



Ann-Kathrin Schalkamp

Curriculum Vitae

An eager and fast learning PhD candidate in Medicine seeking to improve healthcare through data-driven approaches.

Personal Details

Date of Birth 24.11.1996
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Education

01/2021 – 12/2023 **School of Medicine, Ph.D., Cardiff University.**
10/2018 – 11/2020 **Cognitive Science M.Sc., University of Tübingen, final grade – 1.1.**
10/2015 – 09/2018 **Cognitive Science B.Sc., University of Osnabrück, final grade – 1.5.**
10/2017 – 02/2018 Semester abroad with Erasmus at KU Leuven, Belgium.
08/2007 – 06/2015 **Abitur, Thomas-Morus-Gymnasium, Oelde, final grade – 1.0.**

PhD Thesis

Title *Stratifying deeply phenotyped PD-cohorts using brain imaging and blood-based immune signatures*
Supervisors Prof. Dr. Caleb Webber & Dr. Cynthia Sandor
Description Machine learning models are employed on multi-modal data to understand the heterogeneity observed in Parkinson's disease (PD) and progress towards precision medicine. Topics include early detection of PD with wearables compared to prodromal markers and risk factors, disease progression monitoring with wearables compared to clinical assessments, and finding the genetic underpinnings of the hallmark disease mechanism, loss of dopaminergic neurons.

Master's Thesis

Title *Building a trajectory model of cognitive and motor aging: exploring predictors in large-scale, longitudinal data of elderly using machine learning techniques*
Supervisors Prof. Dr. Philipp Berens & Dr. Fabian Sinz

Description Multi-modal, longitudinal data of healthy elderly is analyzed to extract risk factors and model individual trajectories. Using Bayesian low-rank regression models to extract low dimensional representations of subjects from genetic, demographic, and lifestyle information to predict the time evolution of clinical test scores. Grade: 1.0

Bachelor's Thesis

Title *Analyzing event-related potentials in 8-channel EEG data using machine learning methods*

Supervisors Prof. Dr. Gordon Pipa & M.Sc. Olivera Stojanovic

Description Designing, implementing, conducting, and analyzing an EEG study to investigating whether EEG data acquired with the Traumschreiber, a portable high-tech sleep mask, is usable for traditional and single-trial analysis needed for Brain Computer Interfaces. Rethinking the relevance of reference placement to develop new ideas addressing the small sample size problem of BCIs. Grade: 1.0

Experience

- 10/2019–04/2020 **Laboratory Internship**, University of Tübingen: NeuroMADLAB.
Multi-site, large-scale mega-analysis of resting-state fMRI to explore robust and reliable functional connectivity biomarkers for Major Depressive Disorder using machine learning. Handling fMRI data, designing and performing the analysis.
- 03/2019–03/2020 **Research Assistant**, University of Tübingen: Methods of Machine Learning.
Preparing scripts for the courses Probabilistic Inference and Learning, and Data Literacy. Implementing a vectorized version of a Collapsed Gibbs Sampler for latent dirichlet allocation to be used for topic modelling.
- 10/2016–04/2017 **Teaching Assistant**, University of Osnabrück: Department of Computer Science.
Tutoring the course Algorithms and Data Structures. Weekly assessments of students' performance including discussion of exercise solutions and evaluating their general understanding of the course content. Grading assignments to determine exam admission, preparation and correction of the final exam.

Publications

Peer-reviewed Journals

1. **Ann-Kathrin Schalkamp**, Nabila Rahman, Jimena Monzón-Sandoval, Cynthia Sandor, “Deep phenotyping for precision medicine in Parkinson’s disease”, *Disease Models & Mechanisms* (2022), The Company of Biologists. <https://doi.org/110.1242/dmm.049376>.
2. Cynthia Sandor, Stephanie Millin, Andrew Dahl, **Ann-Kathrin Schalkamp**, Michael Lawton, Leon Hubbard, Nabila Rahman, Nigel Williams, Yoav Ben-Shlomo, Donald G. Grosset, Michele T. Hu, Jonathan Marchini, Caleb Webber, “Universal clinical Parkinson’s disease axes identify a major influence of neuroinflammation”, *Genome Medicine* (2022), Springer Science and Business Media LLC. <https://doi.org/10.1186/s13073-022-01132-9>.

Pre-prints

1. **Ann-Kathrin Schalkamp**, Neil A Harrison, Kathryn J Peall, Cynthia Sandor, “Wearable devices can identify Parkinson’s disease up to 7 years before clinical diagnosis”, *medRxiv* (2022), . 10.1101/2022.11.28.22282809.

Conferences

Conference Talks

1. **Ann-Kathrin Schalkamp**, “Seeing Parkinson’s disease coming”, *Connectome* (2022). Invited talk.
2. **Ann-Kathrin Schalkamp**, “Early detection and monitoring of Parkinson’s disease”, *UKDRI PD ECR*

meeting (2023). Best talk award.

Conference Posters

1. **Ann-Kathrin Schalkamp**, Cynthia Sandor, "Genetics of Parkinson's disease: clinical diagnosis vs molecular imaging", *European Society of Human Genetics Conference* (2022).
2. **Ann-Kathrin Schalkamp**, Neil A Harrison, Kathryn J Peall, Cynthia Sandor, "Seeing Parkinson's disease coming", *Cold Spring Harbor Laboratory Biological Data Science conference* (2022).

Relevant skills

Programming Python, bash, R, Matlab

Data Handling clinical tests, digital sensor data, brain imaging, genetics, EEG, time-series

Other L^AT_EX, Git

Languages

German native language

English fluent