Xinran Liang

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Education

Princeton University   *Princeton, NJ*
Doctor of Philosophy in Computer Science   Sep 2022 - Present

University of California, Berkeley   *Berkeley, CA*
Bachelor of Arts in Applied Mathematics and Data Science   Aug 2018 - May 2022
GPA: 4.0 / 4.0.
Related coursework: Artificial Intelligence, Machine Learning, Optimization, Probability and Stochastic Process, Efficient Algorithms, Deep Reinforcement Learning, Deep Learning for Computer Vision, Deep Unsupervised Learning, Real and Complex Analysis, Linear Algebra

Research Experience

Robot Learning Lab at Berkeley Artificial Intelligence Research   *Berkeley, CA*
Undergraduate Researcher   Jun 2021 - Aug 2022
- Advisors: Kimin Lee, Aditi Raghunathan, Pieter Abbeel.
- Developed a simple, efficient, and scalable exploration method based on epistemic uncertainty in human feedback. Our goal is to encourage human-guided exploration different from novelty-based exploration. Our approach improved both sample- and feedback-efficiency of preference-based RL algorithms in complex robot manipulation tasks.
- Investigated self-supervised visual pre-training based on active exploration in complex 3D environments. We show that visual features to select good action can be transferred to perform well in downstream semantic perception task and action information can provide additional benefits in visual representation learning. Our approach achieves competitive performance to ImageNet pre-training.

Publications

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

Awards and Honors

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

Teaching Experience

University of California, Berkeley   *Berkeley, CA*
Undergraduate Student Instructor   Jan 2020 - May 2022
- Supervisor: Prof. Ani Adhikari
- Probability for Data Science (Prob 140). Head uGSI: Spring 2021, Fall 2021, Spring 2022; uGSI: Fall 2020; Tutor: Spring 2020.
- Principles and Techniques of Data Science (Data 100). uGSI: Summer 2020.
- Responsible for content creations and pedagogy, teaching sections, staff management, office hours, and communications with students.

Technical Skills

Programming and Tools	Python, PyTorch, Tensorflow, Git, Linux, OpenAI libraries
Algorithms	Reinforcement Learning, Computer Vision, Deep Learning