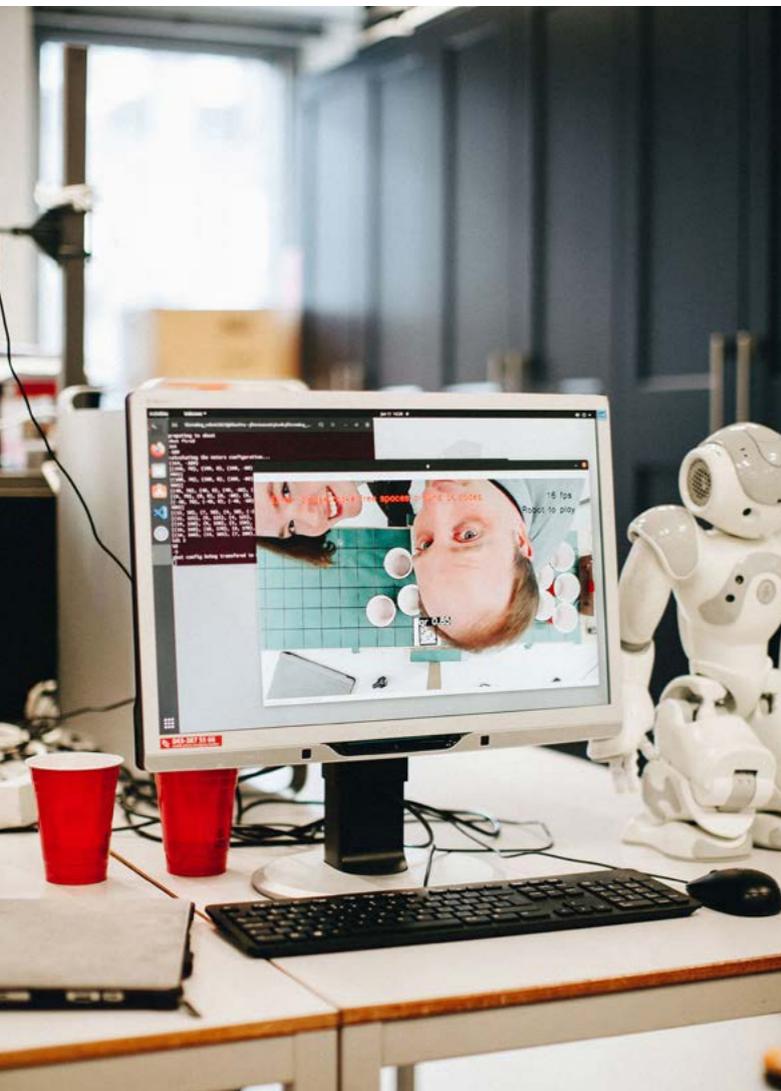
The decision to accept three times more students than planned did present some challenges. “There’s plenty of space here,” Winands says during a tour of the building, housed in the former Mercedes call centre. “We have enough rooms for the tutorials and a spacious learning environment. But we had to scramble to arrange bicycle parking and find a large >



lecture hall. We've been using the hall in the former Maastricht School of Management building nearby. We'll need more space next year, when the next cohort arrives, but this building is large enough to handle it."

Master's programme

The Computer Science team is currently developing the curriculum for the second and third years of the programme. "And we're considering introducing a master's programme. That would give DACS a total of about 2000 students, allowing us to compete with other Dutch unis like the University of Twente or Delft University of Technology. Ten years ago, that would've ruffled some feathers, but today, there's an awareness that we need these programmes in the south of the Netherlands as well. Computer science and technology is a rapidly growing sector, after all." <



"In the right place"

In her final year of high school, **Laura van Rooij** had a hard time deciding what to study at university. "I knew it had to be related to maths, my favourite subject. I was interested in Game Design, but UM doesn't offer that, and I wanted to go to a university close to home."

Van Rooij, who grew up in Germany and South Limburg, looked into studying Artificial Intelligence and Data Science at UM. That's when she learnt about the new Computer Science programme. "The open day and workshop took away any doubts I had. It's a broad-based degree in programming and software development, with plenty of maths. So it will give me a solid foundation, with lots of options for master's degrees and, later, career prospects."

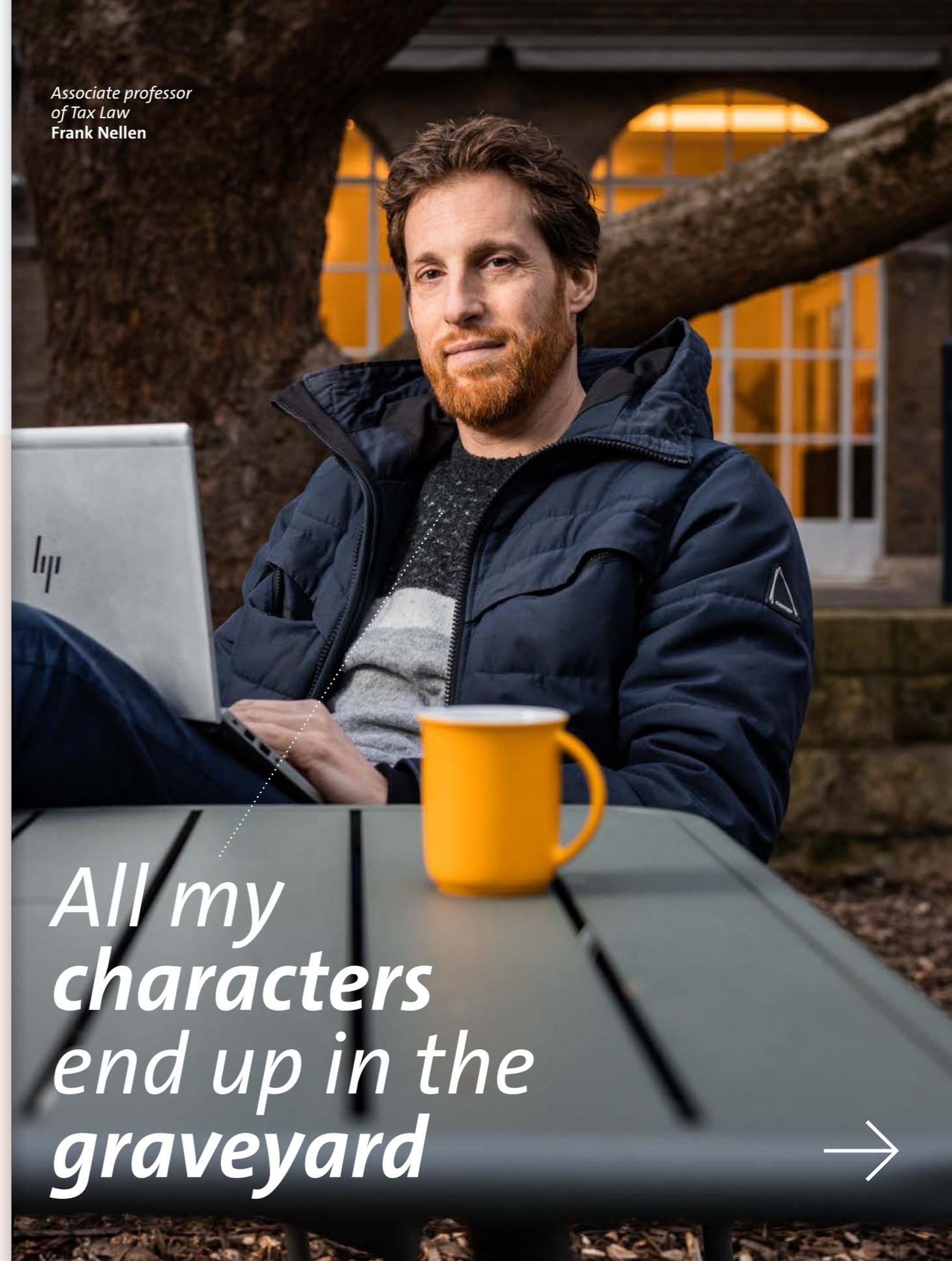
She has been enjoying the programme so far. "I love studying with so many different people from different countries. I'm definitely in the right place here."

"Settled in well"

At just 17 years old, **Magdy Fares** is one of the youngest students in the new Computer Science programme. He considered various universities, including Delft and Eindhoven, but ultimately picked UM. "My mother lives in Liège," explains Fares, who grew up in Belgium and Ireland. "I've rented a studio apartment here in Maastricht, but we like being able to see each other regularly."

Fares has settled in well. "There are so many students from dozens of countries, and everyone speaks English, so it's easy to make friends. I also enjoy the project-based approach of working on real-life cases with professionals. And I get to indulge my passion for maths. I actually considered studying pure mathematics, but I feel like a Computer Science degree gives me more options for the future."

Associate professor
of Tax Law
Frank Nellen



All my characters end up in the graveyard



The pleasure lies in improving yourself.

His second novel, *The Invisibles*, was recently published to high praise in the major Dutch newspapers. Author Frank Nellen is still floored by the response. It is a well-earned reward for four years of hard work—because the associate professor of Tax Law also conducts research, teaches at the Maastricht law faculty and works as a consultant for the accounting firm Baker Tilly.

In the staff room of the law faculty, Frank Nellen is congratulated by several colleagues. He accepts the compliments with a broad smile, and offers a signed copy of the book to the one colleague who hasn't bought it yet. "Let me know what you think."

For four years, he spent every free moment behind his laptop. "It took two years just to find a story that worked. We're talking about hundreds of hours, in the mornings, evenings and weekends. I have notebooks full of half-formed outlines, ideas and thoughts. At some point all those blocks start to fall into place. That you can't force the creative process is something I really struggle with sometimes. But once it clicks, whoosh, you soar. It's incredible."

Socialism better for the climate?

The book is set in the crumbling Soviet Union against the backdrop of the Chernobyl disaster. While researching the novel, Nellen became increasingly open to a socialist philosophy. Since his daughter Janna was born, he says he now thinks more about the future.

"The climate issue, inequality between rich and poor—that's sure to go wrong at some point. We need to become less decadent and return to a more sustainable method of redistribution. Soviet-style communism is not the answer; that was a totalitarian and repressive system. But the thought I'm left with, after writing the book and having a child, is: would it be so bad if the economy were less efficient, if not everything was perfected to the last detail in the pursuit of profit? Wouldn't an inefficient economy actually be better for the climate? A system that focuses less on increasing prosperity and more on moderation? If we had a faltering planned economy, the climate problem might not exist, obesity wouldn't exist. Many of our problems would disappear. Wouldn't that be better? Maybe there'd be no TV, but you'd just play cards together. And you'd have a nicer evening that way, with more social contact."

