



# ShardulKulkarni

📍 Magdeburg/Germany

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🌐 [shardulkulkarni14.github.io/portfolio](https://shardulkulkarni14.github.io/portfolio)

## SUMMARY

AI and Data Science professional with a robust background in developing end-to-end solutions in computer vision, deep learning, and data privacy. Proven track record of optimizing machine learning workflows and enhancing operational efficiencies. Seeking to leverage my skills to contribute to innovative projects in the data science and AI sectors.

## EXPERIENCE

### Unify.ai

May 2024 - Present

#### OPEN SOURCE MACHINE LEARNING CONTRIBUTOR

- Contributing to the development and maintenance of open-source machine learning projects.
- Tools & Technologies: Python, TensorFlow, PyTorch, Git.

### mediMESH - Clinical Insights, Magdeburg, Germany

March 2023 - Present

#### ARTIFICIAL INTELLIGENCE ENGINEER

- Spearheaded AI innovations in clinical data privacy, developing a cutting-edge anonymization pipeline that reduced processing time from 3 days to less than 7 minutes (**99.84% improvement**).
- Implemented custom face detection modules and streamlined annotation, enhancing accuracy and compliance.
- Managed system administration and data workflows for seamless operation and integration.
- Tools & Technologies: Detectron2, YOLO, SAM, Docker, OpenCV, CVAT, Python, PyTorch.

### CemtrexLabs, Pune, India

July 2020 - August 2020

#### DATA SCIENCE INTERN

- Generated and cleaned the dataset from **open source images** required for the video analytics project.
- Improved dataset transfer time by **99 percentage** significantly by creating efficient Python APIs.
- Tools & Technologies: Python, Image Processing, Remo tool, COCO dataset, Open-Images.

### Knowledge Solution India, Pune, India

May 2020 - June 2020

#### DATA SCIENCE TRAINEE & INTERN

- Analyzed and visualized COVID-19 data to recognize patterns and predict potential cases using ML algorithms.
- Tools & Technologies: Python, R, Pandas, Numpy, Matplotlib, Seaborn, Scikit-Learn.

### Athens Information Technology, Greece

June 2019 - July 2019

#### UNDERGRADUATE FELLOWSHIP SUMMER PROJECT AND RESEARCH PROGRAM

- Implemented a Blockchain PoC for IoT-based transportation of sensitive goods.
- Tools & Technologies: Ethereum Blockchain, Solidity, Go, Javascript, HTML, CSS, MetaMask.

## EDUCATION

### Otto Von Guericke University, Magdeburg, Germany

April 2022 - Present

#### MASTER OF SCIENCES - DATA AND KNOWLEDGE ENGINEERING

- Grade: 1.9
- **Key subjects:** Machine Learning, Deep Learning, Data Mining, Cloud DevOps, Visual Analytics, Recommenders.

### Dr. D. Y. Patil Institute Of Engineering Management And Research, Pune, India

July 2017 - July 2021

#### BACHELOR OF ENGINEERING - COMPUTER ENGINEERING

- Grade: 1.4
- **Key subjects:** Data Structures, DBMS, Data Analytics, Machine Learning, AI.

## PROJECTS

### Multi-Perspective Video Analysis System - Master Thesis

February 2024 - Present

- Created custom YOLO object detection models and designed a report generation module for insights.
- Built a multi camera object tracking prototype for healthcare environment.
- Tools & Technologies: Object Tracking, Deep Learning, Machine Learning, Image Processing, Computer Vision, Python, PyTorch, TensorFlow, YOLO.

### Validating Attribution Techniques (Group Project)

May 2023 - September 2023

- Implemented and assessed **attribution methods** on various models, identifying vulnerabilities.
- Developed and integrated evaluation metrics such as **Pearson Correlation Coefficient**, **Earth Mover's Distance**, and **Normalized Scanpath Saliency**.
- Tools & Technologies: Deep Learning, Image Processing, Computer Vision, Python, PyTorch, TensorFlow, Captum.

### System for Waste Management: Smartzzy

October 2020 - June 2021

- Led a team to build a waste segregation system using Deep Learning, integrating with Raspberry Pi.
- Tools & Technologies: Machine Learning, IoT, Google Cloud, Flask, TensorFlow, Keras, Computer Vision.

### Farmers' Mart

August 2020

- Developed an **F2C (Farm Direct Marketing)** platform with a recommendation system and future price prediction for crops.
- Tools & Technologies: Data Science, Machine Learning, Deep Learning, Blockchain, Flask, IoT.

## SKILLS

<b>PROGRAMMING LANGUAGES</b>	<b>Experienced:</b> Python   C++ <b>Intermediate:</b> Java   Solidity   SQL   R   Shell Scripting   Go   HTML/CSS   JavaScript
<b>DATA SCIENCE</b>	Machine Learning   Deep Learning   Computer Vision   NLP   Recommender Systems
<b>SOFTWARE DEVELOPMENT</b>	GIT   Agile Methodology   DevOps Lifecycles   Docker   Airflow
<b>FRAMEWORKS &amp; LIBRARIES</b>	Flask   Streamlit   TensorFlow   Keras   PyTorch   Scikit-learn   OpenCV   Captum   MLflow   Matplotlib   Plotly   Numpy   Pandas   Tensorboard   JupyterHub
<b>DATABASES</b>	Oracle   MySQL   MongoDB
<b>OPERATING SYSTEMS</b>	Windows   Linux   macOS   Raspbian
<b>MICROSOFT</b>	Excel   Outlook   PowerShell
<b>LANGUAGES</b>	<b>Native:</b> Hindi   Marathi   Telugu <b>Fluent:</b> English <b>Intermediate:</b> German

## CERTIFICATIONS

- **Microsoft:** Microsoft Technical Associate for Introduction to Programming Using Python.
- **Coursera:** Programming for Everybody (Getting Started with Python) by the University of Michigan.
- **Coursera:** Python Data Structures by the University of Michigan.
- **Coursera:** Using Python to Access Web Data by the University of Michigan.

## PATENTS

- **Smartzzy**, Application number: 202121011507, Region: India, Status: Published (Sep'22).
- **Name: Smart Parkade**, Application number: 202121011511, Region: India, Status: Published (Sep'22).

## ACHIEVEMENTS & CO-CURRICULAR ACTIVITIES

- Runner up in **Smart India Hackathon** conducted in DYPIEMR (Feb'20).
- **Smart India Hackathon** - 2020 finalists - Top 5 projects from India (Aug'20).
- Runner up of **Mini Project Exhibition** conducted in DYPIEMR in association with ACM (Oct'19).
- Finalist in the Hackathon "**Solve for Safer India**" organized by Indian Road Safety Campaign, Ministry of Road Transport & Highway, United Nations of Training & Research, IIT Guwahati, & Robert Bosch Engineering (Apr'19).