Roshan Raj

Education

2019-Present 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

Fractional Linear Matroid Matching is in quasi-NC,

with Rohit Gurjar and Taihei Oki, [arxiv].

To appear at 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.

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.

Internships

May-Jul 2022 IISc Banglore, Visiting PhD Student, Supervision: Prof. Siddharth Barman.

o Assuming White's Conjecture to be true, we gave a randomized pseudo-polynomial time algorithm to find an EF1 allocation under linear matroid constraint for agents with identical additive valuation functions.

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.

Miscellaneous

Reviewer for FSTTCS, 2020.

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

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