

G. ASWIN

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EXPERIENCE

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

- Configured and used *SPIKE* to simulate a RISC-V machine and its GCC compiler.
- 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.
- Analyzed the *objdump* of sample C programs in RISC-V to ensure usage of new instructions.

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, resulting in a significant performance boost while running tests for applications.
- Wrote PyTests for various existing routes with the help of Postman, and fixed bugs.
- Organized, cleaned and analysed application data consisting of multiple large data files, using Pandas.

EDUCATION

RNS Institute of Technology, Bangalore Aug 2019 – Jun 2023

B.E. in Computer Science and Engineering

CGPA: 9.12

Kendriya Vidyalaya No. 2 Salt Lake, Kolkata

Apr 2018 – Mar 2019

Senior Secondary, CBSE

Marks: 91.2 %

PROJECTS

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

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

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 using HTML, CSS, JS & Bootstrap.
- 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.

LanJudge | An online judge for evaluating programs GoLang, C, Unix System Calls

- Users submit their code and select a language, and LanJudge executes that code for test inputs and prints the output.
- Code execution engine is written in C, with UNIX API functions used to create and run user input programs as processes.

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.
- Internally uses an SQLite database and API calls to BoredAPI. The UI/UX follows Google's Material Design guidelines.

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

- Software simulation of any Deterministic Finite Machine using ARM programming to simulate the machine's output.
- Instructions written in ARM assembly language for ARM7 (Big Endian) architecture in Keil UVision4 IDE.

RELEVANT COURSEWORK

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

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

TECHNICAL SKILLS

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

Technologies / Frameworks: Git, Flask, Android, Selenium, PostgreSQL, SQLite, MongoDB, ARM, Heroku, Azure, Postman

ACHIEVEMENTS & EXTRACURRICULAR

- Conducted and co-presented workshops on GitHub for juniors as part of a student club (BigO)
- 3rd Position out of 300+ participants in State Level (Karnataka) C programming contest
- Placed 2nd out of 200+ participants in Codeflix hosted by Google Developer Students Club RNSIT
- Facilitated & co-authored on problems for college-level programming contests (Google Developer Students Club RNSIT)
- Head of the technical committee of CAT-RNSIT, the college cultural activity team