

# 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, Nasrulloh 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, Nasrulloh 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, Nasrulloh 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, Nasrulloh 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

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### 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

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## **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.

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## **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.

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## **Academic Services**

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

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## **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.