

# MUSTAFA ALKAN

## Contact

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## Summary

I'm a final-year Computer Engineering student at METU. I want to work in Robotics and Embedded Systems. I like building systems that connect hardware and software: embedded networking (TCP, lwIP on Zynq), low-latency data streaming, and small back-end services (FastAPI/GraphQL). I'm comfortable with C/C++ and Python, debugging, and writing clean code with tests.

## Education

- **Middle East Technical University** (Ankara, Turkey)
  - **B.S. in Computer Engineering** (Jun 2026)
  - **Coursework:**
    - **Systems and Architecture:** Computer Organization, Operating Systems, Embedded Systems Development, Logic Design, Software Engineering
    - **Algorithms and Data:** C Programming, Data Structures, Algorithms, Data Management and File Structures
    - **Signals and Networking:** Signals and Systems, Data Communications and Networking, Statistical Methods
    - **Robotics and Graphics:** Robotics, Computer Graphics
  - **Antalya Yusuf Ziya Oner Science High School** (Antalya, Turkey)
    - High School Diploma (Jun 2021)

## Experience

- **Intern, Ikon Arge Teknoloji A.Ş** (Aug 2025 - Sep 2025)
  - **Location:** Ankara, Turkey
  - **Context:** Built a concierge kiosk web app using local LLM models (LM Studio) with a Next.js (TypeScript) frontend and FastAPI + GraphQL backend services. Designed an NDJSON streaming channel to push device state and task status updates in real time.
  - **Technologies:** Python, FastAPI, GraphQL (Strawberry), Next.js, TypeScript, LM Studio, SQLite, SQLAlchemy, NDJSON
  - **Github repo:** [ikon-concierge](#)
- **Intern, ESEN Sistem** (Jul 2025 - Aug 2025)
  - **Location:** Ankara, Turkey
  - **Context:** Developed a custom CRC-framed communication protocol and implemented a Windows client (WinSock) and Xilinx Zynq server (lwIP RAW) for reliable remote file transfer; used Wireshark to validate and troubleshoot TCP/UDP behavior.
  - **Technologies:** C/C++, TCP/UDP, Socket Programming, lwIP RAW, Xilinx Zynq-7000, WinSock, CRC, Wireshark, CSV, SVN
- **Intern, Bimser** (Jul 2024 - Aug 2024)
  - **Location:** Ankara, Turkey (Remote)
  - **Context:** Implemented CRUD modules and basic authentication flows in an ASP.NET MVC project; built MVC pages/controllers and data access with Entity Framework, and worked with REST-style endpoints as part of an enterprise codebase.
  - **Technologies:** C#, .NET, ASP.NET MVC, Entity Framework, REST APIs, SQL
  - **Github repo:** [Bimser-internship](#)

## Projects

- **Autonomous Motion Planning** (course project)
  - **Context:** Implemented RRT and PRM motion planning in 2D environments; built obstacle-heavy test maps to validate collision checking and path quality, and tuned sampling/connection parameters to balance compute time and path performance.
  - **Technologies:** Python, NumPy
- **Robot Değilim** (course scheduling web app)
  - **Context:** Built Python-based scrapers and job orchestration to automate course scheduling; deployed the app to reduce manual scheduling steps for students.
  - **Technologies:** Python, BeautifulSoup, Flask, Fly.io, AWS S3
  - **Links:** [robotdegilim](#), [robotdegilim.xyz](#)

## Skills

- **Languages:** C, C++, Python, C#, TypeScript, JavaScript, Verilog, Haskell, Prolog
- **Frameworks/Libraries:** FastAPI, Flask, Next.js, GraphQL (Strawberry), ASP.NET MVC, Entity Framework, SQLAlchemy, NumPy, BeautifulSoup
- **Systems/Embedded:** TCP/UDP, Socket Programming (WinSock), lwIP RAW, CRC framing, Xilinx Zynq-7000, PIC Microcontrollers, FPGA
- **Tools/Platforms:** Git/GitHub, Docker, Wireshark, Linux, Windows, SVN, VS Code, Xilinx tools, Fly.io, Vercel, LM Studio
- **Data/Storage:** SQLite, AWS S3

## Languages

English (Professional), Turkish (Native), Karachay-Balkar (Native), Russian (Elementary)

## Memberships

- **Antalya Fen Lisesi Mezunlar Derneği**, Executive Board Member (Apr 2024 - Present)
- **ODTU Güzel Sanatlar Topluluğu**, Organization Team Member (Jan 2025 - Apr 2025), Active Member (Nov 2024 - Jun 2025)
- **ODTU Bostan Topluluğu**, Coordinator (Sep 2022 - Sep 2024), Active Member (Apr 2022 - Sep 2024)