



Siddharth Maurya
Computer Science & Engineering
Indian Institute of Technology Bombay

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M.Tech.
Gender: Male
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Examination	University	Institute	Year	CPI / %
Post Graduation	IIT Bombay	IIT Bombay	2023	9.61
Graduation	IIIT Kottayam	IIIT Kottayam	2020	8.89
Graduation Specialization: Computer Science & Engineering				
Intermediate	GSEB	Bhulka Vihar	2016	88.62%
Matriculation	GSEB	Bhulka Vihar	2014	87.67%

THESIS AND RESEARCH PROJECTS

- **Optimizing Cross Shard Transactions in Sharded Blockchain**
(M.Tech Project | Guide: Prof. Vinay Ribeiro) (June'22-Present)
 - Designing protocol for off-chain transaction execution on top of existing sharded blockchain protocol.
 - Analyzing security attacks on **cross-shard off-chain transactions** in permissionless environment.
 - Leveraging concepts from Lightning Network's payment channel to achieve off-chain transactions.
- **Sharding in Blockchain System**
(M.Tech Seminar | Guide: Prof. Vinay Ribeiro) (Jan'22-May'22)
 - Performed a survey on existing sharding solutions for permissioned and permissionless blockchain system.
 - Analyzed **key challenges faced in sharded blockchain** systems in terms of scalability.
 - Studied major sharded blockchain systems i.e. Elastico, OmniLedger, Monoxide, RapidChain, Pyramid Chain.
- **Performance Analysis Tool for Ethereum Based Blockchain**
(M.Tech RnD | Guide: Prof. Vinay Ribeiro) (Jan'22-May'22)
 - Developed a performance testing tool "ChainPuff" with web based GUI to send transaction work load to an ethereum node.
 - Implemented **transaction generation and processing response** to derive various performance metrics such as latency and throughput of the ethereum node.
 - Integrated Solidity compiler into ChainPuff for easy **smart contract deployment** on the blockchain.
- **Low Cost Motion Controller for Gaming using Color Segmentation Technique**
(B.Tech Project | Guide: Prof. Ebin Deni Raj) (Aug'19-Jul'20)
 - Designed and implemented a motion controller to keep its cost minimal while using **minimal hardware resources**.
 - Implemented color based **segmentation for tracking** the controller.
 - Crafted the motion controller device out of a **pen and a colored plastic ball**.
 - Implemented laser pointer style input by exploiting **trigonometric properties** of the setup.
 - Analyzed performance of motion controller by integrating it in a dummy Fruit Ninja game.

SCHOLASTIC ACHIEVEMENT

- Secured **All India Rank 42** in GATE CS 2021 among 1,01,922 candidates.

COURSE PROJECTS

- **Regensis: Optimizing Blockchain Ledger Size**, (CS 762, Advanced Blockchain Technology) (Jan'22-May'22)
 - Performed literature survey to analyze existing space optimization techniques on blockchain ledger.
 - Proposed a novel Regensis protocol which **reduces blockchain ledger** size without affecting essence of history.
 - **Parallelized Regensis** process to avoid affecting transaction throughput of the system.
 - Analyzed mining power distribution trade-off for PoW blockchain in permissionless network.
- **Delagram: Exclusive Social Media Platform**, (CS 699, Software Lab) (Aug'21-Nov'21)
 - Developed an IITB exclusive social media platform using Java SpringBoot for backend and ReactJS for frontend.
 - Designed and **implemented entire UI/UX from scratch** to support features like searching for friends, adding friends, creating and reacting to posts, texting with friends.
 - Collaborated in a team of 3 by utilizing Git version control functionalities.

- **Discrete Event Simulator for P2P Blockchain**, (CS 765, *Introduction to Blockchains*) (Aug'21-Sep'21)
 - Simulated **Proof-of-Work based consensus mechanism** of bitcoin-like blockchain system for peer to peer network.
 - Utilized **SimPy framework** to achieve discrete event simulation.
 - Analyzed various attacks by simulating Selfish Mining and Stubborn Mining.
- **Shell Program for xv6 OS**, (CS 744, *Design and Engineering of Computing Systems*) (Aug'21-Sep'21)
 - Implemented a **prototype of shell in C** for support of basic linux commands.
 - The shell allowed serial, parallel and background execution of commands and performed signal handling.

PERSONAL PROJECTS

- **Mini-ANN : Artificial Neural Network Library** (Apr'19-Oct'19)
 - Developed a javascript library which **implements basic neural network** functionalities.
 - Supports multilayer architecture, feedforward and training through backpropagation.
 - Implemented functionalities of **Genetic Algorithm** for **Neuroevolution**.
- **Rangoli Maker** (Oct'19)
 - Implemented an algorithm to convert **random doodles to symmetric rangolis** in real-time.
 - Leveraged radial symmetry observed in rangoli arts.
 - Developed a **responsive website to publish this application** on the Internet.
- **Neuroevolution on Escape Jump Game** (Mar'19-Oct'19)
 - Developed a neural network which evolves based on genetic **algorithm to play a self-developed game** optimally.
 - Utilized self-developed mini-ANN-js neural network library for neuroevolution functions like mutate and crossover.
- **Interactive Algorithms Visualisations Platform** (Feb'19-Oct'19)
 - Developed a web platform where students can visualize and learn algorithms with **interactive animations**.
 - Added interactive visualisations for A* Path Finding, Odd-Even sort, Bubble sort and various other algorithms.
 - Utilized p5.js graphics library to allow users to generate graphics based on their interactions.
- **Canded Backend** (Aug'20)
 - Developed a backend server exposed through REST API using Node.js from scratch.
 - Utilized **Twilio's SMS API** to enable users to interact with their service **without Internet**, through SMS.
 - Google Firebase's **Cloud Firestore** was used as database and server application was deployed on Heroku.
- **Anytime Services Website** (Jun'19-Jul'19)
 - Developed a responsive UI/UX of landing page enhanced with animations to showcase services.
 - Utilized **Instagram API** to dynamically fetch images from firm's Instagram page to showcase on the website.

TECHNICAL SKILLS

- **Programming & Scripting Languages:** C, C++, Javascript, HTML, CSS, Python, SQL
- **Tools & Libraries:** Google Firebase, ReactJS, p5.js, web3.js, NodeJS, \LaTeX , Git

POSITIONS OF RESPONSIBILITY

- **Teaching Assistant** (Jul'21-Jun'22)
 - **CS 101:** Computer Programming and Utilization (*Prof. Parag Chaudhuri, Prof. S. Akshay*)
 - * Supervised the labs and quizzes for the course along with other TAs.
 - * Mentored a group of 12 students and helped them with their lab assignments throughout the course.
 - **CS699:** Software Lab (*Prof. Bhaskaran Raman*) (Aug'22-Present)
- **Interview Coordinator | Placement Cell, IIT Bombay** (Oct'21-Dec'21)
 - Coordinated with a team of **250+** members for interviews of **1800+** students.
 - Assisted in conducting Tests for **20+** firms and handling student queries

EXTRA CURRICULAR ACTIVITIES

- Contribution to **Open Source** Software (Oct'18)
 - Fixed a few Bugs for **Mozilla Firefox** which was publicly released in Firefox 64.
- Won Silver Medal in Shito-Ryu **Karate Fight** with 9th Kyu at District Level. (Jan'09)