

William Chang

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🌐 [Personal Website](#)

🔍 [Google Scholar profile](#)

📄 [ResearchGate](#)

◇ Most updated version of my resume here [\[PDF\]](#)

Education

- ◇ **University of California, Los Angeles** 2023- 2027
PhD, Applied Mathematics
- ◇ **University of Southern California** 2018 - 2022
Bachelors of Arts, Mathematics

Machine Learning Papers

- ◇ Please see most updated paper list on my [Personal Website](#)
- ◇ **1. Multiplayer Lipschitz bandits with information asymmetry**
William Chang, Terry Lu
Under Preparation
- ◇ **2. LinUCB in Multiplayer Information Asymmetric Contextual Bandits**
William Chang, Terry Lu
Under Preparation
- ◇ **3. Curvature on Graphs**
Fariba Ariaei, **William Chang**
Under Preparation
- ◇ **4. Mixing on Generalized Associahedra**
William Chang, Colin Defant, Daniel Frishberg
Under Review at International Symposium on Algorithms and Computation, 2023
- ◇ **5. 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, 2023
- ◇ **6. Finite-Time Regret Bound of Multi-Agent Thompson Sampling**
Tianyuan Jin, Haolun Hsu, **William Chang**, Pan Xu
Under Review at Association for the Advancement of Artificial Intelligence, 2023
- ◇ **7. Understanding Domain Adaptation in the Lens of Causality** [\[PDF\]](#)
William Chang, Haohan Wang
Under review at Causal Learning and Reasoning, 2024
- ◇ **8. Optimal Cooperative Multiplayer Learning Bandits with Noisy Rewards** [\[PDF\]](#)
William Chang
Under Review at IEEE Conference on Decision and Control, 2023
- ◇ **9. Mixup to the Random Extreme and Its Performances in Robust Image Classification** [\[PDF\]](#)
Jackie Chen, Qianjing Chen, **William Chang**, Haohan Wang
Transactions on Machine Learning Research, 2023
- ◇ **10. Bode Integral Limitation For Irrational Systems** [\[PDF\]](#)
William Chang, Fariba Ariaei, Edmond Jonckheere
International Federation of Automatic Control, 2023
- ◇ **11. 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

Machine Learning Papers (continued)

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

Math Papers

- ◇ Please see most updated paper list on my [Personal Website](#)
- ◇ **13. Nearly Tight Expansion Bounds on Generalized Associahedra**
William Chang, Colin Defant, Daniel Frishberg
Under Preparation
- ◇ **14. Closure of Certain Matrix Varieties and Applications** [PDF]
William Chang, Robert Guralnick
European Journal of Mathematics
- ◇ **15. Finite-time self-similar rupture in a generalized elastohydrodynamic lubrication model** [PDF]
William Chang, Hangjie Ji
Under Review at Applied Mathematics Letters, 2023
- ◇ **16. Stochastic Couplings and Bijections from the Symmetric Group to itself** [PDF]
William Chang
Mathematical Journal of Okayama University, 2023
- ◇ **17. Compatibility in Ozsvath-Szabo's bordered HFK via higher representations, 2023** [PDF]
William Chang, Andrew Manion
The Pacific Journal of Mathematics, 2023

Awards/Honors/Fellowships

- ◇ **NSF EAGER project REU Fellowship** October 2021 - March 2022 **Professor Mentor:** Rahul Jain
Working on generalizations of the Multi-agent bandits with information asymmetry.
- ◇ **USC CURVE Fellowship** August 2021 - May 2022 **Professor Mentor:** Assad Oberai
Working with the stability of Physics Informed Neural Networks to solve the weak formulation problem of a partial differential equation.
- ◇ **USC Provost Undergraduate Research Fellowship** August 2021 - May 2022 **Professor Mentor:** Robert Guralnick
Analyzing the similarity classes of the Zariski closure of the set of diagonalizable matrices with the dimension of the eigenspaces corresponding to a partition.
- ◇ **USC CURVE Fellowship** January 2021 - August 2021 **Professor Mentor:** Rahul Jain
Developed decentralized online learning for the Multiplayer Multi-Arm Stochastic Bandit Problem.
- ◇ **USC Provost Undergraduate Research Fellowship** August 2020 - May 2021 **Professor Mentor:** Greta Panova
Writing a survey about the e-positivity conjecture of chromatic polynomials using algebraic combinatorics.
- ◇ **2020 William Lowell Putnam Mathematics competition** top 500
- ◇ **William Lowell Putnam Mathematics competition** USC representative 2018 – 2021
- ◇ **American Invitational Mathematics Examination** 3-time qualifier 2016–2018

Employment History

- ◇ **Northrop Grumman Internship** May 2022 - August 2022
I worked in the Communications Systems and Mission Payload department of their Space Systems Engineering directorate. Worked with analysis of slant ranges, channel losses, and sitpad value combinations.
- ◇ **Baruch College Discrete Mathematics REU** Jun 2021 - August 2021 **Professor Mentor:** Fan Wei
Derived asymptotic bounds for the number of cliques and maximal cliques in K_t -minor free graphs.
- ◇ **UCLA Applied Mathematics REU** June 2020 - August 2021 **Professor Mentor:** Hangjie Ji
Used partial differential equations to study the pleural fluid thickness in the lungs governed by the thin film equations.

Employment History (continued)

- ◇ **USC Math Center Tutor** September 2019 - December 2020
Helped students in Linear Algebra, Calculus, Business Mathematics, Probability Theory, Number Theory, Analysis.
- ◇ **Joint Educational Project** January 2019 - March 2019
Taught 4th grade mathematics for 8 weeks at Saint Francis Elementary School, Los Angeles.

Talks and Conferences

- ◇ **2023 IEEE Conference in Decision and Control Referee** [[Website](#)]
- ◇ **2023 International Federation of Automatic Control Conference Referee** [[Website](#)]
- ◇ **2022 Asilomar conference on signals, systems, and computers** [[Website](#)]
Approximation Capabilities of Neural Networks using Morphological Perceptions and Generalizations
- ◇ **2022 IEEE Conference on Decision and Control** [[Website](#)]
Online learning for Cooperative Multi-Player Multi-Armed Bandits
- ◇ **2022 AMS-PME Joint Mathematics Meeting Undergraduate Poster Session** [[Website](#)]
Asymptotical bounds on maximal cliques in K_t -minor free graphs