Sai Bharadhwaj Matha

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About

An ingenious engineer with two years of experience in embedded systems and power electronics for UAS and one year as a research assistant in 3D computer vision and deep learning. I am nearing the completion of my M.Eng in Artificial Intelligence, with my thesis on Semantic Occupancy Prediction for UAS. I am passionate about advancing my career in AI, computer vision, and intelligent robotics, striving to contribute to cutting-edge innovations.

Education

2022 – 2025 Cham, Germany	**Master of Engineering in Artificial Intelligence for Smart Sensors and Actuators** *Technische Hochschule Deggendorf.* GPA: 1.5 Thesis: Real-world Semantic Occupancy Prediction for Advanced Air Mobility.
2016 – 2020 Rourkela, India	**Bachelor of Technology in Electrical Engineering** *National Institute of Technology Rourkela.* CGPA : 8.72/10.0
2014 – 2016 Visakhapatnam, India	**Higher Secondary Education** *Board of Intermediate Education Andhra Pradesh.* Percentage: 98.4
2002 – 2014 Rajam, India	**Secondary Education** *Board of Secondary Education Andhra Pradesh* GPA : 9.7/10.0

Professional Experience

2024 – present Ingolstadt, Germany	**Research Assistant** *Fraunhofer IVI* • Working on research focused on semantic occupancy prediction for UAS. • Expertise in computer vision, deep learning, and UAS avionics.
2023 – 2024 Ingolstadt, Germany	**Internship** *Fraunhofer IVI* • Developed a pipeline for 3D semantic point cloud generation.
2020 – 2022 Mumbai, India	**Embedded Systems Engineer** *Ideaforge Technology Private Limited.* • Led the development of the propulsion system, ensuring reliable performance. • Developed an FOC-based ESC for BLDC motors. • Developed Li-ion and Li-Po battery pack charging system.
2019 – 2019 Pune, India	**Internship** *Hachimichi Technology Private Limited.* • Firmware for automation and heart-rate monitoring of a toilet seat.

Projects

01.2025 – present	**Multi-Modal 3D Object Detection in Adverse Weather Conditions** • Designing a deep autoencoder for 2D feature extraction in adverse weather. • Planning to implement late fusion for multi-modal 3D object detection. • Working on synthetic dataset generation using the CARLA simulator.

06.2024 – 12.2024	**Semantic Occupancy Prediction for Advanced Air Mobility**
	Master Thesis
	• Created a novel benchmark semantic occupancy dataset for UAS, with plans to publish in ICCV '25.
	• Designed a data generation pipeline integrating 3D reconstruction, pose estimation, semantic fusion, voxelization, and mesh generation.
	• Trained SOTA occupancy prediction models on the generated dataset.
2023 – 2023	**6-DOF Autonomous Robot with Haptic Obstacle Sensing**
	• Autonomous 6-DOF robot with haptic feedback for obstacle detection.
	• ROS-Gazebo simulation in Docker for modular deployment.
09.2021 – 03.2022	**UAV SLAM (Simultaneous Localization and Mapping)**
	• Contributed to developing a GPS-denied UAV navigation system employing depth and thermal cameras, with ORB-SLAM3.

Skills

Python — Proficient	**Machine Learning and Deep Learning** — Proficient
Computer Vision — Proficient	**PyTorch** — Proficient
Generative AI — Competent	**Kubernetes, Git** — Competent
Docker — Competent	**ONNX, TensorRT** — Competent
C,C++ — Competent	**SQL** — Competent
Robot Operating System(ROS) — Competent	**STM32, RTOS** — Competent
Linux — Competent	**Data Structures** — Competent

Languages

Telugu — Native/Bilingual	**Hindi** — Native/Bilingual
Mother Tongue	*National Language*
English — Native/Bilingual	**German** — Basic
IELTS score: 8.0/9.0	

Courses & Certificates

Data Science with Python	**Big Data**
Issued by Simplilearn	*Issued by Coursera*
Quantum Computing	**MLOps (AWS): Deploying AI & ML Models**
Elective from THD	Issued by edX

Interests

- Cooking and blogging
- eFootball and gaming

Organisations

2019 – 2020	**VS Hall of Residence**
Rourkela, India	*Student elected representative*
2017 – 2020	**Plugged_IN**
Rourkela, India	*Vice President*

Declaration

I affirm that all information provided is true and accurate to the best of my knowledge.

M. Sai Bharadhwaj.

Kothmaissling, 29.01.2025