AAKASH VANMALI

MECHATRONICS ENGINEER

PROFILE

I am a Master's student in Mechatronics Engineering at Technische Hochschule Deggendorf, with a specialization in Robotics, Computer Vision, Artificial Intelligence, and Autonomous Systems. My core interest lies in integrating AI with robotics to build intelligent, adaptive, and autonomous systems. Through hands-on projects, I have designed solutions for robotic control systems and developed real-time perception algorithms to support autonomous decision-making. I am passionate about pushing the boundaries of intelligent robotics through AI-driven software development and am currently seeking internship opportunities as a Robotics Software Engineer. I aim to contribute to the development of innovative robotic and autonomous system solutions powered by artificial intelligence.

PERSONAL INFO

90402 Nürnberg, Entengasse 10, 1. OG

Indian

DOB: 21.05.2001

CONTACT

+49 1627099416

vanmaliaakash5@gmail.com

linkedin.com/aakashvanmali

github.com/aakashvanmali45

EDUCATION

- **M. Eng. Mechatronics and Cyber Physical System**
  TH Deggendorf, Cham, Germany — 03/2024 - PRESENT
  - Autonomous Systems
  - Advanced Robotics
  - Advanced Modelling and Simulation
  - Technologies of Additive Manufacturing
  - Human Machine Interfaces-VR/AR
  - Average Grade: 2,0

- **B. Eng. Mechanical Engineering**
  University of Mumbai, Mumbai, India — 06/2019 - 06/2023
  - CAD/CAM
  - Industrial Electronics
  - Automation and Artificial Intelligence
  - Python Programming
  - Bachelor Thesis: Deep Learning and Computer Vision for Self Driving Car
  - Average Grade: 1,6

WORK EXPERIENCE

- **Computer Vision Intern**
  JSW Steel LTD. , Mumbai, India — 08/2023 - 12/2023
  - Employed video analytics techniques to evaluate steel industry-specific use cases.
  - Developed and implemented a project aimed at accurately measuring gas consumption in the steel industry using non-contact methods, eliminating inaccuracies caused by flowmeter choking.
  - Utilized Computer Vision and Convolutional Neural Networks to analyze images and determine the volume of flame flared from flare stacks.
  - Leveraged Docker for packaging the solution into an end-to-end application, ensuring seamless deployment and integration.
  - Skills: Computer Vision, Convolutional Neural Network, Docker, OpenCV, Tensorflow, Pandas

TECHNICAL SKILLS

- Python
- Excel
- Deep Learning
- SolidWorks (3D CAD)
- ROS and Gazebo
- Computer Vision (OpenCV)
- Matlab Simulink
- Git & Github Actions
- MS Office

LANGUAGES

- English (Full Professional Proficiency)
- German (A2)
- Marathi (Native)

SOFT SKILLS

- Innovative Problem Solving
- Effective Communication
- Adaptability
- Analytical Thinking
- Collaborative

EXTRA CURRICULARS

- DLLE Member 2023-2024
- ASME Member 2023-2024
- AI Head, Google Developer Student Club, 2021 - 2022
- AI and Mechatronics Club Head, 2021-2022

INTERESTS

- Coding
- Table Tennis
- Reading

TECHNICAL PROJECTS

- **PR Reviewer Agent (GitHub Actions + LLM)**
  - Developed an AI-based PR reviewer agent integrated with GitHub Actions that uses OpenAI embeddings and MongoDB to semantically understand code changes and provide automated review suggestions. Enabled full repository context for smarter reviews using cosine similarity search.
  - Github Link: Project Link
- **AI-Optimized PID Controller for Furnace Temperature**
  - Built an AI-enhanced PID controller for a furnace system using MATLAB Simulink. Optimized performance using Genetic Algorithm from Optimization Toolbox for thermal regulation in industrial environments.
  - Github Link: Project Link
- **Fuzzy Logic Controller for Line Following Robot**
  - Implemented a fuzzy logic-based control system in Simulink for a differential-drive robot. Designed sensor models, fuzzy membership functions, and a controller that allowed robust line following performance under uncertain conditions.
  - Github Link: Project Link
- **Chain Wheeled Mobile Robot with IR Camera for Object Identification**
  - Developed a simulation-ready robot model using URDF and Gazebo with skid steering, LIDAR, and IR camera sensors. Implemented object detection via SIFT algorithm and autonomous navigation using sensor data. Created a realistic Gazebo environment for testing and refinement — simulating tactile-environment interaction.
- **Color Sorting Robotic Arm**
  - Designed a robotic arm that sorts RGB objects based on camera vision. Integrated image processing, vacuum gripping, and motion control into a single task skill. Demonstrated robotic skills based on perception-driven control.

TRAININGS AND CERTIFICATIONS

- Machine Learning for All [Coursera] 2021
- Introduction for Artificial Intelligence [Coursera] 2021
- Python for Everybody Specialization [Coursera] 2021