

Bolton Bailey

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Education

- PhD in Computer Science** - University of Illinois Urbana-Champaign (Started 2017, In progress)
- Focus in Machine Learning Theory
 - Advisor: Andrew Miller
- BS in Mathematics and Computer Science** - California Institute of Technology (Class of 2017)
- Computer Science Major Advisor: Donald Pinkston
 - Mathematics Major Advisor: Alexander Kechris

Publications

Bolton Bailey, Suryanarayana Sankagiri. “Merkle Trees Optimized for Stateless Clients in Bitcoin”. FC21 Workshop on Trusted Smart Contracts.

Bolton Bailey, Ziwei Ji, Matus Telgarsky, Ruicheng Xian. “Approximation Power of Random Neural Networks”.

Bolton Bailey and Matus Telgarsky. “Size-Noise Tradeoffs in Generative Networks”. NeurIPS 2018 (Accepted for Spotlight Presentation).

Yucheng Chen, Bolton Bailey, Matus Telgarsky, Daniel Hsu, Jian Peng. “A Gradual, Semi-Discrete Approach to Generative Network Training via Explicit Wasserstein Minimization”. ICML 2019 (In Submission)

Conference Presentations

“Merkle Trees Optimized for Stateless Clients in Bitcoin” WTSC 2021.

- Virtual Workshop Presentation

“Size-Noise Tradeoffs in Generative Networks” NeurIPS 2018.

- Selected for Spotlight Presentation
- Poster Session

“Neural Network Solutions to Optimal Transport” Midwest Machine Learning Symposium 2018.

- Selected for Spotlight Presentation and Lightning Talk
- Poster Session

“The Spatial Double Flash Illusion: Audition-Induced Spatial Displacement” Vision Sciences Society 17th Annual Meeting, 2017.

- Poster Session
- Demonstration Session

Research Experience

Research Assistant - University of Illinois Urbana-Champaign (2017-)

- Research on Machine Learning Theory
- Supervisors: Matus Telgarsky (2017-2020), Andrew Miller (2021-)

Summer Undergraduate Research Fellow - Caltech (Summer 2016)

- Research on the Spatial Double-Flash Illusion
- Investigating Audio and Visual interactions on Short Time Scales
- Co-Mentors: Profs. Shinsuke Shimojo, Carmel Levitan, Armand Tanguay, Dr. Noelle Stiles

Mathematics Study Project - Caltech (Summer 2014)

- Studied Banach-Tarski Paradox
- Mentor: Alexander Kechris

Teaching Experience

Teaching Assistant - ECE 543 Statistical Learning Theory (Spring 2019)

- Graduate-level course
- Instructor: Prof. Bruce Hajek

Junior Staff - Hampshire College Summer Studies in Mathematics (Summer 2017)

- Taught gifted high school aged students proof-based mathematics
- Co-developed lectures, activities, and problem sets for 2 3-week “maxi” courses covering set theory, group theory, and combinatorics.
- Taught and developed lectures for 1.5-week “mini” course covering geometrical paradoxes.

Honors, Awards, and Positions

State Farm Companies Foundation Doctoral Scholars Program recipient (2018)

Andrew and Shana Larsen Fellowship (2017)

Housner Fund Travel Award (2017)

Caltech Student Government

- Caltech Mathematics Student Faculty Committee member (2016-2017)
(Evaluating and reporting on the curriculum requirements in the math department).
- Caltech Senior Class Representative (2017)
- Caltech House Executive Committee (2015)