Franziska Pellegrini

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Practical experience

since 03/2019
Berlin

Research Associate at Charité Berlin: Brain and Data Science Group
Lead multiple collaborative and interdisciplinary research projects, validating methods for functional connectivity estimation and applying them to real-world data. Selected tasks:

- Linear (paper, source code) and non-linear multivariate data analyses
- Modeling and simulation of neural activity using MATLAB
- Characterising pathological neural activity in patients with Parkinson's Disease
- Developing the open-source EEGLAB roiconnect plugin
- Collaborating with biologists, physicists, physicians, and mathematicians of the Retune trans-regional collaborative research center
- Presenting scientific work at international conferences
- Supervising master theses, internships, and student assistants

11/2018 - 03/2019
Berlin

Research Assistant at Charité Berlin: Movement Disorders & Neuromodulation Group
Investigated MEG-LFP functional connectivity in Dystonia patients, using inverse modelling, dimensionality reduction techniques, and cluster-based permutation testing in MATLAB

11/2017 - 11/2018
Tübingen

Research Assistant and Internship at Centre for Integrative Neuroscience: Large Scale Neuronal Interactions Group
Examined the role of gamma-band activity in the visual system, using signal processing and sequential polynomial regression analysis (published in Cerebral Cortex, 2021)

09/2017 - 02/2018
Tübingen

Research Assistant and Internship at Max Planck Institute for Intelligent Systems: Brain-Computer Interfaces Group
Recorded ECG and EEG activity in patients with amyotrophic lateral sclerosis (ALS), predicted sleep stages in locked-in patients using unsupervised machine learning (report)

06/2015 - 08/2015
Mannheim

Internship at Central Institute of Mental Health Mannheim
Assisted in psychotherapy for patients in life crises or with unclear psychiatric diagnoses

01/2015 - 02/2015
Breuberg

Internship at Clinic for Addiction and Psychosomatic Medicine Odenwald
Assisted in psychotherapy and rehabilitation of patients with addictive disorders

07/2013
Freiburg

Internship at Stryker & Leibinger GmbH & Co. KG: Human Resources Department
Observed working routines and assisted in preparing event presentations

01/2013 - 04/2013
Robertson, South Africa

Childcare assistant at Herberg Kinderhuis
Supported childcare workers in daily routines and taught children to read

10/2012 - 12/2012
Freiburg

Student assistant at Fraunhofer Institute for Mechanics of Materials
Assisted in sustaining occupational safety and fire protection regulations

Education

since 03/2019
Berlin

Ph.D. Candidate Computational Neuroscience
Charité-Universitätsmedizin Berlin, Brain and Data Science Group
Graduate school: Bernstein Center of Computational Neuroscience

10/2016 - 10/2018
Tübingen
Berlin

M.Sc. Neural and Behavioural Sciences
International Max Planck Research School (IMPRS) Tübingen, final grade: 1.4
Thesis: *Evolution of Beta Bursts in the 6-OHDA Rat Model (*pdf*,* results also published in Experimental Neurology, 2021)

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09/2013 - 07/2016
Mannheim
Istanbul, Türkiye

B.Sc. Psychology
University of Mannheim, final grade: 1.6
Thesis: *A Global Memory Model Perspective on the Revelation Effect* (pdf)
Semester abroad: Bilgi University Istanbul, study focus: Physics and Computer Science

06/2012
Freiburg

Abitur
St. Ursula Gymnasium Freiburg, final grade: 1.3

Qualifications

Statistical Analysis. Five years experience in designing and executing advanced statistical analyses, using, e.g., mixed-effects models, unsupervised and supervised machine learning, autoregressive models, (cluster-based) permutation testing, bootstrapping, cross-validation, multiple comparisons correction, implemented mostly in MATLAB.
Data Science. Five years experience in running various data analyses on complex datasets (e.g., high-density EEG recordings). Experience in improving computational efficiency of data science programs to scale to large datasets.
Signal Processing. Five years experience in advanced time series processing, using, e.g., time-frequency analysis, Fourier transform, inverse modelling, spectral estimations, artefact cleaning techniques, source separation, phase and amplitude analyses, second- and third-order cumulants in time and frequency domain, and causality analyses.
Programming and Software Development. MATLAB, Python, Bash scripting, cluster computing (mostly Oracle Grid Engine), collaborative coding, and version control using Git and GitHub.
Languages. German (native), English (fluent), French (good command), Spanish (basic), Turkish (basic).

Notable achievements

- DGKN Conference 2022: Best Poster Award
- Bernstein Center for Computational Neuroscience: Best Poster Award 2022
- Admission to the Machine Learning Summer School (MLSS) 2019
- Admission to the Bernstein Center for Computational Neuroscience Graduate School
- Admission to the Graduate Training Center of the International Max Planck Research School (IMPRS) Tübingen
- Scholarship 2014-2018: Friedrich-Naumann Foundation

Extracurricular activities

Music. I sing in a choir and have played the cello in various orchestras and smaller ensembles, performing in concerts and in competitions.
Volunteer work. As member of the Equal Opportunity Committee of the Retune transregional collaborative research center, I strive to improve the conditions for women and minorities in research. To motivate young female students for the sciences, I regularly present my work at Girl's days. In 2022, I was elected as student representative of the BCCN PhD Program, participating in meetings of the supervisory committee and advising new students. I am involved in a democratic party, with a particular interest in urban development. After high school, I worked at the Herberg Kinderhuis South Africa for several months.

Berlin, 13 April 2023