



magazine 126

JUNE 2022



Time will tell



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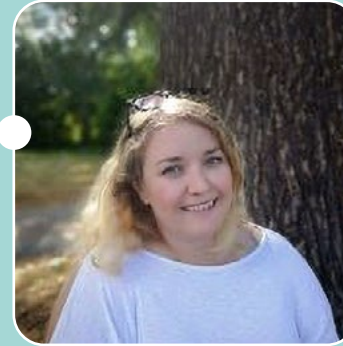
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FROM THE BOARD ROOM

It is my first 'from the board room' column for the BCN Magazine. And it will also be my last. Two years ago I joined the BCN board as representative of the management team of the Brain and Cognition Institute of the University Medical Center Groningen. Two years of true joy. And now I will say goodbye, for at least two years. I can't combine the board membership with all other roles, including my new and time-consuming role of chair of the Dutch Young Academy.

To me, joining the board of BCN was great. I finally got to understand a bit of the structure of BCN. I learned how the MSc-programme and PhD-programme are related and how all institutes contribute to BCN. But mostly it showed me how beautiful and remarkable the BCN Research School is, which already exists for 35 years! I learned how motivated all board members are for organizing the teaching and research activities in a way that contributes to the quality of neuroscientific research, but also focuses on the well-being of young scientists.

All that BCN has accomplished as a research community in the past years is nicely summarized in the standard evaluation protocol, also known as SEP or self-report. This SEP forms the basis of the reaccreditation of BCN as a Research School by the Royal Netherlands Academy of Arts and Sciences and the board has worked on it in the past year. This SEP also contains a refined strategic plan for BCN to make most of our strengths and overcome our weaknesses. Writing this SEP has been very time-consuming. And what is nice about the BCN board is that it really took this process as an opportunity to reconsider our vision, aims, ways of working, and goals. Oftentimes writing such documents can be considered of little use and as window dressing, but I think it helped to show

and structure the wealth of knowledge, expertise and good will that BCN is built on. To me it showed genuine interest in designing the best education and creating the conditions in which the best research can flourish. I hope you will all read the SEP when it's finished and the board looks forward to hearing about your ideas on further improving BCN.

Luckily many of these ideas come from the PhD-council that is also represented in the board. This is important and critical input, vital for BCN to keep flexibly responding to the needs of PhD students. And for these needs, we often ask for contributions of BCN senior researchers. We ask for help with organizing symposia, winter school, retreats, and organization of the Manage-your-PhD-courses. And now the PhD council identified that PhD students could benefit from accessible statistical support, from other PhD students, post-docs or the senior researchers. I think this is a great initiative, showing the organizational power that networks of PhD students have, and how organizations can benefit from input from their future senior colleagues. I sincerely hope you support this initiative. In spirit, and hopefully in kind (=time). You can inform Nadka Majernikova (n.majernikova@rug.nl) if you would like to strengthen this initiative. Also, if you are PhD- student working in the BSS, FSE, Arts or Philosophy, please consider joining the council. We are happy with all input and work from mainly the UMCG PhD students, but since different disciplines may have different needs, contributions of the PhD council coming from all participating faculties will strengthen BCN as a whole. Next to discussing and optimizing what BCN could obtain, I have warm memories of the success of the first round of BCN Seed Grants, that was made possible by

generous contributions of the UMCG. I mostly enjoyed seeing how many new interdisciplinary collaborations were formed. We received 23 original proposals, of which we could award four. Of course, a lot of time went into writing and reviewing the proposals and 19 teams did not receive funding. However, I hope that for many it formed a nice training opportunity in project initiation and grant writing that will pay off even without being successful in this round. And because I'm leaving, it feels like I can ask something: Please speak to your faculty board if you have the opportunity and convince them to make some funds available to foster the joy of interdisciplinary collaborations and the immense value small seed grants have on that. That strengthening this interdisciplinary joy and strength contributes to the goals set out in the 'Making Connections' Strategic plan 2021-2026 of the University of Groningen. Maybe add that making connections is what we do, always have been doing, and will keep doing. We are proud to see that how we organize our research and teaching activities overlaps with how the University of Groningen likes to see its four Interdisciplinary schools organized. It would make me very happy if BCN could form the official fifth interdisciplinary school of the University of Groningen, which it so naturally would.

So my call to you: stay connected, make connections, contribute to BCN. Because BCN is you. I will definitely stay connected, though no longer in the board. And now, enjoy reading this new magnificent BCN Magazine that always makes being in awe of what BCN is doing, very easy.

● BY MARIE-JOSÉ VAN TOL

THE BEST OF BOTH WORLDS

Working in neuropsychological research and clinical practice An interview with Joost Heutink

Professor Joost Heutink was appointed the special chair “Visual Disorders of Acquired Brain injury” in November 2020. He has worked at Visio as a healthcare psychologist since 2004, and as the director of Knowledge, Expertise, and Innovation since 2017. In addition to this work, he also teaches at the RUG in the Clinical and Developmental Psychology unit of the Behavioural and Social Sciences faculty. He both teaches courses and (co)supervises PhD students while conducting research in the field of visual disorders.

How would you like to see your work as professor by special appointment on Visual disorders after acquired brain injury influence your field?

I would love to contribute to the field of clinical neuropsychology by putting perception back on the map. Neuropsychology started off with perception and the gestalt theory, and then it gradually changed its focus to attention, memory, and executive function. Perception and disorders of visual perception appear to be no longer core business of neuropsychology. If this special chair would help put visual problems people may experience as a consequence of brain diseases back on the map, that would be the most wonderful achievement for me.

You have a very impressive career working in both academia and for a company, Visio. It seems like you have found your passion at the intersection of research, teaching and developing or improving care for people with brain injury.

For me the intersection of research and clinical practice is a vital combination. If I really want to understand things,



they have to relate to the world that I see around me. I'm so passionate about talking to people with brain injury and understanding how they see the world. It tells us not necessarily how perception works, but what perception does. For me that is how I learn about the relationship between the brain and behaviour.

"Researchers do research because it's fun and they want to know how things work.."

How has your experience working with people with visual disorders after brain injury changed the way you think about perception?

I must say that most neuropsychological books and books on clinical neuropsychology that are about perceptual problems after brain damage describe agnosias. These are well-defined, specific deficits in an aspect of visual perception - like not being able to recognize a face. These specific neurovisual disorders have had an undeniable impact on our knowledge of visual information processing and have also provided an important basis for theories and models. However, this emphasis on agnosias gives the impression that they are the only neurovisual disorders that occur after brain injury, or at least the most frequent ones. This is not the case. Working with people with perceptual problems taught me that there is a lot that

can go wrong with perception that is not a visual agnosia. Our current knowledge about how visual perception works does not necessarily help us to understand how we can help people to overcome the impact of perceptual problems and help them improve their participation.

Everyone who sings knows that it makes you happier.

How would you like to see researchers fill the knowledge gap between the current brain-vision research on agnosias and research that is more relevant to the practical problems people face after brain injury?

Even though I see that people with neurovisual disorders may not directly benefit from all fundamental research, I believe we cannot ask researchers to do anything else than what stimulates their curiosity. Researchers do research because it's fun and they want to know how things work. From an evolutionary standpoint, I would assume that the accumulation of knowledge is primarily fuelled by curiosity, not by solving practical problems. I just know that from my point of view, knowing from neuroimaging studies how a particular cognitive function is related to a specific brain region does not necessarily help me in understanding the problems people with neurovisual disorders experience.

If you had to stop doing research related to vision or brain disorders what would you research?

Music. I have been singing in choirs for over 35 years, so music has brought me great joy and fascination. When I listen to music, it can sometimes inspire study ideas. For instance, in the seventeenth century, Bach sometimes used trumpets in his cantatas. I was wondering just this morning if a study has been performed to clarify whether Bach wrote the piece for a morning church service or an evening church service, based on which instruments were involved at which moment in the piece. Trumpet players may also have different jobs and engagements, so they might not be available during the entire service. I was wondering whether Bach or his contemporaries could only have the trumpets at either the beginning or the end of the service. If a study like this has not been done, I would be happy to devote time to it.

How has being in a choir influenced your life?

Everyone who sings knows that it makes you happier. We don't need neuroscience to tell us that the whole brain is involved in music. Mothers and fathers who sing with their children make their children and themselves happier. Singing makes me very happy, especially in a group of people.

How has corona impacted your ability to sing in the choir?

Well, you couldn't sing together with other people during corona. I have only been able to start again in February. I understand that we had to limit health risks, but the voice is the most personal musical instrument that you can have. It is literally near to your heart, and not

being able to sing is just harsh. There's something even more important about singing together. When you sing together, there's a certain magic to it. It's not very strange if you consider that singing is an important activity for church congregations and football supporters. When you only speak about things like love, God, eternity, life after death, or even a predicted championship title for your home team... then these are big words, which require substantiation or logical reasoning. But then singing these same words, and especially singing it together, it becomes true. It may even be happening while you are singing in the sense that you are experiencing the comfort of it. That, for me, is the magic of singing.

"I like practical jokes, but perhaps this one kicked in a bit harder than I expected."

I heard you like April Fool's jokes, can you tell us about one?

One of my most effective April Fool's jokes involved falsely telling my students that I had been collecting data on their coffee consumption. It was a time when we were giving lectures in the cinema hall, and the students could buy coffee from these huge machines. It was undrinkable, really horrible coffee. Of course, they can't make cappuccinos for a hundred students in time but they could always make a cappuccino for me. So on April 1st I sent

the students a sort of Qualtrics survey about what they thought about the lectures. In the form I also included a statement that said: because of informed consent I had to tell them that I was helping the cinema collect data on their coffee consumption. In order to see if my coffee consumption influenced the students' coffee purchases, I had some lectures where I drank a cappuccino, some other lectures where I drank a cappuccino and also mentioned that I drank a cappuccino, and some lectures without any coffee with me. I told them that we monitored coffee consumption together with Pathé to see if we could have a trade-off for renting a lecture room. If they sold more coffee then the cost of hiring the cinema's lecture room could go down. Some people really exploded that we manipulated them. They wanted legal cases, etcetera... I like practical jokes, but perhaps this one kicked in a bit harder than I expected.

"If you're helping other people especially professionally, then you should know the state of the art."

One thing I've noticed, in deciding what to do with a passion for helping people, is that there is a trade-off between helping people with the information that we have right now and working to improve people's lives in the future with research that may or may not have an impact. You have defied this trade-off and are both working with

the current understanding to help patients at Visio but also doing research to improve future outcomes.

Do you have any advice for young students who are passionate about helping people, but are split between research and wanting to have a direct impact? If they want to end up doing both, like you, where should they start?

