

The Optimist

A journal to help you survive the valley of shit



January 2022

EDITORIAL

Not long ago, we found ourselves at the pub the Optimist asking ourselves: why the hell did we ever decide to pursue a career in science? A few drinks in, we realized that we would not be doing relevant science if it was easy. Moreover, in any other job we would probably be bored. To be able to survive our PhD – in a healthy mental condition – we realized we had to change our mindset. We need to learn how to deal with failure, how to be patient and how to create a healthy work-life balance. In order to bring optimism back for ourselves and our fellow PhD students, we came up with the idea for this interactive journal by PhD students for PhD students. Our goal is to become healthy scientists that are hardworking but relaxed, ambitious but sharing, and confident but humble. We are convinced that the best way to achieve this is by sharing our struggles and by seeing the humor in it. But that is not enough. We believe the efficiency of science can be improved. The scientific method has proven very successful over the last decades. Nothing we write down here will change this. However, we would like to step away from the idea that the current way of doing science is the only way and encourage constructive discussions. Therefore, in every edition we will focus on a topic that merits some thought.

The optimist team

Cover: Paula Longás

PhD-coach Lucia about career development and career transitions

The optimist chatted to Braingain founder Lucia Smit this month to learn more about her coaching business.

There is always something powerful about seeing PhD graduates realizing their professional dreams. Entrepreneur Lucia Smit, founder of Braingain in Belgium, coaches and guides PhD-graduates in their career development and career transitions.

I am the founder of the Braingain. At Braingain we guide PhD graduates and experts in their career development and transitions. In 2010 I wrote my PhD dissertation about where PhD graduates end up when they leave academia in the Belgian context. I was interested to learn more about their career paths and the extent to which they could make use of their acquired skillset and expertise. I found that the labor market for PhD graduates in Belgium is really good, PhDs have the highest employment rate of all educational groups, they grow fast in their careers and are happy with the jobs they do. On top of that, 7 out of 10 would not want to go back to their academic career three years after leaving academia.

At the same time when I ask doctoral researchers who are still working in

academia about their career perspectives, I often hear that they do not see many opportunities for themselves. This is due to two reasons. The first reason is lack of knowledge, they simply do not know what kind of jobs would fit with their background, career interests and values. The second reason is academic socialization: when you work in academia, you often tend to think that an academic career is the best one you can achieve. This makes it sometimes hard to consider or even think about other career paths.

The same applies to employers or HR recruiters. When I ask them about the merits of PhD, they often say that degree plays a minor role in the recruitment process. Motivation, personality and work experience do count as much.

Therefore, there is a gap between the

PhDs have the highest employment rate of all educational groups

actual situation on the labor market for PhDs and the way this is being perceived by the actors involved in the transition process. This is why I started to guide and coach PhD, postdocs, and academics in their career development and transitions. I guide them in discovering what is really important for them in their work and how they can actually realize this. What I truly like about working with PhDs is that they are very ambitious, hardworking, and persevere. In short words, they want to contribute to our society, they are determined to add something innovative and actually useful to this world. At Braingain we help them translating their missions to jobs, sectors, organizations or in creating their own business or service. What makes Braingain so unique is that we have guided over 2000 researchers and experts in their career transitions and leadership development and can provide many examples. We lead by example. In the transition process there are two main pillars: broadening your career

horizon and learning a new way of presenting yourself to the world outside academia. A coaching journey always starts with learning about your career interests and values. A very important question that needs to be addressed first is *should I stay or should I go?*. By working with several tools, our coaches gain insights about your skills and learn to evaluate whether you would make a good Principal Investigator (PI) or not. The second step is that we develop several career options together. We consider these as hypotheses and start to test them by doing informational interviews with persons familiar in these jobs or work in organizations of our interest. This is often the most challenging step for PhDs and Postdocs, sharing their career aspirations with persons in their professional and social networks. I encourage them to do so by explaining that **the biggest hurdle they need to take in transforming to another career is to develop a good motivation**. Future employers often do not have any doubts about the hard skills of PhDs and postdocs, they know that they *will be able to do the jobs well*, they do doubt though sometimes the motivation of PhDs, *will they stay in this job position?* Employers will test this by

asking many detailed questions about your expectations of the content of the job and the reason why you want to work specifically for them.

