Curriculum Vitae

Name: Sebastian G. Gruber
E-Mail: sebggruber@gmail.com
Google Scholar: `https://scholar.google.com/citations?user=_ThqALUAAAAJ`
Research Interests: Uncertainty Quantification, Probabilistic Machine Learning, Statistical Learning Theory, Kernel Methods, Generative AI Evaluation

Grants

Receiver of German Cancer Research Center Short-term Travel Grant Mar. 2024 - May 2024
Total worth: 1850 Euros

Education

Goethe University Frankfurt Mar. 2021 - Jan. 2025
Computer Science PhD, Grade: –

- Thesis in machine learning with title: "A Novel Framework for Uncertainty Quantification via Proper Scores for Classification and Beyond"
- Funded by ERC Consolidator Grant (Project: TAIPO)

Ludwig Maximilian University Munich Oct. 2018 - Feb. 2021
Statistics MSc, Grade: 1.4 (Very good)

Thesis in machine learning about meta-learning and knowledge distillation

Ludwig Maximilian University Munich Oct. 2015 - Sep. 2018
Statistics BSc, Grade: 1.43 (Very good)

Thesis in machine learning about reinforcement learning

Work Experience

German Cancer Research Center (Frankfurt) Feb. 2025 - Today
Postdoc Machine Learning

Research on statistical tools for trustworthy AI

Inria (Paris) Mar. 2024 - May 2024
PhD Visiting Student

Collaboration with Francis Bach on kernel-based uncertainty calibration

German Cancer Research Center (Frankfurt) Mar. 2021 - Jan. 2025
PhD Student Machine Learning

Research on statistical tools for trustworthy AI

Siemens (Munich) Aug. 2018 - Feb. 2021
Working/Master Student Machine Learning

- Trustworthy AI research (CVPR paper) and Master thesis about Deep Learning at the Machine Intelligence Research Group of the Corporate Technology department
- Machine Learning end-to-end service at the Analytics Lab of the IT department

Criteo (Munich) July 2017 - July 2018
Working Student Data Analytics

Open Source Projects

mlr3hyperband CRAN Package 2019/2020
R package for hyperparameter optimization in the mlr3 ecosystem
https://github.com/mlr-org/mlr3hyperband

mlrPlayground Web App 2018/2019
Web application showcasing Machine Learning algorithms for educational purposes
https://sebastian-gruber.shinyapps.io/mlrPlayground/

Publications

Gruber, S. G., Bach, F. (2025) *Optimizing Estimators of Squared Calibration Errors in Classification.* In Transactions on Machine Learning Research.

Gruber, S. G., Ziegler, P. T., Buettner, F. (2024) *Disentangling Mean Embeddings for Better Diagnostics of Image Generators.* In Interpretable AI: Past, Present and Future Workshop @ NeurIPS.

Gruber, S. G., & Buettner, F. (2024). *A Bias-Variance-Covariance Decomposition of Kernel Scores for Generative Models.* In International Conference on Machine Learning, 41, (pp. 16460-16501).

Gruber, S. G., Popordanoska, T., Tiulpin, A., Buettner, F., & Blaschko, M. B. (2024). *Consistent and Asymptotically Unbiased Estimation of Proper Calibration Errors.* In International Conference on Artificial Intelligence and Statistics, 27, (pp. 3466-3474).

Gruber, S. G., & Buettner, F. (2023). *Uncertainty Estimates of Predictions via a General Bias-Variance Decomposition.* In International Conference on Artificial Intelligence and Statistics, 26, (pp. 11331-11354).

Gruber, S. G., & Buettner, F. (2022). *Better uncertainty calibration via proper scores for classification and beyond.* In Advances in Neural Information Processing Systems, 35, 8618-8632.

Tomani, C., **Gruber, S. G.**, Erdem, M. E., Cremers, D., & Buettner, F. (2021). *Post-hoc uncertainty calibration for domain drift scenarios.* In Conference on Computer Vision and Pattern Recognition (pp. 10124-10132).

Conference Talks

Trustworthy AI for Medical Image Analysis and Computer Vision Workshop (2025): *"Uncertainty Calibration via Proper Scores for Trustworthy AI"*

Helmholtz AI Conference (2024): *"A Kernel-based Framework for Uncertainty in Generative AI"*

AI InScideOut Unconference (2023): *"Enhancing the Reliability of Large Language Models: A Novel Theoretical Framework for Uncertainty Assessment"*

Invited Talks

Inria Saclay Soda Group (2024): *"Proper Calibration Errors for Classification and Generative AI"*

Inria Paris Sierra Group (2024): *"A Framework for Uncertainty Estimation in Machine Learning based on Proper Scores"*

LMU Munich Statistics Department (2023): *"Uncertainty Estimates of Predictions via a General Bias-Variance Decomposition"*

Bayer AG Research Department (2022): *"Trustworthy Machine Learning in Oncology"*

Schulz Lab (2022): *"Trustworthy Deep Learning via Proper Calibration Errors: A Unifying Approach for Quantifying the Reliability of Predictive Uncertainty"*

Teaching and Supervision

Co-supervised one master thesis and 7 bachelor theses in computer science at Goethe University.

Gave multiple lectures in the course "Introduction to Methods of Artificial Intelligence" at Goethe University.

Organised the tutorials and designed the exams of the course "Introduction to Methods of Artificial Intelligence" at Goethe University in summer 2021, summer 2022, and summer 2023.

Skills

Languages	German (native), English (fluid), French (basic)
Programming Languages	Python, R, Julia, SQL, Haskell, Java, HTML/CSS
Software	PyTorch, Scikit-learn, Linux, AWS