The assumption of your question is that there is an intention behind things. I cannot say for myself that there has always been an intention. I'm generally interested in other people and especially interested in understanding people who have suffered brain injury. If you're helping other people, especially professionally, then you should know the state of the art. While in the meantime being critical about yourself; asking questions like 'is this really helping people', and 'does this really work'. If you feel that there are things missing in the care people get, you may be able to improve care. In a way, that is also an accumulation of knowledge. If you're organised (or maybe unorganised) enough to combine research and clinical work, that's great. But focussing on only one of these is equally good and I don't think one is better than the other; it just turned out to be like this for me. I am passionate about sharing knowledge. Whether I give a lecture, or work with people with brain damage, or take a walk with my four-year-old nephew, I'm doing the same thing. I'm trying to understand the other but also I'm just spreading everything I know. Trying to give that to the next generation.

Allow your career to happen to you. I think you can plan and control your career only to a certain extent.

Planning and controlling a career may also lead to missing unexpected opportunities. Control is the enemy of coincidence. If I have one piece of advice for other people: Leave room for coincidence and allow the randomness of life to happen to you. And if you do things you're passionate about, you can't go wrong.

● BY LAUREN HANSEN-MANGUIKIAN

INTERVIEW



New
perspectives
on stress
reduction:
An interview
with
Catheleine
van Driel

Catheleine van Driel is a post-doctoral researcher and a fourth-year psychiatry resident at the University Center of Psychiatry (UMCG) where she is currently developing her own research line in the topic of stress reduction and stress resilience. Recently, she received the innovation price for education and training (Innovatieprijs Onderwijs en Opleiding). I spoke to Catheleine about why she decided to go into psychiatry, what makes her research innovative and what her plans for the future are.



Catheleine, after studying medicine there are lots of options for choosing a specialty. Why did you decide to go into the field of psychiatry?

My interest for psychiatry was sparked during my PhD. I worked on stress reducing interventions, such as mindfulness-based stress-reduction to alleviate physical complaints during menopause. Concurrently, I did my first clinical rotation in a small psychiatry department and within the first few hours of my rotation, I knew this was it! The main thing that fascinated me about psychiatry is being able to really get to know your patients, their life, their personality and the people surrounding them. Even though psychiatric patients often seem fine on a surface level, they suffer from “invisible” mental health complaints. I think it’s really tough to suffer from something that can’t be “seen”. I felt really driven to carry a bit of the burden and help people with these types of problems. The broad perspective of this field is challenging, and this is what makes it interesting to me. Trying to improve a patient’s

situation and reducing the stigma around mental illnesses added to that interest.

You already told me that you are not only a medical doctor, but also obtained a PhD. Why was this important to you?

Combining research and clinical work has great advantages and it is something I personally enjoy. Being able to generate new questions that arise during my clinical work and address them in my own research is a rewarding experience.

Can you briefly describe what you are currently working on and what you want to work on in the future?

Besides my clinical duties that include seeing patients, I am working on several projects, two of which are the VR Relax project (in collaboration with Professor Wim Veling) and the Bounce Back project. VR Relax is essentially the use of a virtual reality application to facilitate stress reduction by being exposed to calm, nature-based environments. VR has high immersive qualities which can help people who otherwise have trouble focusing to benefit from calming environments and relaxation exercises. As we know, stress is a transdiagnostic factor

“Even though psychiatric patients often seem fine on a surface level, they suffer from “invisible” mental health complaints. I think it’s really tough to suffer from something that can’t be “seen”.”

in the onset or worsening of psychiatric symptoms. Having an easy-to-use stress-reduction application at your fingertips can be really beneficial and empowering to patients. The Bounce Back project is the first project of my own research line and focusses on enhancing stress-

resilience in patients with a psychiatric disorder, but also in other, non-psychiatric populations. Currently, we are focusing on medical residents by developing a training to learn to apply stress-management skills in stressful medical scenarios, which, in the future, will help them

retrieve these skills more easily when needed. We are also including biofeedback, for example of the heart rate, to help participants to become reaccustomed to recognizing when their stress levels are rising. In the future, I am planning to expand the Bounce Back project to fit different types of populations and relevant stressors. Using VR, we can expose people to individualized stressful social scenarios and control the intensity of these scenarios.



"I think the future is more about well-oiled teams that reach results faster and better than individuals all by themselves."

Not only did you receive the Mandema Stipend in 2020, but also the innovation price for Bounce Back this year. What would you say makes your research so innovative?

This project comes along with an alternative way of looking at what it means to be a medical professional and is putting a focus on stress resilience. Stress can be a bit of a taboo subject for medical professionals. Many health care workers tend to work really hard and are therefore at risk of not noticing their own signals of stress. This can eventually result in an increased amount of people having burnouts or quitting. It's essential to recognize the impact that mental wellbeing or lack thereof can have on the healthcare system, especially after COVID-19

showed vulnerabilities within this system. Bounce Back is one piece of the puzzle in terms of individual and organizational resilience, by providing on the job resources to deal with work-related stressors. The Bounce Back training itself is innovative because it combines proven and effective elements into a hands-on training. These effective elements are training in realistic stressful scenarios which is proven to be more effective compared to classroom type of learning environments, giving biofeedback and using stress-reduction techniques that are also used on the field of combat by the military.

Do you hope the mentality towards stress in the medical field will change in the future?

Yes, I really do. Feeling stressed is a very universal experience and I hope the perspective within healthcare and also within society will shift. Personal well-being is mainly influenced by universal factors. For example, too much stress and too little sleep has an effect on all of us; that applies to patients with a psychiatric illness as much as to healthcare professionals. I hope we can let go of the sharp segregation between mentally well and unwell people, as all through our lives we are moving on a certain spectrum between these two. This can make people more aware of their mental health status and help them act when necessary, while also reducing the stigmatization of mental health complaints.

Coming back to the innovation prize you received, do you think this is your biggest career achievement so far?

For me personally, I think that trying to have meaningful

and productive collaborations with others is most important. I think the future is more about well-oiled teams that reach results faster and better than individuals all by themselves. I hope to grow as a leader and facilitate teams to reach goals together, while still nurturing individual achievements.

“Hard work and lots of stress do not equal success. There are other, healthier ways and in the end, you are the one who defines what success looks like for you.”

Talking about team achievements, have you ever tried any of your applications for yourself?

Yes! I have recently worn the Sense-IT watch for receiving real-time biofeedback in daily life. This means you get alerted when your physiology significantly differs from the normal, for example when your heart rate is more than two standard deviations from the mean. Sometimes, I wasn't even aware of my own stress level until I got a small nudge by the device. This reminded me to tune in with myself more regularly. Receiving this instant feedback can help to apply stress management techniques at the right time, especially because in our busy everyday life we can sometime forget to pay attention to physical and/or mental stress signs, so this can help remind us to take a breather.

As a last question I would like to know if you have a few tips on how to deal with stress for our readers?

Sure! First off, I think it is important to remind ourselves that stress is not necessarily a bad thing, but that it is normal. Sometimes, stress can be helpful, for example when you have a deadline or need to give a presentation. Next, I highly recommend trying to gain some sort of stress management skills. This can be diverse and differ from person to person, but some examples would be mindfulness, sports or socializing with others. It is important to be able to recognize your own stress levels and then have options to manage them. Lastly, I want to stress, and this might be a bit controversial, that it is okay to cut corners. What I mean with this is that it is okay not to be perfect and give 120% every day. We have to accept that we cannot be productive 24/7 and that we need to take some time off, being consciously less productive and sometimes take a short cut. Hard work and lots of stress do not equal success. There are other, healthier ways and in the end, you are the one who defines what success looks like for you.

Thank you for this interesting conversation!

- BY KARINA KÖPKE
- VR PHOTOS BY SANDER MARTENS

INTRO NEW BCN POLICY OFFICER

MICHELLE PENA

Hello! I'm Michelle Pena and since March have taken over the role of policy officer for BCN from Michiel Hooiveld. I've been working at UMCG since 2012, first doing a PhD in Clinical Pharmacology, and then as a postdoc in 2015 in Clinical Pharmacy and Pharmacology. In 2019 I started working as the policy officer for the GUIDE Research Institute and now have expanded my role to include BCN and the B&C Research Institute.

I was born and raised in San Francisco, California. I first studied nursing and worked in a cardiology unit. After a few years as a nurse, I packed my bags and moved to Bolivia to work on a health development project. Upon returning to the USA, I furthered my studies in Public Health Epidemiology and Latin American Studies. At the time, my goal was to pursue a career in the humanitarian sector. I travelled to many different countries on various health-related projects with an NGO, working as either a nurse or an epidemiologist.

During my travels, I met my future husband, who happened to be Dutch and from Groningen (een echte stadjer). I moved to the Netherlands in 2011, and we have three kids.

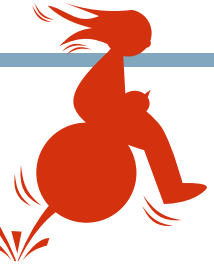
I look forward to meeting you soon! For any questions, please get in touch with me at m.pena@umcg.nl.

● PHOTO BY SANDER MARTENS



BITS AND PIECES COLUMN

Eureka



“Maybe you should ask a real scientist”. It was my first thought when I was asked by a journalist about my Eureka moment. I never had a Eureka moment. I do remember my next-door colleague once exclaiming “Eureka!”, though. I will never forget because I'm jealous to this day.

So, Eureka. The ultimate high of a scientist. Finding the holy grail in your field. At least, those are the associations I have with the word. This is how I envision my Eureka-moment: I'm puzzled by an unexpected research result. I'm thinking so loudly that you can hear my brain crack. I have tens of graphs in front of me. Hundreds of empty coffee cups. And hair that looks like I haven't combed in a thousand days. Then, someone comes in and says something irrelevant like 'another coffee?'. And then it happens. The epiphany. I start pacing around. My pupils are fully dilated. My heart is pounding. My brain starts to make new links: Result X fits Theory Y, but only under the premisses that Z is true, and then combined with this unintelligible result of Pilot Study Q: It all makes sense! WE NOW KNOW HOW TO PREVENT AND CURE DEPRESSION FOR EVERYONE.

I understand the attraction of 'the moment' that leads to breakthroughs in our knowledge. I also love hearing Nobel-prize winner Prof. Ben Feringa speak about the moment when his students called him to have a look through the microscopes and he saw his nano-cars moving for the first time while realizing this could be something big. Talking about Eureka moments could help in engaging a large audience in the world of fascination and endless curiosity, so that people understand how important it is to invest in higher education and research. In the end, it's the solutions to very complex problems that we are after. Even though we will all be six feet under when the solution is there.

But it also doesn't help. I'm afraid this type of framing of how science works and what valuable contributions are, contributes to too high, Nobel-level, expectations for all people working in academia. Both by society, and by researchers themselves. It makes us

focus on exceptional breakthroughs, not on clever ways of solving the endless scientific and practical problems that stand between our current state of knowledge and what is necessary to ultimately solve a major societal problem. Let alone it acknowledges all the students that should be educated and trained so they collaboratively will contribute to solving problems. I worry that the Eureka-frame even obscures what we ourselves define as valuable contributions to advancing our knowledge. And this could lead to constant disappointment. In science, in scientists, in ourselves.

