Butchi Venkatesh Adari

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Education

Masters in Robotics Engineering   **Aug. 2023 – May 2025**
Worcester Polytechnic institute   *Worcester, Massachussetts*

PG Certification of AI & ML   **June. 2020 – May 2021**
IIT Guwahati (Remote)

Bachelors in Computer science and Engineering (7.77/10)   **Jul. 2017 – May 2021**
Anil Neerukonda institute of Technology and Sciences   *Visakhapatnam, India*

Experience

ELPIS LAB | Worcester Polytechnic Institute

Graduate Researcher   *Jan 2024 - Ongoing*

Developing perception and grasping strategies for a UR10 robot using a monocular RGB camera. Training a model to predict depth from RGB data. Simulating tasks with PyBullet and ROS, and implementing solutions on a real UR10 robot.

Tata Consultancy Services | Hyderabad, India

Machine Learning Engineer   *May 2022 - June 2023*

Designed and implemented a Computer Vision Pipeline for real-time object search using Google Vertex AI, integrating CI/CD practices, and fine-tuned custom OCR models for extracting text from complex document layouts, improving document processing efficiency.

Python Developer   *July 2021 - April 2022*

Partnered with Proximus and Vodafone clients to optimize data processing, analysis, and automation workflows, leading to more efficient script execution and reduced processing times.

Machine Learning Intern | Inmovidu   *May 2020 - Jun 2020*

Conducted an in-depth analysis of Titanic survivor data using Exploratory Data Analysis (EDA), identifying Random Forest as the most effective algorithm for classification with minimal false discovery.

Projects

Image Captioning with Vision Transformer and GPT-2 | *AWS,ViT, NLP, CI/CD*   **Aug 2024 - Nov 2024**
- Developed an image captioning model combining Vision Transformer (ViT) for visual feature extraction and GPT-2 for natural language processing, generating accurate and contextually relevant captions for images.
- Implemented CI/CD pipelines for streamlined deployment on AWS and Hugging Face, enabling automated updates and real-time image caption generation.
- Ensured scalability and reliability of the model deployment by integrating CI/CD practices, facilitating continuous improvement and version control.

Real-Time Customer Support Chatbot | *LLM, NLP, CI/CD, AWS SageMaker, MLflow*   **Oct 2024 - Present**
- Built a customer support chatbot by fine-tuning a large language model (LLM) to provide accurate, real-time responses for a wide range of customer queries.
- Developed CI/CD pipelines for seamless deployment on AWS SageMaker, enabling future scalability and reliability in production environments.
- Integrated MLflow to track and manage model versions, allowing for continuous improvements and reproducibility of model experiments and metrics.

High-Fidelity 3D Scene Reconstruction Using NeRF | *Machine Learning , Computer Vision* **Mar 2024 - Apr 2024**
- Implemented a neural radiance fields (NeRF) model to reconstruct photorealistic 3D scenes from 2D images, enhancing rendering accuracy and depth perception using PyTorch.

Indoor Robot Navigation | *Motion Planning , Computer Vision , Perception*   **Sep 2023 - Dec 2023**
- Assessed traditional algorithms like RRT and RRT* alongside reinforcement learning-based end-to-end action strategies for indoor robot navigation in habitat environments.

Self Driving Car | *Deep Learning, Computer Vision*   **Jan 2021 - May 2021**
- Developed and deployed a custom object detection model on a Raspberry Pi 4, enabling real-time detection of traffic signs, pedestrians, and obstacles with 98% accuracy.
- Integrated the model into a miniature vehicle for autonomous navigation in a controlled environment.

Voice Comparer | *Deep Learning Neural Networks , KIVI , Tensorflow , SQL*   **Dec 2019 - Mar 2020**
- Through employing dataset for voice analysis and designed a user interface software using the KIVY framework and infered model using Neural Networks to compare voice recordings, and achieved a 91% accuracy rate.

Technical Skills

Languages: Python, C++, Java, C, SQL
Developer Tools: VS Code, Android Studio, Firebase, MySQL, Git, Blender
Technologies/Frameworks: Tensorflow, PyTorch, Hugging Face, Linux, OpenCV, CI/CD , GCP, VertexAI, Docker, AWS, langchain.

Certifications/Courses

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

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