

Soham Chatterjee

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Education

- **Chennai Mathematical Institute** Chennai, Tamilnadu, India
B. Sc - Mathematics and Computer Science 2021 – Ongoing
- **University of Calcutta** Kolkata, West Bengal, India
B. Tech 1st Year - Electronics and Communication Engineering 2020 – 2021
- **Baranagar Narendranath Vidyamandir** Kolkata, West Bengal, India
Higher Secondary (12th Standard) 2018 – 2020
- **Baranagar Ramakrishna Mission Ashrama High School** Kolkata, West Bengal, India
Secondary (10th Standard) 2008 – 2018

Academic Achievements

- **TIFR Entrance GS, Computer Science** TIFR, Mumbai
Entrance exam of Computer Science in Tata Institute of Fundamental Research, Mumbai 2024
- **JEST, TCS - Rank 5** JEST
Joint Entrance Screening Test. Entrance for IMSC 2024
- **CMI Entrance** Chennai Mathematical Institute
Entrance exam of Chennai Mathematical Institute 2021
- **NEST** NISER
Entrance exam of National Institute of Science Education and Research (NISER) 2021
- **WBJEE - Rank 1893** WBJEEB
West Bengal Joint Entrance Exam 2020
- **12th Statistics Olympiad - Rank 28** AIMSCS
C R Rao Advanced Institute of Mathematics, Statistics and Computer Science (AIMSCS) 2020

Internship

- **Ramanujan's work on theta functions and q -series and their connections with number theory.**
Under Professor [Rupam Barman](#), IIT Guahati during the summer break in May – Jul, 2022.
- **Computational Number Theory and Algebra for Algebraic Complexity Theory**
Under Professor [Nitin Saxena](#), IIT Kanpur during the winter break in Dec – Jan, 2022.
- **Factorization of Formula Arithmetic Circuits in Algebraic Complexity Theory**
Under Professor [Nitin Saxena](#), IIT Kanpur during the summer break in May – July, 2023.
- **Quantum Property Testing of Junta Functions and Partially Symmetric Functions.**
Under Professor [Arijit Ghosh](#), ISI Kolkata during the winter break in Dec, 2023 – Going on.
- **Derandomization of Isolation Lemma**
Under Professor [Rohit Gurjar](#), IIT Bombay during the summer break in May – Jul, 2024.

Course Projects

- **Presentation on Iterated Mod Problem:: [Slides](#)**
Presented the paper "[Iterated Mod Problem](#)" by Howard J. Karloff and Walter L. Ruzzo in Parallel Algorithm and Complexity course.
- **Report on Algebraic Geometric Codes: [Link](#)**
Followed the [Survey](#) by Ian Blake, Chris Heegard, Tom Høholdt, and Victor Wei and Gil Cohen's [Course](#)
- **Qiskit Implementation of Quantum Circuit of Modular Exponentiation: [Link](#)**
Implemented the paper: "[Quantum Networks for Elementary Arithmetic Operations](#)" by Vlatko Vedral, Adriano Barenco and Artur Ekert
- **Qiskit Implementation of Kushlevitz and Mansour Algorithm: [Link](#)**
Implemented the paper: "[Learning Decision Trees Using The Fourier Spectrum](#)" by Eyal Kushilevitz and Yishay Mansour
- **Qiskit Implementation of Some Quantum Algorithms: [Link](#)**
Implemented Grover Search for 2×2 sudoku and Iterative Phase Estimation

Workshop, Lecture Series Attended

- **Quantum Semester Online**
Chennai, India

Chennai Mathematical Institute
Currently going on: 2024, Jan-May

- **Sage Days 122**
Chennai, India

Chennai Mathematical Institute
September, 2023

- **p-adic Number Theory Lecture Series: Ram Murty**
Mumbai, India

Math Dept, University of Mumbai
Online: August, 2023

Topics I Learned

- **Math Topics:-**

- Real Analysis
- Analysis over Euclidean Space
- Analysis over Metric Space
- Complex Analysis
- Probability Theory
- Calculus
- Differential Equations
- General Topology
- Algebraic Topology (Introductory)
- Linear Algebra
- Group Theory
- Ring Theory
- Field Theory
- Galois Theory
- Commutative Algebra
- Algebraic Curves

- **Computer Science Topics:-**

- **Theoretical Computer Science Topics:**

- Design and Analysis of Algorithms - [Geevarghese Philip](#) and [Samir Dutta](#)
- Theory of Computation - [Narayan Kumar](#) and [C. Aiswarya](#)
- Complexity Theory - [Partha Mukhopadhyay](#)
- Expander Graphs and Application - [Partha Mukhopadhyay](#) - (Attending)
- Higher Dimensional Expanders (Paper: [Log Concave Polynomial 2](#)) - [Partha Mukhopadhyay](#) - (Attending)
- Parallel Algorithms and Complexity - [Samir Dutta](#)
- Algorithmic Coding Theory - [Amit Kumar Sinhababu](#)
- Algebra and Computation - [Amit Kumar Sinhababu](#) and [Sumanta Ghosh](#) - (Attending)
- Quantum Algorithmic Thinking - [Partha Mukhopadhyay](#)
- Classical and Quantum Information Theory - [Arun Padakandla](#) - (Attending)
- Discrete Mathematics - [C Ramya](#) & [Partha Mukhopadhyay](#)
- Arithmetic Circuits - [Nitin Saxena](#)
- Computational Algebra and Number Theory - [Nitin Saxena](#)
- Lambda Calculus - [S P Suresh](#)
- Introductory Concurrent Programming - [Madhavan Mukund](#)

- **Other CS Topics:**

- Introduction to Functional Programming (Haskell) - [S P Suresh](#)
- Advanced Programming with Python - [Samir Dutta](#)
- Programming Language Concepts using Java - [Madhavan Mukund](#)

Computer Skills

- **Programming Languages:** C (Basic), Python (Intermediate), Haskell (Basic), Java (Intermediate), Unix/Linux Shell Scripting, HTML, CSS
- **Technical Skills:** \LaTeX (Advanced), Markdown, Git, Basic works in terminal, VIM, Obsidian