

# ADITYA MISHRA

Senior Undergraduate, Department of Computer Science and Engineering  
Indian Institute of Technology, Kanpur

adimis@(cse.)iitk.ac.in ✉  
adimishra1 | adimishra1 in  
+91 955 900 4663 ☎

## EDUCATIONAL QUALIFICATIONS

Year	Degree	Institution	CGPA/%
2021(expected)	B.Tech, CSE	Indian Institute of Technology Kanpur	9.30/10.0
2017	AISSCE – XII	Delhi Public School, Bokaro	93.0%
2015	CBSE – X	Delhi Public School, Bokaro	10.0/10.0

## SCHOLASTIC ACHIEVEMENTS

- **Academic Excellence Award**, for exceptional performance
- **Rank 182**, JEE Advanced (amongst 150,000 candidates)
- Rank 750, JEE Mains (amongst 1,100,000 candidates)
- **National top 1%**, National Standard Examination in Physics (NSEP) & Astronomy (NSEA) by IAPT
- **Gold Medalist**, Regional Mathematics Olympiad (RMO)

## WORK EXPERIENCE

**Quadeye Securities** *Gurgaon, India*  
*Systems Intern* May'20 - Jun'20

- Developed a **pipeline for receiving trading data** in FAST protocol for better augmentation with trading strategies
- Reduced the **median latency of the pipeline by 20%** compared to mFast, the current industry standard
- Incorporated **lazy analysis of data packets** to handle **high throughput and low latency** signals in the system

**Mosaic Research Capital** *Singapore*  
*Intern* Jul'20 - Sep'20

- Automated addition of exchanges to the infrastructure, increasing exchanges from 2 to 10 including Binance Exchange
- Implemented module for **Inter Process Communication** through shared memory with book keeping which led to **10x improvement in the latency** between trading strategies and client to send orders in python and C++ respectively
- Systemized an adapter to access methods written in C++ from python and incorporated liquidation feed to the simulator
- Restructured market data type to Parquet format for memory optimization leading to **size reduction by 80%**

**University College London** *London, United Kingdom*  
*Research Intern, Prof. Earl Barr* Jun'19 - Jul'19

- Developed a **Clang Plugin** to collect tokens along all possible paths using the **AST** of the code which analyzed over **25 million lines of code of the chromium project**
- Trained a model using the collected tokens to find **priority order of any particular path** using static analysis
- Path prioritization using the bimodal pointer nature of source code by Natural Language Processing (NLP)

## SKILLS

**Proficient:** C, C++, Python, Golang, Oz, Scala  
**Exposure:** Haskell, R, PHP, MIPS Assembly, Verilog  
**Utilities:** Shell Utilities, Git, GDB, Docker, L<sup>A</sup>T<sub>E</sub>X

## POSITIONS OF RESPONSIBILITY

- **Coordinator**, *Association of Computing Activities*  
Lead a team of 20 sophomore students to actively organize events for 800+ students and staff in the CSE department
- **Senator**, *Student Gymkhana*  
Voiced the concerns of 850 students of batch as an elected representative in the legislative organ of the student body
- **Tutor**, *Data Structures and Algorithms*  
Responsible for creation of programming assignments, teaching and evaluation of 200+ students across all batches

## RELEVANT COURSES

Advanced Algorithms <sup>i</sup>	Operating Systems	Data Structures*	Introduction to ML*
Discrete Mathematics*	Computing Laboratory*	Computer Networks	Data Mining <sup>i</sup>
Computer Organisation*	Modern Cryptology*	Compiler	Theory of Computation*

\*: Grade for excellent performance, <sup>i</sup>: In progress

## PROGRAMMING ACHIEVEMENTS

- **Rated 5-star**, CodeChef with highest rating 2104
- **Country Rank 87**, Round 1 of Google Code Jam 2020
- Completed all 5 levels of Google foo-bar challenge
- **Team Rank 45**, ICPC'18 Prelims among 4500 teams
- **Global Rank 40**, among 12,000+ participants CodeForces Round #572 and currently rated as Candidate Master

## PROJECTS

**Gold-Bug Cipher in Haskell** | ✉ [github://adimishra1/dcypher](https://github.com/adimishra1/dcypher)  
*Cryptography Course Project, Prof. Maninder Agrawal* Mar. 2020

- Developed a decoder for decoding text encrypted with **Gold-Bug cipher** in Haskell with **accuracy of 92%** over the hidden test set which was judged to be the best in class
- Analyzed various heuristics like frequency, bigram and trigram analysis and hamming distance comparison

## Building gemOS

*Operating Systems, Prof. Debadatta Mishra* Aug. 2019 - Nov. 2019

- Upgraded various operating system designs and optimizations on gemOS like Process Context, Paging and Filesystem
- Implemented pipes, multilevel page tables with lazy page allocation, cfork and vfork for smart process creation

**QuickSat (SAT solver)** | ✉ [github://adimishra1/QuickSat](https://github.com/adimishra1/QuickSat)  
*Logic for Computer Science, Prof. Subhajit Roy* Oct 2018

- Implemented **SAT solver** using Semantic Tableaux and Davis–Putnam–Logemann–Loveland (**DPLL**) algorithm
- Optimized the SAT Solver for **uuf-175 benchmark** with heuristics like deterministic frequency and weight functions

**Lex-icon** | ✉ [github://adimishra1/Lex-icon](https://github.com/adimishra1/Lex-icon)  
*Summer of Code, Prof. S. Shukla* May 2018 - Jul. 2018

- Brainstormed and designed a **web application** Lex-Icon with the motive to teach English and enhance vocabulary
- Implemented features like up-voting, trending section and **personalized feed** displaying their liked words

**Ripe Cucumbers** | ✉ [github://adimishra1/RipeCucumbers](https://github.com/adimishra1/RipeCucumbers)  
*Code.Fun.Do++, Microsoft* Oct 2017 - Nov 2017

- Improved **decision forest** algorithm for predicting success rate of films with **accuracy of 76.9%** on the validation set
- Designed a website to represent the search results and predicted rating for films, which has **100+ visitors per month**

**Kagglers** | ✉ [github://adimishra1/titanic](https://github.com/adimishra1/titanic)  
*Programming Club, IIT Kanpur* May. 2018 - Jul. 2018

- Worked on the Kaggle's Titanic Machine Learning problem to predict survival rate of passengers on Titanic
- Achieved an accuracy of **78.9% with a Neural Network Model** and **87.9% with Random Forest Model**

**RSA and AES Attack** | ✉ [github://adimishra1/RSA-AES-Attack](https://github.com/adimishra1/RSA-AES-Attack)  
*Coppersmith Algorithm to break RSA, SASAS Attack on AES* Apr 2020

**Book My Movie** | ✉ [github://adimishra1/bookmymovie](https://github.com/adimishra1/bookmymovie)  
*A portal to book movie tickets in LAMP stack* Oct 2019 - Nov 2019

**Blinder** | ✉ [github://adimishra1/Blinder](https://github.com/adimishra1/Blinder)  
*Android App using the MERN stack for Matchmaking* Feb 2018