MUHAMMAD ROWAHA

Software Engineer

CS Student and Software Engineer with an interest in Full Stack Development

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Education

Bachelor of Computer Engineering

Bilkent University, Ankara
Expected 2025

Relevant Coursework: Fundamental Structures of Computer Science (C++), Digital Design (SystemVerilog), Computer Organization (MIPS), Algorithms & Programming (Java)

GCE Cambridge A-Levels

Lahore Grammar School, Pakistan
2019 - 2021

Relevant Coursework: Physics, Mathematics, Chemistry, Computer Science

Honors and Achievements

- High Honor and Honor roll, Bilkent
- Full Merit Scholarship, BSc and ALevels
- Salutatorian, OLevels Program
- GSEA National Maths Contest, 4th Place

Experience

LAYERMARK

SOFTWARE ENGINEER
April 2023 - Present

`Python` `C++` `Boost` `MFC` `SQLite` `IPC` `Powershell` `ZeroMQ`

- Inherited a MFC/C++ based windows application and responsible for replacing CNKT with Yolov5 while also making various improvements
- Developed a local socket server using Python and connect the application using Boost library's asio package. Also used different IPC's techniques such as NamedPipes and flag files
- Used shell scripting to manage local server lifecycle. Developed configurations using toml that support both user and default configs
- Wrote GUI module extensions using tkinter and new MFC components such as real-time socket server logs (using ZMQ's pub/sub architecture) in the application

FRONTEND DEVELOPER
Jan 2023 - April 2023

`Python` `Next.js` `Electron.js` `Ant Design` `Opencv`

- Developed cross-platform desktop application using Nextron (Electron.js with Next.js) utilizing page router and integrating modules using Node's child processes
- Developed python modules utilizing opencv for video processing, pdf generatrions and interacting with a yolov5 model
- Used AntDesign to implement a UI compatible for industrial use and consumed a custom api on top of Node's child processes and websockets to update state in real time

FULL STACK DEVELOPER INTERN, OTSIMO
June 2023 - August 2023

`Go` `Typescript` `gRPC` `Protobuf` `MongoDB` `React.js` `MUI` `Redux`

- Designed an API with gRPC and Protobuf for a scalable version control system (Archive, Published, Draft) for an existing file-based ticket system: user-specific automated response generation
- Implemented a backend microservice in Go and wrote unit tests using a mock database.
- Implemented a MongoDB interface and used advanced features such as aggregation pipeline, replica sets, and transactions. Also wrote a command-line migration tool between file-based system and new microservice while keeping backwards compatibility
- Used provided designs to implement an admin frontend using React and Material UI, and Redux for global state management. Kept consistent with the previous designs, such as dark and light modes for the new page

Skills

PROGRAMMING LANGUAGES	Python ❘ C++ ❘ Go ❘ Javascript/Typescript ❘ Java
FRONTEND	HTML ❘ CSS ❘ React.js (Next.js) ❘ Ant Design ❘ MUI ❘ Redux ❘ Templating Engines(EJS)
BACKEND	Node.js (Express.js) ❘ Spring Boot ❘ gRPC ❘ Protobufs ❘ PostgresSQL ❘ MongoDB ❘ RESTful APIs ❘ Postman
OTHERS	Web Scraping (Selenium) ❘ VCS (Git. Github, Gitlab) ❘ Shell Scripting (Bash, Powershell, Batch files)

Projects

MIPS PIPELINED PROCESSOR

`SystemVerilog` `MIPS` `Basys3` `Digital Design`

Designed and implemented a canonical MIPS pipelined programmable processor implemented on Basys-3 FPGA Board. The project is akin to a simple virtual machine. Completed as a course project for Digital Design

NOTES MUSCLE

`Java` `JDBC` `Swing` `MySQL` `Android` `XML`

Built an android application that enabled students at Bilkent to record lectures and access them as text, share or edit them. Completed as a course project for Algorithms and Programming II

PORTFOLIO

`Next.js` `MUI` `Framer-Motion` `Jotai` `Firebase` `Vercel`

Designed and implemented a portfolio website with Nextjs and MUI components. Built an easily maintainable and scalable system using incremental static generation and Firebase real-time database. Also included features such as responsiveness, in-app pdf viewing, and custom emailing service