

Tao Yu

yu.tao2@northeastern.edu | +1-424-535-8258

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