

# 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\*, Artificial Intelligence, Random Processes in Systems\*, Machine Structures, Discrete Math and Probability Theory (A+), Data Structures, Python, Intro to EE (A+)

\*: Graduate Level Courses

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## Publications

### Successor Representations Enable Emergent Compositional Instruction Following

*LEAP workshop, CoRL 2024*

V Myers\*, C Zheng\*, A Dragan, S Levine†, K Fang†

We observe emergent long-horizon behavior in real-world robotic control 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.

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## 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. Studying how vision-language models and contrastive time representations improve performance in diverse robot learning 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. I implemented a Variational Autoencoder and a Masked Autoencoder system to capture latent information of particle behavior under THESAN simulation.
- Contributed to THESAN-HR: Galaxies in the Epoch of Reionization in Warm Dark Matter, Fuzzy Dark Matter, and Interacting Dark Matter (<https://arxiv.org/abs/2304.06742>)

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## 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.

### Hyena-RL

*Personal Project*

- Implemented sequence-model-based reinforcement learning algorithms through Hyena, a novel sequence modeling technique most recently used in NLP in JAX.
- Reduced runtime for RL algorithms or similarly sized decision-transformer models by 40% while attaining similar results when trained on Google's TPU units.

**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)

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## Teaching

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### Academic Student Employee

August 2023 – Present

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

- Grade projects, host office hours, answer questions from Ed, and attend weekly staff meetings to 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 introduction to control theory.
- Leading the EECS16B team to cover content and logistical issues for social events and review sessions.

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## Awards & Honors

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### 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.

**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)