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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	2022	9.63
Graduation	Savitribai Phule Pune University	International Institute of Information Technology, Pune	2020	9.14

MAJOR PROJECTS AND SEMINAR

- **Improving Smart Contract Computation in Sharded Blockchain** (*M.Tech Project*) (Aug'21-Present)
 - **Objective:** To increase the allowable smart contract computation in the sharded blockchain setup
 - As a part of phase 1, understand the implementation of Ethereum, Sharded Blockchains and Tuxedo protocol
 - As a part of phase 2, implement the Tuxedo protocol on top of existing sharded blockchain and integrate the implementation with an already built experimental setup and produce the results
- **Ransomware Detection and Recovery techniques** (*M.Tech Seminar*) (Jan'21-May'21)
 - Literature survey of various ransomware detection and recovery techniques with their limitations
 - Understood weaknesses in existing solutions and reasons behind risk of ransomware which is still prevalent
- **Feedforward Neural Network based Chess models** (*B.E. Project*) (Sep'19-Apr'20)
 - Generated training data from **420K chess games** using distributed computing on about hundred lab computers
 - Developed models which can play chess without performing any state space search using FFNN

COURSE PROJECTS AND ASSIGNMENTS

- **Simulation of a P2P Cryptocurrency Network in Python** (Aug'21-Ongoing)
 - Create a discrete-event simulator for a P2P cryptocurrency network with configurable parameters
 - Simulate operations like block generation, mining, forwarding, verification, and maintaining the blockchain
- **Multi-Threaded Key-Value Store in C++** (Oct'20-Nov'20)
 - Implemented an efficient and scalable multi-threaded key-value server running over TCP sockets with an LRU cache from scratch which can serve **13K+ requests per second** and provided an API for the same
- **Container using Namespaces and CGroups in C++** (Mar'21)
 - Built a container with its own file system, network state, hostname, process IDs and cgroups (CPU, memory)
 - Got an insight into the differences between containers and virtual machines
- **Multi-Cycle Processor in VHDL** (Apr'21-May'21)
 - Designed and implemented finite state machine for the control unit, registers, and an ALU which supports addition and *nand* operation for an 8-register 16-bit multi-cycle processor with custom instruction set architecture

OTHER RELEVANT WORK

- **Context Search Tool *fms*** (Apr'21-Aug'21)
 - Developed a command line searching tool like a search engine to find data from local files based on keywords and regex which highlights matches with multiple colours to make the results more interpretable
- **Google Summer of Code student with OSGeo** (May'19-Aug'19)
 - Ported MapMint project from python2 to python3, fixed library dependencies, performed basic testing, updated the installation scripts and wrote a detailed report of all the progress; Worked with 20000+ lines of code
- **Three Android Apps on the Play Store** (2016-2020)
 - Empty Folder Cleaner (**2.8M+ downloads**), Rootify (**320K+ downloads**) and Math Practice (7K+ downloads)

POSITIONS OF RESPONSIBILITY

- **Teaching Assistantship for CS101: Computer Programming and Utilization** (Oct'20-Mar'21)
 - Mentored 24 students, resolved their doubts, conducted weekly theory and practical sessions
 - Assisted instructors in evaluating lab assignments and projects
- **Teaching Assistantship for CS780: Critical Thinking for the Digital Age** (Jul'21-Present)
 - Assist instructor in grading assignments, projects, quizzes and exams

TECHNICAL SKILLS

- **Programming Languages:** C++, Python, Golang, Shell script, Awk, SQL
- **Tools and Technologies:** Vim, CLion, PyCharm, Git, \LaTeX

ACHIEVEMENTS AND EXTRACURRICULAR ACTIVITIES

- Secured **Department Rank 2** out of 130+ students in M.Tech Computer Science and Engineering (2020-21)
- Secured **All India Rank 112** amongst 97481 students in GATE (CS) with two months of preparation (2020)
- **Winner** of Code-Blooded competition and Codestorm competition conducted in my B.E. college (2018-19)
- Completed **Portrait Sketching** course organized by Institute Cultural Council (2021)