Luise Ge

g.luise@wustl.edu
LinkedIn
luisegehaijing.github.io

Bio

PhD student passionate about AI, with research focus on alignment, integrating learning and reasoning, and multi-agent systems. I am excited to tackle all kinds of problems, theoretical or empirical, and thrive on challenges. I endeavor to bring fast learning, creativity, and strong interpersonal skills to every collaboration.

Education

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

- Advisor: Prof. Yevgeny Vorobeychik and Prof. Brendan Juba
- **GPA: 4.0/4.0**
- Coursework: Advanced Computer Architecture, Machine Learning, Deep Reinforcement Learning, Advanced Algorithms, High Dimensional Probability

Imperial College London — London, England
MSc. Pure mathematics — 2022 - 2023

- **Distinction**
- Specialized in Geometry and Topology

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

- **First Class**
- Coursework: Linguistics, Psychology, Cognitive Science, Real and Complex Analysis, Measure Theory, Differential Geometry, Group Theory, Cryptography, Theoretical Computer Science, Automated Reasoning

Publications and Preprints

1. (α-β) **Luise Ge**, Brendan Juba, Kris Nilsson, "Polynomial-Time Relational Probabilistic Inference in Open Universes", *34th International Joint Conference on Artificial Intelligence (IJCAI)*,2025
2. **Luise Ge**, Michael Lanier, Anindya Sarkar, Bengisu Guresti, Yevgeniy Vorobeychik, Chongjie Zhang, "Learning Policy Committees for Effective Personalization in MDPs with Diverse Tasks," arXiv:2503.01885, 2025
3. (α-β) **Luise Ge**, Daniel Halpern, Evi Micha, Ariel D. Procaccia, Itai Shapira, Yevgeniy Vorobeychik, Junlin Wu, " Axioms for AI Alignment from Human Feedback", *38th Annual Conference on Neural Information Processing Systems (NeurIPS), 2024 (Spotlight!)*.
4. **Luise Ge**, Brendan Juba and Yevegniy Vorobeychik, "Learning Linear Utility Functions From Pairwise Comparison Queries" *23rd International Conference on Autonomous Agents and Multiagent Systems SCaLA Workshop, one-page abstract accepted by the 8th International Conference on Algorithmic Decision Theory, 2024*

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.

Leadership and Outreach

Maths Student Representative of The Year: Imperial College London

Edinburgh Award: *Volunteered 50+ hours for the isolated erderly*

Edinburgh Award (Change Agents) : *Led research team for circular economy in collaboration with construction industry*

Morgan Stanley Technology Insight, QuantumBlack Women in Technology

Academic Services

Conference Reviewer:
International Conference on Learning Representations (ICLR) 2025

Journal Reviewer: *Journal for Artificial Intelligence Research*

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

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