Michael Deistler

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Education

PhD candidate, University of Tübingen — Tübingen, Germany
International Max-Planck Research School for Intelligent Systems — since 02/2020
Advisor: Prof. Jakob Macke

M.Sc., Technical University of Munich — Munich, Germany
Elite Master of Science in Neuroengineering — 2017 – 2020
Passed with High Distinction, with Honors, German Grade – 1.1, American GPA – 3.9

Research Excellence Certificate, Technical University of Munich — Munich, Germany
Awarded for additional research and course work during M.Sc. studies — 2017 – 2020

B.Sc., Technical University of Munich — Munich, Germany
Bachelor of Science in Electrical Engineering and Information Technology — 2013 – 2017
Passed with High Distinction, German Grade – 1.2, American GPA – 3.8

Exchange semester, KTH Royal Institute of Technology — Stockholm, Sweden
Erasmus, German Grade – 1.3, American GPA – 3.7 — 2017

Highschool, Gymnasium Landau a.d. Isar — Landau, Germany
German Grade – 1.1, American GPA – 3.9 — 2013

Research experience

Doctoral Researcher — Tübingen, Germany
Supervised by Prof Jakob Macke, Machine Learning in Science — since 02/2020
Bayesian inference; Probabilistic machine learning; Computational neuroscience

Master's student — Munich, Germany
Technical University of Munich, with Prof Jakob Macke — six months, 2019
Identifying compensation mechanisms in neuroscience using simulation-based inference

Research Intern — Frankfurt, Germany
Max-Planck-Institute for Brain Research, with Prof Julijana Gjorgjieva — nine weeks, 2018

Research Intern — Edinburgh, UK
Institute for Adaptive and Neural Computation, with Dr Matthias H. Hennig — six weeks, 2018

Student Researcher (10h/week) — Munich, Germany
Brainlab AG, Research and Development — 2017-2018

Research Intern — Munich, Germany
BMW, Research Center for Autonomous Driving — Six months, 2016

Bachelor's student — Munich, Germany
Technical University of Munich, with Prof Eckehard Steinbach — Twelve weeks, 2016
Temporal Interpolation of Grayscale Frames using Event Data from the DAVIS240

Research Intern — Munich, Germany
German Aerospace Center, Research Center for Communication and Navigation — Eleven weeks, 2015

Publications

Peer-reviewed articles

Michael Deistler, Pedro J. Gonçalves*, Jakob H. Macke* (2022), Truncated proposals for scalable and hassle-free simulation-based inference, *Accepted at NeurIPS*

Michael Deistler, Jakob H. Macke*, Pedro J. Gonçalves* (2022), Energy efficient network activity from disparate circuit parameters, *Accepted at PNAS*

Jonas Beck, **Michael Deistler**, Yves Bernaerts, Jakob H. Macke, Philipp Berens (2022), Efficient identification of informative features in simulation-based inference, *Accepted at NeurIPS*

Manuel Glöckler, **Michael Deistler**, Jakob H. Macke (2022), Variational methods for simulation-based inference, *ICLR (spotlight)*

Maximilian Dax, Stephen R. Green, Jonathan Gair, **Michael Deistler**, Bernhard Schölkopf, Jakob H. Macke (2022), Group-equivariant neural posterior estimation, *ICLR*

Álvaro Tejero-Cantero*, Jan F. Boelts*, **Michael Deistler***, Jan-Matthis Lueckmann*, Conor Durkan*, Pedro J. Gonçalves, David S. Greenberg, Jakob H. Macke (2020), sbi – a toolbox for simulation-based inference, *Journal of Open Source Software*

Pedro J. Gonçalves*, Jan-Matthis Lueckmann*, **Michael Deistler***, Marcel Nonnenmacher, Kaan Öcal, Giacomo Bassetto, Chaitanya Chintaluri, William F. Podlaski, Tim P. Vogels, David S. Greenberg, Jakob H. Macke (2020), Training deep neural density estimators to identify mechanistic models of neural dynamics, *Elife*

Michael Deistler*, Yağmur Yener*, Florian Bergner, Pablo Lanillos, Gordon Cheng (2019), Tactile Hallucinations on Artificial Skin Induced by Homeostasis in a Deep Boltzmann Machine, *Published as selected talk at the IEEE Conference on Cyborg and Bionic Systems*

Preprints

Michael Deistler*, Martino Sorbaro*, Michael Rule, Matthias H. Hennig (2018), Local learning rules to attenuate forgetting in neural networks, *arxiv*

Selected peer-reviewed abstracts

Michael Deistler, Pedro J. Gonçalves*, Jakob H. Macke (2022), Bayesian inference for analysing parameter degeneracy in neuroscience models, *Bernstein conference*

Michael Deistler, Jakob H. Macke*, Pedro J. Gonçalves* (2021), Disparate energy consumption despite similar network activity, *Computational and Systems Neuroscience, CoSyNe*

Michael Deistler, Pedro J. Gonçalves, Jan-Matthis Lueckmann, Kaan Öcal, David S. Greenberg, Jakob H. Macke (2019), Statistical inference for analyzing sloppiness in neuroscience models, *Bernstein conference*

* indicates equal contribution

Talks

Workshop ‘Building population models for large-scale neural recordings’ (2022), *University of Edinburgh*
Workshop ‘Simulation-based inference for scientific discovery’ (2021), *University of Tübingen*

Mentorship

Bálint Mucsányi, Lab rotation (currently M.Sc. student at University of Tübingen) 2022
Mila Gorecki, M.Sc. thesis (now PhD student at Max-Planck Institute for Intelligent Systems) 2022
Florian Schönleitner, M.Sc. thesis (now PhD student at ETH Zürich) 2021

Jonas Beck, M.Sc. thesis (now PhD student at University Hospital Tübingen) 2021
Manuel Glöckler, M.Sc. thesis (now PhD student at University of Tübingen) 2021

Teaching

Teaching Assistant, University of Tübingen 2022
Probabilistic Machine Learning, Prof Jakob Macke
Lead Teaching Assistant, University of Tübingen 2020-2021
Seminar: Machine learning methods for scientific discovery, Prof Jakob Macke
Teaching Assistant, Technical University of Munich 2019
Mathematics for Neuroengineers, Prof Jakob Macke
Teaching Assistant, Technical University of Munich 2015-2019
Stochastic signals, Prof Wolfgang Utschick
Teaching Assistant, Technical University of Munich 2015
Signal representation, Prof Gerhard Rigoll
Teaching Assistant, Technical University of Munich 2014
Digital Design, Prof Andreas Herkersdorf

Community service & outreach

KI macht Schule, Tübingen group member (Tübingen) Since 2020
ELLIS Doctoral Symposium, Co-organiser (University of Tübingen) 2021
Simulation-based inference workshop, Co-organiser (University of Tübingen) 2021

Awards

Travel-grant for the Bernstein Conference on Computational Neuroscience 2019
Member of the Elite-Network of Bavaria 2017-2020
Erasmus+ EU Grant 2017
Was offered the Fastlane scholarship of BMW (declined) 2017
'Lichtinger Preis' for an outstanding highschool degree in Natural Sciences 2013

Programming Languages

PYTHON Proficient
- Deep learning projects mostly using PyTorch (but also Tensorflow and Theano)
- Core developer of the sbi toolbox (see publications)

C++ Intermediate
- Six months working experience at BMW

MATLAB Intermediate
- Multiple classes and projects, including bachelor thesis

C Basic
- University course

Languages

German: native language
English: C2 (proficient, TOEFL score 115)
French: A2 (elementary)
Swedish: A1 (elementary)