BruinML

Machine learning & mathematics research group
University of California, Los Angeles · Founded 2024

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2024	14	8	36	15
Founded at UCLA	Papers	Venues	Co-authors	Research topics

OVERVIEW

BruinML is a student research group at UCLA working on machine learning and mathematics. Members are mostly UCLA undergraduates working with graduate mentors, and every project runs from a first idea to a submitted paper. Our work spans multiplayer bandits, reinforcement learning, optimization, game theory, multi-agent LLM systems, explainability and applied mathematics.

LEADERSHIP

William Chang · Founder — Jan 2024 – present
Taro Iyadomi · President — 2025 – 2026
Kenny Guo · President — 2024 – 2025

VENUES

NeurIPS ×3 · ACMLC ×2 · Asilomar ×2 · EWRL ×2 · UAI ×2 · CPHS · CT Meeting · Proc. Amer. Math. Soc. Ser. B

RESEARCH AREAS

Online Learning 8 · Bandits 5 · Dynamical Systems 2 · Numerical Methods 2 · Optimization 2 · Reinforcement Learning 2 · Approximation Theory 1 · Causal Inference 1 · Generalization Theory 1 · High-Dimensional Statistics 1 · LLM Safety 1 · Multi-Agent Systems 1 · Optimal Control 1 · Robustness 1 · Sampling 1

PUBLICATIONS

2026

[14] **Minimum-Energy Optimal Gaze Control for K-Eye Systems with Three-Axis Rotation**
Khang Nguyen, Luke Jones, William Chang
CPHS 2026 Summary

[13] **Provably Accurate Shapley Value Estimation in High Dimensions via Sparse Leverage Sampling**
Ricardo Parada, Akbarkhuja Anvarkhujaev, Carlos Martin, William Chang, Long Tran-Thanh, Nam Phuong Tran
NeurIPS 2026 Summary

[12] **Riemannian Bilevel Optimization under the Polyak-Łojasiewicz Condition**
Zhixuan Li, Yuyang Zhang, Luke Jones, Muztaba Syed, William Chang, Andi Han
NeurIPS 2026 Summary

[11] **Youdunit: Single-Call Counterfactual Necessity in Multi-Agent LLM Systems**
Marissa Zhao Li, Stephanie Gao, Kenny Guo, Xingjian Li, William Chang, Goran Radanovic
NeurIPS 2026 Summary

[10] **Provably Efficient Reinforcement Learning in Continuous-Time Episodic MDPs with Poisson Decision Epochs**
Kenny Guo, Valentio Iverson, Sahan Wijetunga, William Chang
UAI 2026 Summary

[9] **Tight and near-tight rates of approximation of mixed Nash equilibria by entropy regularization in continuous games**
Khang Nguyen, Valentio Iverson, Sahan Wijetunga, William Chang, Guillaume Wang
UAI 2026 Summary

[8] **Gap-Independent Regret for Multi-Agent Combinatorial Semi-Bandits**
Jacqueline Liu, Bree Chen, Xingjian Li, Yuxi Luo
EWRL 2026 Code Summary

[7] **The Price of Decentralization in Top-K Arm Identification**
Larissa Xu, Jasmine Nguyen, William Chang
EWRL 2026 arXiv:2608.22120 Summary

[6] **Coordinating the Unknown Lipschitz Constant in Multiplayer Bandits**
Ricardo Parada, Chenzhang Zhao, William Chang
Asilomar 2026 arXiv:2608.10526 Summary

[5] **Robust Multi-Agent Bandits with Heavy-Tailed Rewards and Information Asymmetry**
Daphne Feng, Ricardo Parada, Lily Jiang, Sophia Yi, William Chang
Asilomar 2026 arXiv:2608.10529 Summary

[4] **DCM Bandits: Multiplayer Information Asymmetric Cascading Bandits for Multiple Clicks**
Andy Wang, Charlton Shih, William Chang
ACMLC 2026 arXiv:2608.11873 Summary

[3] **Decentralized Multi-Player Q-Learning in Episodic Markov Decision Processes with Information Asymmetry**
Larissa Xu, King Bi, William Chang
ACMLC 2026 arXiv:2608.12753 Summary

[2] **Accelerating Low-Frequency Convergence for Limited-Angle DBT via Two-Channel Fidelity in PDHG**
Taro Iyadomi, Ricardo Parada, Anna Kim, Lily Jiang, Emil Sidky, William Chang
CT Meeting 2026 arXiv:2603.23955 Code Summary

[1] **A Pathological Property of Nonlocal Discrete Operators**
William Chang, Christopher S. Goodrich, Valentio Iverson, Khang Nguyen
Proc. Amer. Math. Soc. Ser. B 2026 PDF Summary

CO-AUTHORS

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HOW WE WORK

1. **Join.** Students email us with their background and interests.
2. **Match.** Each student is paired with a mentor and a problem that fits, often alongside other students.
3. **Publish.** Teams work through theory and experiments, then write up and submit to a conference or journal.