

# VENKATKUMAR RAJAN

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## EXPERIENCE

### Generative AI Engineer | Business Analyst

Dec 2023 to present

EXL Service.com(India) private limited

Noida, India (Remote)

- Built a real-time invoice parsing system using Generative AI, implementing an end-to-end solution leveraging Azure services. Managed data ingestion through **Azure Data Factory**, utilized **Azure AI services** for document processing, stored extracted data in **Azure Blob Storage** and deployed the project through a CI/CD pipeline. As per client requirements, I also developed a **Power Automate** pipeline to streamline and enhance workflow automation
- Led high-level healthcare analytics initiatives in collaboration with a Fortune top 5 healthcare company, driving the development of the end-to-end eAppeal agent pipeline. This involved leveraging Azure OpenAI and advanced NLP techniques for data extraction from CMS-1500 forms into flat files, designing automated functions for form filling, generating appeals for denied claims, providing comprehensive document analysis, and building robust ADF pipelines to seamlessly transfer data from Azure Blob Storage to SQL Server databases.
- Developed Generative AI-integrated proof of concepts aimed at optimizing workflow efficiency for document processing. Delivered impactful presentations on these concepts to potential clients, driving new business opportunities

### Machine Learning Engineer

Sept 2022 to Oct 2023

AUGRAY LLC

Chennai, TamilNadu, India

- **Real-Time Ball Fault Identification (Sole Contribution):** Collaborated with a sports ball manufacturing firm to develop a computer vision based ball fault detection system using **Nvidia Jetson AGX**. Achieved **90%** accuracy, significantly improving production efficiency.
- **Automated 3D Reconstruction using Generative AI with Photogrammetry and NeRF (Sole Contribution):** 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. Explored NeRF-based algorithms to enhance reconstruction quality, reducing manual effort and improving surface detail representation.
- **Wall Segmentation with Color Schemes (Sole Contribution):** Collaborated with a leading paint manufacturing company to develop a computer vision-based wall and floor segmentation system. Designed and implemented a deep learning approach, achieving **80%** accuracy in production.
- **Foot Detection and Virtual Shoe Try-On:** Our team developed a virtual shoe try-on system using PyTorch Keypoint R-CNN, predicting foot positions and placing keypoints for accurate shoe alignment. I led the team, overseeing extensive research and processing over 10,000 images. We achieved over **79%** accuracy, enhancing the project's reliability and precision.
- **Additionally, I created a POC for Flyer generation and Face Texture Generation, Site-based Chatbot.**

## SKILLS

- **Domain Expertise:** Artificial Intelligence, Machine Learning, Deep Learning, Computer Vision, Natural Language Processing, Graph Neural Networks, Reinforcement Learning, Cloud Computing
- **Technical Skills & Tools:**  
**Programming Languages:** Python, C++  
**AI Framework | Edge device:** Tensorflow, PyTorch, OpenCV, Kornia, Gym, Pygmpy, Pyspark, Prophet, NetworkX, Unittest, Pytest, Langchain, Docling, LlamaIndex, Groq, Ollama, CrewAI, Ragas, LLMops, Agent development, **Nvidia Jetson AGX, Raspberry Pi**  
**Database | Data Visualization | Automation Development:** MongoDB, MySQL, PowerBI, Tableau, Power App, Power Automation  
**Backend | Deployment | Cloud:** Azure, AWS, FastAPI, Flask, Docker, Kubernetes, Kubeflow, MLflow, kafka, CI/CD (GIT)
- **Professional Skills:** Leadership, Project Management, Agile Methodologies, Business Analysis, Problem-Solving, Adaptability

## EDUCATION

### M.Tech. in Artificial Intelligence and Machine Learning

Rajasthan, India

Birla Institute of Technology and Science, Pilani

Mar 2023 - Mar 2025 | Grade - **69%**

### B.E. in Electronics and Communication

ANNA UNIVERSITY

Madurai, Tamil Nadu, India

July 2016 to Oct 2020 | Grade- **82%**

## PAPER PUBLICATION

- A Generative Approach to High Fidelity 3D Reconstruction from Text Data[[Arxiv](#)]
- 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 [[IRJET](#) ]

## CERTIFICATION AND ACCOMPLISHMENT

- **Certification :** Nvidia AI specialist, Tensorflow Developer, Azure AI and Reinforcement learning specialization
- **Udacity Nano Degree :** Introduction to Self Driving Car, Self Driving Car Engineer
- **Accomplishment :** [Kaggle 1 x Master \(NoteBook\)](#) & [Kaggle 3 x Expert \(Competition, Dataset, Discussion\)](#)

## PERSONAL PROJECT

- **Advanced Video Analytics for Vehicle Behavior Analysis ([Link](#)) :** Built a video analytics system using the KITTI dataset to detect, track, and analyze vehicle behavior and speed for decision-making insights.
- **Advanced Real-Time Video Analysis and Recruitment Tool([Link](#)) :** Created a real-time video tool for emotion, gaze, and demographic detection with plans to integrate dynamic scoring and conversational AI.