Vedant Chavan

59555 Lippstadt, Germany | vedantsanjaychavan.de
linkedin.com/in/vedant-chavan-97ml | Immediate availability | Open to relocation

PROFILE

Computer Vision and AI Engineer with experience in developing perception systems for real-world robotics and industrial use cases. I have contributed to projects involving 3D object localization, stereo depth estimation, and visual quality inspection, combining research-driven methods with production-readiness. My work is driven by a focus on robust, interpretable solutions that bridge AI research with deployment in dynamic environments.

SKILLS

Programming
Python, C (familiar), MATLAB, SQL

Frameworks & Tools
PyTorch, TensorFlow, OpenCV, Scikit-learn, FastAPI

Additional Tools
Unreal Engine 5, Blender, Roboflow

Perception & CV
Stereo Vision, Object Tracking, 3D Localization, Anomaly Detection, U-Net, YOLO

DevOps & Deployment
Docker, AWS (EC2, ECR), Git, GitHub Actions (CI/CD)

Languages
English (Fluent), German (B1)

EXPERIENCE

Hella GmbH & Co. KGaA (FORVIA HELLA), Lippstadt, Germany Aug 2023 – Nov 2024

Master's Thesis

- Designed a synthetic data pipeline in Unreal Engine 5 to generate stereo–depth pairs under varied nighttime illumination
- Developed and trained a ResNet18-based stereo depth model using cost volume fusion
- Achieved 3% depth error and 95% localization accuracy on synthetic test scenes; validated robustness through adversarial evaluation

Computer Vision Intern

- Fine-tuned YOLOv8 on 5,000 annotated nighttime images, improving detection accuracy from 80% to 90%
- Calibrated stereo cameras and applied triangulation to localize detected objects in 3D vehicle coordinates
- Converted models to ONNX and Docker for reproducible testing and conducted robustness evaluation with adversarial conditions

Indpro Electronic Systems Private Limited, Pune, India May 2019 – Mar 2020

Automation Engineer

- Developed PLC control logic for sugar factory automation, improving system reliability and responsiveness
- Integrated PLCs with SCADA systems for real-time monitoring and alarm feedback

RECENT WORK

Ongoing Learning & Development Feb 2025 – present

Exploring edge AI deployment and perception problems for scalable solutions.

Project: Surface Defect Detection – PaDiM, MVTec AD

- Built an anomaly detection model using PaDiM with MobileNetV3; achieved 98% accuracy
- Validated results with heatmaps and tested against adversarial noise

Project: Real-Time Segmentation Deployment – YOLOv11 + FastAPI

- Deployed segmentation API using FastAPI, Docker, and AWS EC2
- Enabled real-time inference with scalable deployment

ACADEMIC QUALIFICATIONS

M.Eng. in Engineering Sciences - Mechatronics Oct 2021 – Jan 2025

Technische Hochschule Rosenheim, Rosenheim, Germany

- **Thesis: Deep Stereo Vision for Nighttime Driving Scenes (in collaboration with FORVIA HELLA).**
- **Project: Custom YOLO for Robotic Bin-Picking**
  - Built a real-time object detection system for robotic arms using a RealSense RGBD camera and a custom YOLO model trained on synthetic (Blender) and real images
  - Improved spatial accuracy using IoU-based loss and achieved ~95% pick success rate in lab tests through visual error analysis and iterative tuning
- **Project: Pixel-wise Defect Segmentation Using U-Net**
  - Developed a segmentation model to identify surface defects in high-resolution print data, achieved ~98% precision.
  - Evaluated output quality using IoU and visual overlays, and used the results to refine labels and data augmentations.
- Grades: 1.9 GPA

PG Diploma In Advanced Computing Sep 2020 – Apr 2021

Centre for Development of Advanced Computing (C-DAC), India

- Subjects: Software Engineering, OOP, SQL
- Grades: B

B.Tech. in Mechanical Engineering Jul 2015 – May 2019

Vellore Institute of Technology, Vellore, India

- Grades: 8.56/10

Certificates

- Machine Learning - Stanford University, Coursera
- Crash Course Python - Google

Hobbies

Drawing, Chess