Aditya Subramanian

Contact Information

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Education

Indian Institute of Science, Bengaluru. Oct 2020 - June 2026 (expected)
Ph.D. Computer Science and Engineering GPA: 8.2/10

- Advisor: Prof. Arindam Khan.

Shiv Nadar University, Noida. Aug 2016 - May 2020
B.Tech. Computer Science and Engineering
with Minor in Mathematics (High Distinction) GPA: 9.27/10

- Thesis: The 3-phase Approach to Finding Hamiltonian Cycles in Random Digraphs.
- Advisor: Prof. Sandeep Sen.

Research Interests

Design and Analysis of Algorithms, Algorithmic Fairness. More specifically: Approximation Algorithms, Combinatorial Optimization, Computational Geometry, Online Algorithms.

Publications

(In theory, authors are listed alphabetically according to the Hardy-Littlewood rule.)

- *Online Connectivity Augmentation.*
  Mohit Garg, Aditya Subramanian.
  to appear in ACM-SIAM Symposium on Discrete Algorithms **(SODA)**, 2026.
- *A Bouquet of Results on Maximum Range Sum: General Techniques and Hardness Reductions.*
  Rachana Gusain, Saladi Rahul, Aditya Subramanian.
  to appear in 45th Symposium on Principles of Database Systems **(PODS)**, 2026.
- *On Approximation Schemes for Stabbing Rectilinear Polygons.*
  Arindam Khan, Aditya Subramanian, Tobias Widmann, Andreas Wiese.
  44th IARCS Annual Conference on Foundations of Software Technology and Theoretical Computer Science **(FSTTCS)**:27:1-27:18, 2024.
- *Online and Dynamic Algorithms for Geometric Set Cover and Hitting Set.*
  Arindam Khan, Aditya Lonkar, Saladi Rahul, Aditya Subramanian, Andreas Wiese.
  39th International Symposium on Computational Geometry (**SoCG**): 46:1-46:17, 2023.
- *Fair Rank Aggregation.*
  Diptarka Chakraborty, Syamantak Das, Arindam Khan, Aditya Subramanian.
  Annual Conference on Neural Information Processing Systems (**NeurIPS**), 2022.
- *A PTAS for the Horizontal Rectangle Stabbing Problem.*
  Arindam Khan, Aditya Subramanian, Andreas Wiese.
  Integer Programming and Combinatorial Optimization (**IPCO**): 361-374, 2022.

Experience

Indian Institute of Science, Bengaluru, India. Oct 2020 - Present
Graduate Student
Working on problems in classical computational geometry, algorithmic fairness, and online algorithms under the guidance of Prof. Arindam Khan.

University of California, Berkeley, USA. Jan-Aug 2019
Visiting Student
Did coursework in Algorithms, Computer Security, Data Science, Artificial Intelligence, Taiko Drumming, and Fiction Writing. Over the summer did a research project trying to use the algorithmic Lovácz Local Lemma to find balanced solutions to SAT instances.

Institute of Mathematical Sciences, Chennai, India. May-July 2018
Undergraduate Summer Intern
Attended the summer program at Institute of Mathematical Sciences, and presented a paper on stable roommates problem. Later also studied about the complexity of counting stable marriages, and the underlying poset structure in stable matchings.

Achievements

- Recipient of the Walmart PhD Scholarship.
- Recipient of the KIAC (Kotak AI-ML Center) PhD Scholarship.
- Represented college at the International Collegiate Programming Contest (ICPC) 2019 Asia Finals and ICPC 2018 & 2019 regional rounds and was consistently ranked among top 20 teams in India.
- Rank 11 in Joint Entrance Screening Test (JEST 2020).
- Awarded the ACM-IARCS Travel Grant, for presenting a conference paper in the Netherlands.
- Selected to attend the first Pingala Interactions in Computing event.
- Won the Dell hack-to-hire Hackathon in 2019 by building software that identifies ageing inventory in warehouses and predicts best course of action considering multiple external factors and demand.
- Got mentioned in the Dean's list for exceptional academic performance in the monsoon 2017 and spring 2018 semester.

Relevant Coursework

Graduate: Randomized Algorithms, Combinatorial Optimization, Computational Geometry, Advanced Data Structures, Theorist's Toolkit, Algorithms under Uncertainty, Computational Complexity Theory, Cryptography, Hypergraphs and Set Systems.

Undergraduate: Design and Analysis of Algorithms, Genetic Algorithms, Algorithmic Toolbox, Graph Theory, Combinatorics, Number Theory.

Teaching Experience

- At Indian Institute of Science, Bengaluru:
  - E0318 Topics in Geometric Algorithms (Fall 2024) - taught lectures on ANNs.
  - E0249 Approximation Algorithms (Spring 2024) - taught lectures on geometric approximation algorithms.
  - E0234 Introduction to Randomized Algorithms (Spring 2023) - TA.
  - E0225 Design and Analysis of Algorithms (Fall 2021) - TA.
- At Shiv Nadar University, Noida:

  - CSD203 Principles of Programming Languages (Monsoon 2020) - TA.
  - CSD302 Design and Analysis of Algorithms (Spring 2020) - TA.
  - CSD205 Discrete Mathematics (Monsoon 2019) - TA.
- Facilitator at ICTS-RRI Math Circles.

Other Activities

- Gave talks at the EECS research symposium in 2022, 2023, and 2024.
- Organizer, CSA Summer School 2025.
- Organizer, Summer School on Approximation Algorithms 2025.
- Organizer, Winter School on Theoretical Computer Science 2024.
- Organizer, Reading group on computational geometry, 2023-2024.
- Organizer, Bangalore Theory Seminars 2022-2023.
- Sub-reviewer, SODA (2025, 2026), SoCG (2022, 2023, 2025), APPROX (2023, 2024), STACS (2025), WG (2025), FCT (2023), and LATIN (2024).