

EDUCATION

Tata Institute of Fundamental Research

Integrated PhD in Computer Science

2024–Present

Chennai Mathematical Institute

BSc. in Math and Computer Science

2021–2024

GPA: 8.05, CS Courses GPA: 8.62

PUBLICATIONS

- [1] **S. Chatterjee**, P. Harsha, and M. Kumar, *Deterministic list decoding of reed-solomon codes*, 2025.
arxiv: [2511.05176 \[cs.CC\]](https://arxiv.org/abs/2511.05176) (Submitted in STOC 2026).

RESEARCH INTERESTS

I am broadly interested in Error Correcting Codes, Pseudorandomness, Algebra and Computation, Computational Complexity Theory. My current work is focused on efficient unique and list decoding algorithms of good codes and their local decodability/correctability.

INTERNSHIPS

Derandomization of Isolation Lemma over Polytopes

Guide: [Rohit Gurjar](#), Computer Science Department, IIT Bombay

May–July, 24

- Studied about isolation lemma and its derandomization for Bipartite Perfect Matching and Linear Matroid Intersection polytopes.
- We worked on extending the idea of bounding of lattice vectors with 2-approximation of shortest vector for $0-1$ matrices with column sum k .

Quantum Property Testing of Junta Functions and Partially Symmetric Functions

Guide: [Arijit Ghosh](#), ACMU Department, ISI Kolkata

Dec, 23–Jul, 24

- Studied about Quantum Boolean Functions and basics of quantum property testing algorithms.
- I learned about classical and quantum algorithms for Junta function testing.
- We worked on implementing the Blais-Weinstein-Yoshida’s algorithm for partially symmetric functions using quantum algorithm with fewer queries.

Factorization of Arithmetic Circuits and Closure Results of Algebraic Complexity Classes

Guide: [Nitin Saxena](#), Computer Science Department, IIT Kanpur

May–July, 23

- Studied the Factorization techniques of Arithmetic Circuits using Newton Iteration and Hensel Lifting.
- Learned about the closure results of the complexity classes VNP, VP, VBP and their border classes.
- We worked on removing the bounded individual degree condition in Oliveira, 2016 paper.

TALKS AND PRESENTATIONS

- Presented the paper ‘Subspace Polynomials and List Decoding of Reed Solomon Codes’ by Ben-Sasson, Kopparty, Radhakrishnan in the course Advance Coding Theory by [Mrinal Kumar](#). [Slide]
- Presented the paper on $BPL \subseteq SC$: Nisan’s Pseudorandom Generator in the course Pseudorandomness by [Ramprasad Saptharishi](#).

- Presented the paper on $n^{1.62}$ upper bound of the Hurwitz Problem by Pavel Hrubesh in TIFR Student Seminar.

WORKSHOPS AND CONFERENCES

- FSTTCS 2025 Conference, BITS Goa
- HDX and Codes, 2025 Workshop, ICTS Bangalore
- FSTTCS 2024 Conference, IIT Gandhinagar
- Quantum Computing Semester, 2024, Chennai Mathematical Institute

RELEVANT COURSEWORK

TIFR	Advance Coding Theory Algebra, Number Theory & Computation Combinatorial Optimization Algorithms Mathematical Foundations in Computer Science	Pseudorandomness Complexity Theory Algorithmic Game Theory Probability Theory
CMI	Computer Science Courses: Expander Graphs & Its Applications Algorithmic Coding Theory Quantum Algorithmic Thinking Parallel Algorithms Theory of Computation Math Courses: Commutative Algebra Rings and Field Theory (Algebra III) Group Theory (Algebra II) Linear Algebra (Algebra I)	Complexity Theory Algebra & Computation Quantum Information Theory Design & Analysis of Algorithms Discrete Mathematics Topology Metric Space (Analysis III) Analysis over Euclidean Space (Analysis II) Real Analysis (Analysis I)

ACHIEVEMENTS

- Secured All India Rank 5 in JEST (Joint Entrance Screening Test) 2024.
- Got selected for NISER Bhubaneswar for Bachelors through the NEST exam, 2021.
- Ranked 28 in 12th Statistics Olympiad organised by C R Rao Advanced Institute of Mathematics, Statistics and Computer Science, 2020.

MISCELLANEOUS EXPERIENCE

- Served as a sub-reviewer for STACS, 2026.
- Teaching Assistant: Algorithms, 2025 course taken by [T. Kavitha](#) in TIFR. I graded the assignments.
- I have volunteered for various outreach activities at TIFR such as [Frontiers of Science](#) and [National Science Day](#) between November 2024 to December 2025 to inspire students to pursue pure science as a vocation and showcases recent scientific advances to the general public.