Of course, I enjoy rare moments of a breakthrough in my understanding when connecting certain dots. Moments where I really understand a fraction of the mechanisms underpinning abnormal mood. And I might have an idea of extending this fraction of knowledge to a somewhat more substantial fraction. This is all highly satisfying. But would the general public be in big 'awe' of this reality of my slowly incremental understanding?

I could of course make up a Eureka moment as a way of communicating about my work to a broad audience. But then, I would also contribute to keeping expectations unrealistically high. Probably I should simply say yes to the request and explain that science isn't about Eureka moments. It's about minor steps in learning and understanding. And these don't typically come with cries of satisfaction. Just with a hardly observable self-contentious smile and perhaps an extra bit of energy, enough to keep going.

By the way, today I asked my next door-colleague about his magnificent moment that made him scream “Eureka!” through the building. He had no clue what I was talking about. He forgot.

● BY MARIE-JOSÉ VAN TOL

INTERVIEW



Game on: An interview with Johan van der Meulen

Johan van der Meulen is the technical director of 8D games, a company that creates 'serious games', aimed at teaching life skills. He has a background in software engineering with an emphasis on design. Currently he is also working towards enhancing, strengthening and building partners for the company. He recently gave a BCN lunch talk about the gamification of research.

What is the vision and goal of 8d games?

To develop a solution that actually creates value for their clients. They use game mechanics like rewards, exploration, achievements, and storytelling to direct the behaviour of the player and to transfer knowledge. Most of their projects focus on creating social impact through engaging games and technical innovation.

It is an amalgamation of various fields. How is it navigated?

Communication is the key for effective work. They work in close collaboration with the clients and intended end users throughout the whole process: from the ideation stage to deployment. They gather feedback from all those involved and incorporate them at various phases of development. Communication within various domains of the company and the clients is open. They also follow-up to ensure that the things work how they are supposed to after delivering the product.

The motivation of many gamification projects is to influence the behavior of people. Do you think that playing for example a game that educates children about cyber bullying can have a lasting effect? Most adults have a sense of right and wrong and they can take appropriate actions in a game to get a high score, but the challenge is to practice the right in the real world. How do you try to make a lasting effect?

The idea is to create a lasting effect by making the desired behaviour a part of the person's daily routine. The intended users play the games frequently to make the desired behaviour second nature.



What are the main challenges that you face?

Expectation management. Often there is a disconnect between what people think they want and what they actually need. Making the client aware of this disconnect and then working towards their requirements is the biggest challenge.

What's the project that you enjoyed the most?

Johan recollects a time when a product was developed for patients. The test patient was reluctant to try it but he saw that a close relation of the patient showed enthusiasm and volunteered to try it with them. Seeing such support and finding the trigger for the right motivation is something that he remembers very fondly.

What is gamification for research?

Gamification is adding game elements to an activity or environment that is not a game in itself. Even with small game interventions you can make processes or goals more fun and influence behavior in a positive way. Collecting research data can be a tedious task, for example,

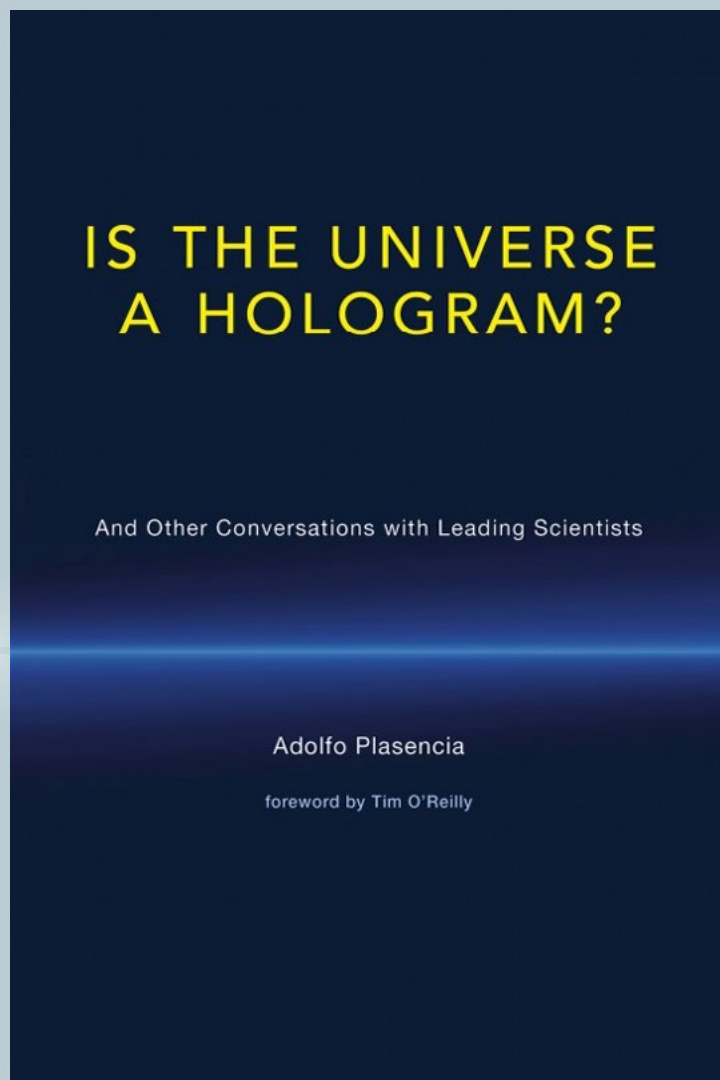


something that can become much easier by creating an interactive game with a good graphical user interface. Gamification also helps in motivating the participants to continue and finish the complete research tasks in a long study.

Where is the field of gamification headed? What are the changes that you have seen over the years since you have started?

People are more open and excited to use gamification now for addressing various problems like in education, healthcare, research, etc. The company has collaborated on more than 80 projects which has also given impetus to further collaborations. Inclusion of virtual/augmented reality to create more real-life like experiences is also being welcomed.

- BY PALLAVI KAUSHIK
- PHOTOS BY BART VAN RUITEN AND SOPHIA VAN DER MEULEN / 8D GAMES



Is the universe a hologram?

This past winter holidays I was given an e-reader as a present. For many years I had refused to delve into a not so recent but albeit new way of reading books. I had refused to incorporate this technology into my life for two main reasons: 1) the thrill of going to a bookstore and finding hidden gems and 2) my inability to remain focused while staring at a tablet or computer screen for extended periods. Furthermore, who doesn't love the smell of a new book? However, as I experienced reading a novel on my new e-reader, I felt relatively at peace, the screen brightness was much better than I expected, the weight of the device was light, and it was compact enough to fit in my pocket. Honestly, it was a very pleasant experience and I no longer needed to find good lighting at night. But part of me felt betrayed, uncomfortable; I was being unfaithful. As I reflected on why my affair with my new e-reader felt awkward,

yet so pleasant, I had a reflection on the impact of technology on millennials. My generation, millennials, is the last generation to have grown up without a permanent digital record. We are the last generation

“Who doesn’t love the smell of a new book?”

that routinely had photo scrapbooks, wrote letters, and used a printed dictionary or encyclopedia. This anecdote allows me to introduce a passage from the book I present to you in the following paragraphs. I would like to begin this book review with a passage from it, “...all these innovations like the internet, mobile telephony, all digital technologies are destructive. They are creative but induce creative destruction...The logical thing is that as [a] third environment develops and advances...a series of cultural forms will be destroyed... the typical example is the book. The book is not going to disappear but is going to be like papyrus. Papyrus have not disappeared, but they are now museum pieces.” Javier Echeverria, scientific philosopher (p.324)

Is the universe a hologram? Scientists answer the most provocative questions, Adolfo Plasencia, a Spanish scientific reporter, in a series of interviews with the leading scholars in physics and computer science explores several topics interesting to the overall

scientific community like the power of technology, the origins and evolution of the internet, and the future of data sharing, among other interesting topics. The main topics of this book are scientific and technological change. The book is divided into three sections: 1) the physical world; 2) information; and 3) intelligence. The author, Adolfo Plasencia, in an interesting series of interviews presents a nexus between MIT and many Spanish researchers. The first section discusses important issues that afflict our physical world. Topics such as climate change, Moore’s law, the Higgs boson, and quantum computing are discussed by key members of the scientific community like Mario Molina (Nobel prize in chemistry), Javier Benedicto (Head of the Galileo project of the European Space Agency), and Ignacio

“The skill of writing is to create a context in which other people can think”

Cirac (Creator of quantum computing). Section two reflects on the information age, artificial intelligence, and open knowledge with scientists like Hal Abelson (computer science pioneer at the Massachusetts Institute of Technology, MIT) and Richard Stallman (free software movement activist and programmer) providing interesting viewpoints. Finally, the third section delves into the complex question: what is intelligence? And

the relationship between science, philosophy, and art. Researchers like Alvaro Pascual-Leone (Dean of clinical and translational research at Harvard Medical School), Jose M. Camarena (pioneer on neuroprosthetic systems at the University of California Berkeley and University of California San Francisco), and Gianluigi Colalucci (Chief restorer of the Vatican Museums) discuss topics that range from consciousness, intelligence, the relationship between science and art, theories of the multiverse, neural dust, and unified definition of intelligence based on algorithmic information theory.

In times when generations of young adults are in search of instant gratification and a consequent decline in intellectual curiosity seems to afflict generation Z and alpha. Change is natural and drives scientific and technological progress. It’s an intellectual challenge just to keep up, but it should be exciting to people who have intellectual curiosity. After reading the book, two quotes stuck with me: 1) “The skill of writing is to create a context in which other people can think” - Edwin Schlossberg, (p.213); and 2) “...art needs science and science needs art. Both fields...are coherent parts of our cognitive and emotional capabilities.” - José María Yturralde, p.389. Is the universe a hologram? Scientists answer the most provocative questions, is a book that allows the reader to reflect on important topics of our technological age by opening doors that are left for the reader to further explore.

● BY JAIME MONDRAGÓN



ALUMNUS COLUMN

Time will tell...

It's hard to predict what your past experiences will mean in the distant future. It is therefore also always fun to reminisce about how past choices you made have affected your current situation. So when I was asked to write this short column, this immediately triggered a trip down memory lane.

Coincidentally, the Thursday before writing this column marked the opening of the 'Time will Tell' exposition in the university museum, a citizen-science/exposition crossover dedicated to our difficulty to judge time correctly on the second to minutes scale. I feel, however, that judging time in your past is equally difficult. Regardless, time has certainly passed since I've graduated from the BCN research master. Since then, I've moved from and back to Groningen, started a PhD project, started a new job at the UG, traveled to different continents, worked from home, moved again... quite a lot has happened.

Currently, I work at Science LinX, the science center and outreach department of the Faculty of Science and Engineering in Groningen. Science LinX attempts to connect and engage the northern provinces to the FSE, to improve scientific literacy and to promote life-long learning. Within Science LinX my task is to coordinate the Science Support Desk, a programme aimed at improving Science, Technology, Engineering, and Mathematics (STEM)-education at local high schools. This includes engaging teachers ("netwerken is net werken") as well as researchers, developing course material teaching academic skills, answering pupils' questions about science projects and their extended essays, or

It's hard to predict what your past experiences will mean in the distant future.

