Suraj Choubey

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EDUCATION

BITS Pilani KK Birla Goa Campus — Goa, India
BE Electrical and Electronics Engineering and Masters in Mathematics — *July 2019 - May 2024*

Courses: *Computer Programming, Data Structures, Algorithms, Operating Systems, Discrete Math, Graphs and Networks, Applied Statistical Methods, Probability and Statistics, Linear Algebra*

EXPERIENCE

CoinSwitch — Bengaluru
Software Development Engineer - 1 (Full-time) — *Nov 2024 - Present*

- **Worked with the Futures Trading and CoinSwitch PRO Team,** worked on key projects like Futures, INR Futures, DEX, BFF pattern systems, and the CoinSwitch Affiliate Program. **Handled on-call** engineer duties and complex customer tickets. Developed on multiservice systems with websockets, intranetwork messaging, ledgers, and transactions. Improved **interservice Redis MGET efficiency, reducing service latency by 50%**. Managed system performance and alerts via ELK stack, ArgoCD, NewRelic, and Grafana. **Tech Stack: Golang, Postgres, Python Flask**

Google Summer of Code - GeomScale — Europe, Remote
Student Software Developer (Full-time) — *May 2021 - Sep 2021*

- **Developed a n-dimensional integration software** in the field of computational geometry to develop software to integrate multidimensional log-concave functions around polytopes scalable to tens of dimensions using Monte Carlo Methods using technologies like CMAKE/C++/Eigen/torchquad which was novel of its kind and was **able to beat accuracy of other primitive counterparts by 20-30 percent** which hugely impacted researchers and analysts across the globe, exploiting techniques such as Lovasz-Vempala Algorithm, Hamiltonian Monte Carlo and Markov Chain Monte Carlo Methods. Worked with international computational geometry experts and a handful of PhDs on this.

Zettabolt Technologies — New Delhi, India
Software Engineering Intern — *Jun 2022 - May 2024*

- **Developed Spark Profiler** focused on creating valuable insights for software developers, visualizing the performance of large queries, especially those related to machine learning tasks lasting several hours for a distributed system involving myriad nodes. This involved **identifying time and data skew in query CPU memory, highlighting CPU contentions, and providing actionable recommendations to optimize and upgrade cluster resources**. Leveraged Scala to implement backend logic and APIs, alongside building a user-friendly dashboard UI for easy visualization and understanding. The software impacted many MNCs and mid-sized companies in managing their clusters and simultaneously dominating its rivals.
- **Implementing ETL Pipelines** using python scripts to handle various different datasets and high volume data. Cleansing and tailoring the technologies to achieve the desired results for different clients and help them setup their ETL pipelines using Azure Cloud Suite Tools and received offer for **Senior Software Engineer**.

Onfinance AI — Bengaluru
Backend Engineer (Full-time) — *Jul 2024 - Oct 2024*

- **Led the automation of credit appraisal memos** using AI, potentially **cutting costs for a bank/NBFC client 450 crores INR**. Spearheaded the transformation of the backend system from v2 to v3. Engineered **data pipelines to automate key processes using Apache Airflow**, significantly improving efficiency.

CapitalSetu — Delhi, India
Full Stack Engineering Intern (Full-time) — *Jun 2022 - Dec 2022*

- **CapitalSetu is an early stage fin-tech startup** based on supply chain financing system where I primarily worked on building APIs and services on server side and **was awarded star performer of the month in the first month.**
- **Worked with a team of six developers and the startup ended up raising $276K later.**
- **Understood and implemented many complex business ideas** into technological logical code from scratch to tailor it as needed. Worked extensively on credit assessment software on the server end which helped analyze a person's credit and risk ability and suit it according to the business needs and was paramount to the startup's working principles with **99 percent accuracy** and helping bag the initial invesment.

PROJECTS

- **Monte Carlo Integration - Math Software (Computational Geometry, MCMC processes, Randomization)** Research oriented, open source, math software to integrate n-dimensional log-concave functions around n-dimensional polytopes. Will bring impact to hundreds of computational geometry researchers and engineers in the field of Geometric Scaling and Volume Computation in the n-dimensional space. Tech: C++, Python, torchquad, CMAKE (Sep '21)

- **ICMC 2023 Website** Leading and working with a team of developers using MERN stack technology (ReactJS, ExpressJS, MongoDB, NodeJS) to develop website for International Conference for Mathematics and Computing 2023. Bringing impact to thousands of people to attend the conference at my university. Tech: MERN, APIs, github-actions (Feb '22)

- **Shamir Secret Sharing using Galois Field 256 (Cryptography)** An implementation of Shamir Secret Sharing Algorithm using Galois Field 256 as the underlying finite field. It lets users to generate n shares of some original secret key and atleast any k shares less than or equal to n can used to regenerate the original secret key. Tech: NodeJS (May '22)