Curriculum Vitae September 2021

Name: Jan Fiete Bölts
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Education

2018 - **PhD in Computational Neuroscience and Machine Learning**
mackelab, TU Munich and University of Tübingen

2015 - 2018 **MSc in Computational Neuroscience** (with distinction)
Bernstein Center for Computational Neuroscience, Berlin, Germany
Thesis: *Model Comparison in Approximate Bayesian Computation*

2011 - 2015 **BSc in Cognitive Science** (with distinction)
University of Osnabrück, Osnabrück, Germany
Thesis: *Online Decoding of Contour Perception through EEG*

Professional Experience

2018 - **PhD student** with **Prof. Jakob Macke**
Machine Learning in Science, University of Tübingen
- Bayesian inference for intractable models, applied to connectomics

2016 - 2018 **Research assistant** with **Prof. Susanne Schreiber**
Computational Neurophysiology, Humboldt University Berlin
- studying energy efficiency of synaptic stimuli in single cell models

2017 - 2018 **Master thesis** with **Prof. Jakob Macke**
Neural Systems Analysis, Caesar Research Center, Bonn

2016 - 2018 **Research intern** with **Prof. Henning Sprekeler,**
Modeling of Cognitive Processes, Technical University Berlin
- analysis of a model for the formation of grid cells, master thesis

Mar 2017 - Jul 2017 **Research intern** with **Prof. Andrea Kühn**,
Movement Disorder Group, Charité University Medicine Berlin
- analysis of local field potential data for deep brain stimulation

Aug 2014 - Oct 2014 **Research intern, Department of Biomedical Engineering**
Universidad Antonio Nariño, Bogotá, Colombia
- EEG data analysis and decoding for brain-computer interfaces

Aug 2013 - Dec 2013 **Research intern, Department of Psychiatry**
University of British Columbia, Vancouver, Canada
- fMRI data analysis

Teaching Experience

2018 - **Lecturer, MSNE Master program, TU Munich**
Master's course: Introduction to programming and ML in Python
Master's course: Large Scale Modeling and Data Analysis

2012 - 2015 **Teaching Assistant, University of Osnabrück**
Tutor in lectures on logic, mathematics and neuroinformatics

Awards and Memberships

2016 Smartstart scholarship by Bernstein Network and Volkswagen Stiftung

2013 and 2014 DAAD RISE scholarship 2013 (Vancouver) and 2014 (Bogotá)

Skills

Languages	**German**	**English**	**Spanish**	**French**
	native	C1	B1	B1

Programming **Python, Java, Shell, Git, GitHub, CI** — advanced

Community engagement

Reviewing Journal of Open Source Software; ICLR 2021

Teaching Workshop: **"Simulation-based inference for scientific discovery"**

Publications

Journal papers:

*Tejero-Cantero, A., ***Boelts, J.***, *Deistler, M., *Lueckmann, J. M., Durkan, C., Gonçalves, P. J., Greenberg D. S. & Macke, J. H. (2020).
Sbi: a toolkit for simulation-based inference.
Journal of Open Source Software, 5(52), 2505.

Conference papers:

Lueckmann, J. M., **Boelts, J.**, Greenberg, D. S., Gonçalves, P. J., & Macke, J. H. (2021).
Benchmarking Simulation-Based Inference.
AISTATS 2021.

Boelts, J., Lueckmann, J. M., Gonçalves, P., Sprekeler, H., & Macke, J. H. (2018).
Model selection via neural density estimation.
In Conference in Cognitive Computing 2018, Hannover, Germany.

Boelts, J., Cerquera, A., & Ruiz-Olaya, A. F. (2015).
Decoding of imaginary motor movements of fists applying spatial filtering in a BCI simulated application.
In International Work-Conference on the Interplay Between Natural and Artificial Computation (pp. 153-162). Springer, Cham.

Conference abstracts:

Boelts, J., Harth, P., Yanez, F., Hege, H. C., Oberlaender, M., & Macke, J. H. (2019).
Bayesian inference for synaptic connectivity rules in anatomically realistic cortical connectomes.

In Bernstein Conference 2019, Berlin, Germany.

Boelts, J., Lueckmann, JM., Gonçalves, P., Sprekeler, H., Macke J. H.. (2017).
Model selection via neural density estimation.
Cognitive Computing 2018 Abstracts.

Boelts, J., van Wijk, B., Litvak, W., Kühn, A. (2017).
Pathological phase-amplitude coupling in the subthalamic nucleus is not explained by non-sinusoidal oscillations.
Bernstein Conference 2017 Abstracts.

Lavigne, K. M., **Boelts, J.,** & Woodward, T. S. (2014).
Hallucination- and speechspecific hypercoupling in an auditory-motor network: Data from fBIRN.
HBM 2014 20th Annual Meeting of the Organization for Human Brain Mapping Abstracts, 34.

Preprints:

Ramesh, P., Lueckmann, JM., **Boelts, J**., Tejero-Cantero, Á., Greenberg, D., Macke, J.H. (2021).
GATSBI: General Adversarial Training for Simulation-Based Inference.
openreview.net