

Sayak Chakrabarty

Curriculum Vitae

About Me

1. **I am pursuing a PhD degree program in Computer Science at the Security and AI lab at Dartmouth College, Adviser: Prof. V.S. Subrahmanian.**
March 2021–June,2025(Expected)
2. **I have research interests in Algorithms,Algorithmic Foundations of Optimization,Data Mining,Machine Learning.**
3. **Programming Language Experience: Python,MATLAB,C++,Latex.**
Tools and Frameworks: LATEX, Git,Pandas, Scikit-learn, Networkx
4. **I completed my school education in 2015 from South Point High School, Kolkata, India. My vernacular is Bengali. I love to play chess in my free time.**

Education

- 2020–2025 **PhD in Computer Science**, *Dartmouth College, Security and AI Lab, United States* .
- 2018–2020 **Masters of Mathematics(MMath)**, *Indian Statistical Institute, Baranagar, Kolkata, India* .
- 2015–2018 **BSc(Honours) in Mathematics and Computer Science**, *Chennai Mathematical Institute, Chennai, India* .

Professional Experience

- 2020–Present **Research Assistant**, DARTMOUTH COLLEGE, DSAIL LAB, Hanover, NH, United States, Supervisor:Prof. V.S. Subrahmanian.
PhD Research
- 2019 **Summer Internship**, CODING THEORY AND MCMC METHODS , Indian Statistical Institute, Supervisor: Prof. Sourav Chakraborty.
I started my studies with coding theory. I covered reading:
1. Essential Coding Theory by Venkatesan Guruswami, Atri Rudra and Madhu Sudan
2. Optimal Error Correction for Computationally Bounded Noise by Silvio Micali, Chris Peikert, Madhu Sudan
I worked on problems related to estimating number of perfect matchings in bipartite graph and estimating the number of maximal flows in some bipartite graphs using MCMC methods.

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- 2017 **Summer Internship**, ADDITIVE COMBINATORICS AND PROBABILITY, Harish Chandra Research Institute, Supervisor: Prof. Gyan Prakash..
I tried to master the techniques from the book "Additive Combinatorics" by Terence Tao and Van Vu. I almost completed reading the notes of Kannan Soundarajan on Additive Combinatorics.
- 2016 **Summer Internship**, LATTICE CRYPTOGRAPHY , Indian Statistical Institute, R.C. Bose Centre, Supervisor: Prof. Rishiraj Bhattacharya.
I wrote a technical report based on the paper "Using LLL-Reduction for Solving RSA and Factorization Problems" by Alexander May.

Publications

- 2021 **A Number Guessing Game**, *Pi in the Sky*, Issue 22, Pacific Institute for the Mathematical Sciences.
- 2017 **The Repeated Divisor Function and Possible Correlation with Highly Composite Numbers**, 20th International Workshop for Young Mathematicians "Number Theory"-The Zaremba Society of Mathematicians - Students of the Jagiellonian University, Krakow, Poland .
Coauthor: Arghya Datta

Relevant Courses

- 2016 **Discrete Mathematics and Graph Theory**, Prof. Sourav Chakraborty, Chennai Mathematical Institute, Undergraduate second year.
- 2017 **Design and Analysis of Algorithms**, Prof. Prajakta Nimborkhar, Chennai Mathematical Institute, Undergraduate second year.

Honours and Awards

- 2019 **International Youth Math Challenge**, I got selected for the final round after clearing the qualification round., Online Event organized by Indian Institute of Technology.
- 2017 **Science and Engineering Research Board International Travel Award**, I was awarded this grant from the Department of Science and Technology for travelling to Poland for publication of a paper in the conference proceedings, in the second year of undergraduate Studies.
- 2015 **Top 20 in the Higher Secondary Examination**, I ranked in the top 20 in the board examination among 0.7 million participants, Grade 12.
- 2014 **Mathematical Talent Reward**, Indian Statistical Institute, Grade 11.
- 2013 **Achievement Cum Diagnostic Test in Mathematics Gold Medalist**, Exam is taken by the Centre for Pedagogical Studies in Mathematics and I ranked among the top 10 students nationwide, Grade 10.

Teaching Experience

- 2017 **Analysis II Teaching Assistant**, Prof. Sunder Sobers, Chennai Mathematical Institute, I was the teaching assistant for the undergraduate course Analysis II and taught the first year students..

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Presentations and Workshops

- 2020 **A Course on Android Malware Analysis**, 3 day Zoom course by ISTS and Google.
The lectures were delivered by members of the Google Android Security Team.
- 2017 **A Variant of Large Sieve**, Venue: Institute of Mathematical Sciences.
I presented the full paper of Ben Green to the audience.
- 2017 **Roth's Theorem**, Venue: Institute of Mathematical Sciences.
I presented the proof of Roth's theorem but it was the proof given by T. Gowers.

Skills

Languages English, Bengali
Operating System Windows, Linux