Vedant Chavan

AI and Computer Vision Engineer

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📄 Eligible to work in Germany | Immediate availability | Willing to Relocate

PROFILE

AI and Computer Vision Engineer with experience building robust perception systems for automotive and industrial environments. Skilled in stereo vision, image processing, and deploying deep learning models on embedded hardware using Python and ONNX.

SKILLS

Languages & Libraries: Python, C++, MATLAB, OpenCV, PyTorch, TensorFlow

Vision & ML: Stereo Vision, Depth Estimation, Object Detection, Anomaly Detection, Segmentation

Deployment: Docker, ONNX, FastAPI, CI/CD, Git, AWS, GCP (familiar)

EXPERIENCE

Hella GmbH & Co. KGaA (FORVIA HELLA)

Master's Thesis Researcher   03/2024 – 11/2024 | Lippstadt, Germany

Project: Deep Learning-Based Stereo Vision for Object Localization in Nighttime Driving Scenes

- **Created a lightweight stereo depth CNN** (<7M parameters), achieving **3% depth error** at **30m**.
- Boosted low-light performance by **50%** (vs. traditional methods) using **Unreal Engine 5 synthetic data**.
- **Achieved 90%** localization accuracy via **cost-volume aggregation & disparity refinement**.
- Optimized and integrated model for real-time embedded deployment via **quantization and Docker**.

Computer Vision Intern   08/2023 – 02/2024 | Lippstadt, Germany

- **Fine-tuned YOLOv8 models** for nighttime object detection, improving accuracy to **90%**.
- Developed core perception components for **production-grade adaptive headlight testing**.
- Designed robust **3D scene understanding** through **stereo calibration & depth triangulation**.
- **Deployed ONNX-based models in Docker containers** for scalable edge inference.
- Integrated **real-time vision modules** into **embedded systems**, collaborating with cross-functional teams.

Indpro Electronic Systems Private Limited   05/2019 – 03/2020 | Pune, India

Automation Engineer

- Developed **PLC logic** for industrial **boiler automation** in a sugar manufacturing plant.
- Integrated **SCADA** systems for real-time process monitoring, improving operator control and reducing manual intervention.

EDUCATION

Technische Hochschule Rosenheim   10/2021 – 01/2025
M.Eng. in Engineering Sciences - Mechatronics   Rosenheim, Germany
- **Thesis:** Lightweight Stereo CNN for Low-Light Automotive Depth Estimation (with HELLA)
- **Master Project: Robotic Bin-Picking with Custom YOLO**
  - Designed and trained a custom YOLO-based detector using synthetic **Blender and real data**.
  - Achieved **98% pick** success rate by optimizing object orientation detection and integrating **camera-lighting calibration**.
- **Relevant Coursework:** Image Processing in Production, Trajectory Planning, Industrial Control Systems, Digital Signal Processing, Real-Time Systems

Centre for Development of Advanced Computing (C-DAC)   09/2020 – 04/2021 | Pune, India
PG Diploma In Advanced Computing
- **Relevant Coursework:** Software Engineering, OOP, Database Technologies.

Vellore Institute of Technology, Vellore, India   07/2015 – 05/2019 | Vellore, India
B.Tech. in Mechanical Engineering

SELECTED PROJECTS

Anomaly Detection with PaDiM   04/2025
- Developed an **anomaly detection** system using **Patch Distribution Modeling** (PaDiM) with **Mahalanobis distance** modeling on **MobileNetV3** features.
- Visualized defect **heatmaps** and exported to **ONNX** for edge inference.

Scalable Real-Time Image Segmentation API (AWS)   03/2025
- Deployed **FastAPI** service using **Docker for real-time segmentation.**
- Hosted on **AWS EC2** with **CI/CD** automation for scalable inference.

CERTIFICATES

- Advanced Computer Vision with TensorFlow - DeepLearning.AI

- Machine Learning Specialization - Stanford University (Coursera)

LANGUAGES

English — Fluent | **German** — B1 (Actively improving) | **Marathi, Hindi** — Native Speaker