Akshat Sood

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Forever a Student of Life

Work Experience

MathWorks (Bangalore) | *Associate Engineer in Engineering Development Group*   **Jul 2023 – Present**
- Augmented the capabilities of Simulink Mask popup option by enabling parameter tuning during both runtime and code generation phases, empowering users with enhanced control over the popup parameter associated with block's mask.
- Performed an exhaustive analysis, evaluating over 100 MonkeyProof guidelines to determine the feasibility of incorporating these style directives for code authored within the MATLAB Function Block and the MATLAB Editor.
- Elevated Simulink model development by implementing and deploying 2 in-canvas checks, ensuring strict adherence to industrial modelling guidelines established by the Japan MBD Automotive Advisory Board (JMAAB).
- Engineered and implemented a sophisticated architecture that associates workspace variables with four types of mask parameters, resulting in a 20% increase in user efficiency and streamlining workflows for optimal model building.

MathWorks (Bangalore) | *Intern in Engineering Development Group*   **May 2022 – Jul 2022**
- Piloted the migration of the existing codebase to a new pcode generation model, streamlining the code obfuscation process by reducing the number of required files by 35% and incorporating the latest build harness to codebase.
- Collaborated closely with a team of developers to refactor over 60 components, achieving a 50% reduction in build time.
- Demonstrated ownership in designing and implementing a comprehensive bash script aimed at automating component refactoring process, ensuring coherence and effective component builds among global development teams.

Education

Indian Institute of Technology (BHU) Varanasi   **Jul 2019 – May 2023**
B.Tech in Electronics Engineering   Cummulative Performance Index (CPI): 9.43

Projects

gRPC based API Rate Limiter | *Golang, gRPC, Redis, Protobuf, Helm Charts, Docker, Clean Architecture*   **Github**
- Designed a gRPC-based API traffic management solution incorporating rate-limiting algorithms, such as Fixed Window and Rolling Window, ensuring optimal resource allocation, and integrated with Redis and PostgreSQL database.
- Ensured long-term sustainability and maintenance of the codebase by following the principles of Clean Architecture.
- Deployed the application on Kubernetes using Helm Charts to enable seamless scaling and client rate limits.

Expressio - Facial Expression Recognizer | *React, Tailwind CSS, Tensorflow (Keras), Firebase, Flask*   **Github**
- Engineered a web application using React and styled it with Tailwind CSS, capable of accurately predicting four basic human expressions (namely Happy, Sad, Angry, and Surprise) and displaying the model predictions on the pie chart.
- Used Flask for backend operations and utilized Firebase as a blob storage solution for optimal data management.
- Conducted thorough analysis of the FER2013 dataset and subsequently trained a Deep Convolutional Neural Network using Tensorflow (Keras), resulting in an accuracy of 85.51% on the training set and 83.73% on the validation set.

To Do App Micro-service | *Python, FastAPI, Go, Typescript, gRPC, Docker, Kubernetes, PostgreSQL*   **Github**
- Crafted a to-do application based on micro-services architecture, leveraging gRPC for scalable service orchestration.
- Implemented authentication and authorization features utilizing FastAPI, ensuring secure user interactions.
- Optimized data retrieval and storage by integrating PostgreSQL and MongoDB databases with the application.

Technical Skills

Tools and Frameworks: React, MongoDB, Express, Node, Vue, MySQL, Tensorflow, Docker, PyTorch, Git, Kubernetes
Languages: CPP, Javascript, Python, Java (Basic), Go, HTML, CSS, Typescript (Basic), MATLAB, Bash, SQL

Extracurriculars

- Awarded First Prize in the Snakes and Hackers II hackathon, organized by Major League Hacking (MLH), for building Akio's Conquest, an immersive application that promises a competitive gaming experience for the visitors.
- Coordinated Cassandra, and conducted workshops on Python, Data Analysis and Processing, Feature Engineering, Model Building and Generative Adversarial Networks. Secured ChiSquareX as event sponsor for formulating problem statement and hosted a Kaggle competition that saw remarkable participation from 55 teams within the institute.
- Secured the Theme Prize in the Wild Hacks II hackathon, organized by Major League Hacking (MLH), for engineering Wild Ones, an initiative for intelligent fauna exploration, harnessing the power of tech in natural habitats.