Aarya Chaumal

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Education

- **College of Engineering Pune**
  Bachelor of Technology - Computer Engineering; GPA: 8.32 *2019 - 2023*
  Courses: *Operating Systems, Computer Networks, Computer Organisation and Architecture, Discrete Structures and Graph Theory, Linear Algebra*

Skills Summary

- **Languages**: C, C++, Python, R, SQL
- **Frameworks**: OpenMP, OpenMPI, OpenCL, Boost, CUDA, Tidyverse
- **Tools**: Git, Bash, Scipy, GNU ARM Embedded Toolchain, OpenOCD, Gem5, QEMU
- **Platforms**: Linux, x86, ARM

Experience

- **Google Summer of Code - Flashrom**
  Student Developer (Full-time) *May 2022 - Sept 2022*
  - **Erase Function Selection Optimisation**: Wrote code to probe for working opcodes on programmers and flashchips. Designed an algorithm for optimal erase function selection on flash memories. Proposed algorithm enhanced write/erase speeds on flashchips.
- **CUHK, Hong Kong**
  Associate Undergraduate Student (Full-time, Exchange Student) *Jun 2022 - Aug 2022*
  - **Clustering Dynamic Networks**: Studied the latest literature on clustering dynamic networks and evaluated different algorithms on dynamic networks collected from real-world applications. Displayed the clustering results using existing visualization tools like PyVis.

Volunteer Experience

- **COEP Satellite Team** Pune, India
  On-board Computer Subsystem *Dec 2020 - Present*
  - **Subsystem Lead**: Led a team of 5 members, conducted meets, planned the work and managed its execution to fulfil the defined objectives of the On-board Computer (OC) subsystem for a satellite project funded by the Indian Space Research Organization (ISRO).
  - **Member**: Implemented Error Detection and Correction algorithms for nonvolatile flash memories. Developed multiple software timers by using a single hardware timer module. Designed a primary Operating System for the Onboard Computer subsystem. Contributed to the design of the On-board Task Scheduler. Wrote Device Drivers for multiple sensor devices using standard serial communication protocols. Worked closely with Operating Systems, Memories, Device Drivers and Embedded C.

Projects

- **Demand Paging in XV6 (Operating Systems)**: xv6 is primitive Operating System used for academic purposes, implemented the concept of demand paging in xv6. Maintained data structures for mapping pages of a process in RAM to the pages on the swapping space, identifying the interrupts and implemented the ISR for the same optimally. (May '22)
- **DNS Server and Client (Computer Networks)**: A DNS server supporting all types of queries and replies and is able to do make queries recursively and caching also implemented. A client like nslookup with most options and functionality. (Nov '21)
- **Theorem Prover (AI, Predicate Calculus)**: An automated theorem prover for first-order logic. For any provable formula, this program is guaranteed to find the proof (eventually). However, as a consequence of the negative answer to Hilbert's Entscheidungs problem, there are some unprovable formulae that will cause this program to loop forever. (Nov '21)
- **Hospital Management System (DBMS)**: A Hospital Management that helps manage the information related to health care and aids in the job completion of health care providers effectively. (Nov '21)
- **File Compressor (Data Structures and Algorithms)**: File Compression/Decompression System using Huffman encoding algorithm with analysis (Jul '21)

Honors and Awards

- Merit certificate from CBSE for being in top 0.1% in 12th Board Exam. (May, 2019)