# Maximilian Müller

Machine Learning Researcher


Tübingen and Munich, Germany

maximilian.mueller@wsii.uni-tuebingen.de

LinkedIn

Twitter

Website


## Languages

German ●●●●●

English ●●●●○

Spanish ●●●●○

## IT Skills

- General Python
- Pytorch
- Sklearn
- TensorFlow and TF Probability
- General R
- SQL
- AWS, AWS IoT, Google Cloud
- Version control with Git
- Docker

## Education

since 2021 — **Machine Learning PhD Student** — University of Tübingen, Germany
Safe and reliable ML, Generalization, Optimization. Supervisor: Matthias Hein. Part of the ELLIS program

2018 – 2021 — **Master Studies in Physics (∅ 1,2)** — LMU Munich, Germany
Machine Learning for Physics and Plasma Physics

**Master Thesis (∅ 1,0)** — Max Planck Institute for Plasma Physics
Topic: Uncertainty quantification with Bayesian Neural Nets for Machine Learning - based fluid simulations

2019 – 2020 — **Master Studies in Data Science (∅ 9.6/10)** — Barcelona GSE, Spain
NLP, Machine Learning theory, Stochastic Optimization and Reinforcement Learning, Bayesian Methods, Sparse Linear Algebra. Highest final grade of my cohort

**Master Thesis (∅ 9.5/10)**
Topic: Scalable Inference for Crossed Random Effects Models

2014 – 2018 — **Bachelor Studies in Physics (∅ 1,2)** — LMU Munich, Germany
Focus: Plasma Physics and Medical Physics

**Bachelor Thesis (∅ 1,0)** — Max Planck Institute for Plasma Physics
Topic: Simplified Calculation of Electron Cyclotron Current Drive Efficiency in Reactor-size Plasmas

2016 — **Exchange Semester** — Universidad Nacional de Colombia
During 4th semester, supported by PROSA LMU scholarship

2005 – 2013 — **High School - Abitur (∅ 1,0)** — Gymnasium Geretsried, Germany
Focus: Physics, Highest final grade of my cohort

## Professional Experience

2020 - 2021 — **Research Assistant in Bayesian Statistics** — Bocconi University
Development of scalable algorithms for Bayesian statistics.

2019 — **Junior IT Consultant** — TNG Technology Consulting
Developed and evaluated investing strategies. Also set up end-to-end architecture for IoT-Showcase using AWS and Typescript.

2018 — **Working Student in Quantum Optics** — Toptica Photonics AG
Developed experiment for doppler-free spectroscopy of iodine.

2018 — **Research Internship in Particle Physics** — University of Alberta, Canada
Bubble chamber simulations with Geant4 (C++ based program).

2016 – 2017 — **Teaching Assistant** — LMU Munich
Tutor for math course and lab supervisor for medical students.

## Awards and Scholarships

since 2021 — **ELLIS PhD student**
*Network for excellent young ML researchers in Europe*

2020 — **Master's Thesis selected for BGSE Voice Blog**
*As part of the series for exceptional Master's projects (link)*

since 2013 — **Member of Max Weber Program**
*Scholarship for gifted students in Bavaria*

2013 — **TUM award for seminar thesis**
*Visitor jury price for the best poster at students conference*

2013 — **Awards for outstanding achievements in Maths and Physics**
*German Physical Society and German Mathematical Society*

## Selected Publications

NeurIPS 23 — **Normalization Layers are all that Sharpness-Aware Minimization Needs**
*M. Müller, T.J. Vlaar, D. Rolnick, and M. Hein*

ICML 23 — **In or Out? Fixing ImageNet Out-of-distribution detection evaluation**
*J. Bitterwolf*, M. Müller*, and M. Hein (*equal contribution)*

ICML 23 — **A modern look at the relation between sharpness and generalization**
*M. Andriushchenko, F. Croce, M. Müller, M. Hein, N. Flammarion*

2018 Physics of Plasmas — **Fast evaluation of the current driven by electron cyclotron waves for reactor studies**
*E. Poli, M. Müller, H. Zohm, and M. Kovari*