LokeshReddy Darukumalli

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PROFESSIONAL SUMMARY

- Results-driven **AI/ML Engineer** with over **4 years of experience** delivering production machine learning systems and Generative AI solutions.
- Expert in designing and deploying scalable models using **Python, PyTorch, and TensorFlow**.
- Proven ability to build and manage robust **MLOps pipelines on AWS, Azure, and GCP using Docker, Kubernetes, MLflow, and Airflow.**
- Notable work includes a drone-based plant disease detection system and multiple production websites (Ecommerce, LiquorStore , TripAI , TransferbotAI)
- Track record of translating **business needs into high-impact ML solutions** that improve model accuracy and inference latency.

TECHNICAL SKILLS

- **AI / ML & MLOps**: TensorFlow, PyTorch, Scikit-learn, XGBoost, OpenCV, CNNs (ResNet, VGG16), MTCNN. Docker, Kubernetes, MLflow, Airflow, GitHub Actions, Jenkins, AIOps.
- **Generative AI**: OpenAI API (GPT-3.5, GPT-4), LangChain, LLMOps, RAG (Retrieval-Augmented Generation), Prompt Engineering, Vector Databases (FAISS, Pinecone)
- **Cloud & DevOps**: AWS (EC2, S3, Lambda, RDS, API Gateway), GCP (Cloud Run, Cloud Functions), Azure App Services. Terraform, Vercel, Netlify.
- **Backend**: Python (FastAPI, Flask, Django), Node.js (Express.js), REST APIs, GraphQL, Microservices.
- **Databases**: PostgreSQL, MongoDB, MySQL, DynamoDB, Redis, Firebase.
- **Frontend**: React.js, TypeScript, JavaScript (ES6+), HTML5/CSS3, Tailwind CSS.
- **Languages & Tools**: Python, Java, JavaScript, TypeScript, SQL, Bash/Shell. Git, JIRA, Agile (Scrum/Kanban).

PROFESSIONAL EXPERIENCE

AI Engineer **Jan 2025 – Aug 2025**
Xnode Inc, West Port, CT

- Design and implement integrations between **AI agents and external services** (e.g., Microsoft Teams), enabling seamless, real-time task execution for end-users.
- Collaborate with product and engineering teams to **translate business requirements into production features**, enhancing UI performance and ensuring bug-free integration with agent simulation logic.
- Provide configuration support by developing editable markdown-compatible components, improving user control and content clarity for **AI-generated responses**
- Contributed to system **scalability** by containerizing services with **Docker** and automating infrastructure scaling on AWS EC2 to support over 5,000 concurrent users.

Graduate Research Assistant **Aug 2023 – Jan 2025**
University of Southern Mississippi, MS

- Functioned as a **technical solutions** expert for **90+ students and faculty**, onboarding users to a web-based visualization portal and providing ongoing educational support.
- Guided end-users by transforming static learning content into interactive simulations with React.js and Flask, increasing engagement and real-time comprehension.
- Built scalable, secured **RESTful APIs with FastA**PI to support real-time **academic collaboration**, enabling faculty to track progress and facilitate interactive Q&A sessions for over 90 students.
- Automated manual deployment and testing processes by creating end-to-end **CI/CD pipelines** using GitHub Actions and Docker, reducing deployment errors and increasing release cycles per sprint.
- Reduced manual **grading efforts by 50%** by creating automated evaluation tools with **Pandas and NumPy** to validate and score student **code submissions**, addressing a key educational bottleneck.
- Improved backend traceability by integrating structured logging and error handling middleware in FastAPI, accelerating root cause identification and enhancing debugging consistency.

Software Engineer **Jul 2022 – Jul 2023**
Tourslog, Hyderabad, India

- Revamped a monolithic travel booking backend by implementing **Spring Boot** microservices and **PostgreSQL**, reducing API response time by 30% and enabling faster feature releases across booking and user modules.
- Solved session hijacking and access issues by integrating **AWS Cognito**, enabling token-based, multi-role authentication for admin, vendor, and customer dashboards.
- Replaced static admin tools with a dynamic dashboard using **Java** and **React.js**, providing real-time booking insights, audit trails, and permission-based workflows to enhance operational oversight.
- Prevented deployment bottlenecks by containerizing services with **Docker** and automating infrastructure scaling on **AWS EC2**, improving availability for 5,000+ peak concurrent users.

