

JULIA KOSTIN

EDUCATION

ETH Zurich

Doctorate in Computer Science

Researcher in the **Statistical Machine Learning Group** of Prof. Fanny Yang

Research topic: Robustness of machine learning models trained on heterogeneous data

Jun 2023 - Present

Technical University of Munich

TopMath: Elite Master's Programme in Mathematics (Final grade: 1.06/1.00)

Research-oriented fast-track graduate program including 15 ECTS in independent research

Master's thesis: How robust is randomized blind deconvolution via nuclear norm minimization against adversarial noise?

Oct 2020 - Mar 2023

Ludwig Maximilian University of Munich

BSc Mathematics (Final grade: 1.01/1.00)

Bachelor thesis: Construction of Orthonormal Wavelet Systems (with Prof. Peter Müller)

Minor subject (30 ECTS): Biology. Additional 21 ECTS in theoretical physics.

BSc Biology

Focus on dynamical systems and computational neuroscience. Transferred to BSc in Mathematics in 2017

Oct 2017 - Aug 2020

Oct 2016 - Oct 2017

PROFESSIONAL EXPERIENCE

Technical University of Munich

Research Assistant

- Conducted research on **robustness of inverse problems** under adversarial noise under supervision of **Prof. Felix Krahmer**
- Part of the DFG-funded Priority Program **Theoretical Foundations of Deep Learning (FoDL)**
- Member of the **Munich Center for Machine Learning (MCML)**

Munich, Germany

Jul 2022 - May 2023

Fraunhofer Institute for Integrated Circuits IIS

Student Researcher

- Worked in a team of three on **neural network models for speech extraction** under supervision of **Prof. Emanuël Habets**
- Adapted and trained DNNs for **brain-informed speaker extraction** on **electroencephalography data** in PyTorch

Erlangen, Germany

Nov 2020 - Jun 2022

Bernstein Center for Computational Neuroscience

Student Researcher

- Conducted research on neural mechanisms of spatial orientation in a team of two under supervision of **Prof. Andreas Herz**
- Performed data analysis of spike trains and grid cell firing fields in Python and MATLAB

Munich, Germany

Sep 2017 - Oct 2018

PUBLICATIONS

Julia Kostin, Nicola Gnecco, and Fanny Yang. *"Achievable distributional robustness when the robust risk is only be partially identified"*. NeurIPS 2024.

Julia Kostin, Felix Krahmer, and Dominik Stöger. *"How robust is randomized blind deconvolution via nuclear norm minimization against adversarial noise?"* 2023. [Under review]

Mohamed Elminshawi, Julia Kostin, Neeraj Kumar Sharma, and Emanuël Habets. *"Attended Talker Decoding Exclusively From Listening-State EEG in a Closed-Talker Scenario"*. 2022. [Under review]

CONFERENCE TALKS AND POSTERS

93rd Annual Meeting of GAMM 2023

- Talk "How robust is low-rank matrix recovery under adversarial noise?"

Dresden, Germany

Jun 2023

KU-LMU-TUM Joint Seminar on Mathematics of Data Science

- Talk "Robustness Guarantees for Blind Deconvolution via Nuclear Norm Minimization"

Munich, Germany

Nov 2022

Approximation and Geometry in High Dimensions 2022

- Talk "Robustness Guarantees for Low-rank Matrix Recovery with Adversarial Noise"

Bedlewo, Poland

Oct 2022

Bernstein Conference for Computational Neuroscience 2018

- Poster "Differentiating Temporal Aspects of Grid-Cell Activity with Generalized Linear Models"

Berlin, Germany

Sep 2018

2017 Amgen Scholars Europe Symposium

- Poster "Exploring Grid Cell Spiking with a Generalized Linear Model"

Cambridge, UK

Sep 2017

PROJECTS AND SUMMER SCHOOLS

Lisbon Machine Learning School 2022

Lisbon, Portugal

- Completed assignments, participated in discussions on natural language processing, sequence models and causality Jul 2022

Science Hack 2021

Munich, Germany

- Infineon Radar Challenge: Developed best-performing traffic object classifier from radar data in a team of 5 Apr 2021

Utrecht Summer School on Dynamical Systems

Utrecht, Netherlands

- Completed a MATLAB simulation of delay differential equations in a team of two Jul 2019

Amgen Scholars Programme

Munich, Germany / Cambridge, UK

Research Intern in Computational Neuroscience

Jun 2017 - Sep 2017

- Modelled stochastic behavior of space-modulated neurons in Python and MATLAB
- Mentor of the 2022 Munich Amgen cohort

AWARDS

Max Weber Scholarship for gifted students

Apr 2018 - Apr 2023

- Received financial and educational support based on academic merit and extracurricular activities
- Co-organized the Mathematical Symposium for scholars and mentors

VOLUNTEERING

Corona School e.V.

Sep 2020 - Apr 2021

- Tutored students from disadvantaged backgrounds during the online school period of the coronavirus pandemic

Peer-to-Peer Mentoring LMU

Nov 2020 - Apr 2021

- Assisted three first semester students in mathematics with their start at university

SKILLS

Programming experience

Python (incl. PyTorch, TensorFlow), MATLAB, R, C++

Languages

German (native), Russian (native), English (TOEFL iBT 120/120)