Zekai Wang

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Education

University of California, Berkeley — Dec 2026 (Expected)
Bachelor of Arts in Computer Science — *Berkeley, CA*
Bachelor of Arts in Applied Mathematics — GPA: 3.97 / 4.00

Publications & Preprints *(* denotes co-first authors)*

T-Rex-RL: Improving Tactile-Reactive Dexterous Manipulation with Real-World Reinforcement Learning — **Under Review**
Zekai Wang*, Jianglong Ye*, Dantong Niu*, Pietro Signorino, Stefano Saravalle, Raj Saravanan, Konstantinos Kallidromitis, Fabio Galasso, Roei Herzig, Trevor Darrell

Robota-Embed: Unified VLA Embeddings for Robot In-Context Learning and Evolution — **Under Review**
Yunze Liu*, Jing Wang*, Shenrui Wu, Wenkun He, Guanqi Zhan, Xianzheng Ma, Junyu Chen, Wenhang Ge, Haozhan Tang, Yuchao Gu, Zhuoyang Zhang, **Zekai Wang**, Dantong Niu, Zhen Dong, Yuke Zhu, Trevor Darrell, Linxi Fan, Song Han, Han Cai

DexTacWAM: A Visuo-Tactile World-Action Model for Dexterous Manipulation — **Under Review**
Haoran Yuan, **Zekai Wang**, Boning Shao, Haoran Lu, Trevor Darrell, Ismini Lourentzou, Wei Zhan

Contrastive Action-Image Pre-training for Visuomotor Control — **Under Review**
Yuvan Sharma*, Dantong Niu*, Anirudh Pai*, **Zekai Wang**, Zhuoyang Liu, Baifeng Shi, Stefano Saravalle, Boning Shao, Ruijie Zheng, Jing Wang, Konstantinos Kallidromitis, Yusuke Kato, Fabio Galasso, Yuke Zhu, Danfei Xu, Linxi Fan, Jitendra Malik, Trevor Darrell, Roei Herzig

T-Rex: Tactile-Reactive Dexterous Manipulation — **CoRL 2026**
Dantong Niu*, Zhuoyang Liu*, **Zekai Wang***, Boning Shao, Zhao-Heng Yin, Anirudh Pai, Yuvan Sharma, Stefano Saravalle, Ruijie Zheng, Jing Wang, Ryan Punamiya, Mengda Xu, Yuqi Xie, Yunfan Jiang, Letian Fu, Konstantinos Kallidromitis, Matteo Gioia, Junyi Zhang, Jiaxin Ge, Haiwen Feng, Fabio Galasso, Wei Zhan, David M. Chan, Yutong Bai, Roei Herzig, Jiahui Lei, Fei-Fei Li, Ken Goldberg, Jitendra Malik, Pieter Abbeel, Yuke Zhu, Danfei Xu, Linxi Fan, Trevor Darrell

From Generated Human Videos to Physically Plausible Robot Trajectories — **arXiv 2025**
James Ni*, **Zekai Wang***, Wei Lin*, Amir Bar*, Yann LeCun, Trevor Darrell, Jitendra Malik, Roei Herzig

In-Context Learning Enables Robot Action Prediction in LLMs — **ICRA 2025**
Yida Yin*, **Zekai Wang***, Yuvan Sharma, Dantong Niu, Trevor Darrell, Roei Herzig

Research Experience

Berkeley AI Research (BAIR), UC Berkeley — Feb 2024 – Present
Undergraduate Researcher, advised by Prof. Trevor Darrell — *Berkeley, CA*

- Proposed a tactile-reactive real-world reinforcement learning framework for dexterous manipulation.
- Implemented an online multi-GPU asynchronous RL training system, exploiting invariant-prefix model structure with dedicated KV-cache producer GPUs, reducing update latency enough to satisfy the target update-to-data ratio.
- Designed a real-time bimanual dexterous manipulation teleoperation system with tactile feedback.
- Profiled and optimized a vision-language-action (VLA) model inference pipeline for real-world robot rollout, introducing real-time action chunking and CUDA-graph capture for smooth, reactive policy execution.

- Built a multimodal data collection, cleaning, and post-processing pipeline for robot foundation model training.
- Developed a pipeline to extract whole-body motion trajectories from generated videos and imitate them with reinforcement learning policies on humanoid robots, achieving sim-to-sim and sim-to-real transfer.
- Devised a framework enabling off-the-shelf text-only LLMs to learn robotic tasks via in-context learning.

Industry Experience

Google May 2025 – Aug 2025

Software Engineer Intern *Sunnyvale, CA*

- Designed an agent evaluation pipeline extending Google ADK's framework with mocked tool calls, providing a parallel, deterministic interface used to benchmark and improve agent performance for external teams.
- Developed an LLM agent for internal tracing tools and tuned its prompt using the pipeline, raising tool-calling trajectory accuracy by 15% and producing detailed evaluation reports & failure-case analyses.

Teaching Experience

Department of EECS, UC Berkeley Aug 2022 – May 2026

Undergraduate Course Staff *Berkeley, CA*

• *Introduction to Deep Learning* (DATA 188)	Teaching Assistant	Spring 2026
• *Probability and Random Processes* (EECS 126)	Teaching Assistant	Spring 2025
• *Introduction to Machine Learning* (CS 189)	Tutor	Fall 2024
• *Principles and Techniques of Data Science* (DATA 100)	Head Teaching Assistant	Summer 2024
• *Introduction to Machine Learning* (CS 189)	Teaching Assistant	Spring 2024
• *Structure and Interpretation of Computer Programs* (CS 61A)	Academic Intern	Fall 2022

Computer Science Mentors, UC Berkeley Aug 2023 – Dec 2023

Mentor at Student Organization *Berkeley, CA*

• *Great Ideas of Computer Architecture* (CS 61C)	Junior Mentor	Fall 2023

Academic Service

Conference Reviewer: ICRA 2025, IROS 2025, CoRL 2026, ICLR 2027, ICRA 2027

Workshop Reviewer: CoRL 2026 Workshop on Bimanual Dexterous Tool Use

Technical Skills

Languages & Tools: Python (PyTorch, JAX), C/C++, Java, OCaml, MATLAB, SystemVerilog, Linux, Git

Robotics & Systems: MuJoCo, Isaac Sim/Lab, Viser, ROS, Pinocchio, CasADi, OpenCV

Robot Hardware: Sharpa W01 Dexterous Hand, Manus Gloves, Dexmate Vega 1 Bimanual Mobile Robot, Franka Robot Arm, Sawyer Robot Arm, Unitree G1 Humanoid, Unitree H1 / H1-2 Humanoid