Manuel Gloeckler

PhD student at the University of Tübingen

Date of Birth: May 29, 1998

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manuelgloeckler.github.io

Interests

- 🎓 Bayesian inference
- 🎓 Simulation-based inference
- 🎓 Generative models
- 🎓 probabilistic and differentiable programming

Skills

Programming:

Python	● ● ● ● ●
Bash scripting	● ● ● ○ ○
Java	● ● ○ ○ ○
Cuda/C/C++	● ● ○ ○ ○

Tools:

JAX	● ● ● ● ●
PyTorch	● ● ● ● ●
Hydra/SLURM	● ● ● ● ○
TensorFlow/Keras	● ● ○ ○ ○

Languages

German (Mother Tongue)

English (Proficient)

French (B1, 2016)

Working Experience

Apr 2022 – ongoing — **PhD student** — **University of Tübingen, DE**
Working as a researcher at the University of Tübingen in the Cluster of Excellence - Machine Learning in Science, supervised by Prof. Dr. Jakob Macke. Member of the International Max Planck Research School for Intelligent Systems (IMPRS-IS). Research on simulation-based (or likelihood-free Bayesian) inference methods, focusing on robustness and efficiency.

Sep 2020 – Feb 2022 — **Research Assistant** — **University of Tübingen, DE**
Worked as a research assistant in the Computational Systems Biology Group, supervised by Dr. Reihaneh Mostolizadeh. The research focused on the computational analysis of microbiota interactions in the human nasal microbiome through genome-scale modeling.

Minijob

Nov 2024 – Jan 2025 — **Independent Contractor** — **OpenAI, Inc.**
Expert consultant for research related parts in PaperBench: Evaluating AI's Ability to Replicate AI Research

Feb 2019 – Oct 2019 — **Student Assistant** — **University of Tübingen, DE**
Teaching assistant in the Theory of Machine Learning Group of Prof. Dr. Ulrike von Luxburg.

Education

Mar 2022 – Oct 2019 — **M.Sc. in Bioinformatics** — **University of Tübingen, DE**
Focused on machine learning methods and theory and their applications in life sciences. Graduation with distinction [certificate].
Thesis: *Variational Methods for Simulation-Based Inference* [pdf].
Supervisors: Dr. Jakob Macke, Dr. Manfred Classen
Average grade: 1.15 (3.9 GPA equivalent)
| Detailed List of Grades

Sep 2019 – Oct 2016 — **B.Sc. in Bioinformatics** — **University of Tübingen, DE**
Graduation with distinction [certificate].
Thesis: *The Landscapes of CD8+ T Cell Immunogenicity from a Self-Tolerance-Based Perspective in Sequence Space* [pdf].
Supervisors: Dr. Leon Kuchenbecker, Dr. Oliver Kohlbacher
Average grade: 1.31 (3.7 GPA equivalent)
| Detailed List of Grades

Other Training

Jul 2022 — **Cambridge ELLIS Machine Learning Summer School** — **Cambridge, UK**
Participation in the summer school and poster presentation [certificate].

Jul 2021 — **Machine Learning Summer School** — **Taipei, Online (Cov19)**
Participation in the summer school [certificate].

Teaching Experience

Teaching assistant

University of Tübingen — **ML4202: Probabilistic Machine Learning** — Summer'22,24
Graduate course.

ML 4102: Data Literacy — Winter'22
Graduate course about basic data science methods.

INFO4412: Algorithms and Complexity — Winter'19
Undergraduate course about algorithms and complexity analysis.

Short Bio ──────────

Manuel Gloeckler is a PhD student in the lab of Prof. Jakob H. Macke at the University of Tübingen, with a background in Bioinformatics. His research focuses on (conditional) generative modeling for scientific data, particularly in the context of inverse problems. Since beginning his PhD in 2022, he has contributed to major international machine learning conferences. He enjoys applying his programming expertise to develop novel methods for solving scientific challenges.
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Metrics ──────────

Citations 137
h-index 6
Publications 11
i10 index 4

Profiles ──────────

in
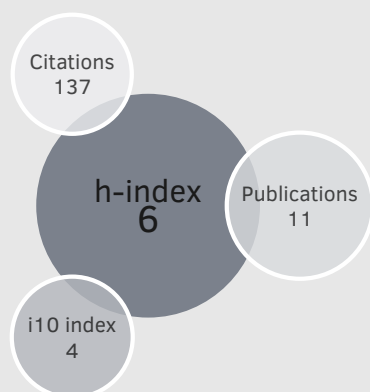
Publications

Selected

2025 **Compositional simulation-based inference for time series** [arxiv]
Manuel Gloeckler, Shoji Toyota, Kenji Fukumizu, Jakob H. Macke
Accepted as poster for ICLR 2025

2024 **All-in-one simulation-based inference** [arxiv]
Manuel Gloeckler, Michael Deistler, Christian Weilbach,
Frank Wood, Jakob H. Macke
Accepted as a **oral** for ICML 2024 (top 5%)

2023 **Adversarial robustness of amortized Bayesian inference** [arxiv].
Manuel Gloeckler, Michael Deistler, Jakob H. Macke.
Accepted as a *poster* for ICML 2023

2022 **Variational methods for simulation-based inference** [arxiv].
Manuel Gloeckler, Michael Deistler, Jakob H. Macke.
Accepted as a **spotlight** for ICLR 2022 (top 6 %).

Published

2025 **sbi reloaded: a toolkit for simulation-based inference workflows**
Boelts et. al (role as core-contributor); JOSS

2024 **A practical guide to statistical distances for evaluating generative models in science** [arxiv]
Bischoff et. al (alphabetically sorted, role as a co-organizer); TMLR

2024 **Inferring stochastic low-rank recurrent neural networks from neural data** [arxiv]
Matthijs Pals et. al; NeurIPS 2024

2023 **Hierarchical modelling of microbial communities**
Manuel Gloeckler, A Dreager, R Mostolizadeh

2022 **NCMW: a python package to analyze metabolic interactions in the nasal microbiome** [frontiers].
Manuel Gloeckler, Andreas Draeger, Reihaneh Mostolizadeh

2022 **Towards the human nasal microbiome: Simulating D. pigrum and S. aureus** [frontiers].
Reihaneh Mostolizadeh, Manuel Gloeckler, Andreas Draeger

Pre-prints

2024 **Differentiable simulation enables large-scale training of detailed biophysical models of neural dynamics** [bioarxiv]
Michael Deistler, Kyra L Kadhim, Matthijs Pals, Jonas Beck, Ziwei Huang, Manuel Gloeckler, Janne K Lappalainen, Cornelius Schröder, Philipp Berens, Pedro J Gonçalves, Jakob H Macke

Review Duties

Journal   IOP Trusted reviewer [certificate]
Conferences   ICLR 2024, ICLR 2025, ICML 2025

Open source contributions

sbi   Core maintainer, Contributor   684 stars

References

Ref. 1   **Prof. Dr. Jakob Macke**   University of Tübingen, DE
            jakob.macke@uni-tuebingen.de

Ref. 2   **Dr. Reihaneh Mostolizadeh**   University of Tübingen, DE
            reihaneh.mostolizadeh@uni-tuebingen.de