

Islam Muradov

Mechanical Engineering | Aircraft Structures, Aerodynamics & UAV Development
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EDUCATION

Koç University

B.Eng. Mechanical Engineering | Double Major in Business Administration

Expected Spring 2027

Istanbul, Türkiye

GPA: 3.53/4.00 | 75% Merit Scholarship | Dean's Honor List: 6 times

Relevant coursework: Statics & Mechanics of Materials (A+), Intro. ME Design (A+), Intro. Aerospace Engineering (A+), Thermodynamics (A), ME Design (A), Dynamic Modeling & Control (A), Manufacturing (A), Heat Transfer (A-), Numerical Methods (A-)

TECHNICAL SKILLS

Structural / CAE	ANSYS Mechanical (static, modal, harmonic, thermal, fatigue), analytical flight loads, factor-of-safety, vibration, structural validation
Aerodynamics / CFD	XFLR5 (airfoil/wing/tail design, lift distribution, stability, drag polars), ANSYS Fluent (external/internal flow, aerodynamics, heat transfer)
CAD / Manufacturing	Siemens NX, Onshape, CATIA, AutoCAD; DFM, additive manufacturing, modular airframes, carbon-fiber spar integration
Programming / Controls Languages	MATLAB, Simulink, Python, C/C++; PX4, ROS 2, Gazebo, Raspberry Pi, Arduino English (C1), Russian (C1), Azerbaijani (C1), Turkish (B2)

ENGINEERING EXPERIENCE

KU.AVA Aerial Vehicle Association, Koç University

Nov. 2024 – Present

Team Captain – UAV Design & Development

Istanbul, Türkiye

- Lead a **40-member multidisciplinary team** and personally drive mechanical/aerodynamic development across **5+ fixed-wing and VTOL UAVs**, from configuration and structural design through CAD, manufacturing, integration, flight testing, and redesign.
- Developed aircraft configurations through iterative XFLR5/CFD studies of **wing and tail airfoils, planform, tail sizing/position, incidence, control layout, lift distribution, static margin, and CG envelope** to achieve stable, controllable, efficient flight.
- Performed analytical and FEA-based design of **wings, spars, fuselages, landing gear, motor mounts, and VTOL tilt mechanisms**; calculated spanwise lift, shear/torsion, wing bending, thrust/transition loads, maximum-speed cases, and $n = 3$ **design loads**, then verified stress, deformation, and safety factors in ANSYS before manufacture and flight testing.
- Representative platform: designed, built, and flight-tested a **3.4 kg three-motor tilt-rotor VTOL** with $L/D \approx 21$, **26.6% MAC static margin**, 1.2 s hover-to-cruise transition, Fluent/XFLR5 lift agreement within **3.7%**, and **0.26 mm simulated wingtip deflection** at the 15 m/s structural case.
- Derived a **0.386 Nm tilt-actuator torque requirement** including gyroscopic effects and selected actuators with **>2× margin**; designed weight-and-balance/CG layouts and validated vibration and structural behavior before flight.
- Designed/manufactured airframes in Siemens NX/Onshape using **carbon-fiber spars, PLA, LW-PLA, and TPU**; developed custom wing reinforcement and a modular fuselage reducing localized repair/reprint time from **28 h to 40 min**. Integrated Pixhawk/PX4, Raspberry Pi/ROS2, sensors, and Gazebo/PX4-SITL.

Silk Way Technics

Aug. 2024 – Sep. 2024

Quality Control & Base Maintenance Engineering Intern

Baku, Azerbaijan

- Performed hands-on base maintenance on **Boeing 747-8 and Airbus A320-family aircraft** in an EASA Part-145 MRO environment across propulsion, structures, flight controls, hydraulic/pneumatic, and auxiliary-power systems.
- Supported powerplant removal/load monitoring; disconnected fuel, hydraulic, pneumatic, cooling, and electrical interfaces; serviced LP compressor blades, engine starter, igniter, and A320 HMU; supported balancing, reconditioning, lubrication, and borescope inspection.
- Worked on **load-bearing structures**: installed/aligned 747-8 body landing gear and supported No. 2 strut torque-box integration transferring engine/aerodynamic loads into wing spars.
- Inspected 747-8 wing leading-edge structure for fatigue/corrosion and serviced trailing-edge flap mechanisms, drive rods, and actuation linkages; also performed A320 VBV/IDG and 747 APU servicing.

Azerbaijan Refinery Company QSC

Aug. 2025 – Sep. 2025

Engineering Intern – Thermal Systems & Commissioning

Baku / Sumqayıt, Azerbaijan

- Supported commissioning of industrial pyrolysis reactors through alignment, pressure/leak tests, vibration monitoring, wet commissioning, thermocouple/DCS validation, infrared thermography, and post-operation inspection.
- Built a ridge-regularized model linking cycle duration to operating/weather conditions with approximately **83% reported accuracy**; identified cooling limitations as the main source of cycle delay.
- Evaluated thermal-shock/stress constraints and contributed to a forced-air underbody cooling concept using field measurements, 3D geometry, thermography, and convective heat-transfer analysis; target airflow was approximately **520 m³/min**.

Koç University – MECH 204 Thermodynamics

Spring 2025, Spring 2026

Teaching Assistant – Prof. Arif Karabeyoğlu

Istanbul, Türkiye

- Selected for two semesters** after earning an A in Thermodynamics; led problem-solving sessions, supported homework/exam assessment, and provided technical feedback to undergraduate students.

SELECTED ENGINEERING PROJECTS

Structural Vibration Optimization – MECH 411 Theory of Vibration

Koç University

- Performed finite-element **modal and harmonic analysis** of an automotive rear-view mirror under 20–200 Hz acoustic excitation; validated baseline natural frequencies against published data and compared redesigned stiffness/damping concepts to reduce resonance response.

Shell-and-Tube Heat Exchanger Optimization – MECH 302 Heat Transfer

Koç University

- Co-developed a MATLAB optimization routine evaluating **9,000+ configurations** using Nusselt correlations, LMTD, flow/geometric constraints, and mass calculations; final design delivered **6541 kW** vs. **6583.5 kW required** (within 1%) and **39% higher LMTD** than equivalent parallel flow.