Ömer Aytug

MLOps Engineer

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Profile

MLOps Engineering student with a strong interest in building, deploying, and maintaining production-ready machine learning systems. Experienced in developing ML pipelines using Python, managing workflows with Git, SQL, and Docker, and deploying solutions on AWS cloud infrastructure using CI/CD practices. Completed a machine learning internship focused on hierarchical time series forecasting and forecast reconciliation, and have built RAG and LLMOps applications. Enjoys hands-on work on scalable and automated ML systems. Previously worked as a cybersecurity analyst, contributing a security-aware and reliability-focused approach to ML system design.

Education

MLOps Engineering
Nackademin *2025-2027*
Relevant Courses: Machine Learning Models and Algorithms, Machine Learning Frameworks, MLOps and Cloud Platforms, Python Programming for MLOps, Continuous Integration and Delivery (CI/CD), System Architecture and Technology Stacks for MLOps, Database Management, Linux Administration, Monitoring and Troubleshooting of ML Models.

BS, Philosophy, Economics & Politics
Stockholm University *2020-2023 (Only Courses Completed)*

Course Projects / Labs

School Projects

- **MLOps & Cloud API Development:** Designed and deployed a production-like FastAPI application on AWS EC2 using Docker and PostgreSQL, with automated server setup via Bash, CI/CD concepts, monitoring, backups, and NGINX-based API exposure.
- **ETL and Data Visualization with Python:** Harmonized and transformed multi-year, non-uniform public datasets using Python and pandas, implemented data enrichment and cleaning workflows, and built an interactive Streamlit dashboard with visualizations to explore and analyze the processed data.
- **ML Model Serving and API Integration Project:** Developed an end-to-end machine learning application covering data preprocessing, model training and evaluation, and serving predictions through a FastAPI-based backend integrated with a frontend interface.
- **Wired-AI**: Built an AI onboarding copilot using retrieval-augmented generation (RAG) with escalation levels and MLflow-based LLMOps for experiment tracking and evaluation. Implemented with FastAPI, Streamlit, and LanceDB.
- **FRED**: Developed an IoT room-pet that turns environmental and system data into moods, expressions, and feedback. A Raspberry Pi Pico (MicroPython) streams sensor data over MQTT to a Python backend with deterministic state logic, TimescaleDB, and Grafana dashboards; optional LLM-driven personality responses are traced with MLflow. Deployed with Docker Compose on Azure, with GitHub Actions CI/CD.

Personal Projects

- **Ticket Verifier**: Designed, built, and sold a licensed desktop application (PySide6) to a company in Turkey that automates airline ticket processing: PDF/OCR parsing, vendor-agnostic LLM field extraction (Bedrock, Anthropic, OpenAI, Gemini), exchange-rate-based billing, and automated airline booking verification with Playwright. Shipped with offline signed licensing and signed auto-updates, with update delivery and patching infrastructure on AWS and CI/CD via GitHub Actions.
- **MedicineAI**: Built a clinical decision-support research prototype using LangChain and OpenAI, with human-in-the-loop doctor review and optional ICD-11 enrichment.
- **Pipillon**: Built an offline edge AI voice assistant where a Raspberry Pi Pico 2 W (MicroPython firmware) streams audio over Wi-Fi to a FastAPI backend on a Raspberry Pi 5. The backend runs a fully local pipeline (whisper.cpp speech-to-text, quantized Qwen 2B via llama.cpp, Piper text-to-speech) with per-device conversation memory, and request and latency monitoring with MLflow.
- **SmartDoorVision**: Designed and built a low-cost, always-on home surveillance system using a Raspberry Pi, integrating machine learning–based face recognition to identify known individuals and detect unknown visitors. Implemented real-time alerting with automated snapshot capture, deployed as a 24/7 Linux service, and maintained through CI/CD automation using GitHub Actions.

Certifications

- **CompTIA Security+** (2023)
- **IBM Cybersecurity Analyst Professional Certificate** (2023)
- **AWS Solutions Architect** (Scheduled)
- **AWS Cloud Practitioner** (Scheduled)
- **AWS AI Practitioner** (Scheduled)

Skills

- **MLOps & AI:** ML model deployment, CI/CD pipelines, Python, ML frameworks, MLflow, LLMOps, RAG (LangChain, LanceDB), AWS cloud services, Linux administration, automation
- **Forecasting:** Hierarchical and grouped forecasting, forecast reconciliation, time series modeling (ARIMA, Prophet, NeuralProphet, LightGBM), feature engineering
- **Security & Networking:** SIEM/EDR tools (Splunk, CrowdStrike, SentinelOne), network analysis (Wireshark, Zeek), vulnerability assessment (Nmap, Nessus), threat intelligence (MITRE ATT&CK), TCP/IP, NIST/SANS Frameworks
- **Operating Systems:** Windows, Linux, macOS
- **Soft Skills:** Problem-solving and analytical thinking, Team collaboration and communication skills, Adaptability and eagerness to learn, Ability to understand complex information flows

Languages

- **English** [Proficient]
- **Swedish** [Bilingual] (Citizen)
- **Turkish** [Native]

Professional Experience

Machine Learning Engineer Intern **Stockholm, Sweden**
Instabee *05/2026 - 08/2026*
- Led research on hierarchical forecasting and forecast reconciliation to produce coherent predictions across aggregation levels, evaluating statistical and ML-based models (ARIMA-family, Prophet, NeuralProphet, LightGBM) as base forecasters. The approach outperformed the existing production forecasts and was adopted by the team for productionization.

Assistant Manager **Stockholm, Sweden**
Geserse AB *09/2024 - present*
- Managing daily operations including inventory, customer service, and sales; developing new products and services to increase revenue; creating reports and analyzing data.

SOC Level 1 Analyst **Stockholm, Sweden**
Truesec *05/2023 - 08/2024*
- Monitored and analyzed security alerts using SIEM, IDS/IPS, and network traffic analysis tools; investigated and reported on security incidents with actionable recommendations; collaborated with SOC team to improve customer security posture.

Cybersecurity Analyst & Intern **Fairfax, VA**
Solvent CyberSecurity *02/2022 - 05/2023*
- Worked with team members to support secure system operations and gained hands-on experience with enterprise security workflows; assisted in handling security alerts and incidents.

Assistant Manager **Stockholm, Sweden**
Geserse AB *2020 - 2022*