William Chang

PhD Student in Applied Mathematics, UCLA

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Latest version of this CV: williamc.me/resume.pdf

EDUCATION

University of California, Los Angeles 2023 – 2027 (expected)
PhD, Applied Mathematics

University of Southern California 2018 – 2022
Bachelor of Arts, Mathematics

PUBLICATIONS

Most up-to-date list on my personal website.

CONFERENCE & JOURNAL PAPERS

1. **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
2. **Riemannian Bilevel Optimization under the Polyak–Łojasiewicz Condition**
   Zhixuan Li, Yuyang Zhang, Luke Jones, Muztaba Syed, **William Chang**, Andi Han
   NeurIPS, 2026
3. **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
4. **Provably Efficient Reinforcement Learning in Continuous-Time Episodic MDPs with Poisson Decision Epochs**
   Kenny Guo, Valentio Iverson, Sahan Wijetunga, **William Chang**
   UAI, 2026
5. **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
6. **The Price of Decentralization in Top-K Arm Identification** [PDF]
   Larissa Xu, Jasmine Nguyen, **William Chang**
   EWRL, 2026
7. **Gap-Independent Regret for Multi-Agent Combinatorial Semi-Bandits**
   Jacqueline Liu, Bree Chen, Xingjian Li, Yuxi Luo, **William Chang**
   EWRL, 2026
8. **Coordinating the Unknown Lipschitz Constant in Multiplayer Bandits** [PDF]
   Ricardo Parada, Chenzhang Zhao, **William Chang**
   Asilomar, 2026
9. **Robust Multi-Agent Bandits with Heavy-Tailed Rewards and Information Asymmetry** [PDF]
   Daphne Feng, Ricardo Parada, Lily Jiang, Sophia Yi, **William Chang**
   Asilomar, 2026
10. **Improved Multiplayer Bandit Algorithms for Bernoulli Noise**
    Brook Chuang, **William Chang**
    Asilomar, 2026
11. **DCM Bandits: Multiplayer Information Asymmetric Cascading Bandits for Multiple Clicks** [PDF]
    Andy Wang, Charlton Shih, **William Chang**
    ACMLC, 2026
12. **Decentralized Multi-Player Q-Learning in Episodic Markov Decision Processes with Information**

Asymmetry [PDF]
Larissa Xu, King Bi, **William Chang**
ACMLC, 2026

13. **Accelerating Low-Frequency Convergence for Limited-Angle DBT via Two-Channel Fidelity in PDHG** [PDF]
Taro Iyadomi, Ricardo Parada, Anna Kim, Lily Jiang, Emil Sidky, **William Chang**
CT Meeting, 2026

14. **A Pathological Property of Nonlocal Discrete Operators** [PDF]
William Chang, Christopher S. Goodrich, Valentio Iverson, Khang Nguyen
Proceedings of the American Mathematical Society, Series B, 2026

15. **Mobile Sensor Placement for the 3-Coverage Problem in Confined Geometries**
Haoyang Lyu, **William Chang**, Adrien Wiehs, Andrea Bertozzi, Paul Jeffrey Brantingham
GTA3 Workshop at IEEE International Conference on Data Mining, 2025

16. **LinUCB in Multiplayer Information Asymmetric Contextual Bandits** [PDF]
William Chang, Terry Lu
Transactions on Machine Learning Research, 2025

17. **Mixing on Generalized Associahedra** [PDF]
William Chang, Colin Defant, Daniel Frishberg
Annals of Combinatorics, 2025

18. **Optimal Cooperative Multiplayer Learning Bandits with Noisy Rewards** [PDF]
William Chang, Terry Lu
IEEE Conference on Decision and Control, 2024

19. **Finite-Time Regret Bound of Multi-Agent Thompson Sampling** [PDF]
Tianyuan Jin, Haolun Hsu, **William Chang**, Pan Xu
AAAI Conference on Artificial Intelligence, 2024

20. **No-Regret Online Reinforcement Learning with Adversarial Losses and Transitions** [PDF]
Tiancheng Jin, Junyan Liu, Chloé Rouyer, **William Chang**, Chen-Yu Wei, Haipeng Luo
Neural Information Processing Systems (NeurIPS), 2023

21. **Bode Integral Limitation for Irrational Systems** [PDF]
William Chang, Fariba Ariaei, Edmond Jonckheere
International Federation of Automatic Control (IFAC), 2023

22. **Closure of Certain Matrix Varieties and Applications** [PDF]
William Chang, Robert Guralnick
European Journal of Mathematics, 2023

23. **Stochastic Couplings and Bijections from the Symmetric Group to Itself** [PDF]
William Chang
Mathematical Journal of Okayama University, 2023

24. **Compatibility in Ozsváth–Szabó's Bordered HFK via Higher Representations** [PDF]
William Chang, Andrew Manion
Pacific Journal of Mathematics, 2023

