Teja Vishnu Vardhan Boddu

+1 667-445-8867 • tboddu1@asu.edu •. linkedin.com/in/btvvardhan • github.com/btvvardhan

SUMMARY

Master's student in Robotics and Autonomous Systems, having successfully completed my first year and on track to graduate by May 2026. Seeking a dynamic internship opportunity to apply theoretical knowledge and project experience in autonomous navigation, robotic control, and AI integration, fostering practical skill development directly alongside my academic pursuits.

EDUCATION

Master of Science, Robotics and Autonomous Systems (Systems Engineering)	Aug 2024-
Arizona State University, Tempe, AZ	**4.0/4.0 GPA**
Ira A. Fulton Schools of Engineering	
Bachelor of Technology, Mechanical Engineering	Nov 2023
Indian Institute of Technology Madras, Chennai, India	
Mechanical Engineering Department	

TECHNICAL SKILLS

Tools: SOLIDWORKS, ANSYS, AutoCAD, Simulink, Microsoft Office.

Programming: Python, C, MATLAB.

AI/ML: Prompt Engineering, Chatbot development, Prompt Engineering, Generative AI, Retrieval-Augmented Generation (RAG), Whisper ASR, HuggingFace Transformers,

Robotics: ROS2, PX4 Autopilot, Inverse Kinematics, PID Control, Vision-Based Navigation.

CERTIFICATIONS

- **IBM Professional AI Certification**
- **Machine Learning Specialization** (by Stanford and Deeplearning.ai)

PROJECTS

Denoising Diffusion GAN Latent Manipulation and Synthetic Data Generation (NVIDIA DDGAN Repository)
- Explored latent space manipulation in DDGAN to control generated image diversity and partially edit attributes across denoising steps.
- Conducted experiments on CelebA-HQ dataset, analyzing multimodal generation behavior and effects of latent vector shifts despite entangled latent spaces.
- Implemented synthetic data generation pipelines by manipulating random seeds, posterior sampling, and batch-wise latent vector consistency.
- Measured and benchmarked image generation times, ensuring efficient sampling workflows for scalable synthetic dataset creation.

Solving a maze with My Cobot Pro 600 (Python,OpenCv,Matlab)
- Developed a digital twin of a robotic arm, integrating real-time maze-solving and autonomous path execution.
- Utilized Python and OpenCV for maze detection and solving, integrating vision capabilities.
- Designed and executed precise robotic movements using an inverse kinematics model in MATLAB, ensuring smooth navigation.
- Leveraged TCP communication to transfer planned movements to the robot for real-time path execution.

PX4-based UAV Rock Detection and Localization (ROS2, Gazebo, PX4-Autopilot, Deep Learning)
- Developed a UAV simulation environment using ROS 2, PX4 Autopilot, and Gazebo Sim with photogrammetry-based custom terrain for realistic object detection scenarios.
- Trained and integrated a YOLOv8 model for real-time rock detection and utilized ROS 2 TF transformations to accurately localize detected objects within global coordinates.

AI-Accelerated Multi-Modal Tutor (ASU + NVIDIA Spark Challenge, Sol Supercomputer)
Developed an LLM-powered AI tutor on the Sol supercomputer (A100 GPUs) to accelerate learning in data science and GPU programming.
- Built a multi-modal interface supporting PDFs, videos, and code inputs.
- Integrated RAG with HuggingFace + Chroma for document-based Q&A
- Enabled automatic CPU-to-GPU code conversion and benchmarked GPU vs CPU performance on Sol.
- Deployed backend with Gradio + Ollama; ran LLMs and Whisper for transcription.
- Automated vector embedding and efficient GPU job scheduling on Sol.

Autonomous Line Following & Precision Landing with Parrot Minidrone
- Developed and deployed an autonomous visual tracking and landing system on a Parrot Mambo Minidrone using MATLAB Simulink and State flow. Implemented real-time RGB-based image processing for target detection and a state-machine controller for adaptive descent onto a red square mounted on a moving ground robot — all without external localization or GPS.
- Executed the perception-control loop onboard using hardware-in-the-loop simulation, optimizing logic-level performance to minimize latency and improve stability. Achieved successful precision landings under dynamic conditions, enhancing skills in visual servoing, embedded control, and real-time robotics integration.

ACTIVITIES

- Volunteer, Sanghi Foundation Arizona State **2024 FIRST Robotics Competition** – to support event organization, assist teams, and facilitation of robotics competitions.
- Participant in **Honeywell Hackathon** 2025, **AI Spark Hackathon (by Nvidia) 2025** and **Los Alamos Hackathon 2025**, collaborating on robotics and AI challenges.