ABHAY SINGH

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Education

Indian Institute Of Technology, Dhanbad　　　　　　　　　　**2018-2022**
Bachelors of Technology in Electrical Engineering　　　　　　　*Dhanbad, India*

Experience

Reliance Jio Infocomm Limited　　　　　　　　　**July 2022 – Present**
Software Engineer　　　　　　　　　　　　　　　　　　*Bangalore, India*

Security Information and Event Management

- Developed **Java Spring Boot APIs** leveraging the BFF and Core frameworks to interact with the business rule engine and database for key modules of a SIEM platform (Detectors, Detection Rules, Alerts).
- Enhanced performance by implementing **Redis caching** for frequently accessed data and optimizing database reads/writes through indexing.
- Adopted **Test-Driven Development (TDD)** practices, achieving **90% code coverage** and wrote comprehensive end-to-end (E2E) integration tests.
- Implemented monitoring and error logging features using SLF4J for streamlined debugging and auditing.
- **Tech Stack:** *Java | SpringBoot | PostGreSql | Redis*

AgriCare Fertilizer Recommendation System

- Designed and integrated structured **Protocol Buffer** schemas for seamless data serialization and deserialization utilizing **gRPC** for building communication channels.
- Implemented **GRule-Engine** for generating advisories for farmers from diverse datasets of soil health, crop types and environmental conditions leading to improved crop yield and cost savings.
- Automated rules template generation **reducing** new crop **on-boarding time by 80%** .
- **Tech Stack:** *Golang | gRPC | Grule Engine | MongoDB*

Cattle Activity Classification Modelling

- Conducted exploratory data analysis **(EDA)** to understand the characteristics of dataset, implemented feature engineering, and model training pipelines with an accuracy of **88%**.
- Implemented Enhanced Super-Resolution Generative Adversarial Network **(ESRGAN)** model using TensorFlow for image-quality enhancement.
- Employed **YOLOv9** for object detection and **ResNet101** for activity classification to generate a high-quality training dataset.
- Translated Python code to C for deployment on embedded processor Cortex-M4.
- **Tech Stack:** *Python | C | Classical ML | Computer Vision| Generative Adversarial Network*

Projects

Dev Overflow | *Next.js, React.js, Typescript, OpenAI, MongoDB, Tailwind CSS*　　　　**Live Web App**

- Developed responsive Question and Answers platform where users can post queries with associated tags, receive community-driven responses and contribute to knowledge sharing.
- Incorporated state-of-the-art **OpenAI API's** to generate answers to user queries and added recommended posts feature for users based on their interaction with application.
- Implemented **global search** to fetch results from entire database and optimized application performance with advanced **filtering** and **pagination** mechanism.

Filmpire | *React.js, Golang, MySQL*　　　　　　　　　　　　　　　　　　　**GitHub Link**

- Developed CRUD web app with React front-end and Go back-end REST API powered by **JWT** authentication.
- Used **TMDB API** to fetch images.

Technical Skills

Languages: Java, Golang, Python, JavaScript, C++

Technologies/Frameworks: SpringBoot, Protocol buffers, gRPC, Rules-Engine, React.js, Next.js, Node.js, Express.js, Tailwind CSS, TensorFlow, MongoDB, PostGreSql, Data Structures and Algorithms, DBMS, OS