Sai Tarun Sirapurapu

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OBJECTIVE

Currently Developer at Reynolds and Reynolds with hands-on experience in React, TypeScript, Java and MySQL. Actively seeking roles in AI and machine learning where I can apply my professional development experience and academic background in deep learning, and open-source contributions to build intelligent, scalable, and user-focused applications.

EXPERIENCE

- **Reynolds & Reynolds**   *Aug 2025 - Present*
  Developer   Dayton, USA
  ◦ Developing enterprise-grade web applications using React, TypeScript to support dealerships and client operations.
  ◦ Collaborating to design, implement, and optimize scalable front-end features with strong attention to usability and performance.
  ◦ Applying modern coding practices, version control to deliver maintainable, production-ready software.

- **Dream Studio (Model Earth Project)**   *Feb 2025 - Aug 2025*
  Open-Source Contributor   Remote, USA
  ◦ Led development of the RealityStream model generation pipeline, dynamically sending geospatial and temporal data to six ML models (XGBoost, Random Forest, Neural Network MLP, etc.).
  ◦ Integrated global contributors' code into a unified Python app, improving system reliability and activating robust parameter handling from YAML configurations.
  ◦ Enhanced multi-model ML workflows with modular imports, conditional training logic, and reproducible pipelines.
  ◦ Implemented dynamic parameter parsing from YAML configurations to control training outputs and file saving behavior.
  ◦ Refactored model loading logic to conditionally import only selected ML models (e.g., XGBoost, Random Forest, SVM) based on config inputs.
  ◦ Assisted in developing performance aggregation and report generation pipelines using pandas and sklearn. metrics.

- **CGI**   *Oct 2020 - Dec 2022*
  Software Engineer   Banglore, India
  ◦ Built and maintained data-driven enterprise applications for telecom billing systems using Java Spring, SQL, and REST APIs.
  ◦ Conducted data analysis and algorithm refinement, achieving a 30% reduction in processing time for backend workflows.
  ◦ Applied security best practices and performed validation on SOAP/REST services using tools like Postman and SOAP UI.
  ◦ Integrated SQL procedures into backend microservices, applying object-oriented programming and structured data management.
  ◦ Led cloud-native service migration to AWS and Dockerized infrastructure to enable scalable deployments and analytics workloads.
  ◦ Participated in Agile development cycles, contributed to test automation, and documented decisions for reproducibility.

- **University of Dayton**   *May 2023 - Dec 2024*
  ◦ Assisted in graduate-level Deep Learning courses focused on neural networks, transformers, and generative models.
  ◦ Designed assignments on latent space visualization and implemented Variational Autoencoders (VAEs) to teach dimensionality reduction and representation learning.
  ◦ Conducted labs with Hugging Face models for NLP tasks including text classification and summarization.
  ◦ Supported grading and mentoring for student projects involving real-world datasets and model interpretability.
  ◦ Developed instructional material on ML fundamentals, emphasizing reproducibility, fairness, and evaluation metrics.
  ◦ Contributed to a dynamic academic environment, showcasing strong teamwork skills and reliability, and the capacity to address complex challenges in AI and robotics.

EDUCATION

- **University of Dayton**
  MS in Computer Science 3.83 GPA

  Jan 2023 - Dec 2024
  Dayton, USA

- **Keshav Memorial Institute of Technology**
  B.Tech in Electronics and Communication Engineering

  Aug2016 - Sept 2020
  Hyderabad, India

PROJECTS

- **AI News Curator**
  Tools: Java, Spring Boot, React, Tailwind CSS, Docker, REST APIs, Maven   [🎧]
  ◦ Developed a full-stack personalized news aggregation system using NLP techniques for abstractive summarization, named entity recognition, and keyword extraction.
  ◦ Applied cosine similarity and topic modeling (LDA) to rank and cluster articles based on semantic relevance and user preferences.
  ◦ Designed scalable RESTful APIs to dynamically fetch, summarize, and rank content in near-real-time.
  ◦ Integrated pre-trained transformer-based models from Hugging Face (e.g., Microsoft MiniLM-L6-v2, BERT-base-uncased) for text summarization and language understanding.
  ◦ Engineered a modular backend architecture enabling continuous news ingestion and intelligent filtering.
  ◦ Containerized the backend using Docker for reproducibility and deployed to a scalable cloud infrastructure for production use.

- **Real Estate Analysis**
  Tools: Python, Flask, React, AWS, Nginx, Linear Regression, Pandas, Scikit-learn   [🎧]
  ◦ Reprocessed and cleaned Bangalore housing data, handling missing values and feature engineering.
  ◦ Implemented Linear Regression for price prediction and pickled the trained model for deployment, showcasing my skills in model development.
  ◦ Developed server and utility files in Python (Flask API) for backend processing emphasizing an event-driven architecture reflecting my OOP and MVC knowledge and deployed pickled model.
  ◦ Built a React-based frontend for user interaction and real-time predictions, optimizing for mobile responsiveness.
  ◦ Deployed the full-stack application on AWS using FileZilla and Nginx web server for hosting simulations, with a focus on persistence of data. Leveraged SQL Server for data integrity.

- **Real-Time Robotic Object Detection System**
  Tools: Robot Operating System 2, Python, Docker, OpenCV, You Only Look Once v8, Ubuntu, Hugging face and Deep java library.
  ◦ Developed a system integrating ROS2 and YOLO for detecting and classifying Mars rocks.
  ◦ Designed three ROS2 nodes for camera input, YOLO-based detection, and Turtlesim-based movement.
  ◦ Enabled real-time object processing with support for multi-camera inputs ensuring data readability.
  ◦ Coordinated robotic actions based on detection results in a simulated environment enhancing my understanding of runtime paradigms and event-driven programming.

  Please refer to my GitHub for rest of my projects.

SKILLS

◦ ***Programming Languages:***
  Backend: Java (Spring Boot), Python, Node JS
  Frontend: JavaScript, React + TypeScript
  Database: MySQL, Postgres SQL, Heidi 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.

◦ ***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