Ta-Wei Tu 塗大為

https://taweitu.github.io taweitu@stanford.edu

Education

Stanford University Sept. 2023 – Present
Ph.D. in Computer Science. Advisor: Aaron Sidford. *Stanford, CA, USA*

National Taiwan University Sept. 2018 – June 2022
B.Sc. in Computer Science and Information Engineering *Taipei, Taiwan*

Publications

In all my publications, as standard in theoretical computer science, author names are ordered alphabetically.

[1] Joakim Blikstad and Ta-Wei Tu. Efficient matroid intersection via a batch-update auction algorithm. In *2025 Symposium on Simplicity in Algorithms, SOSA 2025*. SIAM, 2025, arXiv:2410.14901.

[2] Aaron Bernstein, Jiale Chen, Aditi Dudeja, Zachary Langley, Aaron Sidford, and Ta-Wei Tu. Matching composition and efficient weight reduction in dynamic matching. In *Proceedings of the 2025 ACM-SIAM Symposium on Discrete Algorithms, SODA 2025*. SIAM, 2025, arXiv:2410.18936.

[3] Jiale Chen, Aaron Sidford, and Ta-Wei Tu. Entropy regularization and faster decremental matching in general graphs. In *Proceedings of the 2025 ACM-SIAM Symposium on Discrete Algorithms, SODA 2025*. SIAM, 2025, arXiv:2312.09077.

[4] Aaron Bernstein, Joakim Blikstad, Thatchaphol Saranurak, and Ta-Wei Tu. Maximum flow by augmenting paths in $n^{2+o(1)}$ time. In *65th IEEE Annual Symposium on Foundations of Computer Science, FOCS 2024*. IEEE, 2024, arXiv:2406.03648. **Invited to SICOMP Special Issue.**

[5] Joakim Blikstad, Sagnik Mukhopadhyay, Danupon Nanongkai, and Ta-Wei Tu. Fast algorithms via dynamic-oracle matroids. In *Proceedings of the 55th Annual ACM Symposium on Theory of Computing, STOC 2023*, pages 1229–1242. ACM, 2023, arXiv:2302.09796.

[6] Ta-Wei Tu. Subquadratic weighted matroid intersection under rank oracles. In *33rd International Symposium on Algorithms and Computation, ISAAC 2022*, volume 248 of *LIPIcs*, pages 63:1–63:14. Schloss Dagstuhl - Leibniz-Zentrum für Informatik, 2022, arXiv:2212.00508.

Research and Professional Experience

Research Intern, Max Planck Institute for Informatics Aug. 2022 – Dec. 2022
- Studied matroid intersection algorithms and graph algorithms. Advisor: Danupon Nanongkai.

Software Engineering Intern, Google Taipei June 2021 – Sept. 2021
- Worked on gRPC core transport based on Android binders.

Research Assistant, National Taiwan University Feb. 2021 – June 2022
- Studied algorithm design. Advisor: Hsueh-I Lu.

Research Assistant, National Taiwan University Sept. 2020 – Jan. 2021
- Studied RISC-V vector extension. Advisor: Wei-Chung Hsu.

Academic Talks

Efficient Matroid Intersection via a Batch-Update Algorithm
- SOSA 2025, New Orleans, LA

Entropy Regularization and Faster Decremental Matching in General Graphs
- SODA 2025, New Orleans, LA

Maximum Flow by Augmenting Paths in $n^{2+o(1)}$ Time

- FOCS 2024, Chicago, IL
- Academia Sinica, Taiwan

Fast Algorithms via Dynamic-Oracle Matroids

- STOC 2023, Orlando, FL

Subquadratic Weighted Matroid Intersection under Rank Oracles

- ISAAC 2023, Virtual

Selected Awards & Honors

Mr. K. K. Lee Engineering Graduate Fellowship, Stanford University	2023
18th Place, ICPC World Finals	2020
Champion, ICPC Asia-Pacific Regional Contest, Taipei Site	2018, 2020
Champion, National Collegiate Programming Contest of Taiwan	2018, 2019, 2020

Services

Subreviwer for IPCO 2025, SOFSEM 2025, SODA 2025, ISAAC 2024, ESA 2024, ICALP 2024, STOC 2024, ESA 2023, ICALP 2023