Kayra Sarı

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EDUCATION

TED Ege College   Aydin, Turkiye
GPA: 99,98. LGS: Top 0,15%   *Sep. 2022 – June 2026*
- Awarded 80% Merit-Based Scholarship and Ministry of National Education Certificate of High Distinction.
- International Masterclass in Particle Physics: Analyzed LHC data to identify elementary particles.

EXPERIENCE

Engineering Intern   Jan. 2026
AZR Engineering   *Izmir, Turkiye*
- Contributed to the ZeyBack mission platform by developing navigation control scripts in NumPy and implementing path-planning algorithms for obstacle avoidance.
- Utilized SolidWorks for 3D chassis modeling and performed center-of-mass calculations and resonance frequency analysis to optimize structural stability.
- Programmed ultrasonic sensors via Arduino IDE, debugged hardware using multimeters, and executed field tests to optimize battery duty cycling and response times.

Engineering Intern   Aug. 2025 - Sep.2025
UKASIS A.S.   *Izmir, Turkiye*
- Operated column drills and specialized marking tools for high-tolerance fabrication in the rail and commercial vehicle sectors, ensuring exact component fitment.
- Assisted in MIG/TIG welding preparation and performed sub-assembly using torque-specific mechanical fasteners and industrial adhesives.
- Conducted dimensional tolerance verification using calipers and maintained detailed QC logs to ensure strict adherence to engineering blueprints and industrial standards.

PROJECTS

The Dualists - Dual-Readout Calorimetry   March 2026
- Designed a dual-readout calorimeter for the CERN PS T9 beamline to measure Cherenkov and scintillation light.
- Developed a DAQ system using Threshold Cherenkov Counters and Delay Wire Chambers (DWC) for 200 mu tracking.
- Performed f_{em} analysis to apply energy corrections for hadronic resolution, targeting the IDEA detector concept.

RadiaTED - Compton Scattering & TOF Analysis   March 2026
- Investigated Compton scattering geometry's impact on Time-of-Flight resolution for PET and radiotherapy.
- Engineered a detection chain using a tungsten target and tissue-like phantom to produce controlled X-ray flux.
- Used DWC track reconstruction to isolate geometric path-length variations from intrinsic detector jitter.

CommunicaTED - Using Cosmic Ray Muons for Telecommunication   Nov. 2024 – March 2025
- Proposed and designed a novel telecommunication system utilizing the natural flux of atmospheric cosmic ray muons for binary data transmission.
- Engineered a modulation system using Helmholtz Coils to generate a 0.119T magnetic field, achieving a calculated 1.106cm muon deflection over a 4-meter path.
- Designed a binary readout system using scintillators and Threshold Cherenkov detectors to veto hadron contamination and ensure signal accuracy.

Excalibur WMI Driver - Linux Kernel Module   Aug. 2025 – Present
- Developed a custom ACPI/WMI Linux kernel module enabling per-zone RGB, power plan, and fan speed control.
- Mapped hardware to the led_classdev subsystem using concurrency-safe state containers.
- Integrated DMI table matching to dynamically resolve firmware endianness, automatically byte-swapping fan registers.

TECHNICAL SKILLS

Tools & Programming: AutoCAD, SolidWorks, MATLAB, Simulink, C, Python, Javascript, HTML/CSS
Industry Knowledge: Quality Control, Manufacturing Processes, Innovative Manufacturing
Physics & Research: Particle Physics, Experimental Design, Data Visualization, Data Analysis, Statistical Algorithms
Language: IELTS Academic 8.5, TELC Deutsch A2