This information you cannot find by

Develop a good motivation

reading job advertisements. You need to gain inside information by sharing your career aspirations with your network.

One of the main challenges for PhDs is to find jobs that meet their background and interests.

To guide PhDs in gaining more insight in

their interests and career options I use the Holland Career Interests Test. This test measures six dimensions of career interests.

The first interest is **Realistic**, the *doers*. These people like to work with their hands and solve technical problems. They like to work with machines, equipment, tools and technology. The second dimension is **Investigative**, the *thinkers*. These people also like to solve problems but on an abstract level. They like to puzzle and they need intellectual challenges in their work. The third dimension is **Artistic**, the *creators*. For these people it is



important that they can create something tangible and something beautiful. The fourth dimension is **Social**, the *helpers*. These people are driven by being of service to others. The fifth dimension is **Enterprising**, the *persuaders*. These people easily take initiative for projects that they will find money for and people to execute the project. They are also good at seeing the bigger picture and sell this to the outside world. The final and sixth dimension is **Conventional**, the *organizers*. They love structure and planning, to standardize work processes

and being efficient. They like to follow up on protocols and procedures. PhDs who have the highest scores on **Realistic and Investigative** most probably will continue working in R&D either in academia or industry. For becoming a successful PI, you need high scores on **Investigative and Enterprising**. People who have the highest scores on **Social and Conventional** most probably will end up in a managerial job.

I started Braingain in 2013. In hindsight

it was not a surprise that I started my own business. I started a hockey club in Tervuren in 2009 from scratch as a volunteer and I built a career center at Vrije Universiteit Brussel in 2011. So it was not the first initiative I took. I score high on the entrepreneurial career interest. I like to start projects, I do not see many risks and I am good at convincing others in working along with me. Before I started to work as researcher in the Business Economics department at the Vrije Universiteit Brussel in the year 2000, I was working as a management consultant for corporate organizations and ministries in an international context. I like to develop strategies and help others in realizing their professional goals. When I start talking to someone new, I have a major interest in finding out what drives them. I have a talent for asking questions that helps others to structure their thoughts.

We have been guiding PhDs and postdocs in their career development and transitions since 2013 and this is still a major part of our work.

At the same we receive more and more requests for giving clarity to our clients in their new working contexts. We do so by offering executive coaching services. The focus is on coaching managers in having

better results by giving them clarity on the impact that they have on their team and organization and how they can improve. I live by one of Nelson Mandela's famous

Great things never came from comfort zones

quotes: "Great things never came from comfort zones". This has made me challenge myself and it keeps me going. It's also something I want you to think of in developing your career and realizing your professional goals; it's not always easy, but the opposite! It's about daring and doing! Great things can happen!

Written by Lucia Smit



Ever wondered about your career after your PhD, while struggling to find answers?

We for sure have, which is why we created BETech Doctoral Community, the new doctoral community for business and entrepreneurship in technology. We are strongly convinced that PhD holders have a unique set of skills and knowledge, which are invaluable in a business world. Therefore, we are dedicated to give PhD students a taste of business and entrepreneurship in technology by informing on business career opportunities and providing business education through workshops, lectures and panel discussions.

Doing so, we aim to create a strong community by stimulating interaction among PhDs and connecting PhDs with our professional partners.

Caught your interest? Interested to learn what it takes to take a product from the lab to the market? Eager to get some tips and tricks of how to launch a start-up? Then join us for our first event From PhD to Start-Up!

Want to know more? Then make sure to follow us on social media!

<https://www.facebook.com/BETechDoctoralCommunity>

<https://www.linkedin.com/company/betech-doctoral-community>

DOING A PHD IN THE STONE AGE



Stein Aerts is KU Leuven Professor and VIB group leader of the Laboratory of Computational Biology. After working as programmer for two years, he decided to start a PhD in bioinformatics. Before becoming VIB group leader he worked as a postdoc at the VIB. Since last year, Stein Aerts is full professor at KU Leuven. His laboratory investigates gene and genome regulation and addresses these aspects with various techniques, including wet and dry lab approaches. In fact, his group defines the term "humid" lab.

How would you describe the experiences that you had during your PhD time?

