Umair Mirza

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Software Engineer

Computer Scientist with a passion for transforming innovative ideas into impactful solutions, coupled with a strong aptitude for leadership and driving team success.

EDUCATION

National University of Computer and Emerging Sciences

Bachelor's degree in Computer Science • Lahore, Punjab, Pakistan • GPA: 3.21

WORK EXPERIENCE

Farmdar

Pre Series A Agritech Startup

Lead Software Engineer   **01/2024 - Present**

- Led a team of 3+ engineers to develop YieldPro, a B2B and B2B2C platform monitoring **real-time** crop conditions across 100,000 acres, enabling informed agricultural decisions.
- Developed an **AI-powered crop classification platform** that detects and classifies crops from satellite imagery covering over 350 million acres across the globe.
- Led a team of 10+ developers, resulting in a 40% increase in on-time project deliverance, enhancing stakeholder satisfaction and trust in the team's capabilities.
- Developed a **monolith** Golang architecture and centralized tech infrastructure supporting two mobile apps and three web applications, handling over **50k requests per day** and improving response times by 40% relative to legacy architecture.
- Designed and optimized a **PostGIS(Postgres)**-powered geospatial database architecture that processes gigabytes of geospatial data daily.
- Built over **10 automated, Airflow pipelines**, encompassing satellite imagery acquisition, GIS/RS processing and subsequent user-friendly display.
- Introduced RBAC to enhance **security** and manage **user permissions** effectively internally and externally
- Engaged in **direct communication with customers**, understanding their problems to enhance user-experience.
- Currently maintaining and expanding infrastructure with **Terraform** and **Kubernetes**, while building core **Machine Learning** fundamentals to develop a state-of-the-art crop classification model, transforming **terabytes of data** into valuable **organizational IP.**
- **Mentored** cross-domain engineers on a personal and professional level to build their fundamental understanding of computer science, which enabled their career progression.

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Software Engineer   **03/2023 – 12/2023**

- Collaborated in the **nascent startup stages** of zeroing on in core challenges and contributing to key strategic decisions and implementations.
- Worked with design, optimization, and querying of NoSQL – **MongoDB.**
- Maintaining legacy **React/Redux codebase** which used **Kepler** until the shift from legacy architecture
- Developed an **internal console** for managing geospatial data in React.

Tectiers · Austria

Financial Software Development

Software Engineer   **10/2022 – 09/2023**

- Developed a distributed financial software using Angular with **syncfusion**, Python with **Aspose** and Postgres that brought Excel Macros to web.
- Wrote a **parser** to convert Excel macros into native excel functions to enable Excel processing in the browser.

National University of Computer and Emerging Sciences

Teaching Assistant   **02/2022 – 05/2023**

- Bi-weekly evaluation of **Java/Kotlin code of over 100 students** for Android software development.
- Bridged **communication gap** for feedback between students and instructors.
- Evaluated 6 **Open MP, MPI and Multithreaded programming** projects over a period of 4 months for over **100 students.**

PROJECTS

AI based Android Application (FYP)

Developed an android app MVP which leveraged **interoperability of Java and Kotlin** and provided an AI based solution for recognizing students present in a classroom within 5-10 seconds.

Used Deep Learning Algorithms for Grouped Facial recognition in python and developed an **Inference pipeline** using **Hugging Face**. Exposed it as an API to be used by the application.

Blockchain based E-Voting Application

- Developed an **ECC based** modern encryption scheme (ElGammal) in Typescript based on a research paper which was used in Application.
- Added several features to codebase such as distributing a cryptographic number over **WebRTC protocol** and functionalities for different election stages.
- Built a **micro-service in python** which constituted performing several operations to improve security of the votes.
- Enhanced the **NestJS-based** backend by integrating robust APIs and utilizing **TypeORM** for database management.

C++ Projects

- Built a **flat-file DB** to understand how the Databases are made.
- Built **Text Based Search** Engine optimizing it through a Hash map Binary tree & various data structures.

SKILLS

Programming Languages: Golang, Java, Javascript, Kotlin, Python, Typescript

Tools: Airflow, Angular, Google Earth Engine, Kubernetes, Mapbox, Nodejs, QGIS, React, Sentinel Hub, Terraform

Leadership: Mentoring, Problem Solving, Team Work