



## ADNAN ALTUKLEH

### AI & Machine Learning ENGINEERING

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#### SUMMARY

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I'm an AI & Machine Learning Engineer with a Master's degree in AI, passionate about driving innovation through data-driven solutions. I've developed systems that optimize waste collection, automate software workflows with large language models, and predict maintenance needs using advanced predictive analytics. With hands-on experience in deep learning, natural language processing, and computer vision, I excel at transforming complex data into actionable insights. Proficient in Python, TensorFlow, and other leading ML frameworks, I'm dedicated to delivering solutions that enhance operational efficiency and support strategic business growth.

#### EXPERIENCE

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##### Decerno AB

AI & Machine Learning Engineer

GÖTEBORG, Sweden

JANUARY 2025 - MAJ 2025

- Thesis Work with Decerno. Developed an AI-driven waste collection optimization system, leveraging predictive analytics and intelligent route planning to enhance operational efficiency, reduce costs, and promote sustainability.
- Skills: Data preprocessing, genetic algorithms (GA) and NSGA-II, synthetic data generation, transformer models, LSTM networks, data analysis and visualization, and deployment of optimizer interfaces with Streamlit, Time series models, Github.

##### Ericsson AB

AI & Machine Learning Intern

Karlskrona, Sweden

JUNE 2024 - January 2025

- Integrated large language models (LLMs) to automate commit messages and bug report generation in Git workflows, streamlining development processes with AI.
- Skills: Prompt Engineering for LLMs, Agile methodologies, Jira, Jenkins (CI/CD and test workflows), Gerrit, Docker, HTML, Python, Linux, Flask API development, LLM deployment with Ollama, project planning, software testing automation, Object-Oriented Programming.

#### EDUCATION

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##### Blekinge Institute of Technology

Master of Science in AI and Machine Learning

Karlskrona, Sweden

2020-2025

#### KEY UNIVERSITY PROJECTS

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- **RAG-based Document QA System**      2025  
Built a Streamlit-based Retrieval-Augmented Generation (RAG) app using LangChain for interactive Q&A over user-uploaded documents. Integrated customizable chunking, embedding models, vector stores (Chroma/FAISS), and retrievers.
- **Anomaly Detection in Sensor Data**      2024  
Developed LSTM Autoencoder models to detect anomalies in sensor data.
- **Image Classification Models**      2024

Implemented deep learning models (VGG19, ResNet-50, DenseNet-121) for image classification tasks.

- **Persona Chatbot Development** 2024  
Designed an NLP-based chatbot for context-aware conversations.
- **Predictive Maintenance for Scania** 2024  
Developed Random Forest and LSTM models to predict vehicle failures.
- **AI Security** 2024  
Investigated defenses against DeepFool attacks on CNN models.
- **Testing Automation** 2023  
Automated testing and code reviews using GitHub Actions and Codacy.
- **File System Development** 2023  
Built a simple file system to explore data storage concepts.
- **Automated Parking Monitoring** 2023  
Implemented OCR for license plate recognition using TensorFlow.
- **Webshop Development** 2022  
Designed and implemented a database-backed webshop.
- **AI Product for Archers** 2022  
Developed an AI-based sensor product using agile methods.
- **COVID-19 Data Visualization** 2022  
Analyzed European pandemic data with statistical techniques and interactive visualizations.
- **Cloud Technology** 2022  
Built a cloud-based application with Azure AI/ML services and Docker.

## TECHNICAL SKILLS

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1. **Programming & Data:** Python, C/C++, MySQL, Data Visualization, Data Processing, Assembly, ARM, Matlab.
2. **Machine Learning & AI:** LSTM, CNNs, Anomaly Detection, Predictive Maintenance, AI Security, ML Frameworks, Intelligent Data Analysis, STT ( whisper, Wav2vec )
3. **Tools & Frameworks:** LangChain, Chroma, Streamlit, HuggingFace Embeddings
4. **Software & Cloud:** Software Testing (Automation, GitHub Actions, Codacy), System Design, Software Architecture, Git, Azure, Docker, Flask Apps
5. **Project Management & Domain Expertise:** Agile (Scrum, Sprints), Team Collaboration, Signal Processing, Robotics (isaac sync), AI System Security, Operating Systems
6. **Languages:** Arabic (Native), Swedish (Fluent), English (Fluent), French (Intermediate)

## REFERENCES

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Available upon request.