Viresh Duvvuri

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AI Engineer

AI Engineer with 5+ years developing production AI/ML systems with Python and cloud platforms. Led customer-facing AI deployments that improved operational efficiency by 50-80% within 3 months. Strong expertise in LLMs, containerization, and translating business requirements into scalable AI solutions.

SKILLS

- **Programming:** C++, FastAPI, Flask, JavaScript, NumPy, OOP, Pandas, Python, React, SQL
- **AI/ML Frameworks:** FAISS, Feature Engineering, LangChain, LangGraph, Machine Learning, Model Deployment, Model Fine-tuning, Multi-Agent Systems, Pinecone, PyTorch, RAG, Scikit-learn, TensorFlow
- **Cloud & Infrastructure:** AWS, Azure, Deployment, Docker, Kubernetes, Monitoring, Performance Tuning, Scalability, Workflows
- **Data & Analytics:** Data Integration, Data Processing, Data Science, Enterprise Integrations, Enterprise Systems, Operational Efficiency

WORK EXPERIENCE

Grid CoOperator **07/2025 - Present**
Full-Stack AI/ML Engineer • Freelancer **Seattle. WA**

- Led customer discovery sessions with power grid analysts, translating operational pain points into AI-powered solutions using Python and LangChain that reduced workflows by 70% within 2 months
- Built scalable microservices architecture with API design handling 50-100 queries daily, implementing monitoring, logging, and authentication services to ensure reliable enterprise performance
- Implemented automated report generation with containerization and CI/CD pipelines, accelerating deliverables by 60% within first quarter
- Deployed production AI system with monitoring and logging capabilities, ensuring reliable performance for enterprise grid operations within 6 weeks

Freefly Systems **11/2021 - 10/2025**
Senior Software Engineer • Full-time **Woodenville, WA**

- Built AI-powered log analysis tool using React, Python Flask, and machine learning frameworks, reducing manual workflows by 80% within 3 months
- Coordinated cross-functional projects implementing software design principles and testing frameworks across engineering divisions
- Enhanced flight control systems with microservices architecture and CI/CD pipelines, improving deployment efficiency by 60% over 6 months

Lumenier **07/2020 - 10/2021**
Software Engineer - Embedded Systems • Full-time **Sarasota, FL**

- Implemented custom software using C++ and data structures for specialized applications, enabling autonomous capabilities within 8 weeks
- Enhanced system performance through algorithms and data ingestion pipelines, improving operational efficiency by 45% across environments
- Architected testing frameworks with software design principles, reducing implementation issues by 30% within 3 months

York Exponential **08/2018 - 05/2020**
Software Engineer - R&D • Full-time **York, PA**

- Created Human Machine Interface for collaborative welding using Python, Kivy, and ROS2, reducing operator programming complexity by 50% within 4 months
- Developed autonomous robot prototype using computer vision and machine learning from requirements to working deployment

EDUCATION

Master of Science in Computer Science
Washington State University Pullman, WA,USA • 01/2015 - 01/2017

Bachelor Of Technology in Information Technology
GITAM University Visakhapatnam, India • 01/2011 - 01/2015

PROJECTS

Production System Optimization Tool
Freefly Systems

• Problem: Manual system analysis taking hours of expert time, creating bottlenecks in product development and customer support resolution

• Solution: Built full-stack application with React frontend, Python Flask backend, integrated Ollama and Llama 3.2 for real-time log processing and interactive analysis

• Impact: Transformed expert analysis from hours to minutes, deployed to production serving 200+ daily queries with significant performance improvements

GridCOP: Smart Grid Analytics Agent
Grid CoOperator

• Problem: Power grid analysts needed automated database querying and intelligent insights to understand complex data patterns beyond basic visualizations

• Solution: Developed system using LangChain framework with intelligent SQL generation, validation systems, and context-aware response generation

• Impact: Enhanced analyst productivity by 70% through automated workflows, gained expertise in production-ready AI systems with robust error handling

AI Travel Planner Agent
Personal

• Problem: Manual travel planning requiring hours of research across multiple sources with inconsistent and outdated information

• Solution: Built AI agent using Claude 3.5 Sonnet, LangChain, Streamlit, and DuckDuckGo Search API for personalized itinerary generation

• Impact: Demonstrated end-to-end AI application development, learned conversational AI patterns and real-time data integration techniques

Advanced Flight Control Systems
Lumenier

- Problem Solved: Need for precise autonomous payload delivery system with controlled descent mechanisms for logistics and emergency applications
- Implementation: Designed coaxial copter with advanced C++ navigation algorithms, drop-and-recovery functionality, and autonomous target location programming using PX4 flight control
- Achievement & Learning: Established research foundation for autonomous delivery systems, gained deep understanding of robotics system design and autonomous decision-making algorithms

Human Machine Interface for Collaborative Welding

York Exponential

- Problem Solved: Complex robot programming interfaces requiring extensive training for welding operators and need for scalable multi-robot control architecture
- Implementation: Developed HMI using Python, Kivy framework, and ROS2 for Universal Robot integration with simplified programming interface and platform-independent control system
- Achievement & Learning: Reduced operator programming complexity by 50%, learned importance of user-centered design in industrial robotics and platform-agnostic system architecture