# Vedant Sanjay Chavan

MACHINE LEARNING ENGINEER

## Details

Lippstadt
Germany
vedantchavan097@gmail.com

NATIONALITY

Indian

DATE OF BIRTH

27.01.1997

## Links

Linkedin

ChatBot

## Languages

English

German

Hindi, Marathi

## Hobbies

Chess, Drawing

## Profile

Machine Learning Engineer with expertise in **AI**, **Deep Learning**, and **Computer Vision**, experienced in developing and deploying end-to-end machine learning models. Proven ability to drive impactful projects, including **NLP**, **image analysis**, **3D image segmentation**, and **autonomous systems**, with a focus on delivering scalable and robust AI solutions. Proficient in **Python**, **PyTorch**, **TensorFlow**, and **ONNX Runtime**, with hands-on experience in **cloud platforms** like **Google Cloud** and **Azure**.

## Area of Expertise

- **Programming & Tools:** Python, C++, MATLAB, PyTorch, TensorFlow, ONNX Runtime, FastAPI, Docker, Git
- **Machine Learning & AI:** Deep Learning, Computer Vision, 3D Image Segmentation, NLP, Reinforcement Learning, LLMs, RAG Techniques
- **Data Processing & Visualization:** Pandas, NumPy, OpenCV, Matplotlib, Seaborn
- **Cloud & Deployment:** Google Cloud Platform (GCP), Microsoft Azure, Hugging Face Spaces, MLOps, Model Deployment
- **Development Practices:** CI/CD, Code Reviews, Version Control, API Development, Agile Methodologies

## Employment History

### AI- Research Intern, HELLA GmbH & Co. KGaA

AUGUST 2023 — FEBRUARY 2024

- Developed robust **YOLOv8 models** for object detection, enhancing model robustness under varied conditions.
- Conducted **adversarial testing** and model perturbation experiments to improve system reliability.
- Enhanced **stereo-vision robustness benchmarks**, improving object localization accuracy by **30%**.
- Led **dataset fairness audits**, ensuring AI model generalization across diverse conditions.
- Integrated **ONNX Runtime** for efficient model deployment, supporting scalable AI applications.

### Master Thesis – Deep Stereo Vision for Nighttime Driving Scenes, HELLA GmbH & Co. KGaA, Lippstadt

APRIL 2024 — NOVEMBER 2024

- Designed a CNN-based depth estimation model using PyTorch, achieving 85% accuracy in low-light scenarios.
- Implemented synthetic data generation using Unreal Engine 5, enhancing training data diversity.
- Contributed to research and development, providing data-driven insights for improved model performance.

## Projects

### Conversational AI Chatbot with RAG & LLM Fine-Tuning, Lippstadt

FEBRUARY 2025

- Designed and deployed a **GPT-based conversational AI assistant**, integrating **FAISS vector search** for **RAG** optimization.
- Ensured **scalability and reliability** by deploying the chatbot using **Docker** and **Hugging Face Spaces**.

### Defect Detection in Prints Using U-Net, Rosenheim

JANUARY 2023 — MAY 2023

- Implemented a **U-Net-based model** for defect detection, achieving **95% precision** and reducing manual inspection time by **50%**.
- Built a robust AI pipeline processing **1000+ images per day**, enhancing data throughput by **25%**.

### Reinforcement Learning for RRR Robot

JANUARY 2024

- Developed a **reinforcement learning model** for optimized path planning of a **robotic arm**, improving task efficiency.
- Trained the model for **1000+ episodes**, achieving consistent end-effector accuracy in a **3D environment**.

## Education

### M.Eng. in Engineering Sciences, Technische Hochschule Rosenheim

OCTOBER 2021 — JANUARY 2024

### B.Tech. in Mechanical Engineering, Vellore Institute of Technology, Vellore

JULY 2015 — JANUARY 2019

## Certifications

### Diploma in Advanced Computing, Centre for Development of Advanced Computing (C-DAC), Pune

SEPTEMBER 2020 — APRIL 2021

### Machine Learning- Stanford University, Coursera