

PRAVEEN KUMAR GOPINATH MANJULA

AI/ML ENGINEER | M.Sc. ARTIFICIAL INTELLIGENCE

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EXECUTIVE SUMMARY

M.Sc. Artificial Intelligence student at Brandenburg University of Technology Cottbus–Senftenberg (BTU) with a strong foundation in machine learning, computer vision and data analysis. Experienced in developing and deploying AI solutions through academic projects and an international internship. Proficient in Python and modern AI/ML frameworks, with a strong interest in applying machine learning and generative AI to real-world problems. Seeking a 6-month mandatory internship from October 2026 to contribute to innovative AI/ML projects and gain hands-on industry experience.

TECHNICAL SKILLS

Programming Languages

Python, SQL

Machine Learning

scikit-learn, Regression, Classification, Clustering, Model Evaluation, Feature Engineering

Deep Learning

YOLO, OpenCV, Neural Networks, Computer Vision

Data Analysis & Visualization

Pandas, NumPy, Matplotlib, Seaborn, Power BI, Jupyter Notebook

Tools & Technologies

Git, GitHub, Linux, VS Code, AWS (foundational), Arduino, ESP32, Postman

EDUCATION

M.Sc. Artificial Intelligence

Oct 2025 – Present

Brandenburg University of Technology Cottbus–Senftenberg (BTU), Cottbus, Germany

- Currently in the 2nd semester; relevant coursework: Machine Learning, Neural Networks, Intelligent Systems, Data Mining, Computer Vision

B.Tech. Artificial Intelligence

Aug 2021 – May 2025

SRM Institute of Science and Technology, Chennai, India

- CGPA: 8.55 / 10.0

PROJECTS

Sensor Anomaly Detection API

Oct 2026 – Present

Python, FastAPI, scikit-learn, Pandas, NumPy, Joblib, REST API

- Built a FastAPI service using an Isolation Forest model trained on NASA C-MAPSS FD001 sensor data.
- Saved the trained model and feature metadata; implemented health-check and prediction endpoints, input validation, and API endpoint tests.

Real-Time Sensor Anomaly Detection and Monitoring System Using Isolation Forest

Sep 2026 – Oct 2026

Python, Scikit-learn, Pandas, Matplotlib, Jupyter

- Developed an unsupervised anomaly-detection system using 20,631 sensor observations from 100 engines in NASA C-MAPSS FD001.
- Reduced 21 sensor measurements to 15 variable features and detected 1,032 anomalies (5.0%) using Isolation Forest.
- Conducted 4 model-sensitivity experiments across contamination and estimator settings; anomaly counts remained 1,032 for 50–300 trees.
- Investigated Engine 5 with 269 cycles and 25 detected anomalies (9.29%) and simulated sequential real-time monitoring.

Smart Sensor Network for Environmental Monitoring

Apr 2026 – Sep 2026

ESP32, Sensors, Python, IoT, AWS

- Developed an IoT-based sensor network for real-time environmental data collection.
- Integrated temperature, humidity and air-quality sensors with cloud-based monitoring.
- Built data visualization and monitoring functionality while evaluating sensor reliability.

S.H.A.D.Y. – Smart Human Activity Detection Using YOLO

Jan 2025 – Apr 2025

Python, YOLO, OpenCV, Flask, Computer Vision

- Developed a real-time CCTV monitoring system integrating 4 detection modules: object, fall, social-distancing and vehicle-crash detection.
- Implemented YOLO-based frame processing with 4 video input modes: webcam, local video, YouTube and mobile camera.
- Designed event validation using a 20-consecutive-frame threshold before triggering email alerts with captured evidence images.
- Deployed the detection workflow through a Flask web application with dedicated interfaces for all 4 detection modules.

Regression Model for Predictive Analysis

Jan 2024 – Mar 2024

Python, Scikit-learn, Pandas, Matplotlib

- Developed and compared multiple regression models for predictive analysis.
- Applied feature engineering and hyperparameter tuning to improve model performance.
- Evaluated models using R^2 , MAE and RMSE metrics.

INTERNSHIP EXPERIENCE

Data & Operations Intern

Dec 2023

SHOEfabrik, Ho Chi Minh City, Vietnam

- Analysed operational datasets to identify process inefficiencies and support data-driven decisions.
- Prepared data reports and supported digital workflow optimisation.
- Collaborated with cross-functional teams in an international environment.

CERTIFICATIONS

- Data Analysis Using Python – IBM Developer Skills Network (Jun 2022)
- Programming in Python – Meta (Coursera) (Dec 2023)
- AWS Academy Cloud Foundations – AWS Academy (Jan 2023)
- AWS Academy Data Analytics – AWS Academy (Jan 2023)

LANGUAGES

- English** – Professional Working Proficiency
- German** – A2 (currently learning B1)