

Siddhartha Jain

COMPUTER SCIENCE @ EPFL · ALGORITHMS · COMPLEXITY THEORY

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“Somewhere, something incredible is waiting to be known.”
Carl Sagan

Education

EPFL

École Polytechnique Fédérale de Lausanne

Lausanne, Switzerland

M.S. IN COMPUTER SCIENCE

Sep 2020 - Present

- MSc Research Scholar
- **Courses:** Machine Learning, Spectral Graph Algorithms, Probabilistic Methods in Combinatorics

IIIT-Delhi

Indraprastha Institute of Information Technology, Delhi

New Delhi, India

B.TECH IN COMPUTER SCIENCE & APPLIED MATHEMATICS

Aug 2016 - Aug 2020

- Cumulative GPA 9.1/10, Major GPA 9.3/10
- Founded the Math club (Évariste)

Skills

Presentation LaTeX, Illustrator

Programming Python, Mathematica, Julia, C++, Java

Languages English, Hindi, French

Experience

MSc Research Scholar

Lausanne, Switzerland

EPFL

Feb 2021 - Jan 2022

- Working with [Mika Göös](#).

Research Intern

Shanghai, China

ITCS @ SHANGHAI UNIVERSITY OF FINANCE & ECONOMICS

May 2019 - Jul 2019

- Hosted by [Bundit Laekhanukit](#).
- Proved a theorem about the inapproximability of a **graph compression** problem. The paper can be found on [ArXiv](#).

Teaching Assistant

New Delhi, India

IIIT-DELHI

Aug 2018 - Nov 2018

- Course: Discrete Structures.

Projects

Unambiguous DNFs

Boolean Functions

SEMESTER PROJECT AT EPFL

Sep 2020 - Jan 2021

- Supervisor: [Mika Göös](#), Collaborators: [Shalev Ben-David](#), [Robin Kothari](#)
- We exhibit an unambiguous k -DNF formula that requires CNF width $\widetilde{\Omega}(k^{1.5})$. Our result is known to imply several other improved separations in query and communication complexity.
- Paper in writing.

Clustering

Clustering

PAPER: INCLUDING OUTLIER PERSPECTIVE LEADS TO BETTER CLUSTERING

2020

- Co-authors: Shay Ben-Elazar, [Vincent Cohen-Addad](#), [Karthik CS](#)
- We propose a completely new paradigm for preprocessing data in an unsupervised manner to improve the performance of clustering algorithms, inspired by **Error-Correcting Codes** and **Locality Sensitive Hashing**.
- In writing.

Algorithms for Big Data

INDEPENDENT STUDY AT IIIT-DELHI

Algorithms

Aug 2019 - Dec 2019

- Supervisor: [Rajiv Raman](#)
- Studied various topics related to Algorithms for Big Data and presented it to my supervisor, peers and other researchers visiting or working at IIIT-Delhi.

Guillotine Cuts & Pattern Avoidance in Permutations

BACHELOR THESIS AT IIIT-DELHI

Combinatorics

Mar 2018 - Mar 2019

- Advisors: [Rajiv Raman](#), [Samrith Ram](#)
- Worked on a combinatorial conjecture on Guillotine Cuts for Axis Parallel Rectangles, which would imply a polytime $O(1)$ approximation algorithm for MISR, as presented in [On Guillotine Cutting Sequences](#) [Abed, Chalermsook et al].
- We found an interesting connection to Pattern Avoidance in Permutations, and posed our own conjecture along with a few results.

Honors & Awards

2021 **MSc Research Scholar**, EPFL

Lausanne,

Switzerland

2020 **Graduation with Honors**, IIIT-Delhi

New Delhi, India

2019 **Dean's List**, IIIT-Delhi

New Delhi, India

Workshops & Schools

Mathematics of Quantum Computation

ISRAEL INSTITUTE FOR ADVANCED STUDIES

Jerusalem, Israel

Dec 2019

Mathematics for Data Science

INDIAN INSTITUTE OF SCIENCE

Bangalore, India

Jul 2019

Graph Theory & Graph Algorithms

INDIAN INSTITUTE OF TECHNOLOGY, GANDHINAGAR

Gandhinagar, India

Jun 2017

Extracurricular Activity

Évariste (Math Club of IIIT-Delhi)

FOUNDER

New Delhi, India

Aug 2017

- 40+ active members, 8 innovative events per semester.
- Organised [Convergence](#) along with Math dept of IIIT-Delhi.

Student Senate of IIIT-Delhi

REPRESENTATIVE

New Delhi, India

Apr 2018 - Aug 2019

- Represented CSAM Batch of 2016 in the Senate.
- Represented entire student body in the Disciplinary Action Committee.