MUSTAFA DURAN

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Computer Engineering student and licensed UAV-1 pilot working on UAV autonomy, flight control software and embedded systems security with C++, Python and ROS 2.

EDUCATION

İSTANBUL ÜNİVERSİTESİ-CERRAHPAŞA Istanbul, Türkiye
B.Sc. in Computer Engineering (2nd year) August 2025 – June 2029

- **GPA:** 3.64 / 4.00; **Focus Areas:** Cyber security, LLM security and autonomous systems
- **Student Clubs:** İÜCYBER, Karan UAV Team, Artificial Intelligence Club, Huawei Student Developers (HSD)

DR. VASIF TOPÇU SCIENCE HIGH SCHOOL September 2020 – June 2024
Club President: Maritime and Aviation (2021–23), Debate (2022–24), Library (2022–24)

EXPERIENCE

Karan UAV Team – Aeronist Aerospace (IUC Aeronautics and Space Club) Istanbul, Türkiye
Team Captain August 2026 – Present

- **Team Management:** Leading a team of mechanical, avionics and software sub-teams in preparing for national and international autonomous UAV competitions, primarily the TEKNOFEST Fighter UAV Competition.
- **Planning and Integration:** Coordinating sprint planning, technical goals and the flight test schedule; overseeing hardware-software integration, flight safety rules and technical design decisions.

Software & Autonomous Systems Developer / UAV RCAS Pilot October 2025 – Present

- **Autonomous Flight:** Developing PX4-based autonomous flight software with ROS 2, C++ and Python; PID, LQR, SMC, MPC and neural-network-based controllers for dogfight, visual lock-on and kamikaze missions, with Kalman-filter target estimation.
- **Simulation and Computer Vision:** Building dual-UAV (hunter/target), turbulence, damaged-aircraft and kamikaze scenarios with Gazebo Harmonic + PX4 SITL; target detection and tracking with YOLOv8 + ByteTrack.
- **Communications:** Aircraft-to-ground-station link and telemetry bridge with MAVLink/MAVSDK; REST API communication with the competition referee server (C++17).
- **Testing and Field Work:** SITL/HITL testing in Gazebo and FlightGear, test piloting; supporting the mechanical and avionics sub-teams in manufacturing.

İstec Istanbul, Türkiye
Cyber Security Researcher (Intern) August 2026 – Present

- **Firmware Analysis:** Analyzing embedded device firmware images with EMBA (Embedded Analyzer); identifying and reporting security vulnerabilities.
- **Research:** Research on embedded systems and firmware security.

İÜCYBER (IUC Cyber Security Club) Istanbul, Türkiye
Board Member March 2026 – August 2026
Member October 2025 – Present

- **Management:** As an elected board member, managed club operations and organized technical events.
- **Workshops:** Organized hands-on network security workshops; attended network security and ethical hacking training with Nmap, Wireshark, Burp Suite and Metasploit.
- **Cyber Bulletin:** Prepared monthly cyber security bulletins (April–May 2026), published on İÜCYBER Medium and mustafaduran.dev.

Huawei Student Developers (HSD) Türkiye Istanbul, Türkiye
Member & Technical Writer September 2025 – Present

- **Technical Writing:** Wrote a cloud network security guide covering VPC, Zero Trust and DDoS protection for the HSD Türkiye Medium channel.

TECHNICAL WRITING

How to Choose the Right Control Algorithm for Your System (An Armed UAV Example)
mustafaduran.dev/pages/blog/2026/may/uav-control May 2026

- A comparison of PID, LQR/LQG, SMC and MPC in terms of model dependency, state requirements and computational load, through a fighter UAV scenario.

Protecting Networks Without Borders: An Introduction to Cloud Network Security – *HSD Türkiye Medium*
Cyber Bulletin (monthly) – *İÜCYBER Medium and mustafaduran.dev* April – May 2026

CERTIFICATES

- **Kaggle** (July 2025): Python, Intro to AI Ethics, Machine Learning Explainability
- **HSD Türkiye:** Build with AI: Web Development Bootcamp
- **TryHackMe:** Advent of Cyber 2025 (December 2025); **İÜCYBER:** Hackops Cyber Security Training (March 2026)

SKILLS

- **Programming:** C++ (C++17, CMake), Python, Java, JavaScript, HTML5, CSS; basic: C#, SQL
- **Autonomous Systems:** ROS 2, PX4, ArduPilot, MAVLink / MAVSDK, Gazebo Harmonic, FlightGear, JSBSim, QGroundControl, SITL / HITL
- **AI and Computer Vision:** PyTorch, TensorFlow, YOLOv8, OpenCV, Machine Learning, Computer Vision, LLM Security (Jailbreak, Prompt Injection)
- **Cyber Security:** Network Security, Firmware Analysis, EMBA, Nmap, Wireshark, Burp Suite, Metasploit
- **Systems and Tools:** Linux, Git & GitHub, NVIDIA Jetson Orin NX
- **License and Languages:** SHGM UAV-1 Pilot License (UAV-RCAS); English (Intermediate)

References available upon request.