Jerry Lin

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Selected Papers

- Run It Back: Autoregression vs. Video Diffusion for End-Conditioned Weather Trajectories (1st author; accepted, NeurIPS 2026 Climate Change AI Workshop)
- Signoff: Bringing Human Accountability Back to Agent-Powered Research (1st author; accepted, BayLearn 2026; peer reviewed)
- Extremes on Rewind: Generating 1,000-Member Ensembles Initialized at a Final Condition (1st author; preprint, under review, 2026)
- Crowdsourcing the Frontier: Advancing Hybrid Physics-ML Climate Simulation via a $50,000 Kaggle Competition (1st author; published in JAMES, 2026)
- Data-driven integration kernels for interpretable nonlocal operator learning (2nd author; published in Environmental Data Science, 2026)
- Navigating the Noise: Bringing Clarity to ML Parameterization Design with O(100) Ensembles (1st author, published in JAMES)
- Stable Machine-Learning Parameterization of Subgrid Processes in a Comprehensive Atmospheric Model Learned From Embedded Convection-Permitting Simulations (4th author, published in JAMES)
- ClimSim-Online: A Large Multi-scale Dataset and Framework for Hybrid ML-physics Climate Emulation (6th author, published in Journal of Machine Learning Research)
- ClimSim: A large multi-scale dataset for hybrid physics-ML climate emulation (4th author, Best Paper in 2023 NeurIPS Datasets and Benchmarks Track)
- Climate-invariant Machine Learning (6th author, published in Science Advances)
- Stress-testing the coupled behavior of hybrid physics-machine learning climate simulations on an unseen, warmer climate (1st author, accepted in 2023 NeurIPS Climate Change AI Workshop)

Research & Applied ML Experience

Postdoctoral Research Associate — Sep 2025 - Present
Boston University Faculty of Computing and Data Science (CDS) — *Boston, MA*

- Research in the Barnes Group on AI weather emulators for extreme-event scenario planning.

Graduate Research Assistant — Sep 2020 - Jul 2025
UC Irvine Earth System Science — *Irvine, CA*

- Built a pipeline to train and evaluate hundreds of hybrid physics-ML climate models at a time.
- Core contributor (4th author) to ClimSim, which won the best paper award in the 2023 NeurIPS Datasets and Benchmarks Track.
- Organized the $50,000 2024 LEAP ClimSim Kaggle competition and evaluated winning architectures in a climate model.

Data & Analytics Services (DAS) Intern — 2024
Vayuh.ai and Lawrence Berkeley National Laboratory — *Berkeley, CA*

- Created a machine learning pipeline for predicting wind power output using real-time HRRR forecasts.

Education

University of California, Irvine — Sep 2020 - Jul 2025
PhD, Earth System Science — *Irvine, CA*

University of California, Berkeley — Aug 2014 - Dec 2018
BA, Applied Mathematics — *Berkeley, CA*

Skills & Leadership

- Python, PyTorch, Jax, Git, Bash.
- Conceived of and organized the inaugural Machine Learning for Earth System Modeling (ML4ESM) Workshop at ICML 2024.