Ananya Shekar

Magdeburg, Deutschland

ananyashekar4210@gmail.com | +49 1556078 2674

LinkedIn | GitHub

Summary

Master's student in Electrical Engineering and Information Technology focused on non-invasive sensing and LLM-driven automation. Eager to contribute to impactful R & D projects by applying a rigorous, analytical approach to system design and validation.

Work Experience

Intern — ifak – Institut für Automation und Kommunikation e. V. Oct 2025 – Present

- Conducting a comparative literature review to identify cost-effective, non-invasive fill-level measurement techniques.
- Developing FEM simulations in COMSOL Multiphysics to model piezoelectric transducers and acoustic tank resonances (Helmholtz/Organ Pipe).
- Generating displacement-vs-frequency response graphs to characterize system vibration behavior.
- Identifying the optimal frequency bandwidth for reliable fill-level detection based on simulation data.

Data Analyst Intern — Renewable Insights Dec 2023 – Apr 2024

- Performed real-time solar data analysis using SQL and KNIME for anomaly detection.
- Developed energy-generation forecasts using Python and machine learning models (e.g.,Random Forest).
- Automated data-cleaning workflows to improve reliability and processing speed.
- Built Power BI dashboards to visualize KPIs and system performance.

Projects

LLMs in Automation Sep 2025 - Present

Project at Otto von Guericke University, Magdeburg

- Evaluating reasoning models (like DeepSeek-R1) to select the most reliable architecture for automation tasks.
- Fine-tuning LLMs to accurately translate natural language commands into executable control code.
- Testing the generated outputs to ensure strict safety and compliance with industrial standards.

Hybrid Force-Driven Vertical Axis Wind Turbine 2023 – 2024

- Constructed of a wind turbine (VAWT) with new technology for higher efficiency.
- Modelled aerodynamics and comparison with conventional turbines.
- Built a prototype and tested its performance.

SHUI: Smart Hoverboard Using IoT 2023

- Built a hoverboard using IoT sensors and embedded control.
- Programmed real-time data collection for speed and motion.
- Developed features such as collision protection and self-balancing.

Skills

Programming & Scripting:	Python, C, SQL, MATLAB
Python Tools:	Matplotlib, Pandas, Numpy
Data Analytics & Visualization:	Power BI, Excel (Advanced), KNIME Analytics
LLMs & NLP:	Large Language Models (LLMs), NLP Techniques
Machine Learning:	Linear Regression, Random Forest, ARIMA (Time Series)
Simulation & Modelling:	COMSOL Multiphysics, Simulink
Embedding & Automation:	Arduino, IoT Solution Development
Version Control:	GitHub

Education

M.Sc. in Electrical Engineering and Information Technology Oct 2024 – Present
Otto von Guericke University Magdeburg, Germany

B.E. in Electrical and Electronics Engineering Dec 2020 – May 2024
Visvesvaraya Technological University, Bengaluru, India

Certifications

– SQL for Excel Users (2025)
– Microsoft Excel – Beginner to Advanced (2025)
– McKinsey Forward Program (2025)
– Robotic Process Automation (RPA) (2022)

Languages

English: Professional Level (C1)
German: Intermediate (B1)