Luise Ge

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Education

Washington University in St Louis — St. Louis, MO
Ph.D. in Computer Science — 2023 - 2028 *(expected)*
- Advisor: Prof. Yevgeny Vorobeychik

Imperial College London — London, England
MSc. Pure Mathematics (Distinction) — 2022 - 2023
- Advisor: Prof. Paolo Cascini

University of Edinburgh — Edinburgh, Scotland
BSc. (Hons) Artificial Intelligence and Mathematics (First Class) — 2018 - 2022

Publications

1. **Luise Ge**, Gregory Kehne, Yevgeniy Vorobeychik, "Optimized Distortion in Linear Social Choice," *the 40th Annual AAAI Conference on Artificial Intelligence (**AAAI**)*, 2026, (Oral).
2. **Luise Ge**, Michael Lanier, Anindya Sarkar, Bengisu Guresti, Chongjie Zhang, Yevgeniy Vorobeychik, "Learning Policy Committees for Effective Personalization in MDPs with Diverse Tasks," *the 42nd International Conference on Machine Learning (**ICML**)*, 2025.
3. (α-β) **Luise Ge**, Brendan Juba, Kris Nilsson, "Polynomial-Time Relational Probabilistic Inference in Open Universes", *the 34th International Joint Conference on Artificial Intelligence (**IJCAI**)*, 2025.
4. (α-β) **Luise Ge**, Daniel Halpern, Evi Micha, Ariel D. Procaccia, Itai Shapira, Yevgeniy Vorobeychik, Junlin Wu, " Axioms for AI Alignment from Human Feedback", *the 38th Annual Conference on Neural Information Processing Systems (**NeurIPS**), 2024 (Spotlight, 2.1% of submissions)*.
5. **Luise Ge**, Brendan Juba and Yevegniy Vorobeychik, "Learning Linear Utility Functions From Pairwise Comparison Queries" *the 23rd International Conference on Autonomous Agents and Multiagent Systems (AAMAS) SCaLA Workshop, one-page abstract accepted by the 8th International Conference on Algorithmic Decision Theory (ADT), 2024*

Work in Progress

1. (α-β) **Luise Ge**, Daniel Halpern, Gregory Kehne, Yevgeniy Vorobeychik, "Linear Social Choice with Queries: A Moment-Based Approach".
2. **Luise Ge**, Ryan Zhang, Yevgeniy Vorobeychik, "Mapping the Decision-Making Landscape from Humans to Large Language Models: A Multi-Factor Analysis".
3. Ben Rachmut, **Luise Ge**, Yevgeniy Vorobeychik, "Model-Agnostic Personalized Federated Learning with Clustered Server Models and Pseudo-Label-Only Communication".
4. (α-β) **Luise Ge**, Brendan Juba, Kris Nilsson, Alison Shao, "Lifted Relational Probabilistic Inference via Implicit Learning".
5. **Luise Ge**, Brendan Juba, "Query-Driven Learning for Lifted Reasoning ".

Awards and Honors

- **Cox Fellowship**, Washington University in St. Louis — 2023
- **Best Final Year Performance by Woman Student**, School of Informatics, University of Edinburgh — 2022
- **Outstanding Honours Project**, School of Informatics, University of Edinburgh — 2022

Research Experience

Edinburgh University | Laboratory for Foundations of Computer Science 2022

- Fair Allocation of Chores, Undergraduate Thesis
- Implemented and optimized a multi-stage algorithm to compute the competitive equilibria of chore allocation, tackling challenges in computational complexity, incentive compatibility, and privacy preservation. This work demonstrates expertise in designing scalable algorithms and analyzing user behavior under complex constraints, applicable to recommender systems and ranking models.

Edinburgh University | Laboratory for Foundations of Computer Science 2022

- Investigating the structures of small compact categories for category-based cryptography, Summer Intern
- Explored category theory to design a novel public key encryption protocol, leveraging the universal properties of mathematical structures. Developed algorithms in GAP to analyze category properties, demonstrating strong problem-solving and computational skills that can be applied to ensuring data integrity and privacy in graph-based ML models.

Edinburgh University | Laboratory for Foundations of Computer Science 2021

- Probabilistic modeling for advanced health care, Summer Intern
- Developed probabilistic models using real-world sensor data to simulate daily activities and interactions, showcasing skills in Markov analysis, stochastic modeling, and graph-based representations. These techniques align closely with data-driven modeling and graph analysis used in user modeling and personalization tasks.

Oxford University | Mathematics Department 2020

- Analyzing the dynamics of deep neural networks with chaos theory, Summer Intern
- Investigated the stability and dynamics of deep neural networks through Lyapunov spectrum analysis, using TensorFlow for automatic differentiation. This research provided insights into the robustness and optimization of neural architectures, directly applicable to enhancing recommender systems and ranking algorithms.

Teaching

Demonstrator: *Cognitive Science*, 2021, 2022, University of Edinburgh

Tutor: *Introduction to Algorithms and Data Structures*, 2021, University of Edinburgh
Introduction to Computation and Logic, 2020, University of Edinburgh

Academic Services

Conference Reviewer:
International Conference on Learning Representations (ICLR '25)

Journal Reviewer: *Journal for Artificial Intelligence Research (JAIR '25)*

Leadership and Outreach

Graduate Ambassador: Washington University in St Louis 2024-

Maths Student Representative: Imperial College London 2023

Edinburgh Award (Volunteering 50h+) 2020

Edinburgh Award (Change Agents) 2019