

Hareshkumar Jadav

✉ hareshjadavcse@gmail.com 🌐 Website in linkedin 🎓 Google Scholar



Education

- PhD** **Indian Institute of Technology Indore**, Computer Science Jul 2023 – Present
- CGPA: 9.24/10
 - Supervisor: Dr. [Ranveer Singh](#), IIT Indore, India
 - Co-Supervisor: Dr. [Sudipta Mallik](#), Marshall University, USA
- M.Sc** **The Maharaja Sayajirao University of Baroda**, Mathematics Aug 2020 – May 2022
- CGPA: 8.1/10
- B.Sc** **Dr. Subhash Science College Junagadh**, Mathematics Jul 2017 – Apr 2020
- CGPA: 7.9/10

Research Interest

Combinatorial optimization, Algorithm, Algebraic Graph Theory

Experience

- Visiting Scholar** Jul 2025 - Oct 2025
- School of Industrial Engineering, Purdue University, USA
Project Supervisor: Prof. [Vaneet Aggarwal](#)
Project title: Stronger Approximation Guarantees for Non-Monotone γ -Weakly DR-Submodular Maximization
- Junior Research Fellow** Nov 2022 - June 2023
- Computer Science and Engineering Department, IIT Indore
Project Supervisor: Dr. [Ranveer Singh](#)
Project title: The Construction of Expander and Ramanujan Graphs and Their Application in Robust Network topologies
- Lecturer** Sept 2022 - Oct 2022
- Department of Mathematics
Dr. Subhash University Junagadh, Gujarat

Publications

- Upper-Linearizability of Online Non-Monotone DR-Submodular Maximization over Down-Closed Convex Sets** Feb 2026
- Yiyang Lu, *Hareshkumar Jadav*, Mohammad Pedramfar, Ranveer Singh, Vaneet Aggarwal
ICML 2026, [link](#)
- Stronger Approximation Guarantees for Non-Monotone γ -Weakly DR-Submodular Maximization** May 2026
- Hareshkumar Jadav*, Ranveer Singh, Vaneet Aggarwal
AAMAS 2026, [link](#)
- A construction of random bigraphs and their application to error correction codes** Jan 2025
- Hareshkumar Jadav*, Ashita Gupta, Ranveer Singh

Journal of Statistical Mechanics: Theory and Experiment, [link](#)

Strengthening Wilf's inequality on clique number

Jul 2025

Hareshkumar Jadav, Sreekara Madyastha, Rahul Raut, Ranveer Singh

ISSAC 2025, [link](#)

Cartesian Prime Graphs and Cospectral Families

Jul 2025

Abhinav Bitragunta, Hareshkumar Jadav, Ranveer Singh

ISSAC 2025, [link](#)

Generating Constrained Lattice Paths in a Grid related to counting cycles

Sept 2025

Hareshkumar Jadav, Mihir Patel, Samip Shah, Ranveer Singh, Harsh Talati

ICTCS 2025, [link](#)

Book drawing algorithm for a fixed vertex order

Under review

Geetanath Gonam, Hareshkumar Jadav, Dhananjay Kansule, Ranveer Singh

Moore–Penrose Inverse of Incidence Matrices of Unicyclic Graphs

Under review

Hareshkumar Jadav, Priyanshu Pant, Ranveer Singh, Virendra Singh

Moore–Penrose Inverses of Laplacians of Unicyclic Graphs

Under review

Hareshkumar Jadav, Priyanshu Pant, Ranveer Singh, Virendra Singh

Stronger Spectral Bound for Clique Number

Under review

Hareshkumar Jadav, Sudipta Mallik, Akhilesh Panchangam, Ranveer Singh

Achievements & Awards

- Selected for short-term collaborative research fellowship 2024-25 to visit Prof. [Vaneet Aggarwal](#)'s CLAN Labs for three months at Purdue University, USA, Funded by IIT Indore.
- Received Travel Support from IIT Indore to attend the 26th Conference of the International Linear Algebra Society, held from June 23–27, 2025, in Kaohsiung.
- Qualified GATE (Computer Science) in February 2023.
- Qualified CSIR-NET (Mathematical Science) in September 2022 with All India Rank-61.
- Qualified CSIR-NET (Mathematical Science) in February 2022 with All India Rank-47.
- Qualified Gujarat State Eligibility Test (GSET) in Mathematical Science (2021)

Academic Responsibilities

- Member, Events & Outreach Team, Department of Computer Science and Engineering, IIT Indore, 2024.
- Member, Organizing Team, Workshop on *Ramanujan Graphs*, held at IIT Indore, October 16, 2024.
- Member, Organizing Team, High-End Workshop on *Mathematical Foundation of Machine Learning and Its Application to Emerging Areas of AI*, held at IIT Indore, May 27–June 1, 2024.
- Member, Organizing Team, Advance Instructional School on Algorithmic Graph Theory, held at IIT Indore, June 26–July 15, 2023.

Workshop & Conference

- Presented a poster at the 40th Annual Conference of the Ramanujan Mathematical Society, held at IIIT Delhi, December 18–20, 2025.
- Attended the 26th Conference of the International Linear Algebra Society, held in Kaohsiung, June 23–27, 2025.
- Attended the Summer School on Approximation Algorithms 2025, held at IISc Bangalore, May 21–25, 2025.
- Attended ACM India Summer School on Algorithmic Approaches to NP-Completeness, held at PSG College of Technology, Coimbatore, July 15–26, 2024.
- Attended Mathematical Foundation of Machine Learning and its Application to the Emerging Area of AI, held at IIT Indore, May 27–June 1, 2024.

- Attended High-End Workshop on Mathematical Foundations for AI/ML at IIT Indore May 27 - June 1, 2024.
- Attended Spectral Method in Algorithms, FSTTCS 2023 Workshop, held at IIIT Hyderabad, December 21–22, 2023.
- Attended Advance Instructional School on Algorithmic Graph Theory, held at IIT Indore, June 26–July 15, 2023.
- Attended Advance Instructional School on Combinatorics and Graph Theory, held at the University of Kashmir, May 1–13, 2023.
- Attended CREST School: Applied Combinatorics, Cryptography and Combinatorial Topology, held at TCG CREST, Kolkata, July 11–22, 2022.
- Attended the State Level Workshop on Problem Solving and Enrichment in Mathematics, December 24–27, 2019.

Programming skills: ---

C/C++, Python, LaTeX, Matlab, SageMath

References ---

- **Dr. Ranveer Singh**
Associate Professor, Department of Computer Science, IIT Indore, India
Email: ranveer@iiti.ac.in
- **Prof. Vaneet Aggarwal**
Professor, School of Industrial Engineering, Purdue University, USA
Email: vaneet@purdue.edu
- **Dr. Sudipta Mallik**
Assistant Professor, Department of Mathematics and Physics, Marshall University, USA
Email: mallik@marshall.edu