25. **Approximation Capabilities of Neural Networks using Morphological Perceptrons and Generalizations** [PDF]
William Chang, Hassan Hamad, Keith Chugg
Asilomar Conference on Signals, Systems, and Computers, 2022

26. **Online Learning for Cooperative Multi-Player Multi-Armed Bandits** [PDF]
William Chang, Mehdi Jafarnia-Jahromi, Rahul Jain
IEEE Conference on Decision and Control, 2022

PREPRINTS

27. **Policy Optimization for Corrupted Markov Decision Processes**
Khang Nguyen, Kenny Guo, David Yu, **William Chang**
Preprint

28. **Best Arm Identification in Lipschitz Bandits: Uniform and Adaptive Strategies**
Khang Nguyen, Larissa Xu, Lily Jiang, **William Chang**

Preprint

29. **Adversarially Robust Latent Bandits in Multiplayer Asymmetric Settings**
Helen Yuan, Kanzah Areej Jamil, Vanessa Jolie Pare, **William Chang**
Preprint

30. **The Learnability of the Multiplayer Adversarial Bandit Problem**
David Yu, Khang Nguyen, Daniel Yu, **William Chang**
Preprint

31. **Coordinating the Best Policy in Information Asymmetric MDPs**
Helen Yuan, Kanzah Areej Jamil, Chenzhang Zhao, Xingjian Li, **William Chang**
Preprint

32. **Multiplayer Information Asymmetric Bandits in Metric Spaces** [PDF]
Aditi Kartik, **William Chang**
Preprint

33. **Coordinating for Clicks: Learning in Multi-Agent Information Asymmetric Cascading Bandits** [PDF]
Kenny Guo, Lily Jiang, Lune Chan, Sophia Yi, **William Chang**
Preprint

34. **Finite-Time Self-Similar Rupture in a Generalized Elastohydrodynamic Lubrication Model** [PDF]
William Chang, Hangjie Ji
Preprint

RESEARCH FELLOWSHIPS

NSF EAGER Project REU Fellowship Oct 2021 – Mar 2022
Mentor: Rahul Jain
Generalizations of multi-agent bandits with information asymmetry.

USC CURVE Fellowship Aug 2021 – May 2022
Mentor: Assad Oberai
Stability of physics-informed neural networks for solving the weak formulation of partial differential equations.

USC Provost Undergraduate Research Fellowship Aug 2021 – May 2022
Mentor: Robert Guralnick
Similarity classes of the Zariski closure of the set of diagonalizable matrices whose eigenspace dimensions correspond to a partition.

USC CURVE Fellowship Jan 2021 – Aug 2021
Mentor: Rahul Jain
Decentralized online learning for the multiplayer multi-armed stochastic bandit problem.

USC Provost Undergraduate Research Fellowship Aug 2020 – May 2021
Mentor: Greta Panova
Survey of the e-positivity conjecture for chromatic polynomials using algebraic combinatorics.

HONORS

William Lowell Putnam Mathematical Competition – Top 500 2020
William Lowell Putnam Mathematical Competition – USC Representative 2018 – 2021
American Invitational Mathematics Examination (AIME) – 3-time Qualifier 2016 – 2018

EXPERIENCE

Northrop Grumman May 2022 – Aug 2022
Intern, Space Systems Engineering
Communications Systems and Mission Payload department. Analyzed slant ranges, channel losses, and sitpad value combinations.

Baruch College Discrete Mathematics REU Jun 2021 – Aug 2021
Mentor: Fan Wei
Derived asymptotic bounds on the number of cliques and maximal cliques in K_t-minor-free graphs.

UCLA Applied Mathematics REU Jun 2020 – Aug 2020
Mentor: Hangjie Ji
Used thin-film partial differential equations to model pleural fluid thickness in the lungs.

USC Math Center Sep 2019 – Dec 2020
Tutor
Tutored Linear Algebra, Calculus, Business Mathematics, Probability, Number Theory, and Analysis.

Joint Educational Project, USC Jan 2019 – Mar 2019
Volunteer Teacher
Taught 4th-grade mathematics for 8 weeks at Saint Francis Elementary School, Los Angeles.

TALKS & PRESENTATIONS

IEEE Conference on Decision and Control (CDC) 2022
Online Learning for Cooperative Multi-Player Multi-Armed Bandits

Asilomar Conference on Signals, Systems, and Computers 2022
Approximation Capabilities of Neural Networks using Morphological Perceptrons

Joint Mathematics Meetings, Undergraduate Poster Session 2022
Asymptotic Bounds on Maximal Cliques in K_t-Minor-Free Graphs

SERVICE

Conference Reviewer NeurIPS (2023, 2024) · ICLR (2023, 2024) · IEEE CDC (2023) · IFAC (2023)