SARTHAK SINGHAL

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EDUCATIONAL QUALIFICATIONS

Bachelor of Technology, Computer Science and Engineering   July 2017 - May 2021(Expected)

- Cumulative Performance Index/CPI: **9.7/10**

SCHOLASTIC AND PROGRAMMING ACHIEVEMENTS

- Received Academic Excellence Award, 2017 - 18
- All India Rank **169**, Joint Entrance Exam Advanced among 200,000 candidates
- All India Rank **78**, Joint Entrance Exam Mains
- Qualified for **ACM ICPC** Amritapuri regionals 2018, Secured 173rd rank in regionals
- Ranked 31st among the Indian teams in Google Hash Code 2019
- Rated 5 star on CodeChef with rating of 2026
- Expert on Codeforces with maximum rating 1682

SKILLS

Programming: C/C++, Python, Haskell, Bash Scripting, Verilog

Web: PHP, HTML5, CSS, Javascript, MYSQL, NodeJS, React Native

Utilities: Linux Shell Utilities, Git, LaTeX, Vim

MINI PROJECTS

- Implemented system calls like pipe, fork, exec, open, dup, exit, etc. and memory management using multi-level page tables in GemOS.
- Built an android app using React Native to manage the upcoming coding contests and hackathons with backend in NodeJS.
- Made a minimal CAPTCHA detector using OpenCV for removing background obfuscations and doing segmentation and then CNN for character recognition.
- Developed a decoder in Haskell to decipher monoalphabetic substitution cipher
- Designed a live cricket score updater using Bash Scripting and RSS feeds

WORK EXPERIENCE AND PROJECTS

Google Summer of Code

Boost C++ Organization   May 2019 - Present

- Integrated Boost.Units with the existing base coordinate system and restructured all the classes to make them compatible with units to provide a robust astronomical coordinate system.
- Created the parser for binary table extension and ASCII table extension for FITS File system.
- Used Template Meta Programming in C++ to provide almost no runtime overhead and allow users to write scientifically infallible code by detecting all the errors at the compile time.

Full Stack Developer Intern

Summer of Code, Prof. Sandeep Shukla   May - July 2018

- Developed a dynamic and interactive web application from scratch as an initiative to improve the medical system by keeping track of records of patients and their history.
- Developed a question-answer platform for medical system using PHP and MYSQL in the backend with frontend made using HTML and Javascript.
- Technologies and languages used: PHP, MYSQL, AJAX, HTML, Javascript, Microsoft Azure.
- Project sponsored by NUTANIX and UPSIDC

Basics of Reinforcement Learning

Association for Computing Activities, Department of CSE, IIT Kanpur   Jan 2018 - Mar 2018

- Learned about Markov Decision Processes, Q-Learning and SARSA.
- Implemented Q-learning algorithm to find the shortest possible path to reach diagonally opposite corner in a square grid with blocked paths of no prior information.

RELEVANT COURSES

Introduction to Programming	Linear Algebra	Introduction to Logic
Probability for Computer Science	Data Structures and Algorithms	Discrete Mathematics
Software Labs	Computer Organization	Theory of Computation
Algorithms-II	Introduction to Machine Learning	Operating Systems
Computer Architecture(*i*)	Database Management(*i*)	Compiler Design(*i*)
i: Upcoming		