Oyku Sahin

Machine Learning Engineer

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Experience

Central Bank of Turkey — Ankara, TR

Machine Learning Engineer — 07/2025 – Present

- GDP Nowcasting (Macroeconomics): Developed ML models for real-time GDP nowcasting using high-frequency economic indicators.
- Swift PayGuard (Payment Analytics): Contributed to analytics and monitoring solutions for secure and efficient payment systems.
- Qdrant Retrieval Optimization: Optimized vector-based data retrieval pipelines to improve search latency and efficiency.

Orion Innovation — Remote

Machine Learning Engineer — 09/2023 – 06/2025

- AI Teaching Tools: Developed LLM-powered tools for generating summaries, questions, and paraphrased content for course materials.
- Regulation-Aware Chatbot: Built a RAG-based chatbot providing regulation-compliant answers for electric distribution domains.
- Academiy-to-Industry Transfer: Supported adoption of academic AI innovations into production systems.

Chooch AI — Remote

Machine Learning Engineer — 03/2022 – 06/2023

- Person & Vehicle ReID (Video Analytics): Implemented person and vehicle re-identification on RTSP-based security camera streams.
- Camera Topology Modeling: Designed camera topology graphs and solved cross-camera person ReID within the topology.
- Inference Engine Development: Built and optimized a custom inference engine for deploying different ML models in production.
- DALI Preprocessing Optimization: Migrated object detection preprocessing pipelines to NVIDIA DALI.

Bilkent University — Ankara, TR

Machine Learning Research Assistant — 01/2020 – 02/2022

- Computer Vision & NLP Research: Conducted research on LSTM- and transformer-based methods bridging NLP and computer vision, with findings published.
- UAV Computer Vision: Applied object detection, tracking, remote sensing, and instance segmentation to UAV imagery using PyTorch, TensorFlow, and MATLAB.
- Small-Object Detection (YOLOv3): Improved detection accuracy by 10% on drone datasets; won **Best Student Paper Award**.
- Medical Image Analysis: Published research on 3D MRI/CT brain tumor segmentation and COVID-19 detection.
- Data & Research Infrastructure: Managed CVAT-based annotation pipelines, maintained GitHub repositories, and trained models on GPU-based Ubuntu servers.
- Defense CV Competitions: Participated in defense-oriented computer vision competitions organized by Turkey's Defense Industry Agency.
- Research Team Enablement: Created onboarding tutorials and coding exercises for new lab members.

Special Tribunal for Lebanon (United Nations) — The Hague, NL

Information Services Section Intern — 07/2019 – 11/2019

- Supported information systems and data services within an international judicial organization.

Education

Bilkent University — M.Sc. in Computer Science — Ankara, TR — 2020 – 2023

Thesis: Improving the Performance of Yolo-Based Detection Algorithms for Small Object Detection in Uav-Taken Images

Bilkent University — B.Sc. in Computer Science — Ankara, TR — 2016 – 2020

Skills

Programming & Version Control: Python, Java, SQL, Git
Machine Learning & Statistical Modeling: PyTorch, TensorFlow, scikit-learn, NumPy, pandas, OpenCV; classical ML, deep learning, time-series modeling
Generative AI & LLM Systems: Retrieval-Augmented Generation (LangChain, embedding-based pipelines); vector databases (Qdrant, FAISS); LoRA fine-tuning; prompt engineering and evaluation
MLOps & ML Systems: Docker, MLflow, Prefect, Kubeflow pipelines; model serving with Triton Inference Server
Cloud & Infrastructure: AWS (S3, EC2, SageMaker, Bedrock); scalable deployment and inference pipelines
Backend / Frontend & Interfaces: FastAPI, SQLite, PostgreSQL, Alembic, React, Next.js, Gradio 5, Streamlit