Raymond Liu

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Education

Harvard University 2024 – Present

- PhD in Computer Science (GPA: 4.0/4.0)
- Funded by the NSF GRFP (terminated with mass Harvard NSF termination)

Princeton University 2019 – 2023

- BSE in Computer Science (GPA: 3.9/4.0)
- Minor in Statistics and Machine Learning
- Relevant courses: Computer Vision, NLP, Mathematics for Machine Learning, Algorithms and Data Structures, Statistics & Data Analysis, Computer Architecture

Publications

Raymond Liu and Patrick Slade. Improving navigation for people with blindness using an AI-driven smartphone application and personalized audio guidance. *Under review at* ***Nature***, 2025

Raymond Liu, Louis Marchand, Elena Glassman, and Patrick Slade. Training methods for spatial audio feedback with human-robot interaction. *In preparation*, 2025

Work Experience

Visiting Researcher at Harvard Ability Lab July 2023 – Aug. 2024

- Developing a smartphone-based navigation assistant for people who are blind or visually impaired.
- For this work, we received funding from the Amazon Greater Boston Tech Initiative ($50k) and the Harvard GRID Accelerator ($100k).

Software Engineering Intern at Amazon May 2022 – Aug. 2022

- Developed, tested, and optimized an API in Java to send parallelized batch requests to Elasticsearch and greatly speed up workflows.

Teaching Assistant at Princeton University Sept. 2021 – May 2023

- TA for COS340 – Reasoning about Computation
- Guided students during regular office hours; graded and provided feedback for assignments and exams.
- Covered mathematical and theoretical topics in computer science – combinatorics, probability, graph theory, NP-completeness, and cryptography.

Research Project at Princeton University June 2021 – Feb. 2022

- Joined the Laboratory for Intelligent Probabilistic Systems under Ryan Adams.
- Developed a system for visualizing generative models in 3D hyperbolic space. Created a model and projection of 3D hyperbolic space using OpenGL and connected the model with a model for generating correlated images based on geodesic distance.

Research Assistant at Princeton University June 2020 – Aug. 2020

- Joined the Princeton Vision & Learning Lab to work on a visual learning project on optical flow.
- Developed and optimized a system for collecting human-annotated images and predicting ground truth optical flow from annotation pairs.

Computer Graphics Internship at Oregon State University June 2018 – Aug. 2018

– Designed a ray tracer / image renderer from scratch using C++. Tested and implemented a variety of methods to increase image realism and accelerate rendering speed.

Honors, Awards, and Achievements

NSF Graduate Research Fellowship Awardee Apr. 2024

Harvard GRID Accelerator Awardee Feb. 2024

– Received $100k in funding for our proposal, "Navigation assistant for people with impaired vision or blindness."

Amazon Greater Boston Tech Initiative Awardee Dec. 2023

– Received $50k in funding for our proposal, "Curriculum for developing a robotic navigation assistant for people with visual impairment."

NSF Graduate Research Fellowship Honorable Mention Mar. 2023

USA Junior Math Olympiad Qualifier Apr. 2018

– One of 156 qualifiers nationwide.

American Invitational Mathematics Examination Qualifier 2016, 2017, 2018

– The top 2.5% of participants in the AMC 10 exam qualify for the AIME.

Oregon Invitational Mathematics Tournament - 3rd Place (Team Event) May 2018

Oregon Invitational Mathematics Tournament - 4th Place (Calculus) May 2017

Intel Northwest Science Expo (NWSE) Finalist Apr. 2017

IEEE Excellence in Computer Science Award at Intel NWSE Apr. 2017

Central Western Oregon Science Expo (CWOSE) Finalist Feb. 2017

Yale Science and Engineering Award in Computer Science at CWOSE Feb. 2017