

Tao Yu

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Education

PhD Student in Computer Science	Aug 2024 – June 2028 (expected)
Northeastern University	
Advisor: Mahsa Derakhshan	
M.S. in Data Science	Aug 2022 – Dec 2023
Columbia University	
B.S. in Mathematics, Honors Program	Aug 2018 – June 2022
University of California, Los Angeles	

Publications

A Unified Framework for Analysis of Randomized Greedy Matching Algorithms	
M. Derakhshan, T. Yu	
ACM Symposium on Theory of Computing	STOC 2026
Improved Approximation For Ranking on General Graphs	
M. Derakhshan, M. Roghani, M. Saneian, T. Yu	
ACM-SIAM Symposium on Discrete Algorithms	SODA 2026
A Simple Analysis of Ranking in General Graphs	
M. Derakhshan, M. Roghani, M. Saneian, T. Yu	
SIAM Symposium on Simplicity in Algorithms	SOSA 2026

Research Experience

Northeastern University	2024 – Present
Research Assistant	
• Led analysis of improved approximation guarantees for randomized greedy matching algorithms (RANKING, FRANKING).	
• Conducted experimental validation and implemented evaluation pipelines using Gurobi.	
Columbia University	Jul 2023 – Dec 2023
Independent Algorithmic Project	
• Explored parallel algorithms for Euclidean spanner construction and flow rounding in transshipment problems.	

Selected Technical Projects

Adaptive Bitrate Streaming Proxy , Columbia	2023
• Built ABR server proxy in Python to parse and modify HTTP requests and optimize video quality under measured network throughput.	
Dynamic Memory Allocator , UCLA	2021
• Developed memory allocation algorithms (explicit/implicit free lists, segmented/non-segmented) and optimized structures to balance fragmentation and efficiency; top 10% performance in class.	

Technical Skills

- Languages: Python, C++
- Tools & Frameworks: Gurobi, LaTeX

Academic Service

- Reviewer: SOSA 2026, FOCS 2025
- Teaching Assistant:
 - Algorithms, Fall 2025, Northeastern University
 - Algorithms for Data Science, Fall 2023, Columbia University