

Butchi Venkatesh Adari

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Education

Worcester Polytechnic Institute <i>Masters in Robotics Engineering - GPA: 3.8/4.0</i>	<i>Aug 2023 - May 2025 (Expected)</i>
Anil Neerukonda Institute of Technology and Sciences <i>Bachelors in Computer Science and Engineering - GPA: 7.77/10</i>	<i>July 2017 - May 2021</i>

Experience

Graduate Researcher <i>ELPIS LAB Worcester Polytechnic Institute</i>	<i>Worcester, Massachusetts Aug 2023 - Present</i>
<ul style="list-style-type: none">Optimized Apple's Depth-Pro model for monocular depth estimation, reducing error from 10 cm to 3-4 cm.Engineered a Grasp Transformer to predict grasp poses from RGB images and monocular depth, validated in PyBullet simulation for UR10 robot integration.	
Machine Learning Engineer <i>Tata Consultancy Services</i>	<i>Hyderabad, India June 2020 - July 2023</i>
<ul style="list-style-type: none">Designed a Computer Vision Pipeline for real-time object search using Google Vertex AI, achieving 91% accuracy in object detection.Automated document processing by fine-tuning custom OCR models, improving text extraction accuracy from complex layouts by 25%.Streamlined data processing workflows for Proximus and Vodafone, reducing processing times by 30% through machine learning pipelines.	
Machine Learning Intern <i>Inmovidu</i>	<i>India June 2019 - Aug 2019</i>
<ul style="list-style-type: none">Analyzed Titanic survivor data using Exploratory Data Analysis (EDA), identifying Random Forest as the optimal algorithm with minimal false discovery.	

Projects

Research Paper Analysis System with RAG Architecture and MLOps	<i>Feb 2024 - Mar 2024</i>
<ul style="list-style-type: none">Built an end-to-end Research Paper Analysis System using RAG and LLMs, achieving sub-second query responses with FAISS and Flan-T5.Deployed a robust MLOps pipeline utilizing FastAPI, Docker, and Google Cloud Vertex AI; achieved an impressive average query response time of 1.3 seconds on CPU for high-volume data processing tasks.Automated CI/CD workflows with GitHub Actions and GCP service accounts, enabling seamless deployment.	
Real-Time Customer Support Chatbot LLM, NLP, CI/CD, AWS SageMaker, MLflow	<i>Feb 2024 - Mar 2024</i>
<ul style="list-style-type: none">Developed a Large Language Model Chatbot for customer support, delivering real-time responses with 95Established CI/CD pipelines for AWS SageMaker, enabling continuous model improvements and version control.	
Image Captioning with Vision Transformer and GPT-2 AWS, ViT, NLP, CI/CD	<i>Feb 2024 - Mar 2024</i>
<ul style="list-style-type: none">Created an image captioning model combining Vision Transformer and GPT-2, generating captions with 90% contextual relevance.Automated deployment on AWS and Hugging Face using CI/CD pipelines, ensuring real-time caption generation.	

High-Fidelity 3D Scene Reconstruction Using NeRF | Machine Learning, Computer Vision

Mar 2024 - Apr 2024

- Reconstructed photorealistic 3D scenes from 2D images using neural radiance fields (NeRF), improving rendering accuracy.

Tesla Vision | Deep Learning, Computer Vision

Feb 2024 - Mar 2024

- Designed a 3D visualization system inspired by Tesla's autonomous dashboard, integrating YOLO3D, CLRENet, and ZoeDepth for vehicle detection and lane recognition.
- Simulated interactive 3D scenes in Blender, incorporating motion visualization and collision prediction.

Indoor Robot Navigation | Motion Planning, Computer Vision, Perception

Sep 2023 - Dec 2023

- Evaluated traditional algorithms (RRT, RRT*) and reinforcement learning strategies for indoor robot navigation in habitat environments.

Self-Driving Car | Deep Learning, Computer Vision

Jan 2021 - May 2021

- Customized a detection model for Raspberry Pi 4, enabling real-time identification of traffic signs and pedestrians with 94% accuracy.
- Integrated the model into a miniature vehicle for autonomous navigation in controlled environments.

Technical Skills

ML/DL Frameworks: PyTorch, TensorFlow, Hugging Face, Scikit-learn, LangChain, OpenCV

Languages/Programming: Python, C++, Java, C, SQL

Infrastructure: Docker, Kubernetes, MLflow, DVC, Git, Github, Version Control, Prometheus

Cloud Platforms: AWS SageMaker, GCP Vertex AI, Azure ML

Developer Tools: VS Code, Android Studio, Firebase, MySQL, Blender, Linux, Gradio, FastAPI, ROS

Communication: Technical Documentation, Cross-functional Collaboration, Technical Presentations

Certifications/Courses

IIT Guwahati: PG Certification of AI & ML

Coursera: Neural Networks and Deep Learning by Andrew Ng, Deep Learning Specialisation.

Microsoft: End-to-end machine learning operations (MLOps) with Azure Machine Learning.