

# Xinran Liang

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## Education

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**University of California, Berkeley**

Aug 2018 - Present

**Bachelor of Arts in Applied Mathematics and Data Science**

Domain Emphasis: Statistics and Applied Mathematics Modeling

**GPA:** 4.0/4.0; **Major GPA:** 4.0/4.0

## Research Experience

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**Robot Learning Lab**

**Undergraduate Researcher**

Jun 2021 - Present

- Advisors: Kimin Lee and Pieter Abbeel
- Investigated human-in-the-loop RL algorithms for autonomous control of bulldozer simulators. Built an interactive interface to input real human preferences for RL training. Goal is to allow robots learn desired behaviors guided by real-time human feedback.
- Developed a simple, efficient, and scalable exploration method based on epistemic uncertainty in human feedback. Goal is to encourage human-guided exploration different from novelty-based exploration. Improved both sample- and feedback-efficiency of preference-based RL algorithms in complex robot manipulation tasks.

## Publications

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- **Reward Uncertainty for Exploration in Preference-based Reinforcement Learning**

Xinran Liang, Katherine Shu, Kimin Lee\*, Pieter Abbeel\*

Accepted to *NeurIPS 2021 Deep Reinforcement Learning Workshop*.

Accepted to *International Conference of Learning Representations (ICLR) 2022*.

## Teaching Experience

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**University of California, Berkeley**

**Head Undergraduate Student Instructor: Probability for Data Science (Prob140)**

Jan 2021 - Present

- Faculty supervisor: Ani Adhikari
- Head uGSI for UC Berkeley's upper division probability course. Teach two weekly problem solving sections.
- Prepare pedagogy guide for course staffs, write problems for assignments and exams, and hold office hours.
- Maintain course website, develop textbook and code library, and hold internal course staff meetings.

**Undergraduate Student Instructor: Probability for Data Science (Prob140)**

Aug 2020 - Dec 2020

- Faculty supervisor: Ani Adhikari
- uGSI for UC Berkeley's upper division probability and statistics course.
- Teach two problem solving weekly sections, hold office hours, review assignments, and grade exams.

**Undergraduate Student Instructor: Principles and Techniques of Data Science (Data100)**

May 2020 - Aug 2020

- uGSI for UC Berkeley's upper division data science course.
- Develop assignments and lecture materials, write and grade exam questions, and monitored technology infrastructures.

**Group Tutor: Probability for Data Science (Prob140)**

Jan 2020 - May 2020

- Faculty supervisor: Ani Adhikari
- Grade homework and lab assignments, hold office hours, and teach weekly tutoring sessions to help struggling students.

## Selected Coursework

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| • Data102 Data, Inference, and Decisions (IP)     | • CS170 Efficient Algorithms (A)                |
| • CS189 Machine Learning (A)                      | • CS61B Data Structures (A+)                    |
| • EECS127 Optimization Models in Engineering (A+) | • CS61C Machine Structures (A)                  |
| • Prob140 Probability for Data Science (A+)       | • Math104 Real Analysis (A+)                    |
| • Stat150 Stochastic Processes (A+)               | • Math110 Linear Algebra (A)                    |
| • CS285 Deep Reinforcement Learning (self-study)  | • CS294 Deep Unsupervised Learning (self-study) |

## Technical Skills

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- Language and Tools: Python, Java, PyTorch, C, SQL, Git, Linux