

Zeeshan Modi

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PROFILE

M.Sc. AIIS student at University of Bremen with hands-on experience in Python, ML prototyping (PyTorch), robotic systems, and signal/sensor data analysis. Proven ability to build and deploy AI pipelines end-to-end, contribute to open-source projects (MONAI, DFKI), and deliver results under competitive conditions (UBRA Hackathon 1st place, BBDC 2026). Eager to apply AI in a high-tech engineering context exploring practical use cases in automation, anomaly detection, and operator assistance within satellite production environments.

EDUCATION

University of Bremen <i>M.Sc. Artificial Intelligence and Intelligent Systems (AIIS)</i> – Coursework: Advanced Machine Learning, AI Algorithms: Theory & Engineering, Advanced Methods of AI, ROS, LLMs	Bremen, Germany <i>Oct 2025 – Present</i>
Chandigarh University <i>B.E. (Hons.) Computer Science – AI & ML, in association with IBM</i> <i>First Division with Distinction Exchange Semester: Bilkent University, Ankara, Turkey (Jan – Jun 2023)</i>	Punjab, India <i>Aug 2021 – May 2025</i>

EXPERIENCE

HereAhead, University of Bremen <i>Python Tutor (Student Assistant / HiWi)</i> – Led weekly Python sessions on data structures and algorithms for M.Sc. students; designed exercises bridging ML theory with practical coding. – Produced written session documentation and maintained a structured knowledge base for course continuity.	Bremen, Germany <i>Apr 2026 – Jun 2026</i>
Techlive Solutions <i>Machine Learning & AI Intern</i> – Fine-tuned DL models (PyTorch, TensorFlow, Keras); built a BERT-based recommendation system and NER pipeline via REST APIs. – Documented internal ML processes and maintained a knowledge base for team onboarding and reproducibility.	Mohali, India <i>Jan 2025 – Apr 2025</i>

HONOURS, AWARDS & PUBLICATIONS

1st Place – AI in Health Hackathon, UBRA / University of Bremen, Nov 2025
2nd Place – BRIDGE “Start it up! Gesundheit” Startup Prize 2025
14th Place – Bremen Big Data Challenge (BBDC) 2026, Student Track — **Ex-Challenger Winner** – CU Innovation Challenge 2023
Paper accepted: *Cybersecurity Threat Detection using ML*, AISP 2024 — Paper accepted: *Career Pathway Recommender*, ICAAICS 2024
Certificate of Excellence in Reviewing – Asian Journal of Research in Computer Science; Journal of Engineering Research and Reports (AY 2025–2026)

SELECTED PROJECTS

Pneumothorax Detection <i>PyTorch, OpenCV, DICOM, scikit-learn</i> – 1st Place – UBRA AI in Health Hackathon 2025 : chest X-ray classifier with shortcut-learning mitigation via class-weighted sampling and bias analysis. [github]	<i>Nov 2025</i>
Autonomous Navigate-to-Grasp Robot <i>Python, PyBullet, Prolog, Docker, PID, RANSAC</i> – Master IIS final project (Uni Bremen): full cognitive-motor stack for a robotic agent navigating a randomised 10m room, avoiding obstacles, and grasping target objects autonomously. – Implemented Sense-Think-Act loop with PID control, RANSAC plane detection, PCA point-cloud processing, Particle Filter state estimation, and an online learning module for parameter tuning. Dockerised for BinderHub deployment. [github]	<i>Win 2025/26</i>
EEG Motor Imagery BCI Classification <i>PyTorch, Python, pandas, signal-processing</i>	<i>Dec 2025</i>

- Uni Bremen coursework: classified motor imagery EEG time-series signals using CSP+SVM, EEGNet, and EEG-TCNet; built structured data loading pipelines and cross-model accuracy analysis. [github]

Self-Supervised Learning on CIFAR-10 | *PyTorch, ViT, MAE, SimCLR, MoCo v3* Mar 2026

- MoCo v3 achieved **76.3% accuracy at 25% label ratio**; OOD robustness analysis across three SSL frameworks for downstream perception tasks.

Python Automation Toolkit | *Python, CLI, Task Scheduler, System Monitor* Mar 2026

- Modular automation suite: system resource monitor, file organiser, and task scheduler; composable CLI toolkit designed for integration into larger automated pipelines. [github]

Smart Patient System | *Python, FastAPI, HuggingFace, NLP* Nov 2025

- **2nd Place – BRIDGE “Start it up! Gesundheit” Prize**: multilingual bedside hospital info system with NLP-powered Q&A for patients and medical staff.

Production RAG System | *LangChain, Ollama, ChromaDB, FastAPI, BM25* Sep 2023 – Dec 2024

- Built hybrid retrieval pipeline (BM25 + dense embeddings + RRF re-ranking), streaming inference, and REST API session management. [github]

Medical Image Super-Resolution | *PyTorch, WGAN-GP, Self-Attention, NumPy* 2024

- PSNR/SSIM-optimised GAN architecture with self-attention; outperformed perceptual quality baselines on medical imaging benchmarks.

OPEN-SOURCE CONTRIBUTIONS

Project-MONAI/MONAI PR #8818 (merged): fix `register_buffer` for kernel in `LocalNormalizedCrossCorrelationLoss`

dfki-ric/deformable_gym PR #73 (merged): update MJCF files to support MuJoCo $\geq 3.2.4$

roboflow/supervision PR #2205, #2204: CSV area column fix + audio preservation in video export

TECHNICAL SKILLS

ML/DL Frameworks: PyTorch, TensorFlow, Keras, HuggingFace Transformers

ML Methods & Libraries: scikit-learn, pandas, NumPy, OpenCV, GANs, WGAN-GP, ViT, BERT, EEGNet

NLP / LLM: RAG, ChromaDB, BM25, NER, LangChain, Ollama, GPT/Anthropic/Vertex APIs, streaming inference

Robotics & Simulation: ROS (coursework), PyBullet, URDF/MJCF, PID control, Particle Filter, RANSAC

MLOps & Infrastructure: Docker, FastAPI, MLflow, GitHub Actions, CUDA, Linux, Bash

Languages & Tools: Python, C++, SQL, JavaScript, Git, Jupyter, Streamlit

Human Languages: English (C1) | German (B1) | Hindi/Urdu (Native) | Turkish (A2) | Punjabi (A2)