

# DR. RAJNI DABAS

Visiting Assistant Professor

McCormick School of Engineering, Northwestern University

(Assistant Professor, P.G.D.A.V. College, University of Delhi)

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📍 Evanston, Illinois



My broad area of research interest is Theoretical Computer Science, specifically Approximation Algorithms. I have worked majorly on clustering and facility location problems in the presence of constraints like capacities and outliers. Currently, I am working on clustering with fair outliers.

## PUBLICATIONS

- **Rajni Dabas**, Naveen Garg and Neelima Gupta. "Capacitated Facility Location with Outliers and Uniform Facility Costs". To appear in Journal of Mathematical Programming. 2025.
- Nikhil Ayyadevara, **Rajni Dabas**, Arindam Khan, and K. V. N. Sreenivas. "Near-Optimal Algorithms for Stochastic Online Bin Packing". In ACM Journal of Transactions on Algorithms (TALG), 21(2). 2025.
- **Rajni Dabas** and Neelima Gupta. "Uniform Capacitated Facility Location with Outliers/Penalties". In Journal of Discrete Optimization, 55:100878. 2025.
- **Rajni Dabas**, Neelima Gupta and Tanmay Inamdar. "FPT Approximations for Capacitated/Fair Clustering with Outliers". In Journal of Theoretical Computer Science, 1027:115026. 2025.
- **Rajni Dabas**, Naveen Garg and Neelima Gupta. "Capacitated Facility Location with Outliers and Uniform Facility Costs". In Proceedings of 25th Conference on Integer Programming and Combinatorial Optimization, IPCO, July 3-5, 2024, volume 14679 of Lecture Notes in Computer Science, pages 85–98. Springer, 2024.
- **Rajni Dabas** and Neelima Gupta. "Capacitated Facility Location with Outliers/Penalties". In Proceedings of 28th International Conference of Computing and Combinatorics, COCOON, October 22-24, 2022, volume 13595 of Lecture Notes in Computer Science, pages 549–560. Springer, 2022.
- **Rajni Dabas**, Naveen Garg, Neelima Gupta, and Dilpreet Kaur. "Locating Service and Charging Stations". In Proceedings of 20th International Workshop on Approximation and Online Algorithms, WAOA, September 8-9, 2022, volume 13538 of Lecture Notes in Computer Science, pages 1–19. Springer, 2022.
- Nikhil Ayyadevara, **Rajni Dabas**, Arindam Khan, and K. V. N. Sreenivas. "Near-Optimal Algorithms for Stochastic Online Bin Packing". In Proceedings of 49th International Colloquium on Automata, Languages, and Programming, ICALP, July 4-8, 2022, volume 229 of LIPIcs, pages 12:1–12:20. Schloss Dagstuhl - Leibniz-Zentrum für Informatik, 2022.
- Neelima Gupta, Sapna Grover, and **Rajni Dabas**. "Respecting Lower Bounds in Uniform Lower and Upper Bounded Facility Location Problem". In Proceedings of 27th International Conference on Computing and Combinatorics, COCOON, October 24-26, 2021, volume 13025 of Lecture Notes in Computer Science, pages 463–475. Springer, 2021.

## EXPERIENCE

Visiting Assistant Professor

McCormick School of Engineering, Northwestern University

(August 2024-July 2026)

Research collaboration with Prof. Samir Khuller

Assistant Professor

P.G.D.A.V. College, University of Delhi

(May 2023-Present: on lien)

Teaching Track: Design and Analysis of Algorithms, Discrete Mathematics, Programming using Python, Object Oriented Programming using C++.

Teaching Assistant as Ph.D. Scholar

Department of Computer Science, University of Delhi

(November 2019 - April 2023)

Design and Analysis of Algorithms, Data Structures

## ACHIEVEMENTS



ACM India Anveshan Setu Fellowship

Received the fellowship in both 2021 and 2022



UGC NET, Nov/Dec 2018

All India Rank 1



GATE

Qualified in 2019



Outstanding Student of the Year Award Winner

Received the award from the batch 2014-2017



Overall 8<sup>th</sup> rank in University and 1<sup>st</sup> rank in College

College topper in B.Sc. (Hons) Computer Science (2014-2017)

## EDUCATION

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### Ph.D. (Nov 2019 - May 2025)

Department of Computer Science, University of Delhi.  
Coursework aggregate: 87.67

**Thesis Title:** Approximation Algorithms for Capacitated Facility Location with Outliers

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### M.Sc. Computer Science (2017-2019)

Department of Computer Science, University of Delhi.  
Aggregate Percentage: 86.50

**Master's Thesis:** Facility Location Problem with penalties/outliers, 2019

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### B.Sc. (Hons) Computer Science (2014-2017)

Shyama Prasad Mukerjee College, University of Delhi.  
Aggregate Percentage: 94.75

**DU Innovation Project'16:** Humsafar, A public pooling application for women safety.

## EXTRA CURRICULAR

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- Member of Organizing Committee  
[Workshop on Foundations of Fairness and Accountability](#)  
[IDEAL and EnCORE](#)
- Secretary, Alumni Association  
[Department of Computer Science.](#)
- Member of Organizing Committee  
[COMPUTE 2021.](#)

## LANGUAGES

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English

Hindi

## EVENTS ATTENDED

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- Collaboration on Theory of Algorithmic Fairness Annual Meeting 2025 - Simons Foundation.
- FOCS 2024.
- IPCO 2024.
- FSTTCS 2023.
- COCOON 2022 (virtually).
- WAOA 2022 (virtually).
- ACM Winter School 2022.  
(Algorithms and Lower Bounds)
- ACM Winter School 2021.  
(Algorithms on Big Data and Machine Learning)
- Grass Hopper Celebration India , vGHCI, 2021.
- Highlights of Algorithm HALG, 2021.
- ESA 2021.
- Annual ACM event 2020.
- Inter-Research-Institute Student Seminar, IRISS 2020.
- Indo-German Spring School 2020.