Rohan Goyal

CONTACT INFORMATION

Massachusetts Institute of Technology
32 Vassar St., Cambridge, MA

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RESEARCH FOCUS: Robustness in computation: Error-correcting codes, proof systems, expansion and local to global behaviours.

EDUCATION

Massachusetts Institute of Technology — September 2024-Present
PhD. in Computer Science — Cambridge, MA, USA
Advisor: Yael Tauman Kalai — **GPA**: 5.0/5.0

Massachusetts Institute of Technology — (Expected) September 2024-December 2025
SM in Computer Science — Cambridge, MA, USA

Chennai Mathematical Institute, Chennai, India — September 2021-April 2024
B.Sc.(Honours) in Mathematics and Computer Science — **CGPA:** 9.62/10.0

PUBLICATIONS

- *Efficiently Batching Unambiguous Interactive Proofs* **[FOCS 2025, Sydney]**
  [ArXiV]
  with Bonnie Berger, Matthew Hong, and Yael Tauman Kalai.
- *Fast list-decoding of univariate multiplicity and folded Reed-Solomon codes* **[FOCS 2024, Chicago]**
  [ArXiV] [ECCC]
  with Prahladh Harsha, Mrinal Kumar, and Ashutosh Shankar.

MANUSCRIPTS

- *Optimal Proximity Gaps for Subspace-Design Codes and (Random) Reed-Solomon Codes* [Preprint]
  [ECCC]
  with Venkatesan Guruswami
- *Fast list-recovery of univariate multiplicity and folded Reed-Solomon codes* [Preprint]
  with Prahladh Harsha, Mrinal Kumar, and Ashutosh Shankar.
- *Structure Theorems (and Fast Algorithms) for List Recovery of Subspace-Design Codes* [Preprint]
  with Venkatesan Guruswami

TALKS

Optimal Proximity Gaps for Subspace-Design Codes and (Random) Reed-Solomon Codes:
- Proof Systems and Error-Correcting Codes Workshop; Cornell Tech (Upcoming) — December 2025

Efficiently Batching Unambiguous Interactive Proofs:
- MIT Cryptography and Information Secutity Seminar — November 2025

Fast list-decoding of univariate multiplicity and folded Reed-Solomon codes:
- University of Copenhagen; BARC Research Center — January 2025
- Chennai Mathematical Institute, Computer Science Seminar — January 2025
- FOCS — October, 2024

HONORS AND AWARDS

Bronze Medal at **International Mathematical Olympiad (IND1)** — 2021

Deputy Leader India, **European Girls Mathematics Olympiad** — 2023

Observer A India, **International Mathematical Olympiad** — 2024

Sriram Scholarship: Complete tuition fee waiver for attending CMI — 2021-2024

Kishore Vigyanik Pratyogita Yojana (KVPY) Scholarship (All India Rank Top 100) — 2021-2024

Internships, Research Projects

Tata Institute of Fundamental Research, Navy Nagar, Mumbai, India

Intern May 2023 - August 2023

Worked under Prahladh Harsha and Mrinal Kumar on problems related to error-correcting codes.

ENS Paris, 45 Rue d'Ulm, 75005 Paris, France

Intern May 2024 - June 2024

Worked under David Saulpic and Frédéric Magniez on quantum clustering algorithms and fairness. This internship was a part of the CMI-ENS exchange program.

Math teaching experience and outreach

Co-founded the Sophie Fellowship and the Online Math Club. Trained multiple IMO and EGMO teams for India, accompanied teams as a coach, and been in charge of paper setting. Organized various mathematical camps and contests including running the Championship of Mathematical and Logical Games in India.

Service

Subreviewed for STOC, FOCS, and ACM Transactions on Algorithms.

TAing Experience

Served as a TA at CMI for:

- Discrete Mathematics — Spring 2023, 2024
- Complexity Theory — Spring 2023
- Theory of Computation — Fall 2022