

Vedant Chavan Computer Vision & Machine Learning Engineer

 vedantchavan097@gmail.com
 59555 Lippstadt, Germany
 linkedin.com/in/vedant-chavan-97ml/

 +49 151 43560223
 vedantsanjaychavan.de/
 github.com/vedantchavan004



Profile

Computer Vision and Machine Learning Engineer with hands-on experience building production-ready AI systems for real industrial applications. Strong background in camera-based perception, deep learning, and Python-based ML pipelines, delivering measurable performance improvements under real-world constraints. Known for a pragmatic, engineering-driven approach that bridges research and deployment.

Experience

- 01/2026 – Present **PalPrint GmbH, Computer Vision Engineer (3D Reconstruction)**
Paderborn, Germany
- Developing **production-oriented ML pipelines** for real-world image data, covering data acquisition, preprocessing, model training, evaluation, and geometric validation in an applied industrial environment.
 - Implementing scalable Python pipelines to enable repeatable experiments and early-stage quality assessment.
- 08/2023 – 11/2024 **Hella GmbH & Co. KGaA (FORVIA HELLA),**
Lippstadt, Germany *ADAS Perception Engineer – Stereo Vision (Internship → Master's Thesis)*
- Designed and trained a lightweight stereo CNN achieving **~3% D1-all error** on real-world automotive stereo data.
 - Combined geometric stereo principles with deep learning to enable robust depth estimation up to **~30 m** in low-light and glare conditions.
 - Generated and curated **9,000+ synthetic stereo image pairs** to simulate rare and safety-critical scenarios, accelerating validation cycles and reducing reliance on real-world data collection.
 - Improved depth estimation robustness by **~25%** in night-time scenarios compared to classical stereo baselines.
 - Optimized Python inference and evaluation pipelines, achieving **~40% runtime latency reduction**, and validated models using statistical error analysis and geometric consistency checks.
 - Worked in a safety-critical, regulated development environment with strong emphasis on validation discipline, traceability, and reproducible evaluation.

Technical Skills

Programming: Python, NumPy, Pandas, OpenCV, Git, Docker

Computer Vision: Image processing, stereo vision, 3D reconstruction, depth estimation, segmentation

Machine Learning: Supervised & unsupervised learning, model training, evaluation, robustness testing

Deep Learning Frameworks: TensorFlow, PyTorch, Keras

Data & Infrastructure: Large-scale datasets, synthetic and real-world data handling, GPU-accelerated training

Education

- 10/2021 – 03/2025 **M.Eng. Engineering Sciences - Mechatronics, Technischen Hochschule Rosenheim**
Rosenheim, Germany Focus: Industrial Image Processing, Robotics, Real-Time Systems, Advanced Control Systems
- 09/2020 – 04/2021 **PG Diploma - Advanced Computing, Centre for Development of Advanced Computing (CDAC)**
Pune, India Focus: Data Structures, Software Engineering, Database Technology, Linux
- 06/2015 – 09/2019 **B.Tech - Mechanical Engineering, Vellore Institute of Technology**
Vellore, India

Selected Projects

02/2025 – 04/2025	LLM-Based Text Analysis & Retrieval System <ul style="list-style-type: none">Built a Python-based LLM system for structured analysis of unstructured text using retrieval-augmented generation (RAG) with vector databases.Focused on answer quality, traceability, and deployability, with systematic evaluation of retrieval and generation quality.
12/2024 – 01/2025	Predictive Maintenance on Sensor Time-Series Data (XGBoost) <ul style="list-style-type: none">Built an XGBoost-based predictive maintenance pipeline using temperature and related sensor time-series data to detect early signs of failure.Achieved ~98% prediction accuracy through feature engineering, cross-validation, and systematic error analysis, enabling reliable failure-risk estimation.
04/2023 – 06/2023	Defect Segmentation on Printed Glass Panels (U-Net) <ul style="list-style-type: none">Developed a U-Net-based segmentation model to perform pixel-level segmentation of printing defects on glass panels.Enabled fine-grained defect analysis by producing accurate defect masks, supporting downstream quality assessment and inspection workflows.
10/2022 – 03/2023	Bin-Picking Vision System for Industrial Robotics <ul style="list-style-type: none">Developed a custom YOLO-based object detection model for bin-picking in cluttered industrial scenes, achieving ~95% detection accuracy under occlusion and varying lighting.Integrated the vision system into a Python-based pipeline to support reliable object localization for robotic picking workflows.

Languages

English: C1 (fluent) | **German:** B1 (Intermediate, actively improving)

Certificates

Oracle Cloud Infrastructure 2025 Certified Generative AI Professional | Generative Deep Learning with TensorFlow (2025) | Advanced Computer Vision with TensorFlow (2025) | Stanford Machine Learning (2022)