Taisuke Yasuda

Curriculum Vitae

taisukey@cs.cmu.edu • https://taisukeyasuda.github.io

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Education

Carnegie Mellon University Pittsburgh, PA
- Ph.D. in Computer Science, Aug 2020 – Present
- M.S. in Computer Science, Aug 2020 – Aug 2021
- Advisor: David P. Woodruff

Carnegie Mellon University Pittsburgh, PA
- M.S. in Mathematical Sciences, Aug 2017 – May 2019
- B.S. in Mathematical Sciences, Aug 2015 – May 2019
- Advisor: Ian Tice
- Thesis: *Asymptotic Stability of the Faraday Wave Problem*
- Additional Major in Computer Science

Employment

Google Research New York City, NY
- Student Researcher, Apr 2022 – May 2023
- Worked in the Algorithms and Optimization Group

Akuna Capital Chicago, IL
- Junior Quantitative Trader, Aug 2019 – Sep 2020
- High frequency D1 machine learning trading strategies

Manuscripts

[1] David P. Woodruff and **Taisuke Yasuda**. Sharper Bounds for ℓ_p Sensitivity Sampling. In submission.

Research Publications

[1] David P. Woodruff and **Taisuke Yasuda**. New Subset Selection Algorithms for Low Rank Approximation: Online and Offline. In Proceedings of the 55th Annual ACM Symposium on Theory of Computing (STOC), June 2023.

[2] MohammadHossein Bateni, Lin Chen, Matthew Fahrbach, Thomas Fu, Vahab Mirrokni, **Taisuke Yasuda**. Sequential Attention for Feature Selection. In Proceedings of the 11th International Conference on Learning Representations (ICLR), May 2023. arXiv:2209.14881 [cs.LG]

[3] David P. Woodruff and **Taisuke Yasuda**. Online Lewis Weight Sampling. In Proceedings of the 34th Annual ACM-SIAM Symposium on Discrete Algorithms (SODA), January 2023. arXiv:2207.08268 [cs.DS]

[4] David P. Woodruff and **Taisuke Yasuda**. High-Dimensional Geometric Streaming in Polynomial Space. To appear in Proceedings of the 63rd Annual IEEE Symposium on Foundations of Computer Science (FOCS), November 2022. arXiv:2204.03790 [cs.DS]

[5] Cameron Musco, Christopher Musco, David P. Woodruff, and **Taisuke Yasuda**. Active Linear Regression for ℓ_p Norms and Beyond. To appear in Proceedings of the 63rd Annual IEEE Symposium on Foundations of Computer Science (FOCS), November 2022. arXiv:2111.04888 [cs.LG]

[6] David P. Woodruff and **Taisuke Yasuda**. Improved Algorithms for Low Rank Approximation from Sparsity. In Proceedings of the 33rd Annual ACM-SIAM Symposium on Discrete Algorithms (SODA), January 2022. arXiv:2111.00668 [cs.DS]

[7] Yi Li, David P. Woodruff, and **Taisuke Yasuda**. Exponentially Improved Dimensionality Reduction for ℓ_1: Subspace Embeddings and Independence Testing. In Proceedings of the 34th Annual Conference on Computational Learning Theory (COLT), August 2021. arXiv:2104.12946 [cs.DS]

[8] Manuel Fernández V, David P. Woodruff, and **Taisuke Yasuda**. Graph Spanners in the Message-Passing Model. In Proceedings of the 11th Conference on Innovations in Theoretical Computer Science (ITCS), January 2020. arXiv:1911.05991 [cs.DS]

[9] David Altizio, Ian Tice, Xinyu Wu, and **Taisuke Yasuda**. The Nonlinear Stability Regime of the Viscous Faraday Wave Problem. In *Quart. Appl. Math.*, December 2019. arXiv:1905.04747 [math.AP]

[10] Manuel Fernández V, David P. Woodruff, and **Taisuke Yasuda**. The Query Complexity of Mastermind with ℓ_p Distances. In Proceedings of the 22nd International Workshop on Approximation Algorithms for Combinatorial Optimization Problems (APPROX), September 2019. arXiv:1909.10668 [cs.DS]

[11] Manuel Fernández V, David P. Woodruff, and **Taisuke Yasuda**. Tight Kernel Query Complexity of Kernel Ridge Regression and Kernel k-means Clustering. In Proceedings of the 36th International Conference on Machine Learning (ICML), June 2019. arXiv:1905.06394 [cs.DS]

Teaching

Fall 2021	Algorithms for Big Data (15-859)	TA
Spring 2021	Probability and Computing (15-259)	TA
Spring 2019	Algorithms (15-451)	TA
Spring 2019	Concepts of Mathematics (21-127)	TA
Fall 2018	Linear Algebra (21-241)	TA
Spring 2018	Principles of Real Analysis II (21-356)	grader
Fall 2016	Putnam Seminar (21-295)	grader

Honors and Awards

Jan 2023		Finalist for Two Sigma PhD Fellowship
Jun 2022		Internal Nominee for MSR PhD Fellowship (1 of 4 students from CMU)
Mar 2018	Top 207	Putnam Mathematical Competition
Mar 2017	Top 500	Putnam Mathematical Competition
Feb 2017		Undergraduate Research Fellowship in Computational Neuroscience
Feb 2016	Top 3	TartanHacks 2016
Feb 2016	Winner	All University Orchestra Concerto Competition
May 2015		Carnegie Scholarship
Mar 2015	2nd place	Pathfinder Scholarship in Mathematics

Service

- 2022–2023 Carnegie Mellon University CSD PhD Admissions Committee
- Conference reviewing: NeurIPS 2022, APPROX 2022, RANDOM 2022, ICALP 2022, STOC (2022, 2023), PODS (2022, 2023), SODA (2020, 2023), ITCS 2020, ESA 2020
- Journal reviewing: Machine Learning Journal

Talks and Presentations

- Online Lewis Weight Sampling
  - SODA, January 2023
- High-Dimensional Geometric Streaming in Polynomial Space
  - FOCS, November 2022
- Active Linear Regression for ℓ_p Norms and Beyond
  - FOCS, November 2022
  - Google Research NYC, August 2022
- Improved Algorithms for Low Rank Approximation from Sparsity
  - SODA, January 2022
- Exponentially Improved Dimension Reduction for ℓ_1: Subspace Embeddings and Independence Testing
  - Google Scalable Algorithms Workshop (Poster), October 2021
  - WALDO (Poster), August 2021
  - COLT, August 2021
  - CMU Student Seminar Series, July 2021
- Graph Spanners in the Message-Passing Model
  - ITCS, January 2020
- Tight Kernel Query Complexity of Kernel Ridge Regression and Kernel k-means Clustering
  - ICML, June 2019
  - CMU Meeting of the Minds (Poster), May 2019
- How It's Made: Lower Bounds for Randomized Algorithms
  - CMU Summer Math Seminar, July 2018