Soham Karpe, M. Eng.

AI Systems Engineer

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📍 Steinweg 17, 93413 Cham, Germany - Willing to relocate

📅 03.02.1998, Pune, India   🚩 India   🚗 Class B

🪪 PROFILE

Master's student in Artificial Intelligence with practical experience in machine learning, data modeling, and computer vision. Skilled in building Python-based data pipelines, training and evaluating models on large datasets, and deploying ML systems in real-time environments. Strong in experimentation, data-driven problem solving, and delivering scalable ML solutions with measurable impact. Motivated to contribute to high-growth, fast-paced teams through ownership, analytical thinking, and rapid execution.

🎓 EDUCATION

M.Eng. Artificial Intelligence for Smart Sensors and Actuators   Oct 2022 – present | Cham, Germany
Technische Hochschule Deggendorf (Deggendorf Institute of Technology- DIT)
Avg. Grade - 2.36
Expected Completion: March 2026
Artificial Intelligence, Model Based Function Engineering, Machine Learning and Deep Learning, Robotics and Autonomous Systems, Big Data, Computer Vision, System Design and Intercommunication, Embedded Systems.
Master Thesis: mech-tron GmbH & Co. KG, Roding
(In Process till March 2026) Design and Development of a Real-Time AI-Based Visual Inspection System

Bachelor of Engineering   Jul 2016 – Jun 2020 | Pune, India
Pune University, India
Average Grade: 2.3
Programming Fundamentals, Engineering Mathematics,Data Structures (Fundamentals),Control Systems, Mechatronics Systems, FEA, Applied Mechanics, Strength of Materials, Dynamics of Machinery

💼 PROFESSIONAL EXPERIENCE

AI Systems Engineer (Intern)   Jul 2024 – Present | Roding, Germany
mech-tron GmbH & Co. KG
- Developed deep learning and data processing pipelines in Python, improving model accuracy and real-time performance in production environments.
- Built end-to-end ML workflows including dataset engineering, model training, evaluation, and deployment.
- Collaborated with software and hardware teams to transform ML prototypes into reliable, scalable systems.
- Improved model performance through rapid experimentation, hyperparameter tuning, and data-driven iteration.

Junior Software Developer (Werkstudent)   Mar 2024 – Jun 2024 | Roding, Germany
mech-tron GmbH & Co. KG
- Developed anomaly detection pipelines using   PyTorch/TensorFlow, supporting rapid experimentation and deployment.
- Built a facial-recognition registration system by integrating   computer vision models with backend Python services.
- Improved ML workflow reliability through data validation,   automation, and edge-based model optimization.

Software Engineer   Jul 2020 – Jul 2022 | Pune, India
Evoka Technologies Pvt. Ltd.
- Contributed to software development and early product prototyping during the company's pre-incorporation phase.
- Worked as a Software Engineer post-incorporation on internal projects, contributing to development, testing, and module improvements.
- Gained hands-on experience in a startup environment, building product thinking skills and working with agile practices.

Internship & Bachelor Thesis   Sep 2019 – Jun 2020 | Pune, India
Profiroll Technologies India Pvt. Ltd.
Bachelor Thesis: Design & System Optimization of a Compact Hydraulic Straightening Machine.
System modeling and optimization, Sensor-based concepts, Data analysis for performance validation.

📁 PROJECTS

Liveness Detection using Computer Vision (Image Processing)   Apr 2024 – Jul 2024 | DIT, HiWi
- Developed and evaluated a YOLOv8-based computer vision model for human liveness detection, designing the custom dataset, training pipeline, and experimental setup. Achieved 89% accuracy through systematic model tuning, data augmentation, and performance benchmarking across varied real-world conditions.

Building Height Detection using Advanced Intelligence System   Mar 2023 – Jul 2023 | DIT, HiWi
- Developed MATLAB and Python machine learning models for building height estimation, designing feature extraction, visualization, and real-time processing workflows to enable accurate analysis for architectural and urban scenarios.

Pick-and-Place Scara Robot using Gazebo Simulation   Mar 2024 – Jul 2024 | DIT, Case Study
- Designed and simulated a pick-and-place SCARA robot in Gazebo using ROS, implementing kinematics, motion planning, and control algorithms to enable precise object manipulation for industrial automation scenarios.

🧠 KNOWLEDGE AND TECHNICAL SKILLS

Programming Languages and Tools
Python: NumPy, Pandas, OpenCV, Matplotlib, PyQt6 (data processing, visualization, computer vision pipelines, and GUI integration), NVIDIA GPU (CUDA)
Deep Learning & Computer Vision: PyTorch, TensorFlow, YOLO, torchvision (real-time object detection, defect/anomaly detection, and deployment)
Machine Learning: scikit-learn (model training, evaluation, feature engineering, and classical ML algorithms)
C, C++, JAVA

Data Tools
Data pipelines (Python, automation scripts)
GCP (BigQuery concepts), AWS basics
Docker, containerized ML workflows
Git / GitHub, CI/CD basics

Languages
English - B2
German- A2, B1 in Pursuing
Hindi & Marathi- Native

Embedded / Edge Deployment:
Raspberry Pi, ESP32
GPIO, MQTT, hardware-in-the-loop testing
Edge inference optimization

Productivity Tools & Visualization
Visual Studio Code, Git/GitHub, Linux, PowerShell, QEMU, Microsoft Word, Excel, PowerPoint, Matplotlib, Seaborn.

AI Skills
Machine Learning & Deep learning (YOLOv8, PyTorch, TensorFlow), computer vision, dataset creation and preprocessing, model optimization, real-time inference systems, pipeline development, experimentation and model evaluation, hyperparameter tuning, and benchmarking for production environments.

Soft Skills: Analytical thinking, problem solving, communication and teamwork, high ownership, and strong initiative.

📜 CERTIFICATION

IBM AI Engineering • **AWS Certified Machine Learning - Specialty** •

AWS AI Practitioner Certification Prep • **Applied Software Engineering Fundamentals** •

Goethe-Institut A2 and B1 (German Super Intensive Course) • **: Pursuing -** | **Machine Learning Specialization**

(Andrew Ng) | **Computer Vision with TensorFlow** | **Advanced Machine Learning on Google Cloud**

Specialization | **MathWorks Computer Vision Engineer Professional Certificate**

🎮 INTERESTS

Strong interest in developing machine learning and AI systems for data analysis, model evaluation, and performance optimization. Experienced in deep learning techniques for image and video understanding and intelligent decision-making. Passionate about building scalable ML pipelines and deploying data-driven solutions to real-world problems.

Cham, 22.12.2025