

Newsletter August 2022

"Summer and Retreats"

Welcome to #3 of the CRC1451 Newsletter

Dear readers,

we just had our first Early Career Researcher & Post-doc Retreat combined with our 2nd Annual Retreat in Moers. From our perspective, it was a great success, since this was the first in person meeting without Covid 19 restrictions we had since the CRC1451 started, and everybody enjoyed interacting. Of course, we provided hybrid options for everybody who had or wanted to stay at home and again, as far as we received feedback, the technical side went well. We are now postprocessing your feedback and hope to do even better in 2022!



We also want to highlight our new feature in our educational program, also in the News & Events section: In May, we successfully established the Gender & Diversity in Science (GADIS) Lecture series with our partners the CECAD and the Max Planck Institute for Biology of Ageing. Once again, we are excited to welcome new team members at the CRC1451. In this issue we introduce Kimia Nazarzadeh from project B05. Special thanks goes to Jochen Roeper, who gave us insights in his career path this time. This leads us to our Guest Scientists, which are currently visiting the CRC145: Josefa Zaldivar from Spain (Jochen Roeper's Lab in Frankfurt), and Stéphane Prange from France (Thilo van Eimeren's Lab). Both Guest Scientists are introduced in this issue.

We hope that you enjoy reading through our newsletter. Whenever you have any topics, scientific progress, scientific pictures, etc., please contact sfb1451-sekretariat@uni-koeln.de.



Gereon Fink
Spokesperson



Silvia Daun
Vice-Spokesperson



Christian Grefkes
Vice-Spokesperson

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1. Introduction of New Employees

We are happy that Kimia Nazarzadeh joined the CRC1451 in project B05 as PhD candidate:



Kimia Nazarzadeh

Who are you and where do you come from?

My name is Kimia Nazarzadeh, I am an Australian citizen coming originally from Iran.

What is your academic background and where did you study?

I did my bachelor's degree in Computer Engineering at Qazvin University (QIAU) in Iran and then a master's degree of MBA in Computer Technology at the University of Pune in India. Then I was a lecturer for computer science at a public university in Tehran. I have been involved in several clinical research projects dealing with signal processing.

Which CRC1451 project are you related to?

Project title: B05 - Single case predictions of motor abilities in health and disease.

Supervisors

- Christian Grefkes, Department of Neurology, University Hospital Cologne, and Institute of Neuroscience & Medicine INM-3, Research Centre Juelich
- Simon Eickhoff, Institute of Systems Neuroscience, University Hospital Duesseldorf, and Institute of Neuroscience & Medicine INM-7, Research Centre Juelich
- Kaustubh Patil, Institute of Neuroscience & Medicine INM-7, Research Centre Juelich
- Georgios Antonopoulos, Institute of Neuroscience & Medicine INM-7, Research Centre Juelich

What is the title of your thesis and what is it about?

The topic of my project is "Motor performance prediction from functional and anatomical MRI data in healthy controls and patients with acute stroke". The aim of my thesis is to elucidate associations between individual phenotypical scores of motor performance and neurobiological measurements. Once an optimal

predictive model is identified, I aim to apply it on smaller population datasets from project C05 (Gereon R. Fink and Christian Grefkes). All codes and pipelines will be made available and implementation within CRC1451 will be supported.

What was your motivation to apply for the CRC1451 PhD position?

I have always been passionate about working with medical datasets and solving clinical questions using data analysis techniques. My PhD project is part of the CRC1451 project B05 where machine-learning algorithms are utilised to develop diagnostic tools for brain diseases such as stroke. In particular, I will study the movement performance of patients with motor impairments for accurate detection and characterisation of their abnormality. This clinically important outcome of this interdisciplinary project, which will provide new insights and better understanding of brain diseases, motivated me to apply for this position.

What do you like to do when you are not doing science?

Apart from science, I like to fill my time with listening to music, dancing, and sightseeing.

2. Introduction of our current guest scientists

We are pleased to welcome and introduce our guest scientists, Josefa Zaldivar and Stéphane Prange:



Josefa Zaldivar

Who are you and where do you come from?

My name is Josefa Zaldivar and I am a postdoctoral fellow from Spain.

What is your academic background?

I did my undergraduate studies in Madrid at University Saint Paul CEU where I studied pharmaceutical sciences. Then for my PhD, I was awarded a scholarship by the Spanish government to work at the National Research Council (CSIC) also in Madrid. The topic of my thesis was focused on pharmacology for neurodegenerative diseases, especially on Parkinson disease. That is the moment when I became interested in motor diseases and therefore for my first postdoc I joined

Professor Obeso's lab (a leader in the motor disorders field) and now I have started my second postdoc at Professor Roeper's lab to study the electrophysiology of a Parkinson disease mouse model.

Which CRC1451 project is your visit related to?

As my work is linked to Professor Roeper's research line, my visit is related to the B01 project (motor control under uncertainty in the healthy human brain).

How long do you stay?

I have been doing and will continue to do short visits (1-2 months) until 2023.

What is the purpose of your stay?

My purpose is to learn different electrophysiological techniques that can be applied to different motor diseases mouse models.

What do you think is typically German?

I really appreciate the German way of working. Everything is very organized in order to work in the most efficient way.

What do you miss the most during your visit?

I am very happy in Germany only missing the Spanish sunshine.



Stéphane Prange

Who are you and where do you come from?

I am a neurologist in Lyon (France) and post-doctoral fellow of the Alexander von Humboldt foundation since November 2021. My research interests aim to understand the mechanisms underpinning the clinical heterogeneity of Parkinson's disease and its progression using multimodal imaging (MRI, SPECT and PET).

What is your academic background?

I trained as a neurologist with expertise in Parkinson's disease and movement disorders in Lyon. During my Ph.D., I developed my expertise in PET imaging of the dopaminergic and the serotonergic systems in Parkinson's disease in Lyon with Professor Stéphane Thobois and Léon Trem-

blay (Institute of Cognitive Sciences and CERMEP). In particular, we were able to demonstrate for the first time that the serotonergic system is subjected to compensatory plasticity related to the improvement of apathy in patients with early Parkinson's disease (Prange S et al. Limbic Serotonergic Plasticity Contributes to the Compensation of Apathy in Early Parkinson's Disease. Mov Disord 2022.)

Which CRC1451 project is your visit related to?

I am involved in the DoMoCo (Dopamine and Motor Control) study, within the C03 project (Striatal dopamine and volitional motor control: vigour, planning, and incentive salience).

In which lab are you hosted?

I work in the Multimodal Neuroimaging (MMNI) group with Professor Thilo van Eimeren.

How long do you stay?

Until October 2022; but many projects are now ready for the five next years!

What is the purpose of your stay?

The team of Professor van Eimeren developed innovative methods to investigate compensatory mechanisms present in patients with prodromal or early Parkinson's disease. We are currently validating new models thanks to the collaboration with the imaging center in Lyon. Furthermore, we will specifically investigate small brainstem nuclei (raphe; locus coeruleus) in prodromal and early patients with Parkinson's disease, thanks to the ultra-high field MRI in Juelich and expertise in Cologne.

What do you think is typically German?

Bikes! And I love it!

What do you miss the most during your visit?

Family and friends. But people in the team and in Cologne are very welcoming and warm-hearted, and I look forward to inviting them to France!

3. Career path interview

Prof. Dr. Jochen Roeper



Interviewing the guest scientist from Spain, Josefa Zaldívar, in Professor Jochen Roeper's Lab led us to interview Jochen Roeper for the Career Path interview for this issue. Thank you for the interview and interesting insights!

What did you study and where?

I studied Medicine in Hamburg, Germany and Oxford, UK (1984-91).

Why?

I was fascinated how the brain works and fails to function in disease. Naively I thought, studying medicine is the best way to get close to these topics.

Why there?

I started in Hamburg because it was the closest Medical school to home. My research in the Physiology Department, started after two years in medical school, soon became the centre of my interest. I met my future mentor, Prof. Frances Ashcroft from

Oxford at a joint meeting of the Physiological Societies of UK and Germany and ended up studying in Oxford, which completely changed my perspective. I could now imagine a life & career as a researcher.

What were decisive steps in your career?

Three moments but just one motive: overcoming insecurity and self-initiating a conversation with seniors - who - as it turned out later - became my mentors.

What would you do differently?

Listen more attentively to mentors to understand their point ... and then decide what to do (not necessarily follow their advice).

What would you do exactly the same again?

Return to Germany where tenured academic freedom is - by comparison - wonderful.

What allows you to relax from work?

I play electric guitar to decompress (poor neighbours).

Do you have any tips for young colleagues on how to deal with frustrations?

Take frustrations serious and as an opportunity to ask: Am I really/still excited about science?

4. Gender Tip 1

How to borrow a Kidsbox in the CRC1451?

When the day care center is closed and there is nobody who could take care for your child, you can borrow the KidsBox of the CRC1451. The CRC1451 has two KidsBoxes for you to use in that situation: one is located in the Biocenter of the University of Cologne and one in the Clinic of Neurology of the University Hospital of the University of Cologne. The KidsBox can be moved to your workplace and transforms your office into a parent-child room. The KidsBox is equipped for babies and children up to nine years of age.



To borrow the KidsBox, please contact the coordination office of the CRC1451 | e-mail: sfb1451-sekretariat@uni-koeln.de or the contact persons directly:

For the Clinic of Neurology: Christina Stark christina.stark@uk-koeln.de

For the Biocenter: Erika Haeusler erika.haeusler@uni-koeln.de

4. Gender Tip 2

Since mentoring and coaching is an offer of the CRC1451 especially for early career researchers, we invited Merle Hoenig for an interview on her experiences with a coaching offer. Thank you for the interview!



Where do you come from?

I was born in Frankfurt am Main and raised in a suburb of Mainhattan. After graduating from high school, I spent a year working as an au-pair in the UK before enrolling at the university.

What is your academic background?

I studied "Cognitive Science" at the University of Osnabrueck, which gave me an insight into the many different fields of brain research including psychology, philosophy, biology and artificial intelligence. The study program also involved a stay abroad, which offered me the great opportunity to work at the Pacific Parkinson's Research Center in Vancouver, Canada. Given the broad range of my undergraduate program, I followed up with a Research Master's degree in "Clinical and Cognitive Neuroscience – Specialization Neuropsychology" at Maastricht University. This finally brought me to Cologne, where I did my PhD at the Department of Nuclear Medicine.

What is your position/relation to the CRC1451?

I am a junior PI and a member of the management committee in the CRC1451.

What was your motivation for using the coaching offer?

As I have been working at the University Clinic of Cologne for about six years now, including two years as a postdoc, I actually wanted to figure out whether this is the career I would like to pursue or whether a job outside of academia would also be suitable and if so, which kind of job. This motivation may also have been driven by the Corona crisis as sitting in home office all day was not as challenging and rewarding as interacting with the lab and other colleagues in person.

How and where did you apply for coaching?

I initially contacted the postdoc career service center of the University Cologne as the website mentioned the opportunity of an individual coaching. Ms Schiffmann from the career center, who interviewed me concerning my motivation, provided me with information on three female coaches. I aimed for a female coach since I believed that the perspective of the coaching might be a different one compared to a male coach. Luckily, one of the proposed coaches was a good match. If this had not been the case, Ms Schiffmann would have offered me information on more coaches. In the end, the coaching involved six sessions of 1.5 hours.

How did you find the coaching?

I enjoyed the coaching a lot as it gave me the time to reflect on

what I have achieved so far and what kind of personality characteristics, which I was not completely aware of, I could take from my course of life. Moreover, it helped me to focus on the next steps in my career and potential other pathways I could take. For example, during the coaching session, I mentioned that I enjoy writing a lot. The coach suggested that I could also focus on research communication as part of my postdoc and future career and told me about "NaWik", which offers seminars on scientific communication and the importance of it for society. Until that point, I actually had not considered research communication as an opportunity to improve and take advantage of my writing skills. These aspects made the coaching profitable.

Would you recommend it?

I certainly would. Even if the outcome of the coaching is not as rewarding as one would have expected, it nevertheless offers the chance to actually take the time to think about and discuss one's future with an impartial person, while not being distracted by incoming emails, what's app messages or other things.

Would you do something differently the next time?

Next time, I would certainly do a coaching in person and not in Zoom.

Anything else you would like to share?

There is a lot of flexibility in the coaching process. Yet, I would recommend taking at least one or two weeks between each session to be able to reflect each session.

5. News

Neuroscientists of the University of Cologne successfully apply for a new research network

Within the NRW programme for funding thematically focused, multi-location collaborations among universities and non-university institutions out of 21 applications colleagues from the University of Cologne were successful with an application in the field of neurosciences. They will collaborate with colleagues from the Universities of Bonn, RWTH Aachen University, the German Centre for Neurodegenerative Diseases in Bonn, the Max Planck Institute for Behavioural Neurobiology – Caesar in Bonn and Forschungszentrum Juelich in the network iBehave: Algorithms of Adaptive Behavior and their Neuronal Implementation in Health and Disease. The University of Bonn is the lead institution of the network and Prof. Ilona Grunwald Kadow (UKK Bonn) is the spo-

kesperson of iBehave. The network will be funded from August 2022 to July 2026 with a total amount of 19.6 Mio€. The University of Cologne's share amounts to 3.1 Mio€. Six colleagues of the University of Cologne are involved, five of which are also colleagues in our SFB1451: Ansgar Büschges, Kei Ito and Martin Nawrot - Faculty of Mathematics and Natural Sciences; Graziana Gatto, Gereon Fink and Michael Sommerauer - Medical Faculty and Dirk Isbrandt from the DZNE. Ansgar Büschges is the spokesperson for the UoC.

iBehave brings together scientists who will work across disciplines and species studying survival-related behaviors and neural network operation underlying them. The scientists use contemporary approaches to analyze behavior including machine learning and artificial intelligence, combining them with recordings

of neuronal activity in animals and humans. Goal is the development of a cross-species theoretical framework for behavior. Interdisciplinary projects will focus on the selection of behavioral goals and decision-making processes, the role of adaptive processes and their neural basis and thirdly the mechanistic analysis

of disturbed behaviors in neurological disease states to use the acquired insights as starting point for novel diagnoses and therapies.

More info: <http://ibehave.nrw>

Collaborative Research Center 1451

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