Nadine Spychala

Curriculum Vitae

Education

since 2020	**PhD in Informatics** University of Sussex, Brighton
2016 – 2019	**Master of Arts in Philosophy** Carl-von-Ossietzky University, Oldenburg
2013 – 2016	**Master of Science in Neurocognitive Psychology** Carl-von-Ossietzky University, Oldenburg
2009 – 2012	**Bachelor of Science in Psychology** University of Hamburg, Hamburg

Doctoral Thesis

Title	***Neural measures of complexity and emergence related to conscious processing*** (preliminary)
Supervisors	Dr. Adam Barrett & Professor Anil Seth
Description	The aim of my PhD project is to validate information-theoretic measures of complexity and emergence in both simulated and empirical data, and to investigate how they may inform an account of differences in states of consciousness.

Master Thesis

Title	***The dynamics of integrated information in variational inference: a simulation study***
Supervisor	Professor Dirk Ostwald
Description	In this thesis, I investigated the dynamics of integrated information in variational inference using an integrated information measure for time-series models (Barrett & Seth, 2011) and black-box variational inference (Ranganath, Gerrish, & Blei, 2016).

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Master Thesis

Title	***Towards free robotic hand control with EEG motor imagery***
Supervisors	Professor Stefan Debener & Dr. Niclas Braun
Description	In this thesis, I investigated robotic hand control via motor imagery and experiences of embodiment in an EEG brain-computer interface.

Bachelor Thesis

Title	***Non-random samples in psychological research***
Supervisors	Professor Martin Spieß & Dr. Nils Skotara
Description	In this thesis, I investigated how findings generalize in experimental psychology taking into account different sampling methods.

Experience

Work (selection)

05/2021 & 02/2022 - 06/2022	**Teaching assistant for Fundamentals in Machine Learning** (Dr. Adam Barrett & Dr. Ivor Simpson), DEPARTMENT OF INFORMATICS, UNIVERSITY OF SUSSEX, Brighton.
10/2021 – 11/2022	**Teaching assistant for Algorithmic Datascience** (Dr. Adam Barrett & Dr. Ivor Simpson), DEPARTMENT OF INFORMATICS, UNIVERSITY OF SUSSEX, Brighton.
07/2020 – 09/2020	**Psychologist for unaccompanied refugee minors**, BAHIA CLEARINGSTELLE GGMBH, Bremen.
01/2018 – 02/2019	**Data scientist in medical education research**, DEPARTMENT OF HUMAN MEDICINE, CARL VON OSSIETZKY UNIVERSITY, Oldenburg.
10/2015 – 02/2016	**Teaching assistant for EEG methods** in psychology class (Prof. Stefan Debener), NEUROPSYCHOLOGY LAB, CARL VON OSSIETZKY UNIVERSITY, Oldenburg.
04/2015 – 07/2016	**Teaching assistant in German for refugees**, LANGUAGE CENTRE, CARL VON OSSIETZKY UNIVERSITY, Oldenburg.

Internships and Further Education (selection)

09/2021 – 01/2022	**Open Life Science mentoring & training program for Open Science ambassadors**. Obtained mentoring for my project *Building a Python library for measures of emergence and complexity* (see slides on this project [here](#), and a speed blog post [here](#)).
03/2019	**Spring school in Computational Cognitive Science**, *International Interdisciplinary Computational Cognitive Science Spring School* (IICCSSS), BERNSTEIN CENTER FREIBURG, Freiburg.
10/2014 – 02/2015	**Semester abroad**, DEPARTMENT OF COGNITIVE SCIENCE, JAGIELLONIAN UNIVERSITY, Cracow.
10/2014 – 01/2015	**Internship in consciousness research**, CONSCIOUSNESS LAB (Prof. Michał Wierzchoń), INSTITUTE OF PSYCHOLOGY, JAGIELLONIAN UNIVERSITY, Cracow. I investigated the relationship between pain and the sense of ownership using electrical stimuli and the rubber hand illusion.
06/2013 – 08/2013	**Internship in human rights work**, EQUALITY CALIFORNIA, Los Angeles. I worked on the public education projects *The Breakthrough Conversation* & *Health Happens With Equality*. I also initiated a project on biphobia.