It certainly helped light a spark in me, and I hope I can use it to light the science-spark in our generation of future scientists.

‘profielwerkstuk’, running workshops at high schools, helping professionalization activities for high school teachers. Fortunately, I don’t have to do this on my own but together with several colleagues as well as a team of teaching assistants!

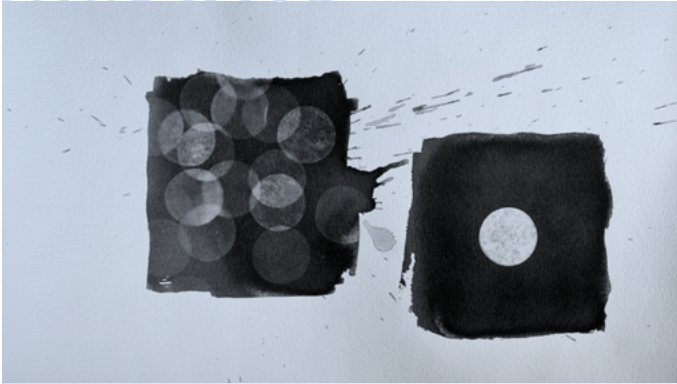
Applying for the N-track of BCN was one of the first major conscious decisions

I made, second to taking a gap-year in between my bachelor and master to join the board of GLV Idun. Although I quickly discovered an academic career is not what I wanted to pursue, it was still a great place to be for me. Much of the small-scale, project-based, curiosity-driven education serves as a source of inspiration in my current job. It certainly helped light a spark in me, and I hope I can use it to light the science-spark in our generation of future scientists.

Perhaps while reading this you noticed that I didn’t include ‘finished my PhD-project’ in the list of things that happened during the last years. When will I finish my PhD? Will I be doing the same thing in five more years? I guess that time will tell.

- BY NIELS ALBERTS
- PHOTO BY INGEBORG VELDMAN





Psychology students participating in the University Honours College follow a workshop on Blogging Science, in which they learn to communicate science to the general public by means of informing, giving an opinion, and relating science to issues in society. A selection of these blog posts is published on Mindwise. This one is written by Xinyi Zhou, a third-year psychology student, who's very interested in cognitive neuroscience and the application of machine learning in clinical practice.

Time perception in a never-ending pandemic

For both humans and other animals, despite the absence of a sensory organ specialised in time perception, the awareness of time is made possible by biological and cognitive processes subserving functions of an “internal clock” (Church, 1984). What sets humans apart, however, is the subjective experience of time’s speed separate from the speed of the external time (Droit-Volet & Wearden, 2016). Therefore, while objectively, time never changes speed, we humans perceive time as flashing by at times, and dragging on at others. Most of us have been confronted with such time distortions at various points in life. Especially over the course of the pandemic, we might often find ourselves complaining about how time in lockdown seems never-ending. Probably just as frequently, when looking back on the weeks or months that have elapsed, we wonder where all the time went. How can the supposedly same time periods pass by at one speed when we’re living it, but at another when we look back? As it turns out, different mechanisms may be at play when we judge the passage of time at present (i.e., how fast is time passing right now?) and in retrospect (e.g., how fast did the past month go by?).

What determines the speed of time at present?

The subjective experience of time passing at present can reflect one’s internal state; specifically, the attentional and emotional state. Generally speaking, time slows down when more attention can be allocated to the passing of time, as is the case during routine activities or boredom (Block & Zakay, 1997). Conversely, the more attention is captivated by tasks at hand, such as when complexity of the task increases, the less of it is left for the processing of time, leading to the feeling that time is speeding up. However, there is a limit to the extent to which complexity of a task can accelerate time; when the mental effort demanded by a task exceeds one’s capacity, attention would be less engaged and in turn, time slows down again (Flaherty, 1993).

As suggested by the popular expression “time flies when you are having fun”, the emotional state plays a role in our sense of present time passage as well. Specifically, studies have related hedonic feelings such as excitement and enjoyment to higher rates of time passage, and the opposite was found when people experience negative

emotions such as sadness and depression (Wearden et al., 2014). Similarly, higher levels of positive arousal (e.g., excitement) may speed up the passing of time (Droit-Volet & Wearden, 2015). It is however a different story for negative kinds of arousal such as fear and the activation of the fight-or-flight mode in response to danger, as a typical report among people who have been through emergency situations such as car accidents is that time seemed to stand still during the event (Arstila, 2012), suggesting that arousal may influence subjective time speed through more than one process.

What happens when we look back in time?

While judgement of present passage of time is believed to be a function of one's attentional and emotional state, retrospective judgement of time relies more on memory processes (Block & Zakay, 2008). This difference of the mechanisms is key to understand the paradox of time feeling both fast and slow mentioned earlier. The human brain tends to judge how quickly a past event or time period went by based on how many distinct memories were made during the time. Think about a time where you went on a trip somewhere for the first time; time flew by while you were on the trip, yet when you look back on it once home, so many novel memories are retrieved that it feels like the trip lasted longer than it did. In contrast, life in lockdown filled with routines may feel slow while you are in the middle of it, but once it is over, memories of identical days merge together, and the time in lockdown now seems to have whizzed by instead of dragging on.

People use external time markers such as readings from a clock to infer that time must have gone by fast. There have been speculations that besides memory processes, external time markers such as sunrise/sunset, and date on the calendar may also play a role in retrospective judgements of time passage. In a recent study by Wearden et al. (2014), participants reflected on their past experiences of fast passage of time. The authors found that those reports typically entailed the participants taking notice of an external time marker such as readings from a clock and inferring that time must have gone by fast. You may have also noticed in your personal experience that people tend to remark on how fast time has passed by making references to external indicators of time ("I can't believe 2021 is almost over, time flies!"). Indeed, such external time cues may already have been too integrated in our daily life to be ignored when thinking about retrospective judgements of time passage.

So, by the time the pandemic is over, and you look back at its start, it might seem as if it was just yesterday, or it could feel like a lifetime has passed. But no matter how it would be for you, you may find comfort in knowing that you are now better equipped for making sense of time distortions like this.

- BY XINYI ZHOU
- CYANOTYPE "QUARANTINE",
BY SANDER MARTENS

Originally published by [Mindwise](#)

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TIME WILL TELL EXPO

Jumping into the fourth dimension



When we were in high school, we were taught that reality can be experienced in many “dimensions”. You have the first three dimensions that explain space (horizontal, vertical and depth). Interestingly, the fourth dimension is what places a volume in time. In order to completely describe any event in the universe, you need to know where and when it occurs. I know, this may be mind-blowing. The nature of time is mighty, interesting and it sparks curiosity. Historically, we have been

able to measure the first three dimensions quite straightforwardly. However, to measure time and its nuances in perception has been a long road.

The University Museum (Universiteitsmuseum; Oude Kijk in Het Jatstraat 7A, Groningen) currently holds an exhibition about how our brain measures time. For the first part, you go back in time to a replica of the laboratory of Groningen psychologist Gerard Heymans (1867-1930), the first psychologist in the Netherlands to study human perception of time. For the second part, you take part into actual research by the Department of Experimental Psychology at the University of Groningen. Do not worry, this research is fun! This is an interactive section of the exhibition where in various experiments/games you use your “internal clock” to measure time and learn about how our brains experience time.

On March 30th 2022, some BCN members were provided with a guided tour by Hedderik van Rijn, who is the initiator of the Time will tell exposition. It was an amazing overview with an explanation of each experiment and a real immersion in the world of time. At the end of the tour, the attendees enjoyed a silent disco experience! The exhibition officially opened on April 14th and runs until the end of the year. Do come and visit, I highly recommended it!

● BY ALEJANDRO MARMOLEJO-GARZA

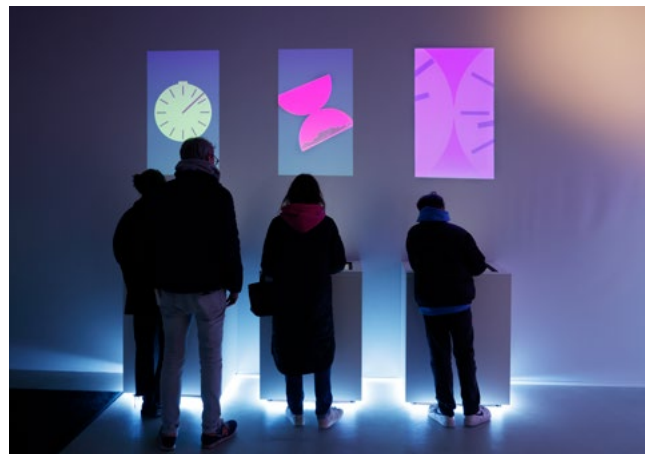




On March 30, BCN had the privilege to get a private tour through the University Museum by BCN-member prof. dr. Hedderik van Rijn. Prof. Van Rijn and other researchers from his group composed the exposition 'Time will tell', in which we are confronted with the internal clock that is continuously ticking inside our heads. Can you guess when one minute has passed? Or one second? We could perform these kinds of experiments ourselves in the

interactive exposition. It was a lot of fun challenging ourselves and each other, so time went by swiftly (or so it seemed). Before we knew it, it was time to put on a headphone and show our best dance moves in a unique edition of University Museum silent disco, where we forgot all about time. We tried to distract the students studying in the library across the museum with our dance moves, but unfortunately they were too focused to even notice us. We had a great time.

- BY EMILE D'ANGREMONT
- PHOTOS EXHIBITION BY SANDER MARTENS





MASTER STUDENT COLUMN

Let me introduce myself!

My name is Maria João Caiado, and I am a first-year BCN Master's student from the N-track. I am currently doing my Minor Project at the Department of Pathology, at the UMCG. I am investigating possible commonalities in ferroptosis-related markers in the Parkinsonism brain, working under the supervision of Prof. Wilfred den Dunnen and PhD student Nad'a Majerníková.

As a student during the internship period, I currently follow a 9-5 schedule (roughly), where I often spend half of my day doing practical lab work, and the remaining hours catching up on my writing. I like to run in the morning before work while I still have stamina, and after 5 that is when I have some free time for myself to relax, watch TV, roller skate, etc and catch up on life admin.

Going forwards in my research career, I am keen to further my studies through a PhD. However, I do have some strong thoughts about what I think academia and research should look like. I believe investigation should be exciting, and despite the occasional and expected downs in a project, it should not feel daunting/ extremely overwhelming. I thrive in social and friendly environments, and I value my personal time and health. Thus, going forwards in my career that is something I will be taking into consideration for any position. I aspire to work with people who share similar values and continue to fight against the often-glorified view of burned-out academics.

● BY MARIA JOÃO CAIADO



BRAIN INEQUITY

What can we do about it? Let's network.

