

BUTCHI VENKATESH ADARI

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Education

Masters in Robotics Engineering

Worcester Polytechnic Institute

Aug. 2023 – May 2025

Worcester, Massachusetts

PG Certification of AI & ML

IIT Guwahati (Remote)

June. 2020 – May 2021

Bachelors in Computer science and Engineering (7.77/10)

Anil Neerukonda Institute of Technology and Sciences

Jul. 2017 – May 2021

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) and GPT-2, integrating visual feature extraction with natural language processing to generate accurate and contextually relevant image captions.
- Implemented CI/CD pipelines for automated deployment on AWS and Hugging Face, ensuring scalability and reliability while enabling real-time caption generation and version control.

Real-Time Customer Support Chatbot | LLM, NLP, CI/CD, AWS SageMaker, MLflow

Oct 2024 - Present

- Built and fine-tuned a large language model (LLM) chatbot for customer support, delivering accurate real-time responses for diverse customer queries while tracking experiments and metrics using MLflow.
- Implemented CI/CD pipelines for AWS SageMaker deployment, enabling scalable production environments with robust version control and continuous model improvements.

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 inferred 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.