Ashwin Padaki

apadaki@seas.upenn.edu | apadaki.github.io

Summary

Computer Science Ph.D. student specializing in sublinear algorithms for similarity search and clustering in high dimensions, with an emphasis on bridging theoretical guarantees with practical performance.

Education

University of Pennsylvania — Philadelphia, PA
Ph.D in Computer and Information Science — *2024 – 2029 (expected)*

Advised by Sanjeev Khanna and Erik Waingarten.

Columbia University — New York, NY
B.A. in Computer Science, Mathematics — *2020 – 2024*

GPA: 4.06/4

Publications

(authors ordered alphabetically by last name)

1. Sanjeev Khanna, **Ashwin Padaki**, Erik Waingarten. Sparse Navigable Graphs for Nearest Neighbor Search: Algorithms and Hardness.
   SODA 2026
2. Sanjeev Khanna, **Ashwin Padaki**, Krish Singal, Erik Waingarten. A Polynomial Space Lower Bound for Diameter Estimation in Dynamic Streams.
   FOCS 2025
3. Henry Fleischmann, Kyrylo Karlov, Karthik C. S., **Ashwin Padaki**, Styopa Zharkov. Inapproximability of Maximum Diameter Clustering for Few Clusters.
   SODA 2025
4. Josh Alman, Yunfeng Guan, **Ashwin Padaki**. Smaller Low-Depth Circuits for Kronecker Powers.
   SODA 2023

Selected Work Experience

Head Teaching Assistant — Aug 2025 – present
University of Pennsylvania — *Philadelphia, PA*

- Algorithms for Big Data (Spring 2026, Fall 2025).

Teaching Assistant — Sep 2022 – Dec 2023
Columbia University — *New York, NY*

- Cryptography (Fall 2023), Computational Complexity (Spring 2023), Real Analysis (Fall 2022).

Quantitative Trader Intern — Jun 2022 – Aug 2022
Optiver — *Chicago, IL*

Talks

1. **Sparse Navigable Graphs for Nearest Neighbor Search**
    - SODA 2026 Conference — Jan 2026
    - NYU Graduate Student Theory Seminar — Nov 2025
    - DIMACS/Rutgers Theory Seminar — Nov 2025
    - CMU Theory Seminar — Sep 2025
2. **Inapproximability of Maximum Diameter Clustering for Few Clusters**
    - SODA 2025 Conference — Jan 2025

Service

Seminar Organizer — Sep 2025 – present
UPenn Theory Seminar — *Philadelphia, PA*

Seminar Instructor — Sep 2023 – Dec 2023
Columbia Undergraduate Learning Seminar in Theoretical Computer Science — *New York, NY*

Achievements

National Science Foundation (NSF) Graduate Research Fellow 2024

Phi Beta Kappa Inductee 2024

Putnam Mathematical Competition, Top 500 Scorer 2022