Vedant Chavan Computer Vision Engineer

59555 Lippstadt, Germany vedantsanjaychavan.de

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Eligible to work in Germany | Immediate availability | Open to relocation

PROFILE

Computer Vision Engineer with hands-on experience in developing vision systems for inspection, stereo depth, and robot guidance. Skilled in deploying AI and rule-based models using PyTorch, Docker, and synthetic data. Proven ability to translate lab prototypes into real-world solutions for manufacturing and automation.

SKILLS

Programming & Tools
Python, MATLAB, SQL, Git, Docker, FastAPI

Computer Vision
Object detection, 3D localization, stereo depth estimation, anomaly detection

Additional Tools
Unreal Engine 5, Blender, Roboflow

Cloud & Deployment
ONNX, AWS EC2/ECR, CI/CD pipelines, containerized APIs

Libraries & Frameworks
PyTorch, TensorFlow, scikit-learn, OpenCV

Languages
German - B1, English - C1

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

Continuing development in AI-based inspection, model robustness, and industry-focused deployment

Surface Defect Detection with Patch Distribution Modeling Framework (PaDiM) – *MVTec AD Dataset*

- Built an anomaly detection pipeline using PaDiM with MobileNetV3; achieved 98% accuracy
- Visualized predictions with heatmaps and tested against adversarial inputs to simulate inspection noise

Cloud-Based Real-Time Segmentation System – *YOLOv11 + FastAPI + AWS*

- Built and deployed segmentation API using FastAPI, Docker, and AWS EC2 for scalable industrial inference
- Demonstrated full-cycle deployment and production-readiness of real-time detection systems

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
- 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, Object Oriented Programming, Database Technologies
- Grades: B

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

Vellore Institute of Technology, Vellore, India

- Grades: 8.56/10

Certificates

- Machine Learning Specialization
- Crash Course on Python

Hobbies

Drawing, Chess