I started my PhD in Bioinformatics after I had worked for two years in industry as a programmer, and after I had studied a second Masters in Computer Science. These two extra years after my first Masters degree (in bio-engineering) had made me more mature, so at the start of my PhD I knew exactly what I wanted to do: bioinformatics of gene regulation. It was the year 2001: the human genome just came out and printed cDNA microarray experiments became available, allowing for the first transcriptomics data sets to be generated. It was the beginning of the bioinformatics field, and it was easy

to invent new algorithms. During my PhD I was passionate about research, worked fully independently on my own ideas and papers, and finished my PhD in two years and nine months. My PhD thesis was entitled "Computational discovery of cis-regulatory modules in animal genomes", and today, almost 20 years later, I'm basically still working on the same problem! My PhD was a fantastic period, with great colleagues at the Department of Electrical Engineering in Leuven, and from those three years I mostly remember the science, the math, the brainstormings, and the freedom to ask my own research questions.

‘The freedom to ask my own research questions

Are there things you are specifically proud of, or things that you would approach differently in hindsight?

I'm particularly proud of the open source bioinformatics tools I programmed myself, from scratch, such as TOUCAN; tools that were used by many researchers in the community to make predictions of genomic enhancers. Also, the first time that a submission of a paper to a major bioinformatics conference got accepted for a talk, is unforgettable. I'm also proud that thanks to my early work on genome regulation, I became well connected in an international network. The many friends I made during that time, from all over the world, resulted in multiple research collaborations later on. Already during my PhD I worked on different biological problems, including cancer, neuronal differentiation (a collaboration with Bart De Strooper), and Mendelian disorders. In my lab today, we are still “promiscuous” to different biological systems, as the understanding of any system often relies on insights into gene regulation.

At the end of my PhD I invented a gene prioritisation algorithm (Endeavour), in collaboration with Diether Lambrechts, who was also doing his PhD and with whom I had lived together during my undergraduate studies. What started as a fun side-project for both of us ultimately got published in Nature Biotechnology and it received since then more than 1000 citations. We were really proud of this invention and publication.



‘Start very early in your PhD with asking your own research questions

Which advice(s) or tips would you give us PhDs?

During your PhD you basically learn how to do independent research.

My first advice is to start very early in your PhD with asking your own research questions, so that you can learn the process of prioritising the most novel, yet feasible, questions. My second advice is to take initiative to collaborate, within your lab and outside your lab. Find researchers that are equally passionate about a problem and solve it together. My final advice is to switch fields whenever you can.

I switched from plant genetics (wet-lab) to computer science, then to bioinformatics, then to Drosophila genetics (wet-lab again), then to cancer genomics, and then to neuroscience. Moving between different schools (e.g., bio-engineering, engineering, medicine) during your Masters, PhD, and postdoctoral training provides a broad and interdisciplinary background that is stimulating and enriching in today's technology-driven biomedical sciences.



Is there life after a PhD?

In this section, we interview former PhD students about the value of their PhD and which career moves they made later on.



Joni Vanneste, previously a PhD student in the Laboratory of Neurobiology (Ludo van den Bosch lab), graduated in 2021. Since then she works as a market strategist consultant at Trilations. Joni is also co-founder of this very journal. Now we were extremely curious to ask her: "is there actually life after a PhD?"

What did you enjoy most during your PhD?

One of the best parts of my PhD was meeting enthusiastic and intelligent people from all over the world. I enjoyed being part of a community that strived to understand things and find solutions for our problems. As a scientist, I was able to find meaning in my job, which is a great feeling. I also enjoyed the freedom you have as a PhD student and the possibility to follow your intellectual curiosity.

Why did you choose your current job?

Currently I'm working as a market strategy consultant for pharma. What interested me about this job was that it has all the things I liked during my PhD minus all the things I didn't like. For example, I liked to

analyse data, present the results, manage a project and work in an international environment. But, I disliked the routine lab work and that projects could take years, or even decades, to be finished.

How much of what you learnt during your PhD do you apply today?

Being organized. Having multiple experiments running at the same time forces you to be organized, if you don't want them to fail of course. For example, I learned pretty early in my PhD (via the hard way) that "Oh, I will still remember that next time, so no need to write that down" is a very big mistake. I never remembered it, even when I was convinced that I would. As I'm a project



manager in my current job, it is a rather a useful skill to be organized.

But, the most important traits that I learned are humility and persistence. Humility for the complexity of nature.

And persistence, because after every damn evening that I went home, after another failed experiment, there was always the next morning where I had to be back in the lab and do it all over again :).

What advice do you wish you knew as a junior PhD student?

My biggest advice is to try to have fun and to remember that there is a big and interesting world outside of academia. A world that is full of nice jobs where they

don't care about your publication record (honest truth). Is your project not going as planned? Are you not getting grants or publications with a high impact factor?

Try to not take it too personal. Because, it isn't. It is inherently part of science that the majority of experiments fail, so it is completely normal to have one of the many projects that seem to be failing or to be irrelevant (yes, seem to be and not are). And if you really, really, really don't want to pursue your PhD any longer, then don't. There are so many other jobs out there, many of which I did not know that they existed. That is why I would advise you to already start exploring what job you

The most important traits that I learned are humility and persistence

would like to do after you graduate. That was also the reason why we included this section in The Optimist, so you could get a better idea of what other opportunities exist outside of academia.

Why did you set up the optimist ? I'm sure many people will want to know

Our first reason to start the optimist was our frustration towards academia. We saw some flaws in the system and hoped that by talking about them in an honest way, the newest generation would be inspired to not follow old patterns and change academia for the better.

Our second main reason was our own

mental health and that of our fellow PhD students. Because, as we all know, it can get quite hard out there.

Therefore, we wanted to talk about our life as a PhD student in an optimistic and fun way, so we can all survive the valley of shit together :). (If interested, you can find more about how and when the optimist started in the editorial at the beginning of this journal.)

Try to have fun and [...] remember that there is a big and interesting world outside of academia

Mental Health and the PhD

Be truthful – when was the last time you actively spent time on your mental health? Especially when it comes to dealing with a PhD in the most healthy way? Funny thing is, I am personally very interested in mental health, resilience, self-awareness and improvement, and still – here I am again at 5 am in the morning, unable to sleep because I postponed writing this article for too long. After waking up, I became aware again of all the many things I had to do today. Obviously, I did let my many ‘yeses’ get the better out of me. Do not get me wrong, I do say yes because I indeed want to do ALL THESE things.

So how do we do better? First of all, if you experience severe anxiety, fatigue and lack of motivation do not be afraid to talk to somebody. Fortunately, by now, every university offers the possibility to talk to qualified personnel. If you experience trouble in the workplace, and especially in relation to the PhD, the ‘Ombudsperson’ of your university can be a tremendous help.

Additionally, most universities offer individual talks to trained psychologists

and psychotherapists but also workshops on how to cope with anxiety, procrastination, improving your sleep or resilience as well as trainings on mindfulness.

That famous word ‘resilience’ – what does it mean? Resilience is the key word for mental health and it describes how much impact stress or adversity have on you, or in short, your ability to work through downfalls without a long-term negative impact. Another important word besides resilience is also ‘coping’, but they are different things. Coping is your cognitive and behavioral strategies to manage stress while resilience is your adaptive capacity to recover from stress and be stress resistant, it is a trait not a state.

When we look into the brain physiology of stress, one of the main player, that comes up is the infamous Cortisol, which was – back in the day – crucial to survival. However, today, we are most of the time not stressed because of life-threatening situations anymore and because of this, our ‘fight-or-flight’ mechanism goes into overdrive. The increased cortisol levels in our brain result in neurotoxicity for our



dendrites, causing decreased branching and connectivity and thus, decreased brain mass. And of course, the more frequently our brain is stressed and receptor density changes the harder it is to de-stress again.

But, there is also **good news**: the loss of brain mass is not irreversible. One thing you should pay attention to is your 'palliative behavior'. Most people drop exactly these activities under stress, that are the most beneficial to their resilience and mental well-being: social activities like meeting your friends as well as active activities like sports or reading a book. These are the most active clusters that minimize negative thoughts that arise when your brain goes back to pickering thoughts. It is also very important, that exercise is not always the answer, when you actually need rest and vice versa. Interestingly, burnout highly correlates with people that have the personality trait of perfectionism and this furthermore correlates also highly with the by now well-known 'imposter syndrome'.

What can we do?

Make well-being discussable

This is a two-fold perfect strategy: it helps you to open up about what bothers you and makes you feel heard by the other person (let's say your colleague) but also the person listening will benefit from this, recognizing that we all experience the same issues.

Do something for others

Being there for other people and helping them is incredibly beneficial for our well-being and gives us a great sense of purpose. So maybe you can help elderly people with groceries or just think about sending your loved ones a nice package or home-made card or picture to surprise them.

Try new things

You feel like you are stuck?

Enroll in a new sports class alone or with friends, or enroll in crafting classes like painting, sewing, pottery or go out and listen to poetry slams. Or go to a SPA, a new waterpark, a concert. Stimulating your brain activity by experiencing new things has a big impact. Don't feel too active? A nice lunch walk with colleagues in the fresh air can boost your well-being. E.g. did you ever check out the Bertembos behind campus? :)



Clean up your space

Do you feel overwhelmed? Sometimes it can help incredibly to just sort out your chaos on your desk or make your apartment tidy again. This can help to reduce stress, anxiety and depressive symptoms, according to the Anxiety and Depression Association of America.

Netflix, Youtube and Spotify

Yes really! Netflix offers mini-series from 'headspace': Guide to Meditation, Guide to Sleep and Unwind Your Mind offer perfect guided meditations for beginners. They show different meditation techniques to be more calm or get better sleep. Also Youtube has multiple offers on guided meditations, just give it a try. Even 5 minutes a day can have a huge impact on your life

Podcasts such as the one from Daniel Goleman (Book: Emotional Intelligence) or motivational podcasts can give you a boost of confidence when needed (on Youtube and Spotify).

Establish a Morning Routine

Pick 1 or 2 things that you would like to do every morning. Get up a bit earlier than normal, drink a glass of water and then start your morning routine: 5 minutes meditation, 5 minutes mindfulness or gratitude training and a 10 minutes workout including stretching (alternatively, yoga can work wonders). And there you go, you already did many things to improve your well-being and took care of yourself. This 'Me-Time' can do so much good for you!



Don't let things get blurry

Maintain a clear line between 'me-time' and 'work'. E.g. Do not let emails pop in while you take time for yourself, switch everything on mute and close the programs while you take time for yourself.

33 day challenge from IDEWE

This challenge was sent around via e-mail by IDEWE after this year's PhD symposium. Highly recommended to fill it out. It is a mixture of mindfulness, small workouts, meditation practice such as drawing and other things. Every day is different and it will not take much of your time. Try it out!

Journaling

Every day, write down 3 things that you enjoyed very much and that you are grateful for. While every day you have to note something different. Alternatively: Write a few sentences in which you reflect about your day and how you are feeling. You are more into doodling and drawing? Try Zentangles! Youtube 'Zentangle' and there you go :)

Try to be less perfectionistic

Perfectionism, burnout and 'Imposter-syndrome' are correlated. Interestingly, being less perfectionistic can prevent burnout, so sometimes 'good enough' is just the right amount.

Don't expect any of the suggestions to do the trick after 1 or 2 times of practice. Maybe some tips are more your cup of tea than others, but you should try to find what helps you. The key is perseverance, keep doing what is good for you and do not stop when times get tough and it will help you incredibly. Also, interestingly it helps to have many smaller doses of things that are good for you during the day rather than one big chunk of 2 hours of meditation.

Important web-pages

KU Leuven Ombudsperson <https://www.kuleuven.be/english/research/phd/ombuds>

KU Leuven Well-Being <https://www.kuleuven.be/healthy/en>

KU Leuven professional Help <https://www.kuleuven.be/english/studentservices/health/psy>

Written by Yvonne Klingl

From the lab bench to space

Emilie Ranheim Skytøen who is currently doing a PhD in neuroscience is enthusiastic about becoming an European Space Agency (ESA) astronaut. We were really interested to learn more about her story and about the requirements needed to become an astronaut. Maybe it is something you would like to pursue as well? Let us hear from Emilie herself:



