

Soham Chatterjee

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Education

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

Academic Achievements

- CMI Entrance
Entrance exam of Chennai Mathematical Institute
Chennai Mathematical Institute
2021
- NEST
Entrance exam of National Institute of Science Education and Research (NISER)
NISER
2021
- WBJEE - Rank 1893
West Bengal Joint Entrance Exam
WBJEEB
2020
- 12th Statistics Olympiad - Rank 108
C R Rao Advanced Institute of Mathematics, Statistics and Computer Science (AIMSCS)
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 and Junta Functions and Partially Symmetric Functions.
Under Professor [Arijit Ghosh](#), ISI Kolkata during the winter break in Dec – Jan, 2023.

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
- Linear Algebra
- Group Theory
- Ring Theory
- Field Theory
- Galois Theory
- Commutative Algebra
- Algebraic Curves
- Algebraic Topology (Introductory)

○ 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)
- 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
- Introductory Concurrent Programming

- Other CS Topics:

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

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