For a tax specialist, he sings an unconventional tune. "I've always been the odd one out. Many of my colleagues—first at KPMG, now at Baker Tilly—love cars, but I've never been into that kind of thing. They all want a Tesla or a BMW; I prefer to take the train so I can work. Material things just aren't important to me, even though my profession is all about money."

Writer versus academic

Nellen's interest in the tax profession took root slowly. It was only during his master's in Tax Law, when he came to understand the underlying system, that he started to enjoy it. "The articles in a lawbook are formulated in a very difficult way, but once you master that idiom—which you can only do by reading very clearly and slowly—you begin to internalise the language. That's when it all comes to life and you just fly through those laws. The moment I understood the system, acquired that knowledge and felt that my insight was increasing and improving, I started to get good marks. That's when I discovered that the pleasure lies in improving yourself; in getting good at something, getting better at something. That was a revelation. For the first time, it gave me a sense of usefulness, of growth, of moving forwards in life."

And yet, something was missing. "I enjoy my work, but it doesn't grab me on a higher level. Ultimately, it always comes down to a euro more or less for the client or the government. You're forever moving money and paper around. When I discovered reading and writing, I found something my work had been lacking: the human dimension. The personal, the human—I find that in literature and writing."

The dark side of humanity

Nellen grew up in Roosendaal as the second of four boys. He was a difficult teenager, he says. "I was very inward looking, with few interests and a dark view of humanity. I hated the first four years of high school: the chaotic relationships, the harshness, the bullying; it was a real bullfight, everybody at each

Portrait

Text
Annelotte Huiskes

Photography
Philip Driessen



other's throats. I just didn't like life that much. That changed in Year 11, when I started to develop real friendships. I changed as a person, life became more fun."

He is still attracted to the dark side of humanity. "I'm fascinated by it. I gravitate towards writers like Cormac McCarthy, or books like *The Painted Bird* by Jerzy Kosinski—incredibly dark literature, I love it. I think it's in line with my character. I know exactly what my weaknesses are: I have a short temper and I'm quick to think the worst of people. I also have a cheerful, high-spirited side, but it's the dark side that comes out in my literary work. In the end, including in my first novel, almost everybody dies," he laughs. "All my characters end up in the graveyard."

First literary steps

It was his father who first encouraged him to write. The Nellen's were a warm family, but his parents had an ascetic lifestyle: hard work, no alcohol, holidays in Zeeland at his grandparents' house, and strict rules: no TV and no computer games during the week; activities his father considered 'low grade.' "When my father found me at the computer yet again, he yelled, 'Go do something useful, write for the school newspaper.' 'What good will that do?' I said. 'I'll give you 10 guilders for every page you write.' Well, I went wild: six pages, three stories." >

He began to write in earnest when he was 27 and stuck in bed with torn cruciate ligaments. His younger brother Geert, who had got him reading literature a few years earlier, suggested he start writing stories himself. “He sent me an overview of short-story competitions. I typed up a story in bed and submitted it for the Helmond story prize. I didn’t win, but I made it into the top 10, and they made an anthology of those. An anthology with my story in it! A bad story, incidentally ... Anyway, I took this as encouragement, and entered all kinds of story competitions, with increasing success. So my tip for aspiring writers is: read a lot and start with short stories. Send them to story competitions and literary magazines.”

Hard work

He only found the time to work on a longer piece, a novel, after his PhD. What the writer and the academic Nellen share is the ability to work hard. “If I really want something and I sink my teeth into it, as with my PhD, I’d rather die than give up—that’s my strength. For the first two years, my book was appalling; hell, because you just don’t have the story yet. But you have to keep on plugging away, day after day. That’s who I am as an academic and as a writer. My father worked as a researcher at the Huijgens Institute in The Hague. He’d leave at six in the morning and come back at seven in the evening. When I think of him, I mainly think of hard work. He set an example that still has a big influence on me. I’m not a high flyer, but I can work seriously hard.” <



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Frank Nellen obtained a bachelor’s in International Business Administration at Maastricht University (UM), a bachelor’s in Fiscal Economics at Tilburg University and a master’s in Tax Law at UM. In 2017 he received his PhD in Maastricht for his dissertation ‘Information asymmetries in EU VAT.’ Nellen has been an associate professor of Tax Law at UM since 2023. He also works as a consultant, previously at KPMG and since 2016 at Baker Tilly. His second novel, *The Invisibles*, was released this year by publisher Hollands Diep.

News

48th Dies Natalis

On Friday 26 January, Maastricht University celebrated its 48th Dies Natalis in the Sint Janskerk in Maastricht. The keynote lecture by Professor Robert Dur was followed by the awarding of three honorary doctorates, the Wynand Wijnen Education Prize, the Dissertation Prize and the Student Prizes. Musical accompaniment was provided by singer-songwriter and FASoS alum Joshua Oudendijk, also known as ‘Josh Island.’

This year’s theme was ‘Talent Unlimited: the labour we need, the potential we can’t waste.’ Rector Magnificus Pamela Habibović opened the ceremony: “If we don’t question our ideas around talent, we will have an economic downturn. Whether we want to or not, we certainly have to do what is by most accounts the right thing: to allow everyone a challenge, a chance to grow, a chance to contribute. To succeed as a whole, we need to give every one a chance to make the most out of their potential—for their sake, and for ours.”

Professor Robert Dur from the School of Economics at Erasmus University Rotterdam built on this theme. “If we want to keep our high standards of living and, at the same time, adequately address the major societal challenges we are facing, we need to become more productive. One way to increase productivity is to make work more meaningful. The returns in terms of workers’ motivation and hence productivity can be spectacular.”

The pursuit of meaningful work and commitment to making a contribution was evident among this year’s recipients of the honorary doctorates. **Professors Liesbet Hooghe** and **Gary Marks (1)** received a joint honorary doctorate for devising and developing the concept of multilevel governance. And **Professor Christian Leuz (2)** received an honorary doctorate for advancing knowledge about transparency in capital markets, including sustainability and environmental, social and corporate governance (ESG).

Wynand Wijnen Education Prize 2023

This year, the Wynand Wijnen Education Prize was awarded to **TeenzCollege**, the educational programme for ambitious high school students. This initiative encourages young people to get to know our university at an early stage and helps to attract talent to the region. Professor **Bert Smeets (3)** accepted the award on behalf of the TeenzCollege team.

Dissertation Prize 2023

The annual Dissertation Prize was awarded to **Sven Hildebrand (4)** from the Faculty of Psychology and Neuroscience for his thesis ‘Investigating human neocortical architecture in 3D: New approaches for clearing, labelling, and imaging large samples.’

Student Prizes 2023

Every year, the best master’s and bachelor’s theses by UM students are recognised during the Dies celebration. The prize winners receive €500, a certificate and a small gift from the rector.

Twenty-two students completed their bachelor’s degree in 2023 with a thesis marked as excellent by their faculty: **Luisa Knobon, Jente Willems, Robin Steinkühler, Leon Rüter, Bastiaan Laarakker, Remco Poeliejo, Isabel Bandsma, Merle Praum, Kyra Pauly, Jessica Jassan, Evelien van Sterkenburg, Nia Raycheva, Esmée de Jong, Maëlle Dickhoff, Vincent Tadday, Pim Hovens, Lukas Vöing, Saskia Rapp, Hanna Hoogen, Lucas Bastiaanssen, Lars Niehaus and Iris van Buuren.**

Eight master’s students received top marks for their final thesis: **Anne-Sophie Oppor, Judith van Veldhuizen, Jairo Lommen, Adam Shier, Leonard Niekerken, Esmée Vaes, Jarno Koetsier and Lotte de Lint (5).**





News

Mental health determines the risk of developing dementia at a young age

The cause of early-onset dementia is often assumed to be genetic. Researchers from Maastricht University (UM) and the University of Exeter have now identified 15 factors associated with an increased risk of developing dementia at a young age, some of which people can influence themselves. In addition to socioeconomic status and known lifestyle factors, such as alcohol consumption and smoking, the scientists found a strong relationship with mental health. Depression and social isolation (due to e.g. hearing loss) appear to be particularly good predictors of an increased risk of developing dementia before the age of 65. The findings were recently published in the medical journal *JAMA Neurology*. <

Brightlands Circular Space: A highway to circular plastics

Using waste to create new materials appears to be an effective way of reducing fossil-based sources in the production of materials such as plastic. But how do you do this on an industrial scale? Last November, UM and its partners TNO and the Brightlands Chemelot Campus were given a green light to build the Brightlands Circular Space on the Chemelot Campus in Sittard-Geleen. This will enable scientists and businesses to accelerate the development of sustainable and circular plastics from waste materials.

"The Brightlands Circular Space will be a unique facility for the region: for the first time, it will house all research and development for the entire technical chain of plastic recycling in one place," says Kim Ragaert, UM professor of Circular Plastics. <

Sensitivity to gluten influenced by expectations

Health symptoms related to gluten sensitivity are partly triggered by people's expectations. Recent research from the universities of Maastricht and Leeds highlights the crucial role played by expectations: in patients for whom celiac disease and wheat allergy have been ruled out, the belief that gluten causes gastrointestinal symptoms affects whether or not they actually experience these symptoms. This points to a direct involvement of the 'brain-gut axis', about which relatively little is known. The findings were published recently in *The Lancet Gastroenterology and Hepatology*.

The researchers now want to investigate the mechanisms involved in the brain-gut axis. "Interactions between the brain and the intestines mean that people can experience real abdominal pain, a bloated stomach or diarrhoea after eating gluten," says Daisy Jonkers, UM professor of Intestinal Health. "But eating gluten is not the sole cause of these symptoms, so a gluten-free diet is not the only solution." <

Creative approaches to clinical waste

Anna Harris has been awarded an ERC Consolidator Grant of €2 million for her project 'The Upcycled Clinic: A global ethnography of material creativity in contemporary medicine.' The project addresses the escalating issue of clinical waste. In recent years, hospitals in particular have become sites of disposability. Attempts to address this can be top-down and technocratic, often still reliant on a mode of further production.

The Upcycled Clinic takes a different approach, focusing on creative practices that are already happening and which involve making the most of existing materials. Harris's team will conduct fieldwork at five clinical sites around the world where such improvisations are triggered by varying constraints: Antarctica, Ghana, the Netherlands, the US and the UK. <



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Sciences and society

Text
Florian Raith

Photography
Arjen Schmitz

PURE3D: cultural heritage, scholarship and computing



Associate professor of
Digital Humanities and
Culture Studies
Costas Papadopoulos

professor of Digital
Arts and Culture
Susan Schreibman

How can 3D models be preserved? This is the idea behind PURE3D, a project in which [Costas Papadopoulos](#) and [Susan Schreibman](#) are developing an infrastructure for the preservation and publication of 3D scholarship. In the future, the platform may also provide a new way of accessing cultural heritage. From the Battle of Mount Street Bridge, to Limburg's mines and the Smithsonian. Everything you need to know, here in 2D.

Costas Papadopoulos from the Faculty of Arts and Social Sciences is one of the project's principal investigators. With a background in archaeology and 3D visualisation, he digitally reconstructs archaeological remains, including objects and buildings, and uses computer simulations to study how light has historically influenced human actions and experiences.

His colleague and fellow principal investigator is Susan Schreibman, professor of Digital Arts and Culture. She has used 3D modelling to study the wildly differing estimates of the number of British casualties during the Battle of Mount Street Bridge, Dublin, in 1916. The reconstruction is painstakingly detailed and can rotate fully in every direction, providing researchers with many different vantage points.

Multiple perspectives thanks to 3D modelling

Schreibman worked with ex-military personnel and historians. "We followed guided tours around the site in Dublin. Some of the scholars had been working on the battle for years; most existing accounts were biased by political sensibilities. Any narrative only ever explains one of the many things going on at the same time. The sense of 3D spatiality adds something that no amount of archive material can." The 3D reconstruction also revealed how the street would have looked at the time, with much younger trees, no cars and different buildings.

"These models are really useful in answering key questions because they give you many perspectives and can simulate various parameters," Papadopoulos says. "It takes a lot of time and effort to create them. And yet, the journal that published the article based on this research doesn't have the infrastructure to display it. The 3D model as a dynamic, interactive thing is lost to the public." This is where PURE3D comes in—preserving such models and making them accessible for future reference and research.

We're bringing together a plethora of expertise.

Preserving scholarship and cultural heritage

But PURE3D also has more to offer. "3D modelling isn't yet appreciated as research output, but it has great scientific value and outreach potential," Papadopoulos says. He mentions Recognition & Rewards, the national initiative for diversifying the factors used to evaluate academic performance. He and Schreibman hope the PURE3D platform will help 3D modelling to be valued just as much as more traditional formats. They are also working on a sister platform with mechanisms and workflows that would allow for peer reviewing of scholarly 3D models.

Ultimately, PURE3D could be a key to the preservation of cultural heritage. A European Commission directive stipulates that all of Europe's cultural heritage at risk of degradation or destruction be digitised by 2030, as well as 50% of the most frequently visited heritage monuments. This means creating digital 'twins' of objects and monuments using scanning and modelling technologies originally developed for other fields, such as medicine and engineering.



Costas Papadopoulos is associate professor of Digital Humanities and Culture Studies. His research focuses on the development of 3D reconstructions and virtual worlds to interpret societies of the past and the use of computational imaging to analyse material culture.

Susan Schreibman is professor of Digital Arts and Culture. She specialises in computationally based teaching and research at the intersection of digital archives, cultural innovation and participatory engagement design, processes and projects.



Better than the real thing

Such technologies offer tremendous educational and academic potential. "Museums already use this technology to make objects you aren't allowed to touch more accessible," Papadopoulos explains. "You can turn the digital model in all directions, zoom in or overlay filters that illustrate various aspects."

They have conducted pilot projects with the Maastricht city council as well as cultural heritage institutions including the Museum van Bommel van Dam in Venlo and the Netherlands mining museum in Heerlen. With the latter, they modelled a series of mining lamps, accompanied by annotation that tells the story of mining in Limburg as illustrated by the technological progress and refinement of the lamps.

Digital modelling allows for better storytelling, they say. "You can use it to explain, to add context," Schreibman says. As a multimodal platform, PURE3D can also accommodate text boxes, images, audio and video. Because this new technology requires a different approach to educational narratives than traditional media, Schreibman and Papadopoulos offer training and support on how to use 3D models to conceptualise and tell stories.

Unique infrastructure

"The technology is not that big a deal anymore," Papadopoulos says, "but PURE3D is the first infrastructure of its kind. There are technical challenges and no precedents to draw from." The project team identified the prestigious Smithsonian Institution's software Voyager as the best platform for viewing and editing scholarly content in 3D. "They became a kind of unofficial partner. They even sent their lead developer to Maastricht and made some iterations based on our feedback. It's been a really fruitful cooperation."

The project started in January 2021, funded by the PDI-SSH (Platform Digital Infrastructure-Social Sciences and Humanities), a platform for the allocation of government research funding. Following user testing, the prototype is being refined and is expected to go live by the end of 2024. "It hasn't been easy, but we're very proud of the result," Schreibman says. "It's a highly interdisciplinary endeavour; we're collaborating with many institutions and bringing together a plethora of expertise." Papadopoulos hopes they can find sustainable funding for the hosting and maintenance of the platform as well as training. "It's a great way of making cultural heritage and scholarship accessible to all." <



Bridging the gap between technology and clinical practice

Lee Bouwman, a vascular surgeon and endowed professor of Clinical Engineering, specialises in the implementation of groundbreaking healthcare technologies. The key to success, he says, lies in the collaboration between engineers and clinicians. This approach has already resulted in a range of innovations, from the use of robotics in aortic stenting and knee replacement surgery to the localisation of breast tumours using magnetic seeds and iron oxide.

Science

Text

Hans van Vinkeveen

Photography

Philip Driessen

The emerging field of clinical engineering focuses on redesigning existing healthcare innovations. Lee Bouwman attributes failures in product development and implementation to the gulf between engineering research and clinical practice. “Engineers and scientists speak a different language from healthcare professionals,” he explains. “They often seem to misunderstand one another. Product developers sometimes brush aside major clinical problems, and come up with brilliant solutions to problems that don’t exist. On the other hand, clinicians may resist standardised treatments and prefer to do things their own way.”

Clinical engineers can help to close this gap. Bouwman sees himself as a bridge builder, introducing technology to medicine and, conversely, clinical problems to engineering research. “Clinical engineering has enabled us to manage human and material resources more efficiently while improving healthcare quality.” The chair of Clinical Engineering is a necessary addition, he says. In his inaugural lecture, he warned of an impending healthcare crisis. “This field can help find solutions to escalating healthcare costs.”

Standardisation

There is much to gain from simply standardising operational processes. Bouwman cites an example involving equipment for angiography (visualising blood vessels using X-rays). “Doctors previously used different catheters, balloons and stents, each convinced that their preferred equipment produced the best results. Standardisation led to major savings while maintaining quality.” Without realising it, Bouwman had ventured into the field of logistics engineering, which focuses on the procurement, storage and distribution of materials and end products. “It was my first step towards the new field of clinical engineering.”

He is currently involved in a wide range of projects, assisted by PhD candidates and other partners. In one project, they used big-data analysis to optimise the care pathway for stroke patients: 95% of patients now undergo surgery within two weeks, as recommended by the guidelines. Another project, in collaboration with orthopaedic surgeons, explores the use of robotics in knee replacement surgery, focusing on precision of placement and flexibility of the prosthesis. Yet another project involves the implementation of a new localisation technique for non-palpable breast tumours. Traditionally, an expensive and radioactive medium is used; the novel technique uses hypermagnetic iron oxide, read by a magnet. >



New imaging technique

In standardising angioplasty treatment for lower limb arteries, Bouwman was surprised to find that healthcare professionals differed in their assessment of the same medical problem. "X-ray angioplasty used to be the gold standard, but different healthcare professionals reached different conclusions based on the same images. Even more surprisingly, repeated assessments by the same individual would often yield different results." To develop a more objective method, Bouwman worked with Bart van Grinsven, a researcher in Maastricht University's Sensor Engineering department, to implement new imaging techniques. For example, optical coherence tomography uses light waves to visualise the inside of a blood vessel. "It provides an objective measurement with a resolution 20 times higher, allowing for a more targeted and cost-effective treatment."

Precision

An even more challenging project involved the development of a new aortic stent. A stent is a tiny tube inserted into an artery or vein for one of two near-opposite purposes: to stop bleeding by acting as an internal bandage, or to open up a blocked artery or vein. The current stents have drawbacks, such as leakage. The redesigned aortic stent has side branches, which can be used to direct the arteries to the organs. It was developed in collaboration with Eindhoven University of Technology, which has a department specialised in flow and turbulence in blood vessels. How does the prosthesis affect blood-flow dynamics? The precision required for aortic stent placement cannot be overstated, says Bouwman. "Complications can lead to serious consequences like kidney failure, paralysis or even death. And if it fails, treatment becomes increasingly difficult."



Lee Bouwman was appointed endowed professor of Clinical Engineering at the Faculty of Science and Engineering (FSE) of Maastricht University in 2022. He also works as a vascular surgeon at the Zuyderland Medical Centre in Heerlen. His research focuses on the use and optimisation of medical technologies to improve healthcare.

Societal duty

These examples show that complex medical problems can only be solved through interdisciplinary collaboration. Bouwman has joined forces with various healthcare professionals, engineering companies, government agencies and universities. "Clinical engineering is an applied science. The technical sciences are more advanced in this area. After all, it makes no sense to practise engineering without applying it." His view is endorsed by the Integral Care Agreement (IZA) between the Dutch government and healthcare organisations, which emphasises the need for collaboration to make healthcare more efficient. Bouwman also expects medical companies to demonstrate a certain level of responsibility: "They have a societal duty to invest their profits in improving healthcare."

Looking ahead, he hopes to further advance the field of clinical engineering. "I happen to be a vascular surgeon who is involved in technology. It would be wonderful to be joined by more clinicians and especially engineers who are passionate about healthcare. If this field is to be successful, it has to be widely embraced." <

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It makes no sense to practise engineering without applying it.



Back to
Maastricht

The coming years will see tens of thousands of homes in the Netherlands undergo extensive renovation and modernisation. While the main goal is to improve energy efficiency, researcher Juan Palacios is interested in understanding the impact of home renovations on residents' health. He will spend the next three years working on this topic, supported by a prestigious Veni grant.

The School of Business and Economics (SBE) had cause to celebrate when the Dutch Research Council (NWO) announced its Veni grant recipients last August. It's not every day that two SBE researchers—Max Löffler and Juan Palacios—are awarded grants. “For a researcher, getting a Veni is like hitting the jackpot,” Palacios says. “The criteria are very strict; out of hundreds of applications, only 13% are approved. And it takes up to a year to develop your research proposal—writing, rewriting, expanding, presenting ...”

Societal impact

The most important criterion for the NWO is societal impact. “It has to be research that can be translated into, say, government policy,” he explains. “I want to show that renovating old, run-down rental properties not only reduces energy bills, but also improves residents' health. A well-insulated and ventilated house with good central heating can be kept comfortable all year round, which is important in winter, but perhaps even more essential in summer, when you're dealing with heatwaves and extreme temperatures. Heat stress causes all sorts of physical and psychological issues, as does financial strain due to skyrocketing energy prices. This can lead, in turn, to social isolation and psychological distress. We're studying whether residents are healthier after a home renovation and place fewer demands on the health-care system.”

Familial territory

Palacios has a budget of over €280,000. The grant covers his own salary and allows him to hire assistants for data processing and communication. “We'll collect three years' worth of data from Statistics Netherlands, general practices, healthcare institutions and housing corporations to assess the health impact of energy-efficiency interventions.”



The topic is familiar territory for Palacios. After completing his bachelor's in economics in his hometown of Madrid and a master's in econometrics in Essex (UK), he found his way to Maastricht for his PhD. “During a visit to Shanghai, I was struck by how bad the air quality was. There was thick smog almost every day. Air pollution is harmful to human health, there's no doubt about that. You're safe indoors, but only if it's a well-ventilated school, office or home. That's what gave me the idea to study the relationship between health and the buildings in which we spend most of our time. And to translate the findings in economic terms.”

Eichholtz and Kok

Looking for a PhD position, he came across a planned research project by two UM professors with the same idea, Piet Eichholtz and Nils Kok. “I applied, we had a good click, and I started in June 2015. I wanted to show that living, studying and working conditions have an impact on human health and functioning.”

Getting a Veni is like hitting the jackpot.

The results he presented four years later were very concrete. “We analysed large amounts of German data spanning three decades. Living in poor-quality houses turned out to be detrimental to health, especially for older people. They went to the doctor a lot more often than older people living in better quality homes. And after home renovations, there was a dramatic drop in visits to the doctor.”

Poorer performance

Two other studies in the research project took place in Limburg. “In one, we used sensors to collect data from primary schools on air quality, temperature, CO2 levels, humidity and so on. We found that children in poor-quality classrooms had lower educational outcomes than their peers in better buildings. The other study involved the new municipal office in Venlo, a sustainable building designed with a focus on indoor environmental quality. Employees who moved to the new building turned out to have fewer health issues and take fewer sick days than their colleagues who remained in the old building. In other words, all three studies showed a relationship between human health and the indoor environment.”

Dream job at MIT

After completing his PhD, Palacios was appointed as a postdoctoral researcher at the prestigious Massachusetts Institute of Technology in Boston—a dream job, at one of the world's top universities. But Eichholtz and Kok invited him back to Maastricht. “They approached me to write a research proposal and a Veni grant application for a study on sustainable real estate and healthy buildings. It was a fantastic opportunity that built directly on my PhD research. I said yes, also because I missed Maastricht—the hospitable people, culture, nature and the surrounding environment; perfect for cycling and exercising. And of course, the international university with people from all over the world. It's so inspiring and valuable. I feel at home here and I'm glad to be back.”

He still spends 10 weeks a year in Boston, as a lecturer and researcher at MIT. “It's an ideal combination. At MIT I mainly focus on innovations in housing, so I learn things there that we can use in Maastricht.” <



Juan Francisco Palacios was raised in Madrid, studied economics at the Complutense University of Madrid, obtained his master's in econometrics from the University of Essex, and completed his PhD at Maastricht University's School of Business and Economics (SBE). Since January 2023, he has been an assistant professor at SBE and visiting professor at MIT in Boston.



Hidden pearls

Many Maastricht University buildings in the city centre have a rich history. The Student Services Centre (Bonnevantenstraat 2), for example, is located in a former monastery complex. Between 1626 and 1796, the Bonnefanten Monastery housed the Canonesses Regular of the Holy Sepulcher, a Catholic female religious order. The sisters educated girls from well-to-do families and were thus dubbed Soeurs des Bons Enfants, later corrupted to 'bonnevanten'. During the restoration of the chapel around 1970, a burial vault was discovered. Dating from 1712 to 1794, it holds 54 niches in which the sisters of the Bonnevanten Monastery were buried. <

Spread

Photography
Paul van der Veer

Child-friendly cities benefit everyone



Sustainability

Text
Jolien Linssén

Photography
Sem Shayne

What will the sustainable city of the future look like? To answer this question, we shouldn't just ask experts, says postdoctoral researcher [Özlemnur Ataol](#). The youngest users of the urban environment—children and young people—should get a say too. Creating cities in which they can thrive will benefit people of all ages.

their own neighbourhood or city. After all, they are just as capable of providing valuable input as adult residents. “In fact, I’d say their input is more valuable,” Ataol says. “They tend to take a more inclusive, sustainable and empathic approach to urban life.”

Istanbul

This was one of the findings of her PhD research, which she completed in 2022 at Eindhoven University of Technology. In her native Istanbul, she spoke to children aged 6 to 12 to find out how they felt about their environment. It energised her (“Doing a PhD can be pretty lonely”) and taught her how to work with children.

“I quickly discovered that children know a lot about their own neighbourhood. Many complained about litter on the streets and the problems it causes, not just for people but also for animals.” Besides their inclusive perspective, what stood out was her participants’ faith in technology to provide solutions. For example, they came up with a smart bin that alerts users when they don’t separate waste properly. “Children are open-minded. They haven’t been trained to think from a certain perspective yet. Maybe that’s why they can see the world from a more collective point of view.”

Ideal

The children in her study didn’t have to think long about what the ideal city would look like to them. “Compact, with all your everyday necessities—the supermarket, the doctor, the school—within a fifteen-minute walk.” This popular urban planning concept also emerged from research Ataol conducted with babies, toddlers and their primary caregivers. “And the beauty is that a compact city benefits everyone. Having facilities within reach is important for older people, too. It encourages them to get out and about, which in turn brings them into contact with other people. So it’s good for both their physical and their mental health.”

Adults

Although researchers increasingly recognise the importance of including children’s perspectives in urban planning, their participation in research is not a given. Research distinguishes between three types of adults who struggle with the idea of taking children and young people seriously as stakeholders. “The first group believes that children have nothing to contribute. The second group prefers to spend their time differently than listening to children. The third group is afraid of the unknown.” >

Growing up in the Turkish metropolis of Istanbul, Özlemnur Ataol dreamt of becoming an architect. But during her studies, she realised that a career in research was a better fit for her. She speaks passionately about her work as a postdoctoral researcher at the Philosophy department of the Faculty of Arts and Social Sciences, where she is a driving force behind the Circular City Challenge project. “I’ve been involved from the beginning. It’s my baby,” she laughs.

Circular City Challenge

Funded by the European Union, the project is being rolled out in various European cities, including Maastricht. Its aim is to develop a tool to encourage children between the ages of 14 and 18 to think about issues related to climate change and social inequality in their own city. Importantly, participants are asked to come up with lasting solutions for local governments to take into consideration.

“We designed a competition asking young people to identify a problem in their own environment,” says Ataol. Take a school cafeteria selling apples wrapped in plastic, resulting in unnecessary waste. “What we want is for them to look at the problem from different perspectives—the apple farmer, the plastic producer, the school board—and propose an alternative.”

Flipped learning

The Circular City Challenge gives participants the opportunity to build skills like networking and collaboration. By doing their own research, they also learn about sustainability and circularity. “It’s not about us telling them how it is. The idea is for them to think about their own urban environment; that way, we encourage them to teach us something. I call it flipped learning.”

Ataol is eager to see what ideas and solutions the participants will come up with. “We’ll use thematic analysis to identify the main trends, which is what fascinates me as a researcher.” But the Circular City Challenge not only serves academia. It is intended to take on a life of its own as a tool for local authorities and politicians to give young people a voice in shaping

Children see the world from a more collective point of view.

Without the right tools to streamline research with children, these adults will be difficult to convince. Ataal aims to change this with the Circular City Challenge project. "First and foremost, the competition is a useful way to gather input. Second, I hope my research will demonstrate that young people are even better than adults at thinking about their urban environment. It's my mission to show how capable they are." <



↳
Özlemnur Ataal
completed her bachelor's and master's degrees in architecture in Istanbul and her PhD at Eindhoven University of Technology in 2022. She now works as a postdoctoral researcher at the UM Faculty of Arts and Social Sciences. She is also assistant professor of Spatial and Institutional Design at the University of Groningen.

Text
Ludo Diels

Photography
Harry Heuts

Professor of
Psychology and
Neuroscience of
Abnormal Eating
Anne Roefs



Tackling obesity through behavioural change

Assistant Professor
Leonardo Pimpini

Does she ever indulge in pizza? “Absolutely! And crisps, too”, laughs [Anne Roefs](#), professor of Psychology and Neuroscience of Abnormal Eating and head of the Eat Lab research group at Maastricht University. Equally, [Leo Pimpini](#), a native of Venice who completed his PhD under Roefs’s supervision, is not averse to a good tiramisu or lasagne.

Both researchers come across as sociable and active, able to enjoy life without piling on the kilos. They also share an interest in cooking. Pimpini’s PhD supervisors even gifted him a Japanese chef’s knife engraved with the words Master Chef Dr Pimpini. Have they noticed any cultural differences between them? “Definitely,” Pimpini says, grinning. “Anne drinks cappuccino in the afternoon. We don’t do that in Italy. But nobody’s perfect, not even my friend Anne—my rock in the academic world.”

Misconceptions

Pimpini’s PhD research is groundbreaking: when it comes to obesity, there are many misconceptions that stigmatise the problem without offering constructive solutions. His dissertation focuses on the effects of mindset and BMI on food-related cognition and behaviour. “UM has an excellent reputation in the field of cognitive science and MRI-based research. I knew early on that I wanted to come here for my PhD. And I never regretted it for a moment, especially now that I’ve been given a permanent position and recently got married.”



Behavioural change

Judging from her many podcast appearances, publications and newspaper articles, Anne Roefs’s expertise on eating behaviour, obesity and abnormal eating transcends academia. She knows how to translate research results for a general audience. “Our goal is to bring about behavioural change in society. This is essential: unhealthy food is advertised everywhere, and behavioural change is incredibly hard work. Ultimately, the best thing would be to transform our entire environment from obesogenic to health-promoting. I hope we’ll get there some day.”

Roefs and Pimpini conduct neuroscientific research using fMRI scanning. This technique shows which brain regions are activated when exposed to images of certain types of food. “The study addressed some persistent misconceptions related to obesity,” Pimpini explains. “For example, the brains of people with obesity are said to respond differently to images of high-calorie food; supposedly this is evidence of an overactive reward system. But there’s no consistent scientific evidence for this, nor did we find any in our recent fMRI research. It’s your mindset that determines how your reward system responds, regardless of your BMI.”

We do have the power to make our environment healthier.

Genetic factors

“Obesity is still approached too much from a biomedical perspective,” Roefs says. “Genetic factors play a role, but it’s not so much the genes controlling metabolism, for example, but rather the genes that influence behaviour. That’s why behavioural change is key. Medications and diets don’t provide a lasting solution. You need to change your eating and exercise habits in a sustainable way. It’s not about eating fewer carbs or less fat; it’s about changing the way you think about food. It’s a mental process. And it may not be easy, but it’s necessary. Obesity and related problems, like cardiovascular diseases and diabetes, are a major challenge for society—that’s why we’re committed to addressing them.”

The researchers stress the importance of a sustainable lifestyle that doesn’t require total self-denial. “We mustn’t forget that our environment has changed drastically in recent decades. We’re constantly exposed

to unhealthy food cues,” Pimpini explains. “But our DNA hasn’t changed over the centuries,” Roefs continues. “What has changed is the environment in which we live. It’s important to be aware of that, because we do have the power to make our environment healthier.”

Source of inspiration

Pimpini feels at home in Maastricht. “It’s more efficient than in Italy. And less hierarchical,” he adds. “His dissertation will serve as the basis for further research. We worked well together and will continue to do so,” Roefs says. Pimpini couldn’t agree more. “Anne is a source of inspiration for me. She helped me grow. Not literally, of course, given the subject matter,” he laughs. <

→→

Anne Roefs, professor of Psychology and Neuroscience of Abnormal Eating, studied psychology at Maastricht University. She succeeded Anita Jansen as head of the Eat Lab, the Eating Disorders and Obesity research group at the Faculty of Psychology and Neuroscience. Her research focuses on obesity, weight loss, eating disorders, neural representations of food, individual tailoring of overweight and obesity interventions and the network approach to psychopathology. She received a VIDI grant from the Dutch Research Council (NWO) in 2016 for her research on the reward value of food, and a VICI grant in 2022 for her study ‘Understanding overweight and obesity: The end of average.’ She is also joint principal investigator of the project ‘New science of mental disorders,’ which is supported by an NWO Gravitation grant.

→

Leonardo Pimpini holds a bachelor’s in philosophy from Ca’ Foscari University in Venice and a joint master’s in cognitive neuroscience from the universities of Trento and Osnabrück. His PhD research at the Maastricht Eat Lab was supervised by professors Anne Roefs and Anita Jansen. He has worked as an assistant professor at Maastricht University since September 2023.



Roberta Haar and Hylke Dijkstra have each received a €3 million *EU Horizon grant* to study multilateralism. “I approached Hylke to join forces—and he told me no,” Haar laughs. “It was only two months before the deadline,” Dijkstra protests. Either way, it worked out well for both of them—and spectacularly for UM.



The EU had made €12 million available for four projects on global governance. A total of 24 consortia applied, each comprising around a dozen partners, meaning some 300 universities and institutes put together bids. Haar hosted an NWO-funded match-making event in Brussels. “I wanted to get a think tank on board, and they told me they already had a partner in Maastricht: Hylke. I contacted him, but by that time he’d already built his consortium.” UM leads two of the four winning projects—and is a partner in the other two. Dijkstra: “It’s a testament to how much expertise we have in Maastricht.”

Impact on policymaking

“The EU’s dedication to multilateralism has been challenged recently,” Dijkstra says. “We want to find out what major powers like the United States and China think. The aim is to help the EU be a better multilateral player.” His project ENSURED studies how the EU and its members can make global governance more robust, effective and democratic.

UM and multilateralism

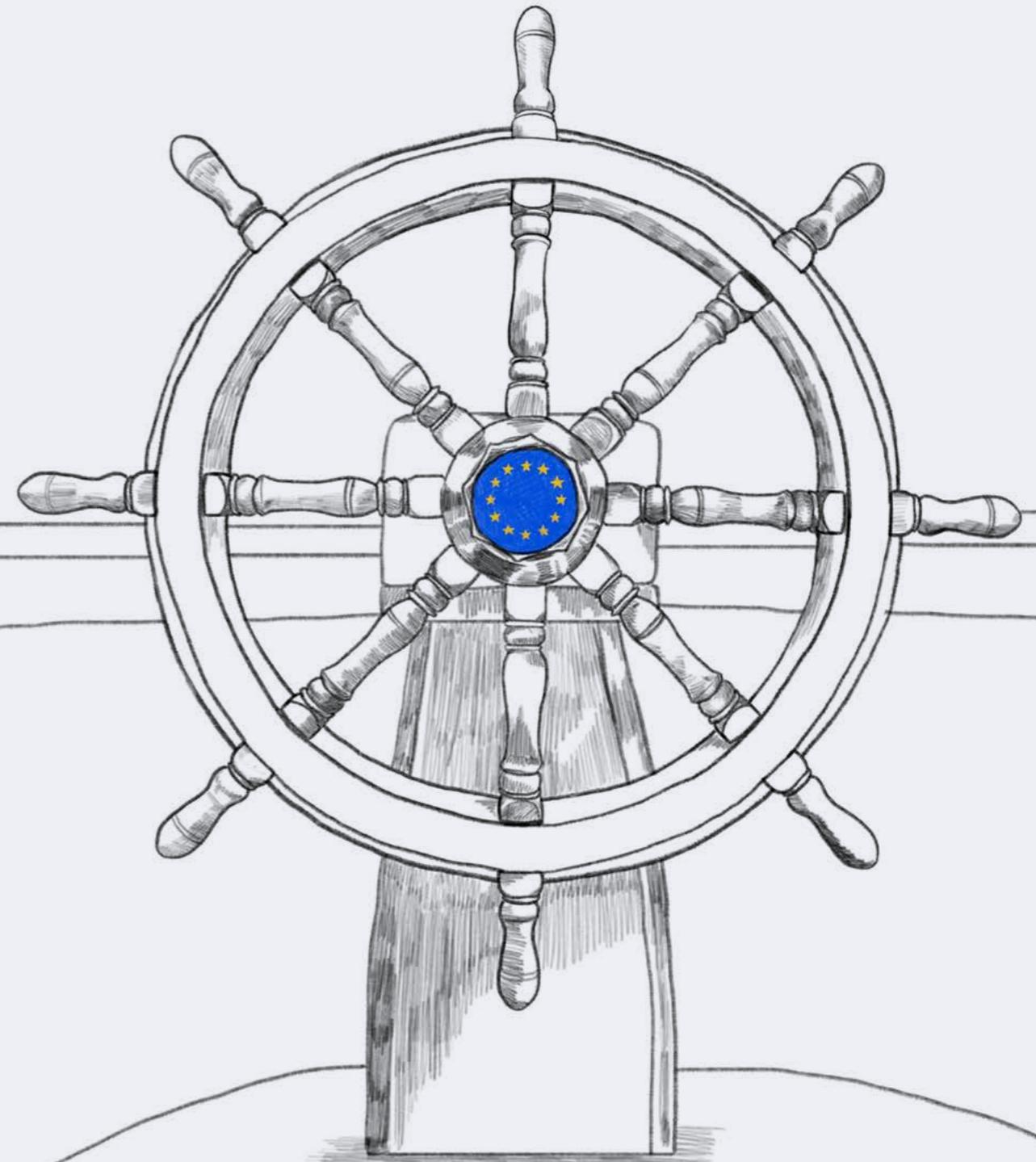
One issue that necessitates multilateral action is climate change. “The 2015 Paris Agreement was followed by the strong European green deal,” Dijkstra says. That the EU has always advocated multilateral cooperation—which requires constant compromise and can lack dynamism—is understandable, given that this is one of its founding principles. “But the EU has a demanding wish list: moving faster on climate change, making sure the Global South has a say, and protecting the system from being derailed by a single national election.”

Dijkstra and his team are conducting case studies of 15 multilateral institutions focused on issues ranging from climate change to world trade, health, and digital and human rights. “What is the unexplored potential for global governance reform?” His hypothesis is that the EU cannot have it all, but will instead have to make choices. “For instance, we Europeans have many seats on the decision-making board of the IMF [International Monetary Fund] and the World Bank. That’s not very democratic. We might have to abandon some of our privileges to make those organisations sustainable.”

The EU Horizon initiative—the Commission’s key funding programme for research and innovation—was launched in 2021 and will run until 2027. The projects involve more than just research, Dijkstra says. “With 14 partners from around the world, we’re co-creating a report on the strategic choices the EU has to make. We have to consider how we can impact policymaking right from the start.” Dijkstra will run training courses on strategic narratives the EU might want to use with its partners. “Like Roberta’s project, we’ll also suggest which areas are worth pursuing and provide tools to help with implementation.”

Beliefs and perceptions

Haar’s project REMIT will address concerns that technological developments might undermine or degrade international organisations and governance. How can the EU establish itself as an important player in the governance of technology? She will study the discourse and geopolitics around key technologies. “AI is essentially an ungoverned area. China, the US and the EU are currently competing when it comes to regulations. We intend to produce actionable recommendations to help the EU become a better multilateral player in that area; for example, by building multinational cooperation.” >



International

Text
Florian Raith

Illustrations
Ted Struwer

In addition to leading and coordinating the project, Haar will focus on the US perspective on multilateralism. "We're working on a case study on quantum technology as well as 5G and 6G. We want to develop scenario-testing workshops for policymakers and, ideally, 'serious games' to simulate outcomes for different approaches to different technologies."

This is the first time Haar has coordinated a project of this size, with 40 researchers and 10 support staff members. "The topic is complex, but we have to keep trying to understand the underlying beliefs. We want to understand how actors perceive themselves and how they are misperceived by others. How can we provide a greater understanding as a basis for moving forward?"



The EU is a "complex animal," she says, in which national interests might not necessarily align with a joint European vision. But she points out that major global players like the US and China are not monolithic either; they, too, have to contend with dissenting internal voices on several levels.

Future of cooperation

For all the internal bickering, Dijkstra thinks the EU has a largely coherent position in support of multilateralism. "There are exceptions, like the UN vote on Israel and Palestine, but on world trade, health, international rules and human rights, the EU has long held a joint line." He points to the WHO as an example of a multilateral organisation that provided impartial medical advice during the covid pandemic.

And the EU Horizon grants themselves promote a plurality of voices. "You won't get the grant if you put together a group of friends," Dijkstra says. "You need to have a consortium of academic and non-academic partners, think tanks, societal organisations from inside and outside the EU. I think that too shows a dedication to multilateralism."

International cooperation helps to diffuse conflict, he says. "Of course, things go wrong sometimes, and we're trying to study what exactly in order to improve. But we should also acknowledge how well things are going under the circumstances." Despite the challenges, the pair remains optimistic. Haar: "Once all parties realise they share the common goal of resolving global problems, great things can happen." <



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Roberta Haar is professor of Foreign Policy Analysis and Transatlantic Relations at University College Maastricht and the Faculty of Science and Engineering.

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Hylke Dijkstra is professor of International Security and Cooperation at the Faculty of Arts and Social Sciences, and director of the Politics and Culture in Europe research programme.

A peek inside the kitchen of UM employees

Postdoc at MERLN David Baião Barata

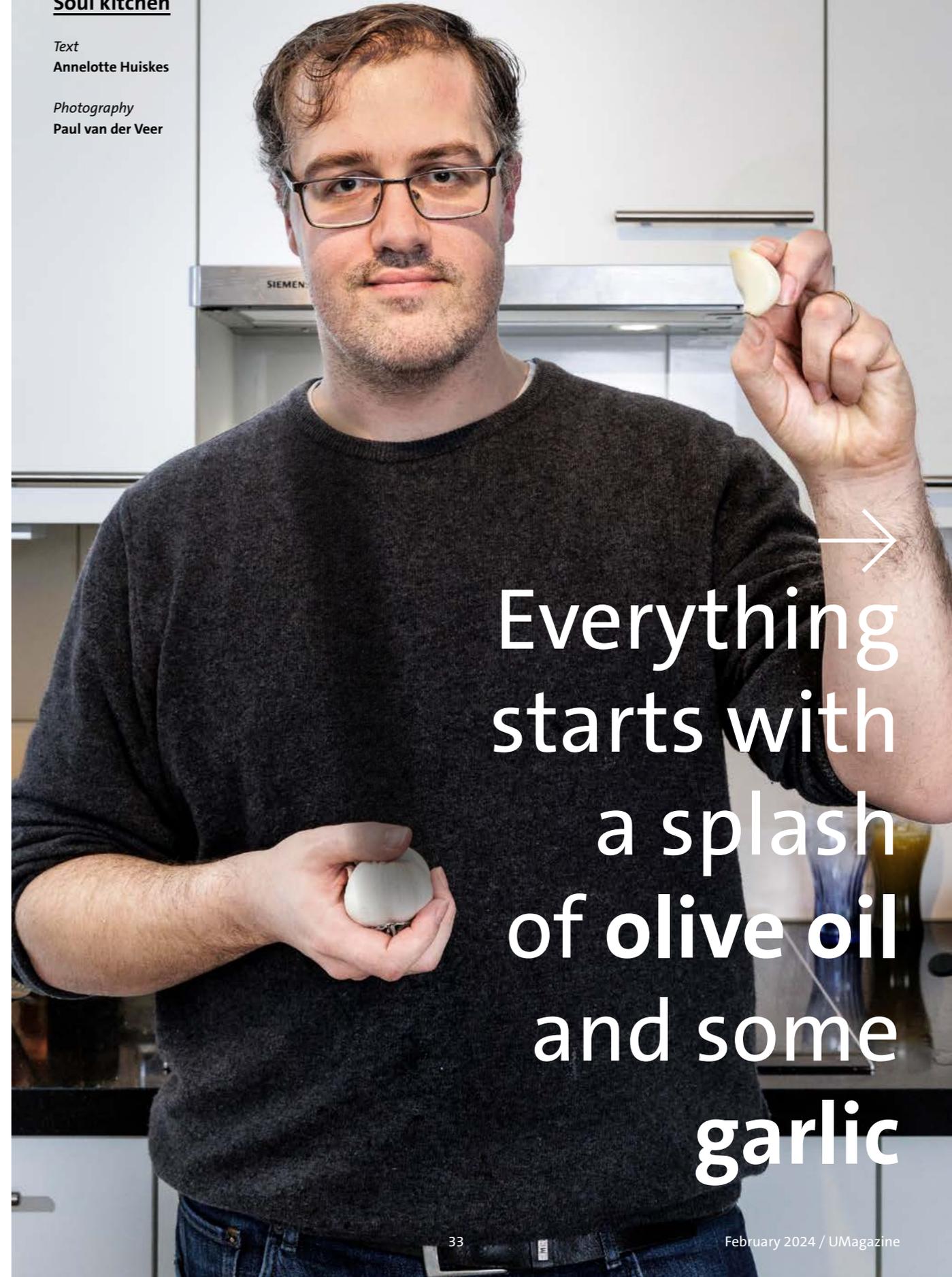
Soul kitchen

Text

Annelotte Huiskes

Photography

Paul van der Veer



Everything starts with a splash of olive oil and some garlic



David Baião Barata was born and raised in Castelo Branco, in eastern Portugal. His mother cooked typical Portuguese cuisine: hearty soups, lots of meat, everything doused in olive oil. It was only during his studies in cell and molecular biology in Lisbon that he began cooking for himself. And it was here in the Netherlands, during his PhD, that he discovered Portuguese wine. When it comes to cooking and eating, the key word for him is *together*.

Castelo Branco is located on a plateau by the mountains. The soil is not particularly fertile, which is reflected in the food. “The region sustains a lot of livestock farming, but less agriculture. People there traditionally eat lots of meat: pork, chicken and sheep, and cheese too. My mother used to make this delicious soup with big pieces of meat, cabbage and beans. A lot has changed over the years, but for my parents the same applies now as it did then: meals have to be large and very filling.”

The food supply used to be largely regional. “I don’t think there’s anywhere in Europe that supermarkets have grown as much as they have in Portugal. They’re bigger and have a more diverse range than the AH XL here, for example. I do miss that; in Portugal you get fresh meat and fish in the supermarket. I never make a shopping list, I just look at what’s there.”

Army food

Barata started cooking when he went to university. “There was a canteen on campus with very basic food, a kind of military fare: rice, meat and vegetables, all prepared in seconds and often tasteless. I figured there was room for improvement. I bought some equipment and started cooking myself. Nothing complicated, just simple but tasty pasta dishes, that kind of thing. Soon a bunch of us were eating together and taking turns to cook. That’s what I enjoyed the most: cooking and eating together.”

During his master’s degree, Barata met his wife Joana, who was studying organic chemistry. He seduced her with a dish that would be his masterpiece for years to come: lasagne with shrimps and spinach, fried in olive oil and garlic. “In Portuguese cuisine, everything starts with a splash of olive oil and some garlic. In the past, rural families, like my grandparent’s, made their own olive oil. You had to estimate how much you’d need for a year; we’d go home with a barrel of about 80 litres.”

←

David Baião Barata studied cellular and molecular biology at the Universidade Nova de Lisboa. He started his PhD at the University of Twente under Clemens van Blitterswijk and Pamela Habibovic, moving to Maastricht with them when they founded the MERLN institute. He received his PhD from Maastricht University in 2017. Barata worked as a postdoctoral researcher at the Instituto de Medicina Molecular in Lisbon from 2019 to 2022. He has been a postdoc at MERLN since 2022.

These days people buy olive oil in the supermarket, combined with other oils, which is cheaper.”

Portuguese cuisine = codfish

Occasionally Barata and his wife make his lasagne together, though having two sons—aged 6 and 2—complicates the act of cooking together. He likes using whatever ingredients are available; his wife is more into recipes and cookbooks. “When we have dinner parties, she usually makes the main course. I organise everything around it: wine pairings, good cheese.”

Joana is the bigger fan of Portuguese cuisine, bringing over ingredients from Portugal. “Especially Bacalhau (codfish), the traditional Christmas dish, boiled in water with potatoes and chard. I’m not into that; it’s quite tasteless. I prefer the oven version, with cream and cheese. But when we visit my parents at Christmas, we’re the guests, so we have to adapt.” When his parents came to visit the Netherlands, he surprised them with his famous shrimp lasagne. “My father didn’t like it at all—pasta with a few stray shrimps in it.” Barata laughs. “But they were the guests then.”

Three rules for good wine

For a long time, alcohol wasn’t his thing. “I just didn’t like beer or wine that much.” Then he attended a wine tasting during his PhD in Enschede. “I didn’t

want to stand out, so I just joined in. Coincidentally, the tasting included four Portuguese wines. After that I really got into it. I know three wine regions in Portugal: the Douro, the Alentejo and the region around Lisbon. I prefer the fresh green wines (vinho verde); light and fruity whites from the Douro, in the north. My wife, who comes from the south, near Lisbon, prefers the wines from Setúbal region. They’re drier, sturdier and more robust. My golden wine rules are: don’t buy wine for less than five euros, make sure the bottle has a cork, and go for Portuguese, Italian or Spanish wine.”

Happy in Maastricht

Having landed a research job in Lisbon, Barata returned to Portugal with his wife and son in 2019. Their second son was born there. When he was offered a postdoc position at MERLN, four years later, they were glad to return to the Netherlands. “Return to my homeland was tough, much to re-adapt. I almost went nuts trying to import the car I bought in the Netherlands. And that’s just one example.” Will he ever go back to Portugal? “I don’t dare to think that far ahead. It depends on where my work takes me. My wife now has a permanent contract; she’d like to stay in Maastricht forever. My contract expires in ten months, so we’ll see.” <



Text
Milou Schreuders

Photography
Sem Shayne



A sparkling disco ball hangs from the ceiling. Retro pop music plays softly through the speakers. The shop is a treasure trove of vintage clothing and eye-catching gifts—coffee mugs decorated with vulvas, pizza-themed polka-dot socks and heart-shaped earrings. Behind the counter stands Natalia Westermann, dressed in wide-legged trousers and a colourful band shirt. “I totally understand if people feel overwhelmed here,” she laughs. “But this is just my style. Dotsquare reflects my chaotic brain.”

A delivery person knocks on the window. “We also serve as a parcel pick-up point,” she explains. “It’s run by young people who face disadvantages on the regular labour market; part of a collaboration with Athos, a social organisation.” Westermann made a conscious choice not to set up an online store; Dotsquare is a physical shop only. “Vintage clothes vary in terms of size and fit, so it’s easier if people can try them on. But more importantly, I enjoy the personal contact with customers. There’s a reason our motto is promoting social and local.”

The wonderful world of Westermann

Owned and run by UM alum Natalia Westermann, the Dotsquare store on the Heggenstraat in Maastricht is a vibrant tribute to polka dots, pragmatism, sustainability and social entrepreneurship.



Entrepreneurial pursuits

Westermann was raised in a socially progressive family in Groningen. “Wearing second-hand clothes was normal for us.” She was an active child who became a vegetarian at a young age. Her interest in health, nutrition and sustainability eventually led her all the way to Maastricht for the master’s degrees in Healthcare Policy, Innovation & Management. She soon felt at home here, not least due to the good study guidance—even if she occasionally prioritised her entrepreneurial pursuits over her studies. “I joined Enactus, a student organisation focused on sustainability, and worked with a team to produce items like notebooks with recycled paper. And before that I’d started organising clothing swaps.”

Jeans

It was a batch of vintage jeans that led her to turn her hobby into a career. “I bought them from a wholesaler and managed to earn a profit from selling them. That gave me all kinds of new ideas.” She sold clothes through a Facebook group that grew to

thousands of members, ran a personal shopping service from her tiny living room, and established various shop-in-shops and pop-ups around Maastricht. In 2021, undeterred by the pandemic, she fulfilled her dream of opening her own shop. “I couldn’t see myself working in a lab or an office. I’m a doer; I thrive on learning through experience. So entrepreneurship is a good fit for me.”



Natalia Westermann studied Nutrition and Health at Wageningen University & Research, followed by a master’s in Healthcare Policy, Innovation & Management and an unfinished master’s in Sustainability Science, Policy & Society at Maastricht University. She is the owner of Dotsquare and co-founder of YES, a network for young entrepreneurs in South Limburg.

Consumer society

With her pragmatic attitude, Westermann doesn’t consider herself a typical academic. But she is grateful for everything she learnt, and thinks fondly of the university. Many of the gifts she sells in her shop are produced by local female creators, mostly current students and fellow alumni. “UM taught me a lot about working together, connecting people and motivating them to take steps towards sustainability. We encourage people to combat climate change in their own way, such as buying less new stuff.”

She acknowledges that her shop is part of a consumer society. “But second-hand clothing is more eco-friendly than clothes that are newly produced,” she points out. “My mission is to encourage as many people as possible to buy second-hand. I select all the clothing in the shop myself, so I can make sure it’s high quality and durable. And almost everything is vintage, which means at least 20 to 30 years old. That’s what sets Dotsquare apart from many thrift shops and second-hand shops.”

Maastricht locals

The n in Dotsquare stands for her first name, Natalia, whereas dot and square refer to different clothing shapes and patterns. “I’ve always felt drawn to dramatic outfits that stand out. I’m currently looking for a plain black dress, but I’ll probably wear it with a bright pink pinafore. There’s room for a more outspoken style in Maastricht; people here dress stylishly and elegantly, but they don’t like to stand out too much.”

Does she have any advice for locals (and non-locals, for that matter) looking to try vintage shopping for the first time? “Don’t come with a specific item in mind. Let us surprise you,” she says. “If you’re looking for, say, a beige coat with three-quarter sleeves, you probably won’t find it here. Ask the staff for help—they know exactly what’s in store and what might suit you.”

Children’s parties

“Ask for help” is also her advice to fellow alumni aspiring to start their own business. “Expand your network by joining an entrepreneurial network like YES. Talk to business owners in different sectors and listen to their experiences. You don’t have to reinvent the wheel. And most importantly, don’t overthink it—just do it!”

Between her studies, her entrepreneurial network and her shop, Westermann has built up a sizeable social network in Maastricht. She sees her future here. “I used to plan no more than a month ahead, but now I enjoy thinking long term. Dotsquare is here to stay, but I might diversify at some point. I’m thinking of organising children’s parties, with fashion shows and costume parties using second-hand clothing. You’re never too young to learn, right?” <



UM alumni [Brian and Rob Timmermans](#) combined their degrees in Econometrics and Sustainable Finance with their passion for karate, resulting in an ever-expanding trophy collection. Both brothers are multi-time and reigning Dutch champions in their respective weight classes and have achieved success on the international stage. “Doing karate is like solving a complex maths problem.”

“Remind me not to pick a fight with you.” This was the typical response from fellow students upon learning that the Timmermans brothers practise karate. “Usually followed by, ‘Oh, so you break pieces of wood in two,’” adds Brian. Sometimes they tried to explain that they specialise in sport karate, a variant that involves one-on-one combat where points are scored through kicks, punches and throws. “But most of them didn’t really get it,” Rob says. “It’s hard to explain to people who’ve never seen a match.”

The brothers attended Maastricht University around the same time. Rob studied Fiscal Economics, followed by a master’s in Sustainable Finance; Brian completed master’s degrees in Econometrics and Financial Economics. They chose UM because it was close to home and they felt drawn to Problem-Based Learning. They weren’t typical students, Brian says. “Besides going to class and sitting exams, our world revolved around karate. We trained 15 hours a week and even started our own karate school. The combination was demanding, but with our lecturers’ support, we always found a way to make it work.”

Cognitive skills

They didn’t yet know where their degrees would take them. “Career prospects were at the back of my mind, but the main thing was that I love working with numbers,” Brian says. He became a statistician at Statistics Netherlands, Rob a pension administrator at the pension fund ABP. Both jobs are relatively flexible, allowing them to balance their profession with their passion. Sometimes they even manage to squeeze in some work during tournaments. “After the preliminaries of the World Karate Championships in Budapest, I went back to my hotel room and processed survivor pensions,” Rob says.

The brothers started karate at a young age. Brian was first; Rob and their youngest brother Jordy followed in his footsteps a year later. “I was competitive. I started winning matches early on and realised I had talent. They say participation is more important than winning, but if you always lose as a child, you’re unlikely to find it fun,” Brian says. The beauty of sport

Alumni meeting minds

Text
Hans van Vinkeveen

Photography
Moos Peters



Kicks, punches and throws



Rob Timmermans studied Fiscal Economics and Sustainable Finance at Maastricht University and works as a survivor pension administrator at ABP. A multi-time and reigning Dutch sport karate champion (84+ kg), he runs Karate Team Timmermans in Heerlen with his two brothers.

karate lies in its combination of agility, technique and, perhaps surprisingly, cognitive skills. “You’re constantly making tactical decisions. If your strategy fails, you have to be able to quickly switch to one that works.”

Respect

To this end, their studies proved useful. “Whether at work or during a karate match, it’s all about adapting, not getting stuck in a situation and making the right choices,” Rob explains. “You’re constantly analysing situations and figuring out the steps needed to improve. It’s like solving a complex maths problem. You might not get it instantly; you have to figure out how the pieces fit together. That’s something we learnt in our studies and still use in karate.”



Brian Timmermans studied Econometrics and Financial Economics at Maastricht University and works as a statistician at Statistics Netherlands. A multi-time and reigning Dutch sport karate champion (–84 kg), he runs Karate Team Timmermans in Heerlen with his two brothers.

Their own karate school draws in a lot of children. “They learn to respect one another and their instructors,” Brian says. “They always start by greeting each other. Since they’re not allowed to make contact, they learn to control their bodies and any aggression that might arise. Any physical aspect you can think of, sport karate has it.” Rob takes the opportunity to address parents: “Sign your kids up for sport karate lessons—at Karate Team Timmermans in Heerlen, of course!”

Confidence

Their karate practice also benefits them in everyday life. “It gives you confidence in your ability to defend yourself in certain situations,” Rob explains. “That being said, we rarely let a situation escalate. We’re more likely to try to calm a person down if they’re being aggressive. Merely exuding confidence solves most problems. And if a person can’t stay calm, it’s best to just walk away. Fighting leads nowhere. Fortunately, we’ve never found ourselves in a situation that got out of hand.”

World stage

It’s clear that their winning mindset has paid off—both brothers are multi-time and reigning Dutch champions in their respective weight classes. What about on the world stage? Brian: “We both compete at the highest international level in our weight classes. Rob placed third in the Pan-American Championships; I came third in the European Championships. We’re just missing that gold medal for the collection. We can beat any opponent, but the trick is to do it at the European or World Championships.”

Their most cherished memory took place in April 2022, at the Karate Premier League in Portugal. “It was a major tournament, comparable to football’s Champions League,” Rob says. “We both reached the finals in our respective weight classes on the same day. It never happens that two brothers manage to achieve this simultaneously at a tournament with some of the world’s best sport karateka. It was a unique moment for both of us.” <

Picture an audience of some 4,000 people, all staring at a big screen presenting the nominees. The suspense builds. “And the award goes to…” The annual iGEM competition in Paris could just as well be called the Oscars of Synthetic Biology. Last November, the UM student team SublimeStone came home with gold and made it into the top 10 best undergraduate projects—an impressive achievement. For the fifth consecutive year, the University Fund Limburg contributed to the iGEM project, in line with its mission to help UM students develop their groundbreaking ideas for the benefit of academia and society.

The Oscars of Synthetic Biology

For 20 years, teams from around the globe—around 400 in 2023—have been submitting their unique project ideas to the annual iGEM contest, a prestigious international competition for students of synthetic biology. UM has participated for the last five years; since 2019 under the supervision of **Erik Steen Redeker**, assistant professor of Synthetic Biology. Mara Taracena Wulff, a bachelor’s student in the Maastricht Science Programme (MSP), explains the 2023 UM project in lay terms—quite a challenge for a future scientist whose complex lab work can be difficult to translate into practice.

Eco-friendly conservation

“Actually, that’s a major misconception about synthetic biology,” she says. “It’s very widely applicable. As future scientists, we’re constantly looking for problems to solve, and we often find them in everyday things. The SublimeStone project focuses on repairing cracks in porous limestone using bacteria engineered to produce calcium carbonate in combination with a technique known as DNA origami. The goal is to develop

an eco-friendly and sustainable way to preserve structures instead of using epoxy resin, which is expensive, bad for the environment and may alter the appearance of the stone. Our focus is on the beautiful limestone buildings in Maastricht, such as the iconic Basilica of Our Lady, which are susceptible to weathering. Applying synthetic biology in practice makes it accessible and relevant to people. This is also one of the aspects that iGEM values highly—the social impact of research.”

“This year, we again came home with an award for a unique idea,” says Steen Redeker. “The students worked hard for months on this project, both in the lab and beyond. Not just conducting experiments, but also creating a tight schedule, fundraising, creating awareness, giving presentations in schools and learning to work together. In recent years, we’ve had students from other programmes as well, not just the Maastricht Science Programme, which I teach. What sets this project apart is the cross-pollination of ideas between different disciplines—synthetic and systems

biology, chemistry, programming. Over the course of the project, I’ve seen the students grow both individually and as a team. As their teacher, that makes me very proud.”

Fundraising through storytelling

For a project like this to be successful, additional funding is often needed to supplement the financial and material support provided by the faculty. In addition to the grant from the Student Activities Support Committee (CooSa) of University Fund Limburg, the students raised money through a crowdfunding campaign on the UM Crowd platform.

“We were given a golden tip: use storytelling,” says MSP student Floor Vervuren. “Just pitching our research project to potential donors didn’t work. We had to emphasise the human-interest side of the project, the importance of preserving cultural heritage. We created visibility on social media and posted YouTube videos with accessible explanations of the project and synthetic biology. And it paid off.”



The students successfully raised over €6000. “The financial support from both the Fund and the donors allowed us to register for the competition and for all 12 of us to attend the iGEM Grand Jamboree in Paris,” adds Chris Damour, a master’s student of Systems Biology. “It was an incredible experience—the icing on the cake.”

Startups

If it were up to Steen Redeker and the students, the project is far from over. “Many of the iGEM projects I’ve supervised over the last few years have evolved into long-term research projects,” Steen Redeker says. “Some even go a step further. We’re looking into opportunities to create startups based on the 2022 Aestuarium project, which focuses on energy-efficient desalination, and the 2021 MethaGone project, on innovative cattle-feed products to reduce methane emissions.”

Meanwhile, Damour has big dreams for SublimeStone’s next step. “It would be amazing to develop a prototype from the models we’ve created and the results of our first experiments. That would allow us to do genuine conservation work. Maastricht has no fewer than 1,677 national heritage buildings; we’d like to help restore them to their former glory and make them weather resistant, without harming the environment in the process. And then we could proudly say, ‘It all started with the iGEM 2023 team!’” <

Apply for funding for your project/event

Several times a year, UM staff and students can apply for funding from the University Fund Limburg to support their innovative research projects and events. The aim is to promote research and education, encourage international collaboration and strengthen UM’s ties with the wider community. Staff and students can also launch their own crowdfunding campaigns on UM Crowd. Together, we can help the UM community thrive! For more information, please visit ufl-swol.nl.

University Fund Limburg

Text
Anouk van den Brink

Photography
Harry Heuts



Lower expected economic growth leads to decline in employment growth

Economic growth is expected to slow in the coming years due to declining exports and lower consumption. This lower growth will eventually translate into stagnation in employment growth. The number of bachelor's graduates entering the labour market is high compared to that of vocational training (MBO) graduates, meaning MBO graduates have relatively bright job prospects. Higher prices, existing tightness in the labour market and (geo) political changes will, however, continue to cause uncertainty. These are the main findings of a new report, 'The labour market by education and occupation until 2028', by UM's Research Centre for Education and the Labour Market (ROA). <



Socioeconomic inequality and type 2 diabetes mellitus

At the CAPHRI research institute in Maastricht, five researchers including Professor **Hans Bosma** are working on a large-scale study on socioeconomic inequality and type 2 diabetes mellitus



Save the date: UM Star Lectures 2024!

Preparations for our biggest annual alumni event, the UM Star Lectures, are in full swing. This eighth event will focus on topical themes ranging from climate change to marketing, health and nutrition to AI.

You might no longer be here in person, but on Thursday 14 March 2024, we will bring the university to you!

Together with UM professors—our stars—we will travel to 12 cities in 5 European countries where the lectures will take place simultaneously, followed by networking drinks. Join us to be inspired, meet fellow alumni and expand your network.

Save the date and be sure to keep an eye on your inbox, our website and social media. Information on the locations, themes and professors involved will follow soon. <

(T2DM). To what extent does the living and working environment of people with a lower socioeconomic status contribute to the development of T2DM? The first results were published recently, drawing on data from over 8000 participants in The Maastricht Study.

The results show that workplace autonomy—scheduling your own breaks, deciding on your own tasks and helping to shape the work culture—influences whether you develop T2DM. However, this psychosocial work environment explains only a small part of the effect of socioeconomic status. According to the researchers, stress, a sense of inferiority and a fatalistic attitude may also play a role in the development of T2DM, particularly among people with a lower socioeconomic status. <



KNAW Early Career Award for Marielle Wijermars and Christian Herff

Marielle Wijermars and Christian Herff received the KNAW Early Career Award, presented annually to researchers in the Netherlands who are at the beginning of their careers and who have innovative, original ideas. The prize, which was presented for the fifth time last year, comprises €15,000 and a unique work of art.

Mariëlle Wijermars studies information control in authoritarian states such as Russia, focusing on digital platforms. Christian Herff conducts research on brain-computer interfaces and neuroprosthetics, pursuing links between natural and artificial intelligence. <



Profile

Education and research at Maastricht University is organised primarily on the basis of faculties, schools and institutes.

Faculty of Arts and Social Sciences

- Arts, Media and Culture (AMC)
- Globalisation, Transnationalism and Development (GTD)
- Politics and Culture in Europe (PCE)
- Science, Technology and Society Studies (MUSTS)
- Faculty of Arts and Social Sciences Graduate School
- Centre for Gender and Diversity (CGD)
- Centre for the Innovation of Classical Music (MCICM)
- Centre for the Social History of Limburg (SHCL)

Faculty of Health, Medicine and Life Sciences

- School of Nutrition and Translational Research in Metabolism (NUTRIM)
- School for Cardiovascular Diseases (CARIM)
- School for Public Health and Primary Care (CAPHRI)
- School for Mental Health and Neuroscience (MHeNS)
- School for Oncology & Reproduction (GROW)
- School of Health Professions Education (SHE)

Faculty of Science and Engineering

- University College Maastricht (UCM)
- University College Venlo (UCV)
- Maastricht Science Programme (MSP)
- Department of Advanced Computing Sciences (DACs)
- Aachen-Maastricht Institute for Biobased Materials (AMIBM)
- Brightlands Institute for Smart Society (BISS)
- Brightlands Future of Farming Institute (BFFI)
- Department of Circular Chemical Engineering (CCE)
- Department of Molecular Genetics (DMG)
- Department of Sensor Engineering (SE)
- Gravitational Waves and Fundamental Physics (GWFP)

Faculty of Law

- Institute for Globalisation and International Regulation (IGIR)
- Institute for Transnational Legal Research (METRO)
- Institute for Corporate Law, Governance and Innovation Policies (ICGI)
- Maastricht Centre for European Law (MCEL)
- Maastricht Centre for Human Rights
- Maastricht Centre for Taxation (MCT)
- Maastricht European Private Law Institute (MEPLI)

- Maastricht Graduate School of Law
- Montesquieu Institute Maastricht

Faculty of Psychology and Neuroscience

- Graduate School of Psychology and Neuroscience (GSPN)
- Clinical Psychological Science (CPS)
- Cognitive Neuroscience (CN)
- Experimental Psychopathology (EPP)
- Neuropsychology & Psychopharmacology (NP&PP)
- Work & Social Psychology (WSP)
- Maastricht Brain Imaging Centre (M-BIC)
- Section Teaching and Innovation of Learning (STILL)

School of Business and Economics

- Graduate School of Business and Economics (GSBE)
- Research Centre for Education and the Labour Market (ROA)
- Network Social Innovation (NSI)
- Limburg Institute of Financial Economics (LIFE)
- The Maastricht Academic Centre for Research in Services (MAXX)
- Accounting, Auditing & Information Management Research Centre (MARC)
- European Centre for Corporate Engagement (ECCE)
- United Nations University – Maastricht Economic Research Institute on Innovation and Technology (UNU-MERIT)
- Social Innovation for Competitiveness, Organisational Performance and human Excellence (NSCOPE)
- Marketing-Finance Research Lab
- Service Science Factory (SSF)
- Maastricht Sustainability Institute (MSI)
- UMIO - executive branch of SBE
- Education Institute
- Maastricht School of Management (MSM)

Interfaculty institutes

- The Maastricht Forensic Institute (tmFI)
- MERLN Institute for Technology-Inspired Regenerative Medicine
- The Maastricht Centre for Citizenship, Migration and Development (MACIMIDE)
- Maastricht MultiModal Molecular Imaging Institute (M4I)
- Maastricht Centre for Systems Biology (MaCSBio)
- Maastricht Centre for Arts and Culture, Conservation and Heritage (MACCH)
- Centre for European Research in Maastricht (CERIM)
- Institute for Transnational and Euregional cross border cooperation and Mobility (ITEM)
- Institute of Data Science (IDS)
- Centre for Integrative Neuroscience (CIN)
- Maastricht Science in Court (MSiC)

Colophon

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Blow up

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