Chunyuan (Bill) Zheng

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Education

University of California, Berkeley **August 2021 – May 2025 (Projected)**
B.S., Electrical Engineering and Computer Science **GPA: 3.984/4**

- Activities: IEEE; Space Technologies at Cal
- Courses highlights: Deep Reinforcement Learning*, Natural Language Processing*, Machine Learning (A+), Robotic Manipulation and Interaction, Introduction to Robotics, Deep Neural Networks, Computer Vision, Information Theory and Coding*, Artificial Intelligence, Random Processes in Systems*, Machine Structures, Discrete Math and Probability Theory (A+), Data Structures, Python, Intro to EE (A+)

*: Graduate Level Courses

Publications

Successor Representations Enable Emergent Compositional Instruction Following *LEAP workshop, CoRL 2024*
V Myers*, **C Zheng***, A Dragan, S Levine, K Fang, https://openreview.net/pdf?id=MG2Zkf0haD
We observe emergent long-horizon behavior in real-world robotic manipulation tasks by creating a quasimetric via aligning state representations across time within training data.

Policy Adaptation via Language Optimization: Decomposing Tasks for Few-Shot Imitation *CoRL 2024*
V Myers*, **C Zheng***, O Mees, S Levine†, K Fang†, https://arxiv.org/abs/2408.16228
We use VLMs to propose language decompositions to optimize pre-trained, language-conditioned robotic policies to execute long-horizon, unseen tasks with only a few demonstrations.

THESAN-HR: Galaxies in the Epoch of Reionization in warm dark matter, fuzzy dark matter and interacting dark matter *MNRAS 2023*
Xuejian Shen, Josh Borrow, Mark Vogelsberger, …, **Chunyuan Zheng,** https://arxiv.org/abs/2304.06742
We discover that alternative models of dark matter induce considerable systemic uncertainty in galaxy formations.

Research

Berkeley Artificial Intelligence Research (BAIR)
Robotics, AI & Learning Lab **January 2024 – Present**

- Advised by Prof. Sergey Levine and Prof. Kuan Fang. In collaboration with Dr. Oier Mees and Ph.D. Student Vivek Myers. Currently researching how to effectively leverage visual and language representations in training robot foundation models.
- Previously implemented algorithms for vision-language models and contrastive time representations that improve task performance in diverse robotic manipulation settings.
- Helped organize lab events and presented academic literature in group meetings.

Malik Group **March – October 2023**

- Worked with Prof. Jitendra Malik and Ph.D. Student Ilija Radosavovic in research on reinforcement learning, robot learning, and computer vision. Implemented robot learning algorithms incorporating reinforcement learning algorithms based on a vision-based learning benchmark using a pre-trained ViT backbone.
- Previously implemented meta-learning algorithms to aid better in-context learning algorithms for vision.

Massachusetts Institute of Technology **November 2022 – April 2023**
Undergraduate Researcher

- Under the supervision of Prof. Mark Vogelsberger at MIT's physics department, working with Ph.D. student Jacob Shen at CalTech. Deployed code for L-1 regression for stellar mass detection.
- Implemented a Variational Autoencoder and a Masked Autoencoder system to capture latent information of particle behavior under THESAN simulation.

Projects

Distance-Weighted Implicit Q-Learning (DIQL) *CS285 Final Project*

- We demonstrated the viability of reducing overestimation bias and pessimism in Implicit Q-Learning (IQL) by incorporating spatial distance between sampled data and replay buffer using RND into current IQL methods.
- Our method maintained performance in discrete-action benchmarks and improved performance for data ablation.

Programming Languages and Systems: Python, C, Java, C++, JavaScript, HTML, CSS, URDF, Linux (Ubuntu), ROS
Libraries: Jax, PyTorch, TensorFlow, Keras, Isaac Gym, MuJoCo, D3RLPy, LLaMa2, GPT-4 (prompt engineering)

Teaching & Volunteering

Academic Student Employee **August 2023 – Present**

Incoming Undergraduate Student Instructor, CS189/289A (Introduction to Machine Learning), SP25

Tutor (UCS1), CS180/280A (Introduction to Computer Vision), FA24

- Grade projects, host office hours, answer questions from Ed, create new teaching content, and coordinate student logistics in a class of 300 students.

Reader, CS194-196/294-196 (Special Topics in Generative AI and Decentralized Intelligence), FA23

- Grade homework and projects from a class of 120 students, host office hours, and answer questions on Ed.

Computer Science Mentors **January 2023 – Present**

EECS16B, Course Coordinator

- Held discussion sections and office hours weekly for students needing help taking EECS16B. Led small family meetings with junior mentors weekly to demonstrate teaching techniques. Covered advanced circuits and linear algebra topics such as SVD, Spectral Theorem, linearization, RL/RC/RLC circuits, filters, and control theory.
- Leading the EECS16B team to cover content and logistical issues for social events and review sessions.

Awards & Honors

EECS Honors **January 2024**

Statistics Concentration

- Selected for strong performance in studies related to statistical learning.

Tau Beta Pi **October 2024**

California Alpha Chapter

- Selected for academic excellence (top eighth of junior class) within Berkeley's College of Engineering

IEEE-HKN **December 2022**

Mu Chapter

- Selected for academic excellence(top quarter of EECS junior class) within Berkeley's EECS Program.

Dean's List **Spring 2022 – Present**

- Selected for being in the top 10% in GPA throughout my undergraduate career.

References

Sergey Levine
Associate Professor at UC Berkeley
Contact: svlevine@eecs.berkeley.edu
Relationship: Research Supervisor at Robotics, AI, and Learning Lab

Kuan Fang
Assistant Professor at Cornell University
Contact: kuanfang@cornell.edu
Relationship: Research Mentor and Supervisor while working as Postdoc at UC Berkeley

Alexei Efros
Professor at UC Berkeley
Contact: efros@eecs.berkeley.edu
Relationship: Instructor and Supervisor at CS180 during my teaching tenure