The Gini index or coefficient is an economic metric of statistical dispersion intended to represent the income inequality or the wealth inequality within a nation or a social group used by the World Bank. A value of 0 represents perfect equality, while a value of 1 represents perfect inequality. Although not a perfect measure, the Gini index provides a start point to begin the discussion of inequality (Figure 1 presents an illustrative example). Income inequality is just the tip of the iceberg, as an inexistent or deficient social safety net and limited access to work, housing, education, and health are the frozen mass that composes this inequality floating body. In the text below I will introduce an opportunity for brain researchers who want to address the inequity issues in the field of dementia.

The Atlantic Institute, based in Oxford, is a knowledge-sharing hub, where over \$740 million will be spent over the next two decades to build a global network of future leaders. The Atlantic Fellows programme is an initiative from The Atlantic Institute that includes seven programs distributed around the world.

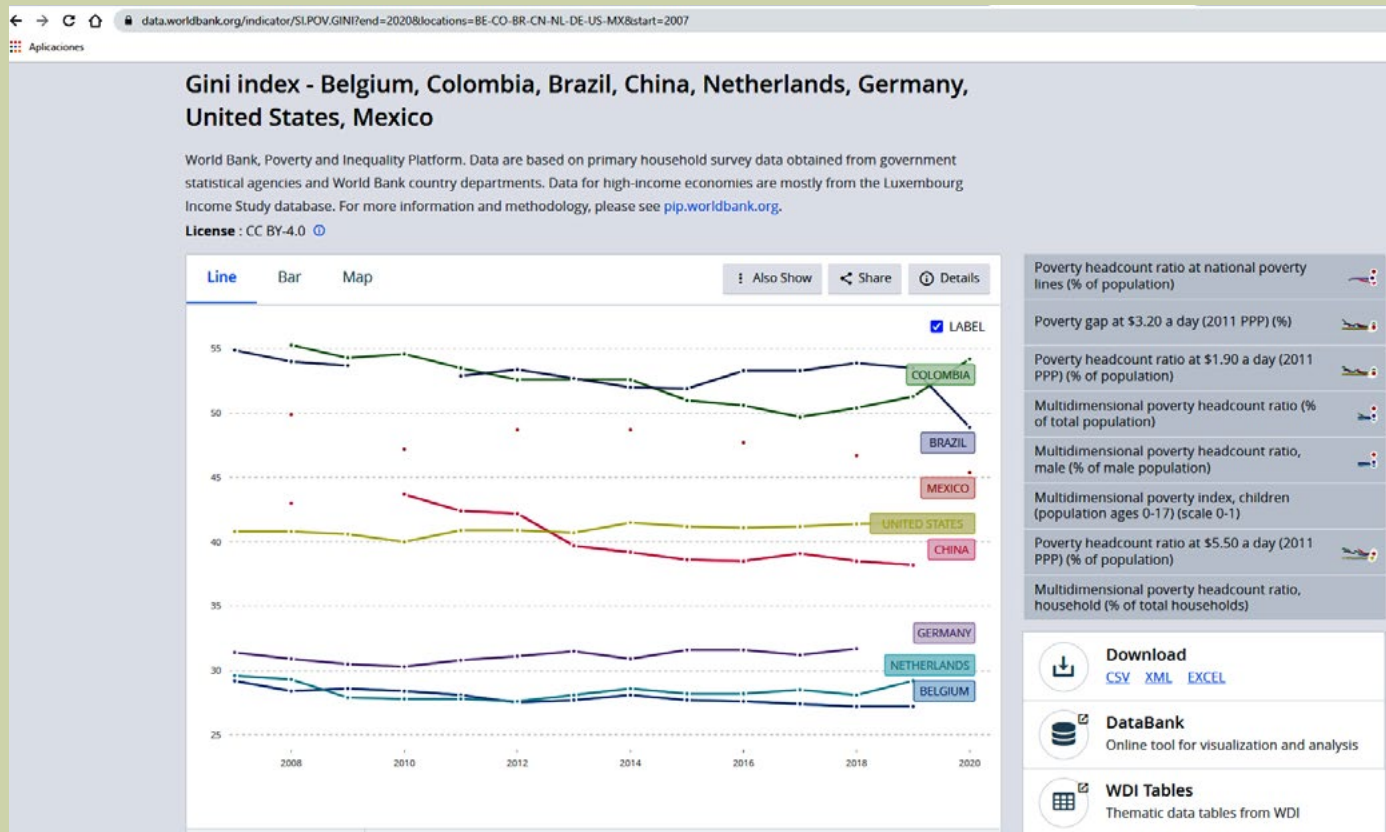
- 1) Atlantic Fellows for Equity in Brain Health based at The Global Brain Health Institute at Trinity College Dublin and the University of California, San Francisco;
- 2) Atlantic Fellows for Health Equity in Southeast Asia based at The Equity Initiative at the China Medical Board in Bangkok;
- 3) Atlantic Fellows for Social and Economic Equity based at the International Inequalities Institute at the London School of Economics and Political Science;
- 4) Atlantic Fellows for Health Equity in South Africa based at TEKANO;
- 5) Atlantic Fellows for Social Equity based at The University of Melbourne;
- 6) Atlantic Fellows for Racial Equity based at Columbia University in New York City and the Nelson Mandela Foundation in Johannesburg;
- 7) Atlantic Fellows for Health Equity based at the George Washington University Health Workforce Institute.

The programme stands on two main pillars, educational and training opportunities, and a mentorship programme.

The Global Brain Health Institute works to reduce the scale and impact of dementia in three ways:

- 1) by training and connecting the next generation of leaders in brain health;
- 2) by collaborating in expanding preventions and interventions;
- 3) by sharing knowledge and engaging in advocacy.

This programme is directed at people from a wide range of disciplines, including the arts, sciences, economics, policy, medicine, journalism, and community-based practice. This programme is directed to people working in brain health and dementia who have great ideas,



enthusiasm, and leadership potential. The programme stands on two main pillars, educational and training opportunities, and a mentorship programme. This is a lifelong network opportunity, as fellows become part of a global community.

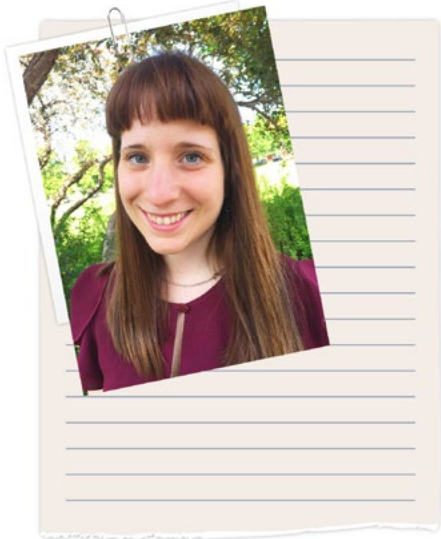
The programme is held at the University of California, San Francisco (USA) or Trinity College Dublin (Ireland) for

12 months with an annual stipend of \$75,000. Although there are no academic requirements for acceptance, the programme requires that applicants have completed a “terminal degree/training,” meaning they have pursued the highest degree or training they wish to obtain in their field. The application dates are in September and are held annually. Along with the training and mentorship opportunities, the programme

includes the opportunity to receive a Career Development and Pilot Funding of \$25,000 to begin an ambitious project in the fellow’s home community. For more information about an opportunity to join this programme please consult: <https://www.gbhi.org/apply>

● BY JAIME MONDRAGÓN

BCN RETREAT



On May 12th, the BCN retreat took place. An onsite event where BCN students had the chance of networking and getting to know all the sides of BCN. Here we have some thoughts by Irene Mognon, winner of the prize for best presentation that day.

I always picture cognition as a beautifully intricate universe that I strive to explore with my research. In this sense, BCN events

are like a powerful telescope that allows me not to stare solely at my tiny patch of sky, but that encourages me to contemplate fascinating, albeit more remote, galaxies of knowledge.

Clearly, I had high expectations for the May edition of the BCN Retreat. And, once more, I left the event so excited about other people's research topics that I thought I should pursue a new undergraduate degree. Attending these kinds of events is always a humbling and incredibly refreshing experience. A big thank you to the organizers and to all the participants!

- BY IRENE MOGNON
- PHOTOS BY SANDER MARTENS

P.S. If you, my reader, think that my words sound too much like an advertisement for BCN, you are perfectly right. BCN did pay me – in energy and enthusiasm!



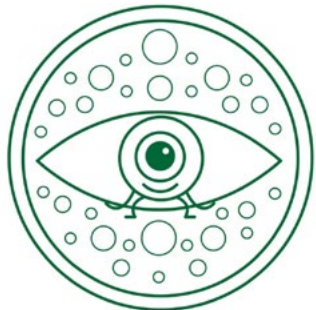


GRAND STUFF

ERC Training Grant

Nomdo Jansonius and Frans Cornelissen have (again) been awarded with a European Training Grant. This time the main theme is focused on the protection and recovery from the progressive eye disease, glaucoma, using stem cell therapy.

More information can be found on www.egret-aaa.eu



EGRET AAA

A woman is not a small man

Current health care for psychosis is too much focused on men, according to the study that Iris Sommer and Bodyl Brand from the UMCG recently published in the Lancet Psychiatry. They recommend adapting the treatment in several ways.

<https://www.umcg.nl/s/een-vrouw-is-geen-kleine-man>



Three Minute Thesis Competition

Effy Ntemou has won the UG Three Minute Thesis Competition. The PhD student at the Center for Language and Cognition held a three-minute-long presentation, in which she eagerly and comprehensibly described her research. Ntemou researches how linguists can help brain surgeons to efficiently remove brain tumors without damaging the person's language abilities.

<https://www.rug.nl/news/2022/03/effy-ntemou-wint-3-minute-thesis-competition>



Early detection of young-onset dementia through language analysis

Roel Jonkers, Professor of Neurolinguistics at the University of Groningen, is involved in the development of new tests that can be used to determine whether someone is suffering from young-onset dementia at an earlier stage. The Dutch Research Council (NWO) awarded a €2.6 million grant to the 'Better recognition and understanding of early-onset dementia' project, in which researchers, companies, and societal organizations are working on together.

<https://www.rug.nl/let/onze-faculteit/actueel/nieuwsberichten-2022/early-detection-of-young-onset-dementia-through-language-analysis>

Vici grant for Jan Willem-Romeijn

The Dutch Research Council (NWO) has awarded a Vici grant, worth €1.5 million, to Jan-Willem Romeijn. He will use this money to develop an innovative line of research for a period of five years, aimed at enhancing data science methods as currently used in psychiatry and psychology using insights from the philosophy of science.

<https://www.rug.nl/news/2022/03/vici-grants-for-three-ug-researchers>

Surgical Robotics Laboratory part of the Horizon Europe Grant – Régo

The Surgical Robotics Laboratory of the University of Twente led by Sarthak Misra is part of a consortium that has been awarded a Horizon Europe grant. Their project with the name: RĒGO has been selected for funding within the call “Pushing the limit of robotics cognition”.

