

Seyit Kubilay ULUÇAY

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Education

- Özyeğin University**, B.Sc. in Electrical and Electronics Engineering, – Istanbul, TURKEY 2021 – 2025
- Cumulative GPA: 2.97 / 4.00
 - Honors: 50% Performance Scholarship
- Uğur College High School**, High School Diploma – Kocaeli, TURKEY 2017 – 2021
- Grade: 94.10 / 100.00

Experience

- Intern, R&D Department**, BEKO R&D Advanced Sensor Technologies – Istanbul, TURKEY July 2024 – Aug 2024
- Collaborated within a R&D team to develop and test a patented floor detection system, gaining experience in corporate R&D processes.
 - Focused on implementing sensor-based power management to optimize cleaning performance, performing data analysis to validate results.
 - Integrated and tested advanced sensors for a newly patented floor detection system, conducted data analysis, and created documentation.
- Undergraduate Assistant**, Özyeğin University, Faculty of Engineering – Istanbul, TURKEY Mar 2023 – June 2023
- Provided hands-on hardware support for an Autonomous Driving course, assisting students with NVIDIA Jetson Nