

Collaborative Research Centre 1436



An exciting opportunity has become available for

## a 4-year PhD position in Human Systems Neuroscience & Psychology

as part of the newly funded [Collaborative Research Centre 1436](#) under the supervision of **Dr Elena Azañón** and **Dr Max-Philipp Stenner** at the [Leibniz Institute for Neurobiology](#) and [Otto-von-Guericke-University Magdeburg](#)

### Role within the new collaborative research centre

The newly funded Collaborative Research Centre 1436 in Magdeburg is dedicated to understanding neural resources of cognition, with the ultimate goal to develop interventions to improve resource allocation and enhance cognitive potential. The German Research Council (DFG) has recently granted almost 14 million euros to support this team effort across twenty-two research groups at three neuroscience institutions in Magdeburg (Otto-von-Guericke University, the Leibniz Institute for Neurobiology, and the German Centre for Neurodegenerative Diseases).

As part of this collaborative research centre, the two research groups led by Dr [Elena Azañón](#) and Dr [Max-Philipp Stenner](#) at Otto-von-Guericke University and the Leibniz Institute for Neurobiology have joined forces to understand, and ultimately improve, a human capacity for learning motor and perceptual skills. Specifically, we aim to understand how human behavior can become both highly automatic, and yet remain flexible, during learning of motor and perceptual skills, liberating cognitive resources for other concurrent tasks.

Following a model of cortical skill encoding as a resource for learning, our goal is to understand neural organizational principles of skill learning, and to show how skill learning can be improved and accelerated via attention and metacognitive interventions. Our approach combines psychophysics, behavioral training, and multivariate decoding of magneto- and electroencephalography in humans, and thus operates at the boundaries of psychology and systems neuroscience. This research agenda nicely reflects the long-term research programmes of our two groups, which aim to understand how motor control and perception interact for motor learning, and how our subjective experience of control emerges from this interaction.

### What we offer

The **Science Campus Magdeburg** is a unique and world-leading research campus in the heart of Magdeburg, Germany, that conducts multi-disciplinary, cutting-edge neuroscience research, in particular at Otto-von-Guericke University Magdeburg and two non-university research centers, i.e., the Leibniz Institute for Neurobiology (LIN) and the German Center for Neurodegenerative Diseases (DZNE, part of Helmholtz Society).

The Leibniz Institute for Neurobiology (LIN) has a long tradition of **world-leading research on**

**learning and memory**, both in animals and humans. Dr Azañón's and Dr Stenner's research groups at the Leibniz Institute have first-rate access to Magdeburg's **excellent, state-of-the-art facilities for non-invasive human electrophysiology and neuroimaging**, including MEG, EEG, 7T and 3T MRI (all on the same campus). All facilities are supported by expert IT and physics staff. In addition, a very close collaboration exists with the Departments of Neurology and Stereotactic Neurosurgery (same campus) which allows for **systematic invasive electrophysiology in humans** and, more generally, **studies in clinical populations**.

Furthermore, our groups are using a **KINARM End-point lab** for measuring and manipulating kinematics & dynamics during reaching movements, in addition to **data gloves, virtual reality and tactile stimulation setups**. The Leibniz Institute and Department of Neurology, together with several other neuroscience institutes on the same campus, provide a **vibrant, international, highly inspiring, friendly and supportive research environment**. The two research groups led by Dr Azañón and Dr Stenner have been closely collaborating for years, and consist, together, of twelve members from five countries. Our groups hold weekly, joint lab meetings, in addition to regular department and institute meetings, and provide a supportive, aspiring, and friendly atmosphere. Magdeburg is a growing, intriguing city with lots of activities beyond work (second greenest city in Germany, very family-friendly) and a strong, friendly academic community.

We offer:

- **A young, interdisciplinary & international team.**
- **Access to a newly funded Graduate School for all hired PhD students.**
- **Flat hierarchies & strong early career support.**
- **State-of-the-art research facilities, including MEG and 7 T MRI scanner.**
- **Methodological support by leading experts.**
- **No obligation to teach (but possible if desired).**
- **Possibility to present data at several national and international conferences.**

#### **Your tasks**

The successful candidate will design, conduct, analyse and publish experimental studies into the **mechanisms and regulation of human motor and perceptual skill learning**. The position entails designing and conducting psychophysical studies using elegant motor learning paradigms, in combination with multivariate decoding of MEG/EEG.

#### **Qualities we are looking for**

We are looking for a highly motivated, team-minded scientist with *a strong interest in human motor and perceptual neuroscience* and a high degree of scientific creativity, passion, and rigor. Demonstrable experience with psychophysical analyses of behavior is mandatory. In addition, demonstrable experience with multivariate techniques for analyses of MEG or EEG data is desirable. Good programming skills (in particular MatLab; in addition, Presentation, Python, C, Simulink would help) as well as solid statistical skills and high proficiency in spoken and written English are mandatory. Suitable candidates should hold a Master's degree in psychology, neuroscience, physics or engineering (with a previous focus on neuroscience), biology, or related. We are looking for an ambitious candidate who aim for a career in academia, for which we will provide ample support.

### **Terms & conditions**

The position is for four years. Preferable starting dates are April to June 2021, subject to negotiation. The position will remain open until filled. Salary is based on TV-L E 13 (65%, i.e., gross salary around 2650,- euros/month).

### **How to apply**

The application should include the following documents (in a single PDF-file):

- 1) Cover letter (max 1.5 pages) providing a brief description of previous and current research work and achievements, research interests and, importantly, motivation to enter this project and pursue a career in academia. We will only consider those candidates with a strong and credible motivation to study human skill learning;
- 2) Curriculum vitae, including a list of publications;
- 3) contact details of two scientists who can provide references.

**The call will be open until the position is filled.** Please email this PDF file to [max-philipp.stenner@med.ovgu.de](mailto:max-philipp.stenner@med.ovgu.de) and [elena.azanon@ovgu.de](mailto:elena.azanon@ovgu.de) **as soon as possible**. Should you require any further information, please contact [Dr Stenner](#) or [Dr Azañón](#).