Marius Schneider

PhD Student · International Max Planck Research School

Ernst Strüngmann Institute for Neuroscience, Deutschordenstraße 46, 60528 Frankfurt am Main

marius.schneider@esi-frankfurt.de | https://schneidermarius.github.io/ | https://github.com/SchneiderMarius

Education

Ph.D. in Neurophysics *Nijmegen (NL)*

Donders Centre for Neuroscience, Radboud University *02/2020 - 05/2024*

- Title: "Mechanisms of inter-areal neuronal communication"
- Advisor: Dr. Martin Vinck
- Graduated with highest honors (top 5 % of candidates)

M.Sc. in Physics *Frankfurt (DE)*

Goethe University *10/2016 – 04/2019*

- Title: "Biological complexity facilitates tuning of the neuronal parameter space"
- Advisor: Dr. Hermann Cuntz
- Grade: 1.1 (Ranging from 1 (excellent) to 6 (insufficient))

B.Sc. in Physics *Frankfurt (DE)*

Goethe University *10/2012 – 10/2016*

- Advisor: Dr. Reinhard Dörner
- Grade: 1.7 (Ranging from 1 (excellent) to 6 (insufficient))

Professional Experience

2019-2024 **PhD student**, Ernst Strüngmann Institute for Neuroscience in Cooperation with Max Planck Society
- leading several highly collaborative projects resulting in high-impact publications
- large-scale data analysis of neural recordings in different species
- Biophysical and abstract modeling of neural circuits and LFP signals
- Mathematical analysis

2018-2019 **Research Assistant**, Justus Liebig University, Gießen
- Biophysical modeling of degeneracy in the hippocampus

2017-2018 **Research Assistant**, Frankfurt Institute for Advanced Studies
- Biophysical modeling of hippocampal granule cells
- Teaching and supervision of undergraduate students

2017-2018 **Accelerator Operator**, Goethe University, Frankfurt
- Operate a linear particle accelerator to carry out ion beam analyses

2016-2018 **Research Assistant**, Max Planck Institute for Empirical Aesthetics
- Perform MEG recordings
- Preprocessing of recordings
- Recruiting subjects

Publications

Published

Spyropoulos G*, **Schneider M***, van Kempen J, Gieselmann MA, Thiele A, Vinck M. Distinct feedforward and feedback pathways for cell-type specific attention effects. Neuron, in Press.

Schneider M, Tzanou A, Uran C, Vinck M. 2023. Cell-type-specific propagation of visual flicker. Cell Reports, 42(5): e1011212.

Schneider M, Bird AD, Gidon A, Triesch J, Jedlicka P, Cuntz H. 2023. Biological complexity facilitates tuning of the neuronal parameter space. PLOS Computational Biology, 19(7): e1011212.

Vinck M, Uran C, Spyropoulos G, Onorato I, Broggini AC, **Schneider M**, Johnson AC. 2023. Principles of large-scale neural interactions. Neuron, 111(7): 987-1002.

JR Dowdall, **Schneider M**, M Vinck. 2023. Attentional modulation of inter-areal coherence explained by frequency shifts. NeuroImage, 277: 120256.

Schneider M, Broggini AC, Dann B, Tzanoua A, Uran C, Sheshadri S, Scherberger H, Vinck M . 2021. A mechanism for inter-areal coherence through communication based on connectivity and oscillatory power. Neuron, 109(24): 4050-4067.

Cuntz H, Bird A, Beining M, **Schneider M**, Mediavilla L, Hoffmann F, Deller T, Jedlicka P. 2021. A general principle of dendritic constancy – a neuron's size and shape invariant excitability. Neuron, 109(22): 3647-3662.

In Review

Onorato I, Tzanou A, **Schneider M**, Uran C, Broggini AC, Vinck M. Distinct roles of PV and Sst interneurons in visually-induced gamma oscillations.

Vinck M, Uran C, **Schneider M**. Aperiodic processes explaining rhythms in behavior: A matter of false detection or definition?

* These authors contributed equally

Awards, Fellowships, & Grants

2024	**EBBS young investigator awards** European Brain and Behaviour Society
2019	**PhD research fellowship,** International Max Planck Research School for Neural Circuits
	Travel Grant for CNS conference, Organization for Computational Neurosciences
2018	**Travel Grant for Neural Dynamics Summer School,** University of Bristol
2016	**German National Student Scholarship**

Invited Talks & Selected Conference Presentations

2022	**Bernstein Center of Computational Neurosciences (Berlin, Germany),** Invited Talk: Do neurons communicate through coherence?
2022	**SFN (San Diego, USA),** Poster: Cell-type specific entrainment during rhythmic visual flicker stimulation.
2022	**Bernstein (Berlin, Germany),** Poster: Cell-type specific entrainment during rhythmic visual flicker stimulation.
2021	**Neuromatch Conference (Online),** Selected Talk: A mechanism for inter-areal coherence through communication based on connectivity and oscillatory power.
2019	**CNS (Barcelona, Spain),** Poster: High dimensional ion channel composition enables robust and efficient targeting of realistic regions in the parameter landscape of neuron models.
2018	**3R Centre Kick-off symposium (Giessen, Germany),** Poster: Ion channel diversity enables robust and flexible targeting of realistic regions in the parameter landscape of dentate granule cell models.

Teaching Experience

2022	**Neuromatch Academy: Computational Neuroscience,** Teaching Assistant (Online)
2019	**7th Baltic-Nordic School on Neuroinformatics,** Teaching Assistant (Frankfurt Institute for Advanced Studies)
2018	**Computational Neurobiology Course,** Teaching Assistant (Goethe University, Frankfurt)

Mentoring

2019	**Aysin Yildirim** Bachelor Thesis, Goethe University

Further Qualifications

Languages : German (native speaker), English (fluent), French (basic)

Coding Skills : Python, Pytorch, Tensorflow, Matlab, C++, Psytoolbox, Neuron, Fieldtrip, LateX

Other Skills : Problem Solving, Teamwork, Mathematical Modelling, Data Analysis, Machine Learning, Adobe Illustrator