

# MEHMET ÜNLÜ

## Electronics & Communication Engineering Student

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### Professional Summary

Electronics and Communication Engineering student at Istanbul Technical University working on forecasting, computer vision, speech workflows, and optimization-focused machine learning projects. Experienced with recursive forecasting, UAV-oriented perception experiments, and large-scale feature pipeline cleanup using PyTorch, TensorFlow, LightGBM, NumPy, Pandas, and OpenCV.

### Technical Skills

<b>Languages</b>	Python, C, C#, Dart, SQL
<b>Machine Learning</b>	PyTorch, TensorFlow, Scikit-learn, LightGBM, NumPy, Pandas
<b>Domains</b>	Time Series Forecasting, NLP, Computer Vision, Deep Learning, MLOps
<b>Optimization</b>	Vectorization, Parallel Processing, Memory Optimization, Matrix-based Computation
<b>Tools</b>	Flutter, Firebase, Git, Linux, VS Code, OpenCV

### Experience

#### Ravelos — AI Specialist Assistant

Dec 2025 - Present

- Developed intermittent demand forecasting systems for retail-like datasets containing 20K+ products, 3M+ rows, and approximately 85% zero-demand observations.
- Designed a two-stage forecasting architecture using classification and LightGBM-based regression pipelines for sparse demand modeling.
- Built recursive inference workflows where future predictions were generated without unavailable future information, preventing data leakage.
- Improved forecasting accuracy from approximately 40% to 65-70% using custom business-oriented metrics and feature engineering.
- Reduced end-to-end runtime from 40 minutes to 4 minutes through vectorization, parallelization, memory optimization, and matrix-based computation.

#### Vcamp — Software / AI Engineer

Dec 2025 - Present

- Developed UAV-oriented autonomous perception systems using hybrid visual odometry architectures.
- Combined ORB, optical flow, and RAFT-based deep learning motion estimation pipelines.
- Designed confidence-aware arbitration mechanisms for selecting reliable motion estimation outputs.
- Performed real-time experimentation on custom drone footage with approximately 7.5 FPS inference performance using PyTorch and OpenCV.

#### Spaidream — Founder

Sep 2025 - Present

- Built SketchMind, an AI-powered storytelling and social interaction platform for children using Flutter, Firebase, and OpenAI APIs.
- Developed mobile workflows including story generation, subtitles, multimodal interaction, and voice-based integration.
- Handled frontend, backend, AI integration, and system architecture development independently.

### Selected Projects

#### Whisper-Based Subtitle & Speech Processing System

- Developed multilingual speech-to-text systems using Whisper and Hugging Face pipelines.
- Implemented subtitle generation, prompt-enhanced NLP processing, and audio transcription workflows.

#### Intermittent Demand Forecasting Research

- Exploring reinforcement-learning-enhanced forecasting where agents learn trust levels for ML forecasts under changing demand regimes.
- Focused on hybrid architectures and sequential decision systems for sparse forecasting tasks.

### Research Interests

Machine Learning Systems, Intermittent Demand Forecasting, Sequential Decision Systems & Reinforcement Learning, Autonomous Perception Systems, Edge AI & Embedded Intelligence, Graph-Sheaf Neural Networks

## Education

**Istanbul Technical University (ITU) — Bachelor of Science in Electronics and Communication Engineering**

Expected Graduation: 2028

## Certifications

- Deep Learning Algorithm with PyTorch — BTK Akademi
- Natural Language Processing with Deep Learning — BTK Akademi
- Big Data — BTK Akademi