

Daolang Huang

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Summary

I am currently a PhD student at Aalto University. My research primarily focuses on **amortized inference**, leveraging neural networks to accelerate Bayesian inference tasks, with a strong interest in Bayesian experimental design, Bayesian optimization, simulation-based inference, and active learning. I am passionate about exploring and developing innovative methods to enhance model efficiency in complex inferential processes.

Education

Aalto University & ELLIS Institute Finland

Jan 2023 – present

PhD, Doctoral programme in Science.

- GPA: 5/5
- Supervisors: Prof. [Samuel Kaski](#) (Aalto University and The University of Manchester), Prof. [Luigi Acerbi](#) (University of Helsinki)
- Fully funded by Finnish Center for Artificial Intelligence ([FCAI](#))

Aalto University

Sept 2020 – May 2022

MSc, Machine Learning, Data Science and Artificial Intelligence.

- GPA: 4.68/5 (Major 5/5), graduated with honours
- Master thesis: Bayesian Optimization Augmented with Actively Elicited Expert Knowledge

Jinan University

Sept 2016 – July 2020

BSc, Computer Science and Technology.

- GPA: 87/100 (Major 89/100)
- Bachelor thesis: Multi-Modal Fusion for Fake News Detection

Publications

Conference papers

1. **Daolang Huang**, Xinyi Wen, Ayush Bharti, Samuel Kaski*, Luigi Acerbi*. “ALINE: Joint Amortization for Bayesian Inference and Active Data Acquisition”. In *Proceedings of the 38th International Conference on Neural Information Processing Systems (NeurIPS)*, 2025. **Spotlight (Top 3.2%)**
2. Xinyu Zhang*, **Daolang Huang***, Samuel Kaski and Julien Martinelli. “PABBO: Preferential Amortized Black-Box Optimization”. In *The 13th International Conference on Learning Representations (ICLR)*, 2025. **Spotlight (Top 5.1%)**
3. Paul Chang*, Nasrulloh Loka*, **Daolang Huang***, Ulpu Remes, Samuel Kaski and Luigi Acerbi. “Amortized Probabilistic Conditioning for Optimization, Simulation and Inference”. In *The 28th International Conference on Artificial Intelligence and Statistics (AISTATS)*, 2025.
4. Ayush Bharti, **Daolang Huang**, Samuel Kaski and F.X Briol, “Cost-Aware Simulation-Based Inference”. In *The 28th International Conference on Artificial Intelligence and Statistics (AISTATS)*, 2025.
5. **Daolang Huang**, Yujia Guo, Luigi Acerbi and Samuel Kaski. “Amortized Bayesian Experimental Design for Decision-Making”. In *Proceedings of the 37th International Conference on Neural Information Processing Systems (NeurIPS)*, 2024.
6. **Daolang Huang***, Ayush Bharti*, Amauri Souza, Luigi Acerbi and Samuel Kaski, “Learning Robust Statistics for Simulation-based Inference under Model Misspecification”. In *Proceedings of the 36th International Conference on Neural Information Processing Systems (NeurIPS)*, 2023.

7. **Daolang Huang**, Manuel Haussmann, Ulpu Remes, ST John, Grégoire Clarté, Kevin Sebastian Luck, Samuel Kaski and Luigi Acerbi. “Practical Equivariances via Relational Conditional Neural Processes”. In *Proceedings of the 36th International Conference on Neural Information Processing Systems (NeurIPS)*, 2023.
8. Runkai Zheng, Yinqi Zhang, **Daolang Huang** and Qingliang Chen. “Sequential Convolution and Runge-Kutta Residual Architecture for Image Compressed Sensing”. In *European Conference on Computer Vision (ECCV)*, 2020.

Workshop papers

1. Conor Hassan, Nasrullo Loka, Cen-You Li, **Daolang Huang**, Paul E. Chang, Yang Yang, Francesco Silvestrin, Samuel Kaski, Luigi Acerbi. “Efficient Autoregressive Inference for Tabular Foundation Models”. In *EurIPS 2025 Workshop AI for Tabular Data*, 2025.
2. Paul E. Chang, Severi Rissanen, Nasrullo Loka, **Daolang Huang**, Luigi Acerbi. “Inference-Time Prior Adaptation in Simulation-Based Inference via Guided Diffusion Models”. In *ICLR Workshop 2025 on Frontiers in Probabilistic Inference: Sampling Meets Learning (ICLR-FPI)*, 2025.
3. **Daolang Huang**, Yujia Guo, Luigi Acerbi and Samuel Kaski. “Amortized Decision-Aware Bayesian Experimental Design”. In *NeurIPS 2024 Workshop on Bayesian Decision-making and Uncertainty (NeurIPS-BDU)*, 2024.
4. **Daolang Huang**, Louis Filstroff, Petrus Mikkola, Runkai Zheng, Milica Todorovic and Samuel Kaski. “Augmenting Bayesian Optimization with Preference-based Expert Feedback”. In *ICML 2023 Workshop The Many Facets of Preference-Based Learning (ICML-MFPL)*, 2023.
5. **Daolang Huang** and Ricardo Falcon Perez. “Sseldnet: a fully end-to-end sample-level framework for sound event localization and detection”. In *Detection and Classification of Acoustic Scenes and Events (DCASE)*, 2021.

