G. Aswin

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Experience

Intel Corporation | ***Graphics Performance Engineer*** ***Jul 2023 – Present***

- Responsible for performance verification of the compute pipeline in various GPU IPs and resolving bugs.
- Performance test content development using Ruby for GPU compute clusters.
- Python application to automate generation of random focused inputs to registers disabling compute cores in the GPU.

Intel Corporation | ***Graphics Performance Engineering Intern*** ***Aug 2022 – Jun 2023***

- Developed a GUI tool using Python to automate the task of launching regression tests for GPU clusters, making the process **2x faster** and accessible to a wider set of users.
- Built wrappers around a waveform analysis tool, offering multi-core execution support and **reduced its overall runtime by 90%**. Worked on the *General Purpose GPU* pipeline and the tools involved in performance analysis of GPU clusters.
- Processed data from regression test dumps of clusters to speed up the debugging process.

Indian Institute of Technology, Guwahati | ***Research Intern (under Prof. Gaurav Trivedi)*** ***May 2022 – Jul 2022***

- Configured *SPIKE* to simulate a RISC-V machine and its GCC compiler, and analyzed *objdump* of C programs.
- Modified *riscv-gnu-toolchain* components like *riscv-binutils* and *riscv-gcc* by adding new opcodes and instruction patterns to implement new custom instructions for RISC-V.

AirProbe (Dronebase.com) | ***Software Development Intern (Backend)*** ***Mar 2022 – May 2022***

- Facilitated a complete overhaul of the testing architecture by removing the need of populating database assets, thus **reducing the execution time by 85%** for unit tests. Also wrote PyTests for existing routes using Postman.

Education

RNS Institute of Technology, Bangalore Aug 2019 – Jun 2023

B.E. in Computer Science and Engineering ***CGPA: 9.05***

Kendriya Vidyalaya No. 2 Salt Lake, Kolkata Apr 2018 – Mar 2019

Senior Secondary, CBSE ***Marks: 91.2 %***

Projects

I-Did-This-Today | ***A web application built using Flask*** ***Flask, HTML, CSS, JS, Bootstrap, PostgreSQL, Heroku***

- Used Flask and PostgreSQL on the backend, and frontend design made from scratch.
- The app uses Google OAuth authentication, and is deployed in Heroku (i-did-this-today.herokuapp.com).

Parichay '22 | ***Official website for annual college fest*** ***Flask, HTML, CSS, JS, Bootstrap, MongoDB, Azure, Name.com***

- Led the technical team responsible for building the website, which garnered 24.2K requests during the college fest.
- Used Flask and MongoDB on backend and deployed to P1V2 server in Azure, using custom domain and SSL certification.

Bored | ***A native Android application*** ***Android, Java, SQLite, Material UI***

- My final project for Harvard's CS50x course, an app that suggests us fun/productive activities to do when bored.

Word Count using Distributed Computing | ***Winter Systems School, IIT Delhi*** ***Python, Redis, Spark***

- Built a python application to find word frequency in huge datasets using concepts from distributed computing.
- Used Redis to implement key distributed computing concepts like concurrency, fault tolerance, synchronous replication.

Xv6 Operating System | ***Summer Bootcamp at CSERL, IIT Bombay*** ***Xv6 OS, C, Unix***

- Modified system files like *proc.c, syscall.c, sysproc.c, defs.h, user.h* and implemented a custom spinlock call in Xv6 OS.
- Custom system calls like *numvm* and *numpp* to fetch number of virtual pages and physical pages for user processes.

Simulating a Deterministic Finite Automata in ARM7 Machine Code ***ARM, Keil UVision4***

- Instructions written in ARM assembly language for ARM7 (Big Endian) architecture in Keil UVision4 IDE.

Technical Skills

Languages: Python, Ruby, Go, C, C++, Perl, Bash, Java, SQL, HTML, CSS

Tools: Git, Flask, Android, Selenium, PostgreSQL, SQLite, MongoDB, ARM, Heroku, Azure, Postman, OpenGL, Redis, Spark

Courses: Data Structures, Algorithms, Databases, Computer Organization, Operating Systems, Compilers, Networking

NPTEL Certification: Design and Engineering of Computer Systems (a course on Distributed Computing by IIT Bombay)

Achievements & Extracurricular

- Secured All India Rank of 841 in GATE Computer Science (2022), out of ~1,00,000 candidates
- Conducted and co-presented workshops on GitHub as part of a student club (BigO)
- Facilitated & co-authored problems for college-level programming contests (Google Developer Students Club RNSIT)