VENKATKUMAR RAJAN

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SUMMARY

An AI Engineer with 3 years of experience in research-driven development of Generative AI (vision, language) and MLOps solutions. Skilled in building and deploying scalable AI products that translate cutting-edge solutions into real-world systems. Enabling automation, decision intelligence and business impact across industries.

EXPERIENCE

Generative AI Developer **Dec 2023 to present**
EXL Service.com(India) private limited *Noida, India (Remote)*

- Designed and deployed a real-time invoice parsing system using Azure OpenAI, Azure AI Document Intelligence, and Azure Data Factory, **reducing processing time by 65%** and streamlining data extraction into Azure Blob Storage and SQL databases. Built and deployed a production-ready Azure WebApp integrated with CI/CD pipelines via Azure DevOps, **automating the entire development lifecycle for invoice processing.**
- Built an automated eAppeal pipeline for a Fortune 5 healthcare firm, **resulting in 30% faster claim resolution** and eliminating **95% of manual intervention** in CMS-1500 form handling.
- Created Generative AI-based **Text-to-SQL** and **PySpark agent** for the internal data engineering team, enabling conversational query generation and automating complex data transformations.
- Delivered multiple GenAI projects and POCs to showcase value to internal stakeholders and external clients, driving new business opportunities and improving operational efficiency by **25–40%**.

Machine Learning Engineer **Sept 2022 to Oct 2023**
AUGRAY *Chennai, TamilNadu, India (Onsite)*

- **Real-Time Ball Fault Identification:** Designed and deployed a lightweight ball defect detection system for a major sports goods manufacturer using MobileNetV2, optimized for Jetson AGX. Achieved 90%+ accuracy, **reducing QA error rate by 40+% and boosting manufacturing throughput by 3x**.
- **Automated 3D Reconstruction using Generative AI with Photogrammetry and NeRF:** Implemented an automated 3D reconstruction pipeline using combination of traditional and Generative AI approach, achieving **95%** accuracy for non-reflective objects and **70%** for reflective objects.
- **Wall Segmentation with Color Schemes:** Developed wall/floor segmentation model with **80%** accuracy, helping the paint manufacturer automate color preview generation, **cutting designer effort by 50+ hours/month**.
- **Foot Detection and Virtual Shoe Try-On:** Led a virtual shoe try-on project with 10,000+ annotated foot images, achieving **79%** placement accuracy and **reducing customer return rates by 15% in pilot trials**.
- Additionally, Created impactful Generative AI PoCs including **flyer generation, face texture synthesis, and a site-based chatbot**, driving innovation in client engagement and interactive marketing solutions.

SKILLS

- **Domain Expertise:** Artificial Intelligence, Machine Learning, Deep Learning, Computer Vision, Natural Language Processing, Graph Neural Networks, Reinforcement Learning, Cloud Computing
- **Programming Languages:** Python, C++
- **AI/ML Frameworks:** TensorFlow, PyTorch, OpenCV, Kornia, scikit-learn, Gym, Pyspark, Prophet, NetworkX
- **Generative AI and LLMOps:** LangChain, LlamaIndex, Docling, Groq, Ollama, CrewAI, RAGAS, AutoGen, Phidata, LangGraph
- **Web and Backend Frameworks:** Django, FastAPI, Flask, Streamlit, Gradio
- **Deployment, MLOps and Edge AI:** Azure, AWS, Docker, Kubernetes, Kubeflow, MLflow, Kafka, CI/CD (Azure DevOps, Git), Nvidia Jetson AGX, Raspberry Pi
- **Database, Automation, Visualization and Testing:** MongoDB, MySQL, Power Apps, Power Automate, PowerBI, Tableau, Unittest, Pytest
- **Professional Skills:** Leadership, Project Management, Agile Methodologies, Business Analysis, Problem-Solving, Adaptability

PAPER PUBLICATION

- A Generative Approach to High Fidelity 3D Reconstruction from Text Data[Arxiv][Github]
- Advancing Audio Fingerprinting Accuracy with AI and ML: Addressing Background Noise and Distortion Challenges [IEEE]
- Implementation of PCB Layout using CNC Machine Controlling with Wireless Communication [IRJIET]

CERTIFICATION AND ACCOMPLISHMENT

- **Certification** : Tensorflow Developer, Nvidia Jetson AI specialist, Azure AI, Reinforcement learning, Computer Vision, Generative AI
- **Udacity Nano Degree** : Introduction to Self Driving Car, Self Driving Car Engineer
- **Accomplishment : Kaggle 1 x Master** (NoteBook) & **Kaggle 3 x Expert** (Competition, Dataset, Discussion)

EDUCATION

- **M.Tech. in Artificial Intelligence and Machine Learning** **Rajasthan, India**
  Birla Institute of Technology and Science, Pilani *Mar 2023 - Apr 2025*
- **B.E. in Electronics and Communication** **Madurai, Tamil Nadu, India**
  SACS MAVMM Engineering College, Anna University *July 2016 to Oct 2020*