SAI TARUN SIRAPURAPU

435 Irving Avenue • Dayton, Ohio, 45409, United States • tarunsirapurapu@gmail.com• +1 937-329-2252

Professional Summary

Software Engineer with expertise in Java, Python, and Deep Learning, specializing in building scalable microservices and REST APIs. Adept at leveraging Agile methodologies to develop efficient, high-performance systems. Focused on optimizing system performance and solving complex real-time challenges. Driven by a commitment to contribute to technology that enhances customer experience. Known for the ability to rapidly learn and adapt to new technologies, seamlessly blending into evolving requirements. This agility and versatility set me apart, enabling me to deliver impactful solutions in dynamic environments.

WORK EXPERIENCE

Consultants to Government and Industries Inc., (CGI) Bengaluru, Karnataka Software Engineer | October 2020 - December 2022

- Led the development and implementation of a critical billing service extension for telecom systems, ensuring seamless integration of new services and maintaining billing accuracy for sub-member accounts.
- Identified and resolved a significant security vulnerability in the pre-production environment, strengthening the billing system's integrity through collaborative problem-solving and effective code remediation.
- Achieved 30% reduction in processing time through continuous code optimization and algorithm refinement, resulting in improved system performance and substantial cost savings while maintaining agile development practices.
- Designed and implemented structured procedures using Java Spring and SQL, integrating with microservices (JDBC) to create a unified billing system that reduced operational overhead by 275 business hours.
- Developed and integrated REST APIs for new microservices to meet evolving business requirements, collaborating with QA team for comprehensive SOAP UI testing.
- Utilized Quarkus framework for cloud-native Java applications, facilitating efficient data migration and cloud deployment strategies.

University of Dayton, Dayton, Ohio Teaching Assistant | May 2023 - December 2024

- Assisted Prof. Mehdi Zargham in Deep Learning courses, providing guidance to students on neural networks and generative algorithms, and evaluating their assignments.
- Designed and implemented challenging, innovative coursework each semester to push students' boundaries and foster continuous learning and improvement.
- Maintained a growth mindset, leveraging the opportunity to work with Prof. Zargham for ongoing personal and professional development in the rapidly evolving field of Deep Learning.
- Developed assignments integrating Robot Operating System with deep learning model implementations, demonstrating ability to apply theoretical concepts to practical, real-world scenarios.
- Contributed to a dynamic academic environment, showcasing strong teamwork skills and the capacity to address complex challenges in AI and robotics.

EDUCATION

University of Dayton *GPA* **3.83** — **Dayton, Ohio**
Master of Science (M.S.), Computer Science — **Graduation**: Dec – 2024

Keshav Memorial Institute of Technology — **Hyderabad, India**
Bachelor of Engineering (B.E.), Computer Science and Engineering — **Graduation**: Aug – 2020

PROJECTS

Personalized News Aggregator
- Developed a full-stack personalized news aggregator that leverages a Spring Boot backend and a React frontend.
- Dynamic Content: Fetched real-time news from external APIs and implemented summarization techniques to provide concise article summaries.
- User Customization: Enabled users to update and retrieve their preferences, influencing the displayed news.

- AI-Powered Filtering: Integrated AI to tailor news feeds based on user preferences by computing text embeddings using DJL Model Zoo's "all-MiniLM-L6-v2" model and applying a BERT uncased tokenizer ("bert-base-uncased") for tokenization. Cosine similarity was used to filter and rank articles.
- Deployment: Packaged the backend using Docker and right now I'm in deploying stage of the application on cloud platforms
- Technologies: Java, Spring Boot, React, Tailwind CSS, Docker, Maven, REST APIs.
- GitHub Link

Object Detection Pipeline
- Developed and implemented a custom object detection system using TensorFlow Object Detection API.
- Optimized SSD MobileNet V2 FPNLite 320 architecture for efficient object detection.
- Successfully completed end-to-end pipeline including data preprocessing, model training, evaluation, and TFLite conversion for edge deployment.

Real-Time Robotic Object Detection System
- Built an integrated system combining Robot Operating System 2 and You Only Look Once v8/11 (YOLO) for Mars rock detection and classification
- Architected three primary ROS2 nodes:
    - Camera Node for video stream management
    - YOLO Detection Node for real-time object processing
    - Turtlesim Node for robotic movement coordination
    - Implemented multi-camera support and diverse input source handling
    - Technologies: Robot Operating System 2, Python, Docker, OpenCV, You Only Look Once v8, Ubuntu.

Real Estate Analysis
- Preprocessed and cleaned Bangalore housing data, handling missing values and feature engineering.
- Implemented Linear Regression for price prediction and pickled the trained model for deployment.
- Developed server and utility files in Python (Flask API) for backend processing.
- Built a React-based frontend for user interaction and real-time predictions.
- Deployed the full-stack application on AWS using FileZilla and Nginx web server for hosting. GitHub Link

TECHNICAL SKILLS

Programming Languages & Frameworks
- Backend: Java (Spring Boot), Python
- Frontend: JavaScript, React.js
- Database: MySQL, Postgres SQL
- Additional: C++, C#, MATLAB

Deep Learning & Computer Vision
- Frameworks: TensorFlow, Keras, Pytorch, Scikit-learn, OpenCV
- Models: Neural Networks, Generative Adversarial Networks (GAN), Variable Auto Encoder (VAE), Denoising Diffusion Probabilistic Models (DDPM)
- Specialized in Single Shot Detector (SSD) MobileNet V2 optimization and deployment.
- Experience with YouOnlyLookOncev8 for real-time object detection.
- Experience with Hugging face and Deep java library.

Development Tools & Technologies
- Version Control: Git, GitHub
- Containerization: Docker
- Operating Systems: Linux
- Data Visualization: Tableau, MATLAB, Python libraries
- Cloud Platforms: Experience with cloud deployment and microservices on AWS