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07/2020	**OHBM Hackathon on cross decomposition methods**, worked on a tutorial for cross decomposition methods in Python (Leonie Borne & Hao-Ting Wang), online. See corresponding github repository here.
11/2019	**Brainhack Global on EEG**, *Sonifying EEG*, CHILD MIND INSTITUTE, New York.
03/2019	**Brainhack on deep learning**, *Deep Frankenstein: dissecting and sewing artificial neural networks* (Piotr Migdał & Katarzyna Kańska), UNIVERSITY OF WARSAW, Warsaw .

Other Extracurricular Activities/Voluntary Work (selection)

since 10/2020	**Working group on structural & cultural problems in science**, *Better Together - improving culture & incentives in academia.* This is volunteer-based group work led by me to discuss and write about problems people encounter in (neuro)science, advocate for change, and propose ideas for improvement. It evolved from the Neuromatch conference 3.0 special session Better together: Let's improve the culture in neuroscience as a follow-up project.
since 09/2021	**Open-source project ComplexPy,** *ComplexPy - building a Python library for measures of emergence and complexity*. This is a Python-based open-source project led by me to make measures of emergence and complexity more accessible, improve research on & applications of those measures, and increase inclusivity *(see slides on this project here, and a speed blog post here)*.
06/2022	**Discussion session on emergence at the ASSC24 conference** (Association for the Scientific Study of Consciousness), *Formal approaches to emergence - current perspectives & possible applications*, organized by me, Pedro Mediano & Fernando Rosas.
08/2019 – 12/2019	**Volunteer work at GrowNYC**, New York. Worked as an environmental sustainability volunteer in New York's Zero Waste and Greenmarket programs.

Computer & Technical Skills

Programming Languages	R, MATLAB/GNU Octave, PYTHON
Statistics & Science Blog	https://nadinespy.github.io/
github	https://github.com/nadinespy

Publications/Scientific Contributions

Article	Fincke, F., Prediger, S., Schick, K., Fürstenberg, S., Spychala, N., Berberat, P. O., Harendza, S., Kadmon, M. (2020). Entrustable professional activities and facets of competence in a workplace-based assessment for final year undergraduate medical students. *Medical Teacher*.
Article	Spychala, N., Debener, S., Bongartz, E., Müller, H. H. O., Philipsen, A., Thorne, J., & Braun, N. (2019). Exploring Self-Paced Embodiable Neurofeedback for Post-Stroke Motor Rehabilitation. *Frontiers in Human Neuroscience*. Corresponding Github repository here.
Article	Braun, N., Debener, S., Spychala, N., Bongartz, E., Sorös, P., Müller, H. H. O., & Philipsen, A. (2018). The senses of agency and ownership: a review. *Frontiers in Psychology*.

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Article	Siedlecka, M., Spychala, N., Łukowska, M., Wiercioch, K., & Wierzchoń, M. (2017). Rubber hand illusion increases pain caused by electric stimuli. *The Journal of Pain.*
Poster	*Towards embodied feedback for post-stroke rehabilitation,* presented at the 6TH MIND, BRAIN & BODY SYMPOSIUM, MIND & BRAIN SCHOOL BERLIN, 15th March 2018, Berlin.
Poster	*Towards free robotic hand control with EEG motor imagery,* presented at the 4TH MIND, BRAIN & BODY SYMPOSIUM, MIND & BRAIN SCHOOL BERLIN, 16th March 2016, Berlin.

Scholarships

since 2020	Leverhulme Doctoral Scholarship at the University of Sussex, UK
2010 – 2018	Scholarship holder of the German National Academic Foundation
10/2014 – 02/2015	Erasmus+ scholarship holder

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