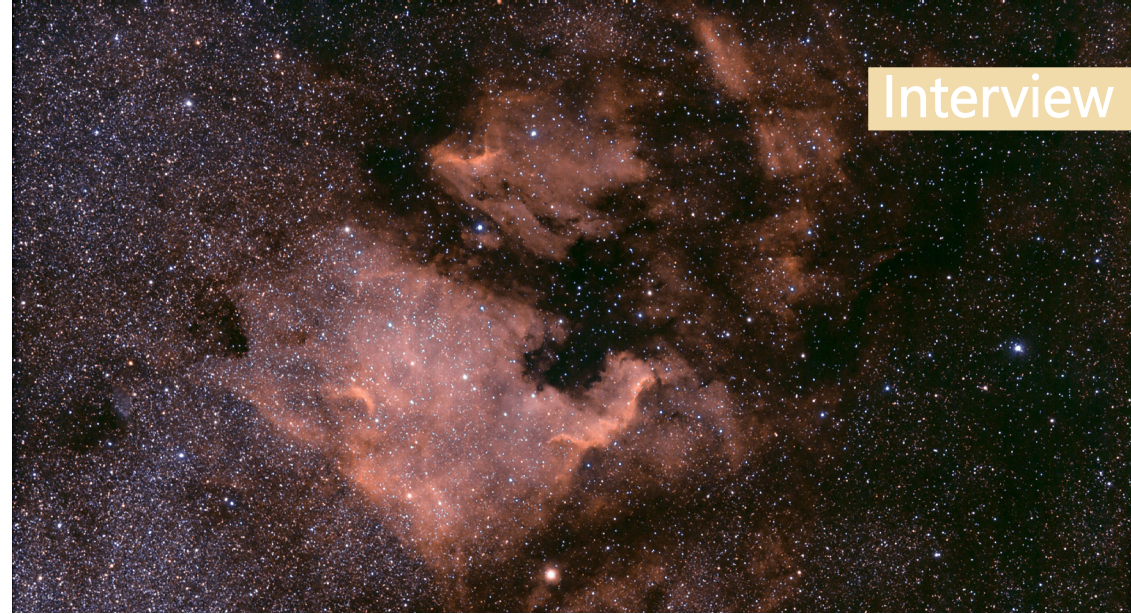
My name is Emilie Ranheim Skytøen and I graduated from the Medical Student Research Program* at the Norwegian University of Science and Technology in 2018 and I am currently in my final year of a PhD at Kavli Institute for Systems Neuroscience, where I study space and time coding in the brain.

Can you tell us a little bit more about where you are applying to become an astronaut and how it works?

I've applied to become an ESA astronaut. You need to be a citizen of one of the ESA member states and have (at least one) master degree within medical/engineering/technology/STEM, and must have worked professionally for at least 3 years after that. (A PhD candidacy counts as a professional position). Here is a wonderful link that will answer all of the other questions you have on this point: https://esamultimedia.esa.int/docs/careers/ESA_Astrosel_Handbook.pdf

Did you go into medicine knowing you wanted to apply or is it something you developed an interest in later on?

I decided to apply for this position because I love science, exploration, space, time, technology and cooperative work towards a better world(s). I am also fiercely curious and love to learn, and being an astronaut entails engaging in a wide spectrum of learning opportunities. I also believe science is meant to be shared, and an important part of being an astronaut is to talk about science and share the knowledge gained with people outside of academia. I did not go into



Interview

medicine knowing I wanted to become an astronaut, because I honestly did not know or believe it was a real possibility for me. We have never had a Norwegian astronaut, and it is not exactly a position advertised available every day. But I've always been very curious and craved answers about the world around me, including the one outside our small blue sphere. My love for both Science Fiction and Science Facts has also always drawn me towards exploration and adventure.

Do you want to work as a doctor or a geneticist or something else as an astronaut there?

What I really like about the astronaut position is that it is somewhat a trainee position. It actually takes years of general

training to become an astronaut. You'll get to learn about the international space programs, how to speak Russian, to become a pilot, you'll learn fundamentals of both science and engineering, and you need to learn basic survival and emergency medicine skills. I do believe I could make good use of my previous education, but you are also trained on mission-specific protocols and operations, which is wonderful. There is so much to learn and contribute with.

What is the link between your PhD and becoming an astronaut? How did you come to this idea?

