Xinran Liang

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Education

Princeton University *Princeton, NJ*

Doctor of Philosophy in Computer Science Sep 2022 - Present

Selected Coursework: Theoretical Machine Learning, Computer Vision, Computer Networks, Information Theory and Applications, Probabilistic Inference of Actions in Reinforcement Learning

University of California, Berkeley *Berkeley, CA*

Bachelor of Arts in Applied Mathematics and Data Science Aug 2018 - May 2022

GPA: 4.0 / 4.0

Selected Coursework: Probability and Stochastic Process, Optimization Models, Efficient Algorithms, Real and Complex Analysis, Linear Algebra, Artificial Intelligence, Machine Learning, Deep Reinforcement Learning, Deep Unsupervised Learning, Deep Learning for Computer Vision

Awards and Honors

May 2022	**Department Citation in Data Science**	*Berkeley*
May 2022	**Outstanding Graduate Student Instructor Award** (<10% nomination)	*Berkeley*
May 2022	**Percy Lionel Davis Award for Excellence in Scholarship in Mathematics**	*Berkeley*

Publications

- **Personalized Generative Models for Contextual Debiasing**
  Xinran Liang, Esin Tureci, Prachi Sinha, Vikram Ramaswamy, Ye Zhu, Olga Russakovsky
  under review, 2024

- **ALP: Action-Aware Embodied Learning for Perception**
  Xinran Liang, Anthony Han, Wilson Yan, Aditi Raghunathan, Pieter Abbeel
  arxiv preprint, 2023

- **Reward Uncertainty for Exploration in Preference-based Reinforcement Learning**
  Xinran Liang, Katherine Shu, Kimin Lee, Pieter Abbeel
  International Conference of Learning Representations (ICLR), 2022

Research Experience

Princeton VisualAI Lab *Princeton, NJ*

Graduate Student Researcher Jan 2023 - Present

- Advisor: Olga Russakovsky.
- Investigated fairness considerations related to classifier-free diffusion guidance in class-conditional and text-to-image generative models.
- Proposed an approach to utilize generative models for task-specific augmentations to address limitations in vision datasets and improve generalization capabilities of recognition models by adapting personalized finetuning objectives.

Berkeley Artificial Intelligence Research *Berkeley, CA*

Undergraduate Student Researcher Jun 2021 - Aug 2022

- Advisors: Kimin Lee, Aditi Raghunathan, Pieter Abbeel.
- A simple and efficient exploration method based on epistemic uncertainty from human feedback, and improved both sample- and feedback-efficiency of preference-based reinforcement learning algorithms in complex decision making tasks.
- An embodied learning framework based on active exploration for visual representations and perception tasks in complex 3D environments. Proposed to learn visual representations by incorporating action supervisions from agent movements.

Teaching Experience

Princeton University *Princeton, NJ*

Graduate Student Instructor Sep 2023 - May 2024

- Introduction to Machine Learning (CS 324). GSI: Fall 2023.
- Algorithms and Data Structures (CS 226). GSI: Spring 2024.

University of California, Berkeley *Berkeley, CA*

Undergraduate Student Instructor Jan 2020 - May 2022

- Probability for Data Science (Data 140). Head uGSI: Spring 2021, Fall 2021, and Spring 2022; uGSI: Fall 2020; Tutor: Spring 2020.
- Principles and Techniques of Data Science (Data 100). uGSI: Summer 2020.

Technical Skills

Programming and Tools PyTorch, Python, Git, Linux, Mujoco

Algorithms Generative Models, Representation Learning, Reinforcement Learning, Computer Vision, Deep Learning