Sai Bharadhwaj Matha

Male | 10.06.1999 | Single | INDIAN | Kothmaissling 37, 93413, Cham, Germany.

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Professional Summary

AI and Embedded Systems Engineer with 3+ years of cross-disciplinary experience in embedded systems, 3D computer vision, and intelligent robotics, including work in real-world UAV systems and advanced deep learning models. Proven track record in developing semantic occupancy prediction pipelines, SLAM-based UAV navigation, and multi-modal perception frameworks. Seeking to leverage expertise in 3D computer vision, AI for autonomous systems, and agentic frameworks to drive innovation in robotics and intelligent perception.

Education

2022 – 2025 | Cham, Germany
Master of Engineering in Artificial Intelligence for Smart Sensors and Actuators
Technische Hochschule Deggendorf.
GPA: 1.4 / 5.0
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
Thesis: Wireless Power Transfer and Its Application in Solar Power Harvesting.

2014 – 2016 | Visakhapatnam, India
Higher Secondary Education
Board of Intermediate Education Andhra Pradesh.
Percentage: 98.4

Professional Experience

2024 – present | Ingolstadt, Germany
Research Assistant
Fraunhofer IVI
- Designed a novel 3D semantic and panoptic scene completion data pipeline for UAVs.
- Generated 50K+ sample dataset with RGB, thermal, depth, and 3D occupancy GT.
- Conducted ablations on Symphonize 3D and CGFormer to inform novel 3D architecture.

2023 – 2024 | Ingolstadt, Germany
Internship
Fraunhofer IVI
- Built a 3D semantic point cloud pipeline using COLMAP, Metashape from images.
- Cut external annotation costs by 82% via image subset optimization.

2020 – 2022 | Mumbai, India
Embedded Systems Engineer
Full-time, Ideaforge Technology Private Limited.
- Headed the development of the propulsion system, ensuring reliable performance.
- Engineered an FOC-based ESC for BLDC motors and a Li-ion battery pack charger.
- Developed embedded HW/SW for GPS-denied UAV navigation via ORB-SLAM3.

2019 – 2019 | Pune, India
Internship
Hachimichi Technology Private Limited.
- Firmware for automation and heart-rate monitoring of a toilet seat.

Key Technical Projects

06.2025 – present
PlanMyTrip - Let our agents plan your trip!
- Architected an agentic AI system with fine-tuned LLMs using ReAct, RAG, and dynamic tool orchestration for real-time multi-destination itinerary generation.
- Optimizing inference pipeline via model cascading to reduce latency and costs.

05.2025 – present
MonoSpatial: Agent-Based Spatial Distance Estimation in Monocular RGB Images
- Developing an agentic reasoning pipeline to select and orchestrate vision models for spatial queries dynamically. Fine-tuning vision models for aerial scenes.
- Evaluating the Diffusion-based approach for estimating camera intrinsics.

03.2025 – 06.2025
Multi-Modal 3D Object Detection in Adverse Weather Conditions
- Design and train a deep autoencoder for 2D feature extraction in adverse weather.
- Implemented early-fusion for multi-modal synthetic data generated in CARLA.

01.2025 – 02.2025 **Novel Aerial View Synthesis using 3D Gaussian Splatting**
- Applied 3D Gaussian Splatting to synthesize high-fidelity novel aerial views from monocular images.
- Leveraging Metashape to output sparse reconstruction in COLMAP format.

06.2024 – 12.2024 **Semantic Occupancy Prediction for Advanced Air Mobility**
Master Thesis (*expected release and submission*: *CVPR 2026*)
- A novel benchmark semantic occupancy dataset for UAS, ran ablations on SOTA SSC models, and working on a novel geometry-aware model architecture for aerial scenes.
- Developed a large-scale dataset with monocular RGB + thermal aerial imagery.
- Designed a data-generation pipeline that integrates 3D reconstruction, pose estimation, semantic fusion, mesh generation, voxelization, and voxel densification.

Skills

Python — Proficient

Machine Learning and Deep Learning — Proficient

Computer Vision(2D/3D) — Proficient

PyTorch — Proficient

Generative AI — Competent

Agentic AI, MCP — Competent

Kubernetes, Git — Competent

Docker — Competent

C++ — Competent

SQL — Competent

Robot Operating System(ROS) — Competent

STM32, RTOS — Competent

Linux — Competent

Data Structures — Competent

Languages

English — Native/Bilingual
IELTS score: *8.0/9.0*

German — Conversational
CEFR Level B1

Telugu — Native/Bilingual
Mother Tongue

Hindi — Native/Bilingual
National Language

Courses & Certificates

Big Data
Issued by Coursera

Quantum Computing
Elective from THD

MLOps (AWS): Deploying AI & ML Models
Issued by edX

AI Agents
Issued by Hugging Face

Leadership and Volunteering

2019 – 2020 Rourkela, India
VS Hall of Residence
Student elected representative

2017 – 2020 Rourkela, India
Plugged_IN
Vice President

References

Prof. Dr. Dmitrii Dobriborsci, *Professor,* Technische Hochschule Deggendorf
dmitrii.dobriborsci@th-deg.de

Henri Meess, *M.Sc., Manager,* Fraunhofer IVI
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Interests

- Cooking and blogging
- eFootball and gaming

Declaration

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

M. Sai Bharadhwaj.

Kothmaissling, 13.07.2025