I have been lucky to work in an international lab with an incredible team of people striving for technological and scientific

*(<https://www.ntnu.edu/studies/cmed/medical-students-research-programme>)

advancements for almost 10 years now. I think the most important link between my current PhD position and the astronaut position is the inspiration I get from working in such an environment where people dare to dream big and work both hard and passionately on what we love. In both medicine and laboratory science I also get to learn and do something new almost every day, and I could not imagine anything more fulfilling than that. Until I saw the astronaut position advertised. I genuinely love the jobs I already have, but the astronaut position offers even bigger potential to grow, learn and take part of something bigger than myself. It represents pure teamwork for the sake of science, exploration and even care for the one world we already have.

How long would you want to leave home? What kind of mission would you like to do?

I'm happily married, and I have friends and family I hold near and dear. Leaving home for long periods of time is therefore not something I take lightly. Fortunately, the people I love are people who support and encourage me to follow my dreams. I think that is essential. Even if astronauts spend most of their professional life down on earth, they still spend a lot of time traveling.

Knowing the people I love support me, I'm even willing to give 'long distance relationships' an interplanetary tag.

The aerospace field still is mainly a man's world. How do you feel about ESA's objective to make the next group of astronauts more diverse?

I believe in diversity everywhere, including outer space! ESA is taking several important steps in the right direction on that account. I also hope a willingness to expose ourselves as applicants among minority groups might inspire others to apply later on too.

Do you have any tips for other PhD students with ambitious goals outside of academia?

I think the best tip I can give any PhD student would be to find out what you are truly passionate about and dare to follow that dream. Even if we might not succeed in reaching all the goals we set for ourselves, we keep our integrity knowing that we dared to try, and we'll likely learn a lot from the process of just trying itself. And again, we might even inspire others to be honest about what they want and dare to go for that.

News you may have missed

We all know how depressing reading the news can get, especially if you are already having a tough time at work. But do not despair! We've navigated through all that negativity to come up with a selection of articles that are guaranteed to lift your spirits!

Learned control of urinary reflexes in cattle to help reduce greenhouse gas emissions

Researchers in Germany have successfully learned cows to urinate in a defined location, i.e. a cow bathroom stall. It allows farmers to capture the urine, which normally contributes to greenhouse gas emissions, and soil and water contamination. In addition, they can make use of urine components such as nitrogen and phosphorus to make fertilizer. Using a reward-based training procedure, cattle were able to create interoceptive awareness: voluntary suppress and reinitiate contraction of the external urethral sphincter. Not only can it help to reduce pollution, it also creates a more hygienic, more comfortable living area for the animals itself. Win-win!



IgNobel prize for upside-down transportation of rhinos

Every year, the magazine 'Improbable Research' awards the IgNobel Prizes. Their aim is to honour achievements that first make people laugh, and then make them think. This year, we chose our favourite: upside-down transportation of rhinos has a better pulmonary and metabolic effect.

Black rhinos often need to be transported to another location for protection from poaching. However, transporting an animal that can weigh up to 1000kg through a rugged terrain makes it very difficult. Therefore, they use airborne transportation. The research group conducted experiments by hanging the rhinos on a crane and compared the physiological parameters for different positions. It turned out that hanging the rhinos from their feet, instead of lying on their side, would be better for their health.

Breakthrough in separating plastic waste: Machines can distinguish 12 different types of plastic

Plastics are very commonly used but only a small amount are recycled into new products. This is because there are many types of plastic, all with various chemical compounds and additives which makes it difficult to separate and recycle. Researchers from Aarhus University now developed a new technology that can distinguish 12 different types, the majority of household plastic types, based on their chemical composition. A combination of hyperspectral camera and machine learning is used to categorise plastic directly on the conveyor belt with high accuracy. This ground-breaking technology will already be implemented at industrial scale in spring 2022.



Sources

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HEY IT'S OKAY TO...

Science is serious business, but we may share similar frustrations



...feel stupid when your master student asks a smart question which you hadn't considered yourself

...keep postponing those research articles you are planning to read very thoroughly

...not understand anything about your experiments anymore after the Christmas holidays

...already long for the weekend when it's Monday morning

...have a desktop with messy icons and folders

...forget details of experiments you did the day before

...wake up late in the morning for mental recovery



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Thank you

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Interview
Emilie Ranheim Skytøen

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Paula Longás

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@optimist.phd



@OptimistPhD

The Optimist Team

Matthias Koch, Hava Izci, Silke Vanderhaeghe, Simone Marcigaglia, Hannah Bertels & Julika Neumann

