Ashwin Padaki

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SUMMARY

Computer Science Ph.D. student specializing in sublinear algorithms for similarity search and clustering in high dimensions, with a strong 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