Daolang Huang

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Summary

I am a third-year PhD student at Aalto University, my research primarily focuses on amortized inference, leveraging neural networks to expedite various 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 *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**, 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.

2. **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.

3. **Daolang Huang**, Manuel Haussmann, Ulpu Remes, *et al.* "Practical Equivariances via Relational Conditional Neural Processes". In *Proceedings of the 36th International Conference on Neural Information Processing Systems (**NeurIPS**)*, 2023.

4. 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. **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.

2. **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.

3. **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. Paul Chang*, Nasrulloh Loka*, **Daolang Huang**, Ulpu Remes, Samuel Kaski and Luigi Acerbi. "Amortized Probabilistic Conditioning for Optimization, Simulation and Inference". *arXiv preprint axXiv:2410.15320*, 2024.

2. Ayush Bharti, **Daolang Huang**, Samuel Kaski and F.X Briol, "Cost-Aware Simulation-Based Inference". *arXiv preprint axXiv:2410.07930*, 2024.

3. **Daolang Huang**, Louis Filstroff, Petrus Mikkola, Runkai Zheng and Samuel Kaski."Bayesian Optimization Augmented with Actively Elicited Expert Knowledge". *arXiv preprint arXiv:2208.08742*, 2022.

Experience

Doctoral Researcher *Espoo, Finland*
Aalto University *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

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

Poster and Photographer, *FCAI AI day + Nordic AI Meet*, October 2024.

Poster, *NeurIPS 2023*, December 2023.

Poster, *ELLIS Unit Helsinki pre-NeurIPS Fest 2023*, December 2023.

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

Talk, *FCAI AI day*, November 2023.

Poster, *ELLIS RobustML Workshop*, September 2023.

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

Poster, *ICML 2023 workshop The Many Facets of Preference-based Learning*, July 2023.

Academic Services

NeurIPS 2024, AISTATS 2025, ICLR 2025

Awards and Achievements

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.

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.