Preprints

1. Xinyu Zhang, Conor Hassan, Julien Martinelli, **Daolang Huang**, Samuel Kaski, “In-Context Multi-Objective Optimization”. *arXiv:2512.11114*, 2025.
2. Yang Yang, Severi Rissanen, Paul E. Chang, Nasrullo Loka, **Daolang Huang**, Arno Solin, Markus Heinonen, Luigi Acerbi. “PriorGuide: Test-Time Prior Adaptation for Simulation-based Inference”. *arXiv:2510.13763*, 2025.
3. Conor Hassan, Nasrullo Loka, Cen-You Li, **Daolang Huang**, Paul E. Chang, Yang Yang, Francesco Silvestrin, Samuel Kaski, Luigi Acerbi. “Efficient Autoregressive Inference for Transformer Probabilistic Models”. *arXiv:2510.09477*, 2025.
4. **Daolang Huang**, Louis Filstroff, Petrus Mikkola, Runkai Zheng and Samuel Kaski. “Bayesian Optimization Augmented with Actively Elicited Expert Knowledge”. *arXiv:2208.08742*, 2022.

*Equal contribution

Experience

Doctoral Researcher

Aalto University & ELLIS Institute Finland

Espoo, Finland

Jan 2023 – Present

- Position-based doctoral researcher in Probabilistic Machine Learning Group (Aalto University) and Machine and Human Intelligence group (University of Helsinki)
- Topic: Amortized Bayesian inference

Thesis Worker

Aalto University

Espoo, Finland

Oct 2021 – May 2022

- Master thesis worker in Probabilistic Machine Learning Group (PML), supervised by Prof. Samuel Kaski
- Topic: Human-in-the-Loop Bayesian Optimization

Summer intern

Aalto University

Espoo, Finland

June 2021 – Aug 2021

- Summer intern in Probabilistic Machine Learning Group (PML), supervised by Prof. Samuel Kaski
- Topic: Targeted-aware Bayesian active learning
- Specialized in customized music services for musicians and producers, including mixing and mastering, catering to diverse client requirements and genres

Summer Intern

Neuedu Education Technology Co., Ltd.

Guangzhou, China

June 2019 – Aug 2019

- Summer intern, Python developer

Teaching

Master's Thesis Supervisor, Zhanghu Zhao, *Aalto University*, Autumn 2025.

Intern Supervisor, Ruifeng Nie, *Aalto University*, Spring 2025.

Summer Intern Supervisor, Xinyi Wen, *Aalto University*, Summer 2024.

Master's Thesis Supervisor, Xinyu Zhang, *Aalto University*, Spring 2024.

Bachelor's Thesis Supervisor, Filip Eller, *Aalto University*, Spring 2024.

Bachelor's Thesis Supervisor, Petrus Nikoskinen, *Aalto University*, Spring 2024.

Teaching Assistant, Deep learning, *Aalto University*, Spring 2024.

Tutor, Seminar in computer science, *Aalto University*, Autumn 2023.

Teaching Assistant, Deep learning, *Aalto University*, Spring 2023.

Teaching Assistant, Deep learning, *Aalto University*, Spring 2022.

Teaching Assistant, C Programming, *Jinan University-University of Birmingham Joint Institute*, Spring 2020.

Events

Invited Talk, *RainML Lab, University of Oxford*, October 2025.

Invited Talk, *The Seminar on Computational Engineering, LUT University*, September 2025.

Invited Talk, *Accelerating statistical inference and experimental design with machine learning workshop, Isaac Newton Institute, Cambridge*, June 2025.

Invited Talk, *Mathematical perspective on machine learning seminar, University of Helsinki*, November 2023.

Talk, *FCAI AI day*, November 2023.

Talk and Poster, *ELLIS Doctoral Symposium 2023*, August 2023.

Academic Services

NeurIPS 2024, 2025; AISTATS 2025, 2026; ICLR 2025, 2026; ICML 2025, 2026; AAAI 2026

Awards and Achievements

The Encouragement Grant, The Finnish Foundation for Technology Promotion, 2025.

Top 3 Nominee for AI Researcher of the Year, AI Finland, 2024.

Dean's List Scholarships, Aalto university, 2021.

International Talent Program, Aalto University, 2021.

Honours Program in Computer Science, Aalto University, 2022.

Aalto University Scholarship (100% tuition waiver), Aalto University, 2020.
Scholarship for Outstanding Students, Jinan University, 2017, 2018, 2019.