

AKSHAY CHOBE

Offenburg, Germany | Phone: +49 17685979871 | Email: chobeakshay2704@gmail.com
LinkedIn: <https://www.linkedin.com/in/akshaychobeadas/> | GitHub: <http://github.com/akshaychobe>

EDUCATION

HOCHSCHULE RAVENSBURG-WEINGARTEN, Weingarten, Germany Sept 2022 – Present

Master of Science in Mechatronics | **GPA: 1.5**

Courses: Computer Vision, Sensor Fusion, Industrial and Mobile Robotics, Autonomous Driving, Lidar and Radar Systems.

Lab Work: Stereo calibration, camera–LiDAR fusion, object detection pipelines, SLAM, Kuka Robot manipulation.

SAVITRIBAI PHULE PUNE UNIVERSITY (SPPU), Pune, India July 2019 – June 2022

Bachelor of Engineering in Mechanical Engineering | **GPA: 1.4**

Minor: Artificial Intelligence and Machine Learning

WORK EXPERIENCE

PROGRESS-WERK OBERKIRCH (PWO) AG, Oberkirch, Germany

April 2025 – Expected Sept 2025

Master's Thesis- Design and Deployment of Scalable Industrial Machine Vision Architecture within an IIoT platform.

- Designed a modular, scalable machine vision architecture for real-time robotic inspection and offline analysis within an IIoT platform.
- Integrated AI-based computer vision models with PLC-synchronized signals using MQTT/SQL pipelines, enabling seamless feedback loops.
- Developed a lightweight MLOps framework with HMI for drift monitoring, explainable outputs, and low-code model retraining.
- Built a robust, user-friendly GUI using the MVC pattern to ensure maintainable code separation and scalable backend integration.

PROGRESS-WERK OBERKIRCH (PWO) AG, Oberkirch, Germany

Nov 2024 – March 2025

Internship- Pre-development Intern in Advanced Development

- Implemented a deep learning-based visual inspection system using YOLO, OpenCV, and PyTorch for custom object detection and segmentation, introducing AI accuracy parameters and reducing manual inspection time by 40%.
- Designed and deployed a real-time defect detection pipeline optimized for latency (<50 ms per frame), ensuring reliable performance across multiple industrial environments with varying lighting and surface conditions.
- Built a configuration management system with Git version control, enabling secure traceability, auditing, and rollback of critical model and parameter updates across 5+ industrial deployments.
- Collaborated with cross-functional teams (software, hardware, and QA) to validate prototypes in production-like settings, contributing to a scalable framework for future factory automation projects.

SANEON GmbH, Munich, Germany

July 2023 – Jan 2024

Werkstudent- Automotive Software Developer

- Implemented a safety monitoring system for the Cooperative Autonomous Driving with Safety Guarantees (KoSi) research project at the Technical University of Munich (TUM).
- Defined safety evaluation techniques for manoeuvre planning using Euro NCAP criticality metrics for safety-critical scenarios.
- Enhanced scenario-based testing by integrating a standards-compliant safety layer (ISO 26262, FuSa, SOTIF) into simulation, achieving a 94% success rate in safety evaluations across synthetically generated scenarios from CommonRoad motion planner.
- Developed a prediction module capable of forecasting Ego vehicle motion and moving obstacles' behaviour in the scenarios.
- Collaborated efficiently with project partners to define and deliver strategic and realistic software development milestones.

PMS ROBOTICS, Pune, India

Nov 2019 – Oct 2020

Robotics Intern- Research and Development

- Built a UV Disinfectant Robot integrating UV-C lamps with motorized navigation, achieving 99.9% sterilization coverage in under 15 minutes.
- Designed a wearable Social Distancing Device with ultrasonic sensors and microcontrollers, delivering real-time haptic/audio alerts below 1.5 m.
- Programmed control and sensor modules in Python & Arduino C, with collision avoidance and system monitoring.
- Collaborated with mechanical/electronics teams for hardware–software integration and ran field testing & calibration to improve reliability.

SKILLS

Domains: Mobile Robotics, 3D Perception, ADAS. Machine learning, Deep Learning, Computer Vision, Sensor Fusion, Data Science.

Programming Languages and Frameworks: Python, Bash scripting, Open3D, PCL, PyTorch, TensorFlow, Ultralytics, SQL

Deployment Tools: Git, ROS/ROS2, Docker, Kubernetes, Kafka, Prometheus, CI/CD.

Softwares and Data Visualization Tools: CARLA, ibaPDA, ibaVision, Power BI, Streamlit, Jira, MS Office.

Languages: English: Professional Proficiency (C1), German: Conversational Proficiency (A2)

Certifications: Machine Learning and Deep Learning Specializations (Coursera), ISTQB Certified Tester Foundation Level (GASQ)

PROJECTS

- **Multi-Sensor Fusion for Advanced Perception and Depth Estimation:** Built a radar–LiDAR–camera fusion system for 3D perception, achieving 98% object detection accuracy and 94% spatial depth estimation precision.
- **Real-Time Industrial ROS-Vision Pipeline:** Developed a calibration + 3D reconstruction pipeline in OpenCV/ROS, generating stereo depth maps and filtered point clouds for robotic perception.
- **Perception and Optimal Trajectory Planning of Formula Student Driverless Racing Car:** Developed a real-time perception and trajectory planning pipeline for an autonomous race car, improving navigation accuracy by 87% across a dynamic track.
- **Scalable MLOps Framework for Smart Manufacturing and Predictive Operations:** Designed a full-stack MLOps system for predictive maintenance, defect detection, and document automation in manufacturing, enabling real-time monitoring, drift detection, and scalable deployment across the model lifecycle.
- **Camera Calibration & Depth Estimation** – Implemented image undistortion, intrinsic/extrinsic calibration, and depth-from-camera algorithms in OpenCV to achieve accurate real-world distance estimation.
- **Augmented Reality (AR) Image Overlay** – Built an AR application using ArUco markers and OpenCV to project and align digital posters on walls with precise orientation via transformation matrices.
- **Radar-based Object Detection (TI Radar Sensor)** – Designed a 4-step radar point-cloud algorithm using point cloud library (PCL) with velocity thresholding and filtering, achieving **90% accuracy** in tracking moving objects for autonomous systems.
- **LiDAR Sensor Data Comparison (Velodyne vs. Blickfeld)** – Developed a bounding-box evaluation pipeline with rotation matrices and intersection algorithms to compare sensor accuracy, generating distance vs. point-cloud graphs using PCL..
- **End-To-End ADAS Sensor Health Monitoring Pipeline:** Developed a multi-phase real-time pipeline to monitor and forecast ADAS sensor degradation, using Kafka for streaming, LSTM for predictive health modelling, FastAPI for live diagnostics, and Docker + CI for scalable deployment.

HOBBIES AND INTERESTS

Reading Fiction Books, Strength Training, Gaming, Travelling across countries.