- Reduced backend read latency by 20% by **caching frequent** queries like destination filters and trip status with **Redis**, easing database load during high-traffic user actions.
- Minimized API integration errors by documenting all endpoints with **Swagger/OpenAPI**, allowing third-party vendors and internal teams to onboard and test integrations 40% faster.

Web Developer **Aug 2021 – Jul 2022**

Avodha Edutech Pvt Ltd, Bangalore, India

- Improved student accessibility and engagement by building mobile-responsive learning interfaces using **Vue.js** and **React.js**, ensuring consistent performance across all devices.
- Addressed security and session control gaps by implementing **JWT-based authentication** in an **Express.js** backend, enabling secure access to course content based on user roles.
- Integrated both **MySQL** and **MongoDB** to efficiently manage structured data like enrollments and dynamic logs such as content activity, optimizing performance for varied data types.
- Reduced deployment time and manual errors by configuring **GitHub Actions** for CI/CD pipelines and implementing **Jest** test automation for critical frontend components.
- Enabled real-time virtual learning experiences by embedding **Zoom SDK** and integrating session scheduling APIs, streamlining live class operations for students and instructors.

PROJECTS

Ramie Crop Disease Monitoring System using drone surveillance

(React.js| FastAPI | TensorFlow | AWS Lambda | S3)

- Developed a system to accurately diagnose **Ramie crop diseases** from drone imagery, comparing the effectiveness of different **CNN** architectures.
- Trained and evaluated **VGG16 and ResNet50 models** on a dataset of 2,300+ images, implementing data augmentation with **OpenCV**. Deployed the best-performing model via a **FastAPI** backend on **AWS Lambda.**
- Achieved **95%** classification accuracy with **ResNet50**, outperforming **VGG16 by 92%,** demonstrating its superior feature extraction for this specific visual task**.**

Real-Time Face Recognition Attendance System

(React.js | AWS Lambda | API Gateway | MTCNN | FaceNet | DynamoDB)

- Designed and deployed a biometric system using **MTCNN and FaceNet** to identify and register faces in real-time from live video feeds with 90% accuracy and sub-second latency.
- Implemented a serverless backend with API Gateway, AWS Lambda, and DynamoDB to store attendance records securely with scalable, event-driven triggers.
- Created an administrative dashboard with React.js for live monitoring, activity logs, and session control, enabling seamless tracking and override capabilities.

Mangoes from Ulavapadu – E-Commerce Platform – Production URL

(React.js | TypeScript | Razorpay | AWS CloudFront | Netlify)

- Developed a full-featured, mobile-first online store using React.js, TypeScript, and Tailwind CSS, with reusable UI components and real-time inventory logic.
- Integrated secure checkout using Razorpay APIs and Delhivery for live shipment tracking, enhancing customer transparency and transaction success rates.
- Configured custom domain hosting via GoDaddy, deployed with Netlify, and optimized global performance and SSL security using AWS CloudFront.

Rise Spirits Wine – E-Commerce Website – Production URL

(React.js | Java | Tailwind CSS | PostgreSQL | Netlify)

- Designed and developed a complete e-commerce platform using React.js with TypeScript, building responsive product grids, dynamic cart management, and checkout flows optimized for both desktop and mobile experiences.
- Set up backend functionality using Firebase for secure authentication, real-time inventory management, and Firestore-based product catalog, enabling smooth admin operations and fast page load times.
- Deployed the website via Netlify, configured custom domain and SSL, and implemented Tailwind CSS for component-based UI consistency, receiving $2000 in funding support for delivering a production-ready solution.

TripwithAI – AI powered Travel Assistant - Production URL

(React.js | Firebase | Tailwind CSS | PostgreSQL | OpenAI API | Netlify)

- To create a steerable **AI travel assistant** capable of generating coherent, personalized itineraries.
- Utilized the **OpenAI GPT-4 API**, designing and refining a series of prompts to control output structure and relevance. Implemented a simple **RAG-like pattern** to provide context for personalized recommendations.
- Focused on prompt engineering and output parsing to ensure the generated itineraries were not only creative but also practical and logically consistent. Experimented with techniques to reduce model hallucination and improve the reliability of recommendations.

EDUCATION

Master of Science in Computer Science

University of Southern Mississippi, Hattiesburg, MS

Bachelor of Technology in Information Technology

Bapatla Engineering College, Bapatla, India