Kaiyuan Liu

Seattle lky04@cs.washington.edu kaiyuanliu04.github.io Kaiyuan Liu

Education

B.S. **University of Washington, Seattle** 2022 – 2026
Double Major: Computer Science, Mathematics
- GPA: 3.9/4.0; Honor Math Sequence; Dean's List

Experience

Allen Institute, Research Assistant Seattle, WA
2024.09 – 2025.05
- Applied Deep Learning and Reinforcement Learning to analyze representations from artificial models and neural data from Multi-Armed Bandit mouse foraging tasks. Explored brain representations and dynamics in decision making

VecML, Machine Learning Engineer Seattle, WA
2024.06 – 2024.09
- VecML is a startup company focusing on Machine Learning System Infrastructure.
- Tested and developed vector databases for Retrieval-Augmented Generation.
- Designed and implemented an Memory-Disk Hybrid Architecture for fast Top-K Nearest Neighborhood Search

University of Washington, Teaching Assistant Seattle, WA
2023 – 2024
- Assisted in undergraduate algorithm courses for both major (CSE 421) and non-major (CSE 417) students.
- Served as leading TA in CSE 421 2024 Winter.

Awards

ICPC World Final Honor, ICPC Foundation 2024.09
Shenoy Undergraduate Research Fellowship, Simons Foundation 2024–2025
ICPC North American Championship 12th Place, ICPC Foundation 2024.05
UW Winter Programming Contest Champion, University of Washington 2023–2024
CSE Award for Excellence Scholarship, University of Washington 2024–2025

Publications

LiveCodeBench Pro: How Do Olympiad Medalists Judge LLMs in Competitive Programming? 2024
Zihan Zheng*, ..., Kaiyuan Liu*, *et al.* *Equal contribution
Under review at a top-tier conference

Projects

Fine-grained Chinese Toxic Language Detection NLP
- Reimplemented and improved Chinese toxic language classifier based on BERT
- Authored technical poster and report

Multi-Agent Reinforcement Learning Survey RL
- Conducted literature review on MARL algorithms, especially in games.

Variational Autoencoder for Neural Data DL

- Implemented VAE model for analyzing high-dimensional neural data

Technologies

Languages: Python, PyTorch, JAX, C++, Java, TypeScript, LaTeX

Databases: MySQL, NoSQL, PostgreSQL, SQLite, Azure

Topics: Algorithm Design, Reinforcement Learning, Machine Learning, NLP, Computational Neuroscience

Languages: English, Chinese (Mandarin)