Daolang Huang

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Summary

I am currently a final-year PhD student, 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 meta-learning, I am passionate about exploring and developing innovative methods to enhance model efficiency in complex inferential processes.

Education

Aalto University & University of Helsinki   *July 2022 – present*
PhD, Doctoral progamme 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)
- 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. Paul 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.

2. **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.

3. **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.

4. **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. **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 *Espoo, Finland*
Aalto University & University of Helsinki & FCAI *July 2022 – 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 *Espoo, Finland*
Aalto University *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 *Espoo, Finland*
Aalto University *June 2021 – Aug 2021*
- Summer intern in Probabilistic Machine Learning Group (PML), supervised by Prof. Samuel Kaski and Dr. Louis Filstroff
- Topic: Targeted-aware Bayesian active learning

Startup Founder & Manager *Guangzhou, China*
EDM Heaven *Feb 2017 – Aug 2020*
- Specialized in customized music services for musicians and producers, including mixing and mastering, catering to diverse client requirements and genres

Summer Intern *Guangzhou, China*
Neuedu Education Technology Co., Ltd. *June 2019 – Aug 2019*

- Summer intern, Python developer

Skills

Languages: English (C1), Mandarin (native), Finnish (basic)

Programming: Python, Java, C, R

Data Science: Pytorch, Jax, sklearn, scipy, numpy, pandas, ...

Teaching

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, *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; 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.

Second-class Scholarship for Outstanding Students, Jinan University, 2019.

First-class Scholarship for Outstanding Students, Jinan University, 2018.

Third-class Scholarship for Outstanding Students, Jinan University, 2017.