<https://www.utwente.nl/en/news/2022/4/533777/surgical-robotics-laboratory-part-of-the-horizon-europe-grant-rego>

Best practices in Teaching and Learning

Mark Nieuwenstein (Psychology, subject Biopsychology) has been awarded with the label 'Best Practice' for his teaching methods. His students not only appreciated his enthusiasm, but also the quality of the delivered material, the clear structure of the course, the content of the lectures and the use of Gather Town.

<https://www.rug.nl/gmw/news/best-practices-in-teaching-and-learning-at-bss>



Ming Cao Academic Director of Jantina Tammes School

The Board of the University has appointed Ming Cao as Director of the Jantina Tammes School, an interdisciplinary platform that focuses on digital innovation, artificial intelligence, and technological progress. It will provide a place where the various academic disciplines can meet and join forces to conduct research projects, teach, and generally smooth the way for dialogue with and about society.

<https://www.rug.nl/news/2022/04/squintani-and-cao-academic-directors-of-schools>



Enhancing our understanding of major depressive disorder using machine learning

Major Depressive Disorder (MDD) commonly known as depression is one of the most prevalent mood disorders, affecting more than 264 million people worldwide. It has become so common that 1 in 15 adults is affected by it in a given year. Depression affects the way one feels, thinks and acts. Its core symptoms include sadness and feelings of anhedonia i.e. loss of interest in activities one once enjoyed, leading to decreased task performance and productivity. In its extreme form it can even lead to suicide which is the fourth leading cause of death in 15-29 year-olds and according to the World Health Organization close to 700,000 people die due to suicide every year. Another major concern pertaining to depression is that even after it has been diagnosed and cured there is still a high chance of relapse in the patients. Entanglement of various factors like age, gender, culture, socio-economic status, education level, etc., in the manifestation and maintenance of depression makes detection and treatment even more challenging as each case can be unique and requires detailed study. There is no effective mechanism to track depression and predict relapse yet and due to the social stigma associated with depression, it often goes undetected and untreated. In the recent years, an increased emphasis on mental health and access to care via telehealth has led to an

increase in the number of patients seeking treatment, however, cost-effectiveness models suggest that even in the unlikely event of optimal treatment being delivered in all cases, only 35 – 50% of the overall burden of depression and anxiety would be alleviated. This leads to a dire need of understanding the mechanisms through which depression arises leading to the development of an objective biomarker for depression and developing mechanisms that not only aid in detecting MDD but also help in identifying how much an individual lies at a risk of having it.

Neurophysiological data like EEG, fMRI are predictive of cognitive mechanisms and hence there is an increasing amount of effort in trying to automatically predict depression from neural data using machine learning. Many studies have used resting state data for classification and achieved accuracies as high as 94%¹. Instead of just focusing on a purely data-driven approach agnostic of the actual thought processes a person goes through, a lot of work is being done using task-based data (like sustained attention to response task, emotion regulation and reward learning). These studies have also resulted in high accuracy² to differentiate healthy and depressed individuals, showing that these cognitive mechanisms

are representative of the differences between the two groups. Recently machine learning is also being used for predicting treatment outcome from EEG recordings in adult patients with depression³. However, though these studies seem promising in predicting the respective outcomes on the small sample of the population they consider, how far these models and inferences can be generalized to the entire human population is unknown. More studies need to be done on cross population data to really gauge the efficacy of these approaches and the benefits they can bring to the health sector.

● BY PALLAVI KAUSHIK

- ¹ Mumtaz, W., Ali, S. S. A., Yasin, M. A. M., & Malik, A. S. (2018). A machine learning framework involving EEG-based functional connectivity to diagnose major depressive disorder (MDD). *Medical & biological engineering & computing*, 56(2), 233-246.
- ² He, L., Niu, M., Tiwari, P., Marttinen, P., Su, R., Jiang, J., ... & Dang, W. (2022). Deep learning for depression recognition with audiovisual cues: A review. *Information Fusion*, 80, 56-86.
- ³ Squarcina, L., Villa, F. M., Nobile, M., Grisan, E., & Brambilla, P. (2021). Deep learning for the prediction of treatment response in depression. *Journal of Affective Disorders*, 281, 618-622.

PHD AND OTHER NEWS

Incomplete reimbursement forms

More than 50% of the forms I receive are incomplete!! The financial administration of the UMCG only accepts forms with bank statements, and invoices. Please realize that an invoice is not a proof that you really paid the amount. If the amount of the invoice and bank statement are not the same, please explain why. You can find the reimbursement forms on the BCN website (<https://www.rug.nl/research/behavioural-cognitive-neurosciences/education/phd/funding>)

Please check the conditions on the form and add all proofs of your visit and payment! Combine this into a single pdf file, and send it to me after you have taken the course/conference!!

Café de las Lenguas

If you would like to practice a language: Cafe de las Lenguas is open again: *Every Thursday from 7 to 9 p.m.* This is a great opportunity to improve your Dutch or English or to help others learn your mother tongue!

Read more about this in this article: <https://ukrant.nl/cafe-de-las-lenguas-hopes-to-attract-new-language-learners-after-two-years-of-online-events/?lang=en>

Winner BCN Best presentation Award

Irene Mognon won this award during the BCN Retreat in May. The audience selected her as best presenter during the retreat. Congratulations Irene!

BCN Symposium 2022

BCN is working on a Symposium that will probably take place in December. The preliminary title is "The language of bad news: the role of language processing in detecting and improving cognitive and mental health problems". We'll keep you informed!

Agenda BCN Activities

Every Thursday:

BCN Lunch Lectures series
12:00 – 13:00 hrs.

November 10, and 11:

BCN Retreat in Odoorn
(we all looking forward to this event!)

● BY DIANA KOOPMANS



WWW.PHDCOMICS.COM

NEWS FROM THE BCN PHD COUNCIL

Dear BCN PhD student,

This last period, we have opted for a different way of sharing our updates with you. You can find some thoughts and updates from some of our BCN PhD Council members. You may know them already. If not, please get involved in the upcoming BCN PhD council activities!

BCN Drinks at Dot Feb 11th 2022

During the first BCN-PhD drinks of 2022 we had a lot of fun. Among the 35 people that participated in this event, we had the chance to see some known but also some new faces. With a great BCN-family vibe, students could exchange on many topics such as how is their research going, different BCN courses, or their feelings and experiences on how it is to do a PhD in the ongoing pandemic. We had

the chance to meet some new students interested in joining the BCN council and discuss further what possibilities there are as a BCN PhD council member. Apart from work-related discussions, we also played some board games, enjoyed some nice drinks and snacks and took beautiful pictures to remember this nice evening. We had lots of fun and we hope you did too. We are looking forward to seeing you soon during our next events.

● **BY NADKA MAJERNIKOVA,
BCN PHD COUNCIL CHAIR**



BCN Bouldering event March 5th 2022

On March 5th, BCN PhD Students reached the top, this time of the bouldering wall. A group of PhD students joined the activity organized by the BCN PhD council on that Saturday, at Gropo bouldering gym. Participants had the chance to try climbing indoors and outdoors, under the guidance of a certified trainer. It was a pleasure to see the BCN community spending time together and we look forward to more activities in the future.

● **BY MAGDALINI IOANNOU,
BCN PHD COUNCIL MEMBER**

BCN Bowling event March 23th 2022

Who said BCN PhD Students are not competitive? We hosted a bowling event and I can tell you: we have potential! After a friendly bowling match in teams, we enjoyed drinks, chatting and catching up. Some PhD students expressed that they appreciated events like these, where they can unwind, chat and share social experiences. We had a couple of freshly-arrived PhD students that recently



started. We welcome you all in all the upcoming events!

● **BY ALEJANDRO MARMOLEJO-GARZA,**
BCN PHD COUNCIL MEMBER

Questionnaire for new initiative: WeCollaborate - Statistics and Modelling from BCN to BCN

The correct application of different statistics and modelling techniques is of high importance and makes up a large part of our research. Did you ever get stuck with your analysis because you feel like you are lacking knowledge? Or do you feel confident in a specific modelling technique and would be willing to help others in learning more? WeCollaborate aims to bring together PhD students, as well as senior researchers that would like to receive or provide statistical guidance. Since we sent around the questionnaire regarding the WeCollaborate initiative in March, we received quite some responses. Thank you to those who filled it out already! A lot of you are interested in receiving help. If you would like to provide some guidance on statistics or modelling please don't hesitate to fill out the questionnaire. As it is supposed to be a collaboration, both sides are equally

important. We are looking forward to hearing from some more of you. You can find the questionnaire here. Thank you for your participation!

● **ON BEHALF OF THE BCN PHD COUNCIL,**
MAGDA AND RONJA

See you soon!



NEW MEMBERS BCN PHD COUNCIL



Martinica
Garofalo

Hi everyone,
I'm Martinica. I am an Italian 1st year PhD student at the department of Pediatric Neurology of the UMCG. After graduating as a medical doctor, I started this research trajectory focusing on coordination impairments in children.
I joined the BCN PhD council in January this year, after meeting everyone at the drinks. The vibes were instantly great and it felt like a perfect match! So far, I've been helping with the organization of some social events and I've recently taken the role of treasurer. I love being in the BCN PhD council because it gives me the opportunity to be involved first-hand in the educational and social matters regarding our research school and its students. It is also a great way to meet new people and expand my (professional) network. I'm looking forward to meet you all throughout this year!
We're still looking for new PhD council members, so if this sounds interesting to you, feel free to send us an email at phdcouncilbcn@rug.nl!



Ronja
Eike

Hello!
My name is Ronja and I'm a 28-year old first-year BCN PhD student from Germany. I work at the department of Biomedical Sciences of Cells and Systems (Section Cognitive Neuroscience Center) of the UMCG and I'm investigating the impact of micro-aggression on the LGBTQ+ community from a neurocognitive and social perspective. My background is in Psychology and Cognitive Neuroscience.
Since joining at the end of February this year I am currently the newest member of the BCN PhD council. Previously, I took part in several lectures and events organized by them. This was a lot of fun and especially after meeting most of the council members in person I decided to become a member myself. It is a great opportunity to make new connections while also having an impact in shaping the activities. Furthermore, I will be part of one of the education committees, which is a very unique and exciting opportunity. It gives me the possibility to maintain the good quality of the BCN research school with the students' interests at heart.
The communication and energy in the council and between its members is great and very inviting. I can only recommend joining!

COOL LINKS

Cool links in Neuroscience

- > A phenomenon called 'pareidolia' -

<https://www.sciencenewsforstudents.org/article/faces-objects-imaginary-male-female-perception-pareidolia>

People sometimes see imaginary faces in everyday objects, such as a smiley face on a cheese grater. In a new study, these faces were more often seen as male or female. Check out the link for the answer.

