Adarsh Raj
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Furtwangen, Germany

Summary

Machine Learning student with experience in deep learning, NLP, multimodal learning, PyTorch GPU training, data preprocessing, and experiment coordination. Strong interest in testing new model architectures, training LLMs, and applied ML research aligned with Fraunhofer HHI AML group.

Skills

Programming: Python, SQL, Bash, C++
AI & Machine Learning: LLMs, NLP, RAG, LangChain, HuggingFace, PyTorch, Neural Networks, Time-Series Analysis, Anomaly Detection, CNNs, YOLO, Scikit-learn
NLP & Text Processing: Automated Annotation, Text Pipelines, Document Parsing, Embeddings, Classification, Topic Modelling
MLOps: MLFlow, ZenML, Experiment Tracking, Version Control, Model Training Pipelines, Docker
Data Engineering: ETL, Pandas, NumPy, Data Preprocessing, Quality Assurance Data Pipelines
Tools & Systems: Linux, Git, Jupyter, VS Code, Google Colab, Cloud Services (AWS/GCP)
Core Competencies: Research Workflows, Experiment Documentation, Technical Presentations, Data Interpretation, Team Collaboration

Projects

Automated Text Processing Pipeline for Document QA — 2025
NLP, LLMs, Text Annotation — Personal Project

- Built an end-to-end **automated text annotation pipeline** using LLMs and Python for structured dataset generation.
- Implemented NLP workflows including **keyword extraction, entity tagging, and report summarization**.
- Developed utilities for parsing maintenance-style logs and generating labeled datasets.

Furtwangen University Chatbot — 2025
Generative AI, NLP, RAG, LLMs — Personal Project

- Designed a chatbot for university documentation using **RAG, LangChain, LLMs, and embedding models**.
- Created a retrieval pipeline with **Chroma/Pinecone** and HuggingFace embeddings.
- Performed evaluation, documentation, and presentations for different user groups.

Vehicle Speed Detection using YOLO — 2025
Computer Vision, Deep Learning — Semester Project

- Trained YOLO models for vehicle detection and extracted time-series speed estimations.
- Created reproducible experiment logs and visual reports summarizing performance.

ADHD Detection from fMRI — 2021
Deep Learning, CNN, Research — ISI Kolkata

- Developed CNN architectures (ResNet, Inception) for fMRI-based classification.
- Performed experiment documentation, report writing, and contributed to publication materials.

Experience

Student Assistant — 06/2025 – Present
Hochschule Furtwangen — Furtwangen, Germany

- Developed an academic course module on **Artificial Intelligence applications in Smart Manufacturing** for students and industry professionals.
- Researched and curated content on **predictive maintenance, intelligent quality control, and digital twins** using AI.
- Designed learning materials and practical exercises demonstrating AI-driven industrial automation use cases.
- Collaborated with faculty to align coursework with **Industry 4.0 trends** and emerging AI technologies.

Software Developer 09/2022 – 03/2025
Cognizant Bangalore, India

- Implemented analytics workflows using Python and cloud platforms with emphasis on quality and efficiency.
- Developed monitoring scripts and automation utilities supporting operational reliability.

React Native Developer (Freelance) 11/2024 – 02/2025
Humantics Remote

- Built AI-enabled mobile features including text processing, cloud integration, and workflow automation.

Education

MSc, AI and Data Science for Digital Business 03/2025 – Ongoing
Hochschule Furtwangen Germany

B.Tech in Computer Science 06/2018 – 06/2022
Heritage Institute of Technology Kolkata, India

Languages

English (C1), German (A2)