

Onur Altay Topaloğlu

UNDERGRADUATE RESEARCHER & SENIOR COMPUTER ENGINEERING GRADUATE

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EDUCATION

Middle East Technical University (METU)

B.S. in Computer Engineering (English); CGPA: 3.61/4.00

Ankara, Türkiye

Sep. 2021 – Jun. 2026

Kadıköy Anatolian Highschool (Kadıköy Maarif College)

National University Entrance Exam: Ranked 544th among 2.4 million candidates

Istanbul, Türkiye

Sep. 2016 – Jun. 2021

EXPERIENCE

Harvard-MIT & METU Research Collaboration

Remote

Undergraduate Researcher- Advisors: Dr. Jiaee Cheong, Prof. Dr. Sinan Kalkan

Sep. 2025 – Present

- **Co-authored** a research paper, currently in final revisions for submission.
- Building trustworthy multimodal AI systems for healthcare, with a primary research focus on evaluating the **fairness** of medical vision-language models against demographic biases.
- Developing evaluation frameworks to analyze bias within medical imaging contexts.

KUIS AI Center, Koc University

Istanbul, Türkiye

Computer Vision Intern - Advisor: Asst. Prof. Fatma Güney

Jul. 2025 – Aug. 2025

- Investigated flow matching and diffusion models to evaluate point tracking estimation on objects with ambiguous motion patterns.

ROMER, Middle East Technical University

Ankara, Türkiye

Undergraduate Researcher - Advisors: Assoc. Prof. Gökerkin Cinbiş, Prof. Dr. Sinan Kalkan

Nov. 2024 – March 2026

- **Co-First Author, CVPR 2026 AI4Space Workshop [Paper] | [Project Page] LuMon: A Comprehensive Benchmark and Development Suite with Novel Datasets for Lunar Monocular Depth Estimation.**
- Developed an evaluation suite to benchmark models across datasets, implementing affine alignment and dynamic masking for robust metric analysis. [GitHub Repo]
- Designed statistical evaluation pipelines using Spearman rank correlations to quantify the impact of training scale and metric supervision on zero-shot domain adaptation.
- Engineered a ground-truth depth generation pipeline for real Chang'e-3 lunar imagery and published our novel datasets on [Hugging Face].

Computer Engineering Department, METU

Ankara, Türkiye

Undergraduate Teaching Assistant

Sep. 2024 – Jun. 2025

- **CENG213 Data Structures** - Assisted in C++ data structure implementation labs.
- **CENG232 Logic Design** - Guided labs on digital logic design and circuit simulations.

KKB Kredi Kayıt Bürosu

Istanbul, Türkiye

Artificial Intelligence Intern

Jun. 2024 – Jul. 2024

- Engineered a hybrid RAG system using PyTorch, fusing vector-based and keyword search to improve semantic relevance ranking compared to baseline keyword search.
- Generated synthetic datasets using Synthetic Data Vault (SDV) to ensure data privacy in financial applications and enhance model training resources.

PROJECTS

Capture & Cook – Fridge photo to recipe suggestion app (Senior Design Project) [Website]

- Engineered a search engine to rank recipes, fusing TF-IDF with dense semantic vector search using FAISS.
- Optimized recipe rankings through a custom cross-scoring algorithm, constructing a human-preference dataset to fine-tune retrieval hyperparameters.
- Integrated Alibaba Qwen VLM for automated ingredient detection.

TECHNICAL STACK

Python, PyTorch, CUDA, Slurm, C/C++, SciPy, NumPy, Pandas, Matplotlib, SQLite, Java, Haskell, Assembly

LANGUAGES

- **Turkish:** Native
- **English:** TOEFL: 94/120
- **German:** B2 (OnSET, Oct 2025)