- > Article -

<https://www.sciencedaily.com/releases/2022/04/220421130946.htm>

This study reveals a set of brain regions that control complex sequences of movement: In a novel set of experiments with mice trained to do a sequence of movements and 'change course' at the spur of the moment, scientists report they have identified areas of the animals' brains that interact to control the ability to perform complex, sequential movements, as well as to help the mice rebound when their movements are interrupted without warning.

- > The Human Brain Project -

<https://www.humanbrainproject.eu/en/>

The Human Brain Project aims to put in place a cutting-edge research infrastructure that will allow scientific and industrial researchers to advance our knowledge in the fields of neuroscience, computing, and brain-related medicine

- > Want to know the one flirting technique that almost always works? Check out the following link:

<https://www.iflscience.com/brain/one-flirting-technique-almost-always-works-according-to-psychologists/>

● BY SOPHIE VAN ZONNEVELD

Martijn Wieling

TITLE

Digital dialect: new opportunities for research and use of regional languages

CHAIR

Low Saxon /Groningen Language and Culture

FACULTY

Arts

DATE

March 4, 2022

In his inaugural lecture, Martijn Wieling introduced various digital (dialectometric) techniques which he and his group use in their research. Specifically, PhD student Raoul Buurke uses the unique mobile laboratory SPRAAKLAB (<https://www.rug.nl/let/spraaklab>) to collect digital dialect data which is subsequently stored in WoordWaark (<https://www.woordwaark.nl>), the main digital repository for Gronings. Raoul will then use this data to investigate the change of Low Saxon varieties using several dialectometric techniques. PhD students Martijn Bartelds and Wietse de Vries use deep-learning based techniques to develop language technology for regional languages, including a Groningen text-to-speech system (<https://huggingface.co/spaces/wietse/v/GroTTS>) and a



● PHOTO BY MIGUEL_SANTÍN

new successful method to quantify pronunciation differences (<https://www.sciencedirect.com/science/article/pii/S0095447022000122>). A final important project in the Center for Groningen Language and Culture is Van Old noar Jong, which consists of an app and course on Gronings for primary school children (developed in collaboration with the UG Scholierenacademie). The launch of this

project was covered by Jeugdjournaal (<https://jeugdjournaal.nl/artikel/2403455-kinderen-in-groningen-leren-wat-kopstuber-en-bozzem-zijn.html>). If you are interested in seeing the inaugural lecture (or a short 5-minute summary), this is available via <https://www.martijnwieling.nl/oratie> (or <https://www.martijnwieling.nl/oratie-kort>).

Barbara J. van den Hoofdakker

TITLE

Better oars, more frequent rowing: On the treatment of behavioural problems in children

CHAIR

Treatment of behavioural problems in children

FACULTY

Behavioural and Social Sciences

DATE

March 11, 2022

Barbara was appointed extraordinary professor in the Faculty of Behavioural and Social Sciences at the University of Groningen in 2019 by Accare, with the teaching assignment 'Treatment of behavioural problems in children'.

The care for children with disruptive behaviour or behavioural problems makes too little use of the available knowledge on effectiveness. Treatment of the child itself is often ineffective, while training the parents and teachers works well. This was stated by Barbara van den Hoofdakker in her inaugural lecture at the University of Groningen.

Daniëlle C. Cath

TITLE

The Dutch Mental Health Services (GGZ) and the innovation paradox

CHAIR

Mental health care innovations in the area of affective and anxiety disorders

FACULTY

Medical Sciences

DATE

March 11, 2022

In 2019, over 647.000 individuals in the Netherlands suffered from a lifetime depression, and more than one million from debilitating anxiety symptoms. Sixty percent of those with depression and about one third with anxiety complaints receive mental health care (Landelijk DIS informatiesysteem, 2018/2019). Of all these individuals about 20% receive treatment within specialized mental health services in the Netherlands (Vektis, 2017).

What is more: although in up to 60% of these patients treatment is (partially) effective, in 50% symptoms re-occur within three years after successful treatment, (Bockting et al., 2018; Struijs, 2021). Thus, there is an urgent need to improve the effect and sustainability of our treatments; we need crucial

innovations of treatment and care. In the past years, the term innovation has in itself become increasingly synonymous with “improvement”, although by definition, innovation signifies nothing more or less than: “introduction of something new”; regardless of whether it results in improvement.

Three conditions seem to be crucial to meaningfully innovate in mental health research: 1) the innovation should primarily intend treatment improvement; 2) improvement by the innovative model or treatment strategy is demonstrated in a measurable and replicable way and 3) the improvement is successfully implemented and evaluated in clinical practice. Although these are generally accepted basic notions of good clinical research, in practice they are not self-evident. If one or more steps are not taken into account, an innovation paradox emerges. In my oration I reflected on research examples and paradoxes at each of these three conditions or phases, placing the since 20 years collaborative research work of the RGOC in the spotlight.

For the coming years, I will focus on three main themes to work on my innovation goals, using various forms of both clinical and somatic symptom monitoring.

- 1) finetuning and implementation of digital diaries (ecological momentary sampling) to improve self- management and personalize treatment; which patient with which type of complaints, in which treatment phase, as well as which type of clinician will benefit most from which type and frequency of ecological momentary assessment?
- 2) monitoring, predicting and treating the somatic consequences of psychiatric disease. Within the Netherlands the populations of the provinces Groningen and Drenthe are at the highest risk to develop cardiovascular disease, and our outpatient psychiatric population surpasses that in numbers. We therefore feel a high urgency to develop lifestyle programs in collaboration with the department of general practice, to decrease in CV risk in depressed and anxious patients, both in general practice and at our outpatient mental health services. However, combined lifestyle interventions generally show very little efficacy in lowering cardiovascular risk parameters in the long term, but they show a modest benefit in increasing quality of life and decreasing depressive symptoms. Therefore, we are currently piloting

various lifestyle changing treatments, focusing on further enhancement of quality of life, using mixed methods.

- 3) In the coming years we will develop individual treatment prediction models based on supervised machine learning, using monitoring data from various sources of information (clinical, somatic, genetic, data on course, and treatment). In that way we aim to enhance individual prediction of treatment effect, and to reduce side effect burden in our patients. The three collaborative networks of the RGOC (elderly psychiatry, psychosis, affective and anxiety disorders), all with monitoring systems in place (ROM-GPS, PHAMOUS, MOPHAR), yield us data on over 17.000 “real world” patients across various diagnoses, age groups and at various stages of disease and recovery. By uniting these databases under the umbrella “Mindlines”, we can effectively start generating those prediction models that will bring precision medicine within reach.

● **EVELYN KUIPER-DRENTH, ON BASIS OF PRESS REPORTS OF THE UNIVERSITY OF GRONINGEN**

BCN THESIS DEFENCES

Deciphering cellular heterogeneity of the brain: implications for neurodegenerative diseases

PHD STUDENT

E. Gerrits

THESIS

Deciphering cellular heterogeneity of the brain: implications for neurodegenerative diseases

PROMOTORS

Prof.dr. H.W.G.M. Boddeke

Prof.dr. B.J.L. Eggen

COPROMOTOR

Dr. S.M. Kooistra

FACULTY

Medical Sciences

The brain is a complex and sophisticated organ and comprises over 100 billion neurons, with an even larger number of supporting cells (glia) and a multicellular vascular architecture. The aim of this thesis was to decipher cellular heterogeneity of human brain tissues affected by neurodegenerative diseases. In chapter 1, the cellular composition of the brain is reviewed, as well as subcellular heterogeneity and the involvement of subtypes in neurodegenerative diseases. In chapter 2 we studied MS brain tissues with scRNAseq and showed

that brain macrophages adopt several distinct phenotypes in MS that are associated with stress, demyelination and inflammation. In chapter 3 we investigated whether snRNAseq is a reliable proxy for scRNAseq. We showed that snRNAseq of microglia results in reliable transcriptomics data that can be used to study frozen brain tissues. In chapter 4 we studied LOAD brain tissues using snRNAseq and showed that microglia adopt distinct profiles that associate with either amyloid-b or tau pathology. In chapter 5 we studied FTD-GRN brain tissues and showed that astrocytes, endothelial cells and mural cells were severely affected. These data indicate that neurovascular changes underlie neurodegeneration in FTD-GRN and should be considered a prime target of future studies and therapies for FTD-GRN. In chapter 6 a summary and discussion of the findings reported in this thesis and future perspectives are presented. Together, these data contribute to our understanding of neurodegenerative diseases and will help to identify new biomarkers and targets for therapies to monitor, reduce or halt disease onset and progression

Emma Gerrits studied Biology at the University of Groningen. She did her

doctoral research at the department of Neurosciences and the institute 'Brain and Cognition' of the University Medical Center Groningen. Now she works as postdoctoral research at the Karolinska Institute in Sweden. She defended her thesis on February 7, 2022.

Seeking clarity in diversity: Exploring cognitive heterogeneity in schizophrenia-spectrum disorders

PHD STUDENT

P.P. Oomen

THESIS

Seeking clarity in diversity: Exploring cognitive heterogeneity in schizophrenia-spectrum disorders

PROMOTOR

Prof.dr. I.E.C. Sommer

COPROMOTOR

Dr. M.J.H. Begemann

FACULTY

Medical Sciences

The research presented in this thesis investigated the existence of subgroups of cognition within the schizophrenia-spectrum. Importantly, we show that a substantial subset of patients



● PHOTO BY TIM VAN BALLEGOOIJ

perform similarly to healthy controls. These subgroups of cognition offer useful information regarding disease characteristics such as symptom severity and global functioning and may be explained by differences in the underlying neurobiology. Heterogeneity or diversity is a major challenge in schizophrenia-spectrum disorders and should be considered in both research and clinical practice. Creating subgroups with shared illness characteristics and similar needs for care might be a step toward personalized treatment.

Priscilla Oomen studied Biomedical sciences (BSc) and Neurosciences (MSc) at the Vrije Universiteit Amsterdam. Thereafter she worked as a PhD student under supervision of prof. dr. Iris Sommer at the University Medical Center Groningen (UMCG). She did her doctoral research at the department of Biomedical Sciences of Cells and Systems of the UMCG. She will start working as a postdoctoral researcher at the UMCG and GGZ Eindhoven. She defended her thesis on February 23, 2022.

DNAJB6 and its substrates: connecting the dots

PHD STUDENT

E.F.E. Kuiper

THESIS

DNAJB6 and its substrates: connecting the dots

PROMOTOR

Prof.dr. H.H. Kampinga

COPROMOTOR

Dr. S. Bergink

FACULTY

Medical Sciences

Our life expectancy has increased over the last decades, but higher age is associated with more diseases. A

frequent cause of age-related diseases is the formation of protein aggregates that are thought to drive several muscular and neurodegenerative diseases. With our research we want to increase the knowledge on how our cells cope with protein aggregation. Important for this is the quality control of aggregation-prone proteins, mainly provided by chaperones, and we focus on one of them: DNAJB6. DNAJB6 can recognize and prevent a specific form of protein aggregation: amyloid aggregation. Amyloids have a densely packed structure and are observed in diseases like Alzheimer's and Huntington's. The appearance of amyloids is not limited to harmful disease-related aggregates, but can also be formed by functional proteins with disordered regions that perform important tasks in our cells. Due to their disordered regions, these frequently end up in harmful aggregates. Therefore, their quality control is crucial. There is still little known about this process and if chaperones are involved.

Proteins of the nuclear pore complex (NPC), which ensure transport between the nucleus and the rest of the cell, are a good example of these disordered proteins. Wear of NPCs and nucleocytoplasmic transport defects are

associated with ageing and age-related diseases. We find that DNAJB6 can prevent NPC protein aggregation. This suggests for the first time a link between DNAJB6 and normal proteins that can form amyloids. It shows the importance of DNAJB6 for protection of such proteins under physiological circumstances and in disease.

Els Kuiper studied Medical and Pharmaceutical Drug Innovation at the University of Groningen. Her doctoral research took place at the department of Biomedical Sciences of Cells & Systems of the University Medical Center Groningen (UMCG), financed by a top master fellowship of the Groningen University Institute for Drug Exploration (GUIDE). After her thesis defense she will start working as a postdoctoral fellow at Yale University in the United States of America. She defended her thesis on February 28, 2022.



● PHOTO BY ANKE HORNSTRA

Quantification of symptoms of movement disorders – towards support of clinical monitoring and diagnosis

PHD STUDENT

Z.T. Dominguez Vega

THESIS

Quantification of symptoms of movement disorders – towards support of clinical monitoring and diagnosis

PROMOTOR

Prof.dr.ir. N.M. Maurits

COPROMOTOR

Dr. J.W.J. Elting

FACULTY

Medical Sciences

Evaluation of symptoms in patients with movement disorders generally implies subjective assessment based on observation. Furthermore, time-limited clinical observation provides only a glimpse of the condition of the patient. To reduce subjectivity researchers have developed clinical assessment protocols, but even with these protocols, proper evaluation of movement disorders patients remains a challenge. In this thesis, we tried to improve upon two issues: subjectivity in the assessment of symptoms and the limited duration of observation. By using inertial sensors, we

expected that both the clinical diagnostic work-up and long-term monitoring at home could be supported.

For diagnostic purposes, we improved upon the distinction between children with early onset ataxia or developmental coordination disorder and healthy children, by combining information from three kinetic upper limb tests (finger to nose, finger chasing and fast alternating movements) and by using information from normal and tandem gait.

For long term monitoring, we investigated the use of accelerometry for long term tremor recordings. We determined the optimal number of days needed to obtain reliable estimates of tremor percentage, tremor frequency variability and tremor intensity. Furthermore, we explored the hypothesis that functional tremor patients overestimate tremor presence compared to organic tremor patients.

We concluded that the results obtained in this thesis provide evidence that movement sensors can be used as a support tool for the monitoring and diagnosis of movement disorder patients.

Zeus Dominguez Vega defended his thesis on March 2, 2022.

3D virtual surgical planning and patient-specific instrumentation in spine surgery

PHD STUDENT

P.A.J. Pijpker

THESIS

3D virtual surgical planning and patient-specific instrumentation in spine surgery

PROMOTOR

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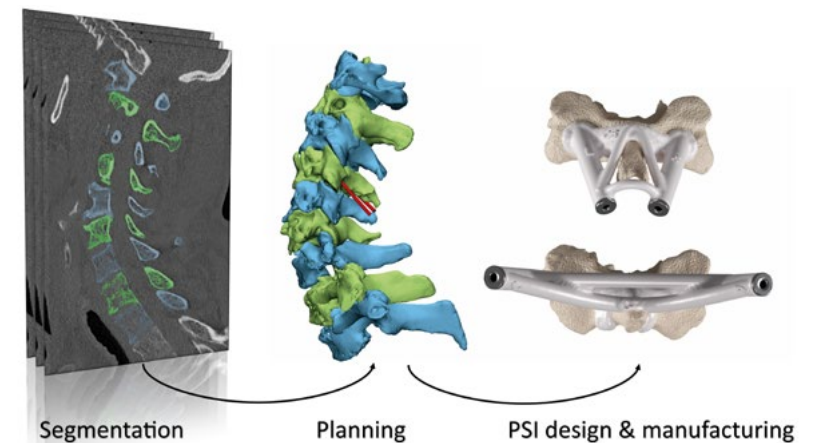
Dr. C. Faber

Dr. J. Kraeima

FACULTY

Medical Sciences

Peter Pijpker studied Technical Medicine at the University of Twente. His doctoral research took place at the department of Neurosurgery and Orthopedics at the University Medical Center Groningen (UMCG). After his thesis defense he continues to work as Technical Medical 3D-specialist at the 3D-lab and at the department of Orthopedics of the UMCG. He defended his thesis on March 16, 2022.



● BY PETER PIJPKER

Connecting needs and care in psychosis

PHD STUDENT

L.O. Roebroek

THESIS

Connecting needs and care in psychosis

PROMOTORS

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FACULTY

Behavioural and Social Sciences

This thesis describes the development and evaluation of computerized clinical decision aid in psychosis care. Lentis psychiatric institute developed this aid named TREATment E-Assist (TREAT) which combines routine outcome monitoring data with guideline and standards of care. TREAT is able to provide personalized treatment recommendations for people with a psychotic illness. A qualitative analysis revealed that most clinicians perceived TREAT as beneficial to their daily clinical practice. The graphic representation of ROM results made them easier to discuss. Opinions about the treatment recommendations varied, but all clinicians experienced an increase in shared decision making with their patients

when using TREAT. These findings were not replicated in a quantitative analysis which showed no improvements in the levels of shared decision making between TREAT and treatment as usual. A care consumption analysis revealed that patients had on average 7.4 care needs per measurement of a possible 23 care needs, as identified by TREAT. Physical care needs were most present and persistent while symptomatic and psychosocial care needs were more transient. The use of TREAT significantly increased the discussion of these care needs during consultations while also significantly increasing the number of initiated evidence-based treatments. In sum, this thesis shows the benefit of decision support in psychosis care while also highlighting some of the shortcomings and recommendations for future improvements.

Lukas Roebroek defended his thesis on March 24, 2022.

The psychology of resit exams: how the opportunity to resit influences study-time investments for a first exam

PHD STUDENT

R. Nijenkamp

THESIS

The psychology of resit exams: how the opportunity to resit influences study-time investments for a first exam

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COPROMOTOR

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FACULTY

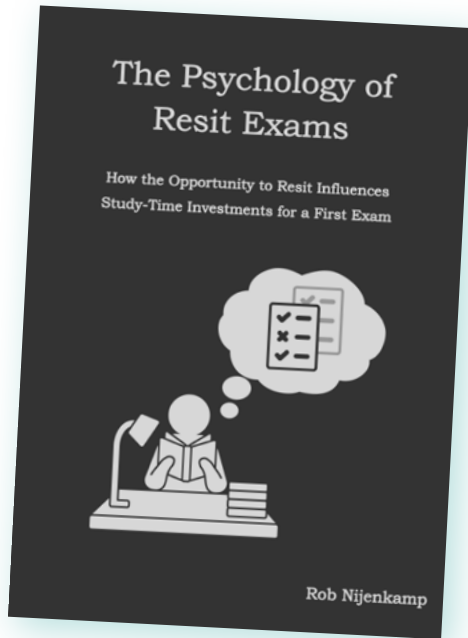
Behavioural and Social Sciences

Rob Nijenkamp's research focuses on the question whether the sometimes rather large differences in the way resit exams are offered in higher education lead to differences in students' study behavior. His research begins with Kooreman's mathematically-grounded proposition that offering an unconditional resit opportunity provides a perverse incentive for students to put less time and effort into preparing for the first exam opportunity, possibly also resulting in a lower knowledge of the course materials. Experiments and (anonymous) questionnaire research



● PHOTO BY ROBERT VAN DER MIJN

into study strategies among first-year Psychology students showed that students are indeed sensitive to this perverse incentive and that they would use the possibility of a resit in their study planning. However, the study also showed that this reduction in time and effort for studying can be reduced, but not completely counteracted. This can be achieved by, for example, requiring a minimum grade on the first exam opportunity for participation in the resit or by increasing the amount of time between the two exam opportunities. The results of Rob Nijenkamp's research show that



● COVER BY ROB NIJENKAMP

offering resits conditionally can reduce the perverse incentive to study less well, while at the same time preserving the features of a resit system that are good and helpful to students.

Rob Nijenkamp defended his thesis on April 4, 2022.

Balancing expectations: adaptive flexibility in mammalian circadian organization

PHD STUDENT

J. Riede

THESIS

Balancing expectations: adaptive flexibility in mammalian circadian organization

PROMOTORS

Prof.dr. R.A. Hut

Prof.dr. G. van Dijk

FACULTY

Science and Engineering

Circadian rhythms are internally generated oscillations of approximately 24 hours that synchronize with the environments day-night cycle, which drive and modulate countless behavioral and physiological processes. In his thesis Sjaak Riede uses a novel behavioral work-for-food paradigm which allows to study how changes in energy balance cause a change in the temporal niche of mice, making them adopt a day-active activity pattern. Riede: 'We show and discuss data supporting a functional role of circadian flexibility; diurnal activity patterns requiring less energy versus remaining night-active - for burrowing small

mammals in temperate climate. We build on this by showing the rearrangements in temporal niche are associated with plasticity in the direct light response (photic masking) and explore differences between male and female mice. Further we show data that neither the adrenals nor the Paraventricular thalamic Nucleus are essential for circadian niche adaptation whereas the central circadian clock located in the suprachiasmatic nucleus remains of vital importance, despite itself not appearing to change phase. The rigidity of the SCN-timing might be linked to its role in measuring daylength and guiding seasonal rhythms. Which processes make behavioral and physiological rhythms obtain a different phase angle to the SCN during simulated food shortage remains largely elusive. The work in this thesis provides a solid scientific basis to re-address circadian flexibility and it's relation to energy balance in future studies. Gaining more insights in circadian rhythm flexibility might solve the poorly understood mechanisms behind metabolic risks associated with human shift-work and how to cope with circadian disruptions.'

Sjaak Riede defended his thesis on April 12, 2022.

● EVELYN KUIPER-DRENTH,
BASED ON PRESS REPORTS OF
THE UNIVERSITY OF GRONINGEN

CHEEKY PROPOSITIONS

"It seems impossible until it's done"

[Priscilla Oomen](#)

"Your propositions should be original; That means no quotes" - M.M. Lorist

[Rob Nijenkamp](#)

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Do you enjoy reading the BCN magazine?

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Apart from new staff writers, we're currently also looking for a new copy editor (in particular, someone who's a native English speaker and preferably at the beginning of his/her PhD project).

Send an e-mail to Sander Martens, a.d.j.martens@rug.nl!



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This magazine is published by the School for Behavioural and Cognitive Neurosciences

FREQUENCY

4 x a year

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Deadline for the next edition:
July 18th 2022

Press

