

ALI BOLAT

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EDUCATION

Ted University *B.S., Computer Engineering* Sept 2021 – Jun 2026 (Expected)

- **GPA: 3.15/4.00**
- Secondary Field in Applied Data Science – Minor Degree in Communication Systems

LANGUAGES

Turkish Native
English Fluent (written and verbal)

EXPERIENCE

TÜBİTAK / Gazi University *Project Researcher (Scholar)* May 2025 – Present

- **Fine-tuned** an 8B-parameter language model via knowledge distillation (using a teacher-generated synthetic dataset), achieving a **56% improvement in answer accuracy** over Gemini Flash.
- **Engineered** a multi-stage LLM pipeline using **Gemini** with advanced prompt engineering (chain-of-thought, few-shot, and role-based prompts) to drive guided goal-setting interactions.
- **Developed** a React.js chat platform, integrating **DistilBERT** for sentiment analysis and creating interactive data visualizations to surface actionable insights.

Orion Innovation *Mobile Applications Intern* July 2025 – April 2026

- **Engineered** a cross-platform communication app using **Flutter** and **Swift**, increasing message delivery reliability.
- **Optimized** state management and media processing pipelines for improved application performance and responsiveness.

Ted University - TAVP *Team Lead* Oct 2024 – Present

- **Leading** the full-stack development of an autonomous RC car platform, orchestrating hardware-software integration across perception, planning, and control layers.
- **Trained** reinforcement learning agents in simulation using **Gazebo** and **NVIDIA Isaac Sim**, benchmarking **DQN**, **PPO**, and **SAC** algorithms for dynamic navigation.
- **Fine-tuned** a **YOLOv8** object detection model on custom-labeled datasets for real-world deployment on **NVIDIA Jetson Orin Nano**.

Siyah Research and Development LLC *Summer R&D Intern* June 2025 – July 2025

- **Architected** an **epoll-based** FTP server in C with a custom chunk-based binary protocol for robust large-file transfers and real-time progress monitoring.

Monolib *R&D Intern* June 2024 – Oct 2024

- Built a benchmarking application to evaluate cryptographic and hashing algorithms, identifying a **20% more efficient** hashing method for production use.

TECHNICAL SKILLS

Languages	Python, R, SQL, C/C++, Java, Go, JavaScript, Dart (Flutter), Swift
AI / ML	LLM Fine-Tuning, Knowledge Distillation, Prompt Engineering, XGBoost, SHAP, DistilBERT, YOLOv8, DRL (DQN, PPO, SAC), scikit-learn
Data	Pandas, NumPy, Streamlit, Recharts, Matplotlib, CSV/SQL data pipelines, Exploratory Data Analysis
Software	Docker, Git, Linux, Firebase, AWS Amplify, ROS2, Gazebo, NVIDIA Isaac Sim
Frameworks	React.js, FastAPI, Flask, Flutter, Spring Boot, Streamlit

AVIATION & DATA PROJECTS

Aviation Emissions Dashboard *React, FastAPI, Python, Recharts, Framer Motion* 2025

- Engineered a full-stack **sustainability analytics platform** visualizing network-wide aviation CO₂ emissions, fuel burn, and environmental KPIs across six interactive chart types (dual-axis, scatter, radar, heatmap).
- Powered by a **FastAPI** backend with data preprocessing pipelines, deployed serverlessly on **Vercel**.

Flight Delay Predictor *Python, XGBoost, SHAP, Streamlit, NOAA/BTS APIs* 2025

- Built an end-to-end ML pipeline for **air traffic management analytics**, predicting flight delays by merging real-world BTS flight operations data with NOAA hourly weather data, engineering leakage-safe features (rolling congestion, Bayesian route encoders, IFR conditions).
- Achieved **ROC-AUC of 0.78** with XGBoost; integrated **SHAP TreeExplainer** for per-flight delay attribution and delivered findings through an interactive **Streamlit dashboard**.

Household Energy Consumption Analysis *R, Exploratory Data Analysis* 2024

- Conducted exploratory analysis on the UCI power consumption dataset (2M+ records) using **R**, producing diagnostic visualizations of energy distribution, time-series patterns, and sub-metering breakdowns to surface consumption insights.

Bank Marketing Prediction *Python, scikit-learn, Streamlit* 2024

- Engineered a full **scikit-learn** preprocessing pipeline (imputation, encoding, scaling) on a 45K+ record dataset; deployed as an interactive **Streamlit** web application for real-time classification inference.

İyiKahve *Flutter, Riverpod, Firebase, Gcloud* Ongoing

- Designed a location-based discovery app for specialty coffee shops using **Google Maps API**, with real-time filtering and **Firebase** backend integration.