# Education

## **TOBB Economy and Technology University**

Ankara, Turkey

September 2020 - Present

Undergraduate in Artificial Intelligence Engineering

- 4th-Year Artificial Intelligence Engineering Student
- President TOBB ETÜ AI Club, Board Member TOBB ETÜ Computer Society
- Courses: Computer Programming I-II, Data Structures, Data Science, Probability and Statistics I-II, Artificial Intelligence, Machine Learning, Data Mining, Deep Learning, Image Processing, Biometric Recognition, Natural Language Processing.

# Work Experience

**SportationAI** Remote

AI Engineer - Part Time

Ian 2025 - Present

- Developed computer vision models to detect and track players, referees, and the ball in full-match football videos.
- Built multi-object tracking and homography-based calibration pipelines to generate consistent trajectory data mapped to pitch coordinates.
- Structured and optimized vision outputs into RL-ready datasets for Gymnasium environments.
- Trained reinforcement learning agents to simulate realistic match dynamics and support sports analytics applications.
- Technical Skills: Python, OpenCV, Gymnasium, PyTorch, YOLO, ByteTrack, Kalman Filters, Homography Calibration.

**Jotform** Ankara, Turkey

AI Engineer - Long Term Intern

Jan 2025 - Apr 2025

- Built and compared vector-based RAG and structured Graph-RAG/KAG systems by implementing both architectures and analyzing their retrieval performance for AI agents.
- Developed a semantic-chunking strategy that increased vector-database accuracy on lengthy knowledge-base documents.
- Tuned embedding and search parameters in Qdrant and introduced keyword-aware hybrid re-ranking, improving top-k recall.
- Developed an independent multi-agent AI system, enabling collaborative and modular task execution.
- Technical Skills: Pythop, PHP, Vector Databases (Qdrant), Graph Databases (ArangoDB), Semantic Chunking, RAG Performance Tuning, Prompt Engineering, Multi Agent Systems (Autogen).

Outlier Remote

AI Training Coding Expert - Contract

Oct 2024 - Sep 2025

- · Working remotely to enhance generative AI models through Reinforcement Learning from Human Feedback (RLHF) by consistently evaluating, correcting, and updating AI-generated code.
- **Technical Skills:** Python, Prompt Engineering, RLHF, Software Debugging, Code Refactoring.

# Skills

Python · Data Analysis · Machine Learning · Deep Learning (TensorFlow/Keras, PyTorch) · Computer Vision · Natural Language Processing (NLP) · Large Language Models (LLM) · Multi-Agent Systems · Reinforcement Learning

# **Projects**

# **Multi Agent Personal Assistant**

Created an AI-driven, 11 specialized agent platform with AutoGen and OpenAI LLMs to automate task management, communication, and information retrieval; leveraged AutoGen Studio's real-time UI for real-time workflow visualization.

### AutoRAG – End-to-End RAG Framework for Turkish

Developed a fully local and modular RAG system for Turkish documents, featuring semantic chunking, customizable retrieval/generation pipelines, and Docker-based deployment. Built a Turkish QA benchmark from Wikipedia and conducted extensive evaluations with retrieval and generation metrics (BLEU, ROUGE, BERTScore, Recall, EIR, nDCG) to benchmark embedding and LLM configurations.

## Image Captioning

Built a transformer-based image captioning system using a ViT encoder and GPT-2 decoder, with training on the Flickr8k dataset and evaluation via standard NLP metrics and deployed an interactive Streamlit app for result visualization.

## Iris Eye Recognition

Developed a CNN-based iris recognition system on the CASIA-Thousand dataset, combining advanced preprocessing and adaptive training techniques to achieve 92.45% accuracy and 0.023 EER.

#### Languages