# Roshan Raj

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Homepage

## Education

2019–2025 **Indian Institute of Technology, Bombay**,
*Computer Science and Engineering*, Ph.D, Advisor: Prof. Rohit Gurjar.
CGPA – 9.65/10

2015–2019 **Indian Institute of Technology, Varanasi (BHU)**,
*Computer Science and Engineering*, B.Tech.
CGPA – 9.18/10

## Publications

**Matroids are Equitable**,
*with Hannaneh Akrami and László Végh*, [arxiv].
Under Submission

**Characterizing and Testing Principal Minor Equivalence of Matrices II**,
*with Abhranil Chatterjee, Sumanta Ghosh and Rohit Gurjar*, [pdf].
Under Submission

**Characterizing and Testing Principal Minor Equivalence of Matrices**,
*with Abhranil Chatterjee, Sumanta Ghosh and Rohit Gurjar*, [arxiv].
ACM Symposium on Theory of Computing (STOC) 2025.

**Fractional Linear Matroid Matching is in quasi-NC**,
*with Rohit Gurjar and Taihei Oki*, [pdf].
European Symposium on Algorithms (ESA) 2024.

**Border Complexity of Symbolic Determinant under Rank One Restriction**,
*with Abhranil Chatterjee, Sumanta Ghosh and Rohit Gurjar*, [pdf].
Computational Complexity Conference (CCC) 2023.

**A Deterministic Parallel Reduction from Weighted Matroid Intersection Search to Decision**,
*with Sumanta Ghosh and Rohit Gurjar*, [pdf],
ACM-SIAM Symposium on Discrete Algorithms (SODA) 2022.

## Internships

Jan-Feb 2025 **University of Bonn**, *Visiting PhD Student*, Hosted by Prof. László Végh.

Jun-July 2024 **Keio University, Tokyo**, *Visiting PhD Student*, Hosted by Prof. Naonori Kakimura.

May-Jul 2022 **IISc Banglore**, *Visiting PhD Student*, Hosted by Prof. Siddharth Barman.

May-Jul 2018 **Amazon Hyderbad**, *SDE Intern*.

## Workshops Attended

Mar 2023 **7th Workshop on Algebraic Complexity Theory (WACT)**, *University of warwick*, [Talk link].

Dec 2022 **GIAN course on parameterized methods in randomized algorithms**, *IIT Gandhinagar*, Taught by: Prof. Daniel Lokshtanov.

## Teaching Assistantship

IIT Bombay **Design and Analysis of Algorithms, Algorithms and Complexity, Topics in Computational Complexity, Applied Algorithms and Extremal Combinatorics**.

NPTEL **Randomized Methods in Complexity**.

## Miscellaneous

Reviewer for FSTTCS, 2020.

Selected for the Prime Minister Research Fellowship (PMRF) for PhD.

Selected for the Kishore Vaigyanik Protsahan Yojna (KVPY) Fellowship.