

James Ni

Email

jmni@berkeley.edu

Website

<https://jaynye.github.io/>

ABOUT ME

I'm a postbaccalaureate researcher at Berkeley Artificial Intelligence Research (BAIR) since 2025, where I work closely with Professor Jitendra Malik, Professor Trevor Darrell, and Dr. Roei Herzig. Prior to this, I'm grateful to have also worked with PhD student Ilija Radosavovic. I graduated with a B.S. in EECS with Highest Honors, and B.A. in Applied Mathematics with Highest Distinction, from the University of California, Berkeley. My research focuses on the long-term goal of building general-purpose humanoid robots. My current work specializes in learning humanoid locomotion, motion tracking, and bimanual dexterous manipulation using deep reinforcement learning. I am eager to expand this work using out-of-domain priors and vision-based planning for long-horizon tasks.

EDUCATION

2021-2025 | Bachelor of Science in Electrical Engineering and Computer Science (EECS), **Highest Honors**
Bachelor of Arts in Applied Mathematics, **Highest Distinction in General Scholarship**
University of California (UC), Berkeley

Selected Graduate Coursework: Computer Vision, Deep Reinforcement Learning (RL), Multi-agent Systems

Selected EECS Coursework: Machine Learning (A+), Robotic Manipulation (A+), Optimization Models, Computer Graphics, Databases, Network Architecture, Computer Security, Operating Systems, Algorithms, Digital Design and Integrated Circuits (ASIC)

Selected Mathematics Coursework: Complex Analysis, Abstract Algebra (A+), Abstract Linear Algebra (A+), Numerical Analysis, Stochastic Processes I-II (A+), Enumerative Combinatorics, Real Analysis

GPA: 4.0/4.0

PUBLICATIONS

2025 | **J.M. Ni***, Z. Wang*, W. Lin*, A. Bar*, Y. Lecun, T. Darrell, J. Malik, R. Herzig
From Generated Human Videos to Physically Plausible Robot Trajectories
In Review for CVPR 2026.

2021 | **J.M. Ni**
Geometric Newton Inequalities
Proceedings of the American Mathematical Society

AWARDS & DISTINCTIONS

2025 | Arthur M. Hopkins Award, UC Berkeley

PROFESSIONAL EXPERIENCE

2025-present | Postbaccalaureate Researcher @ Berkeley Artificial Intelligence Research (BAIR)
- Advised by Professor Jitendra Malik, Professor Trevor Darrell, and Dr. Roei Herzig
- Currently working on generalist humanoid control policies (confidential, in-progress)

2023-2025 | Undergraduate Researcher @ BAIR
- Advised by Professor Jitendra Malik, Professor Trevor Darrell, and Dr. Roei Herzig
- Trained a 2D hand keypoint annotation model (ViT) for large-scale dataset generation using MMPose
- Trained humanoid locomotion, motion-capture based tracking, and bimanual pick and place policies using deep RL across 5 embodied modalities and 2 simulators, with sim-to-real transfer

2024-2025 | Undergraduate Student Instructor for CS 189 @ UC Berkeley

CURRICULUM VITAE

Nov 15, 2025

	<ul style="list-style-type: none">- Undergraduate student instructor (uGSI) for CS 189, the flagship machine learning course, in Spring 2025 and Fall 2024, with duties including leading discussions, hosting review sessions and office hours, exam and content creation
2023-2024	<p>Undergraduate Student Instructor for EECS 16B @ UC Berkeley</p> <ul style="list-style-type: none">- uGSI for the laboratory component of EECS 16B, the second year circuits and linear algebra course in Spring 2024- Former lab assistant in Fall 2023 and Spring 2023

SELECTED PROJECTS

2025	<p>Learning spades using multi-agent policy gradients</p> <ul style="list-style-type: none">- Implemented the high-dimensional, partially-observable, cooperative game of spades in a fully vectorized Gym env.- Use a System 1-System 2 hierarchy to decompose the bidding and playing phases of the game- Trained a playing module using multi-agent PPO which significantly outperforms random play
2025	<p>Realistic lightning simulation</p> <ul style="list-style-type: none">- In collaboration with Jennifer Cao, Sonia Chacon, and Claire Ding- Implemented two models of lightning with shaders, real-time generation, visualization, GUI, and GPU acceleration- Created a data-efficient API for communicating between the application (C++) and simulation backend (Python)
2024	<p>Robust quadruped control, safety, and recovery using separating hyperplanes</p> <ul style="list-style-type: none">- In collaboration with Kalie Ching, Harshika Jalan, and Akhil Vemuri- Cast the simultaneous control, safety, and recovery of robotic systems as a hierarchical RL problem- Extended original separating hyperplane work by Professor Jason Choi to a high-dimensional, system using RL at scale in IsaacGym, and showed successful recovery behavior in simulation
2023	<p>Small-scale im2gps with masked autoencoders</p> <ul style="list-style-type: none">- Created a challenging, small scale dataset for image geolocation based on an S2 cell partition of the USA- Trained low-rank adaptation (LoRA) and decoder for predicting geolocation based on pretrained MAE- Achieved comparable results to historical state-of-the-art with very little compute (a single Google Colab instance)
2019-2021	<p>Annotating RNA-seq single cell using NLP and GSEA</p> <ul style="list-style-type: none">- In collaboration with Alexander Wenzel and Jill Mesirov- Web-scraped gene descriptors from NCBI and used sentiment analysis with TF-IDF for feature extraction- Aggregated significance and enrichment scores for keywords and clusters of cells using GESA- Allows researchers to automate interpretation of single-cell data through classification and description of cell clusters

TECHNICAL SKILLS

Languages	Python, C, C++, Java, SQL, Rust, Go, Javascript, HTML, Verilog
Technologies	CUDA, Docker, Linux, Slurm, Hammer VLSI, MongoDB, Git
Frameworks	PyTorch, IsaacGym, MuJoCo, JAX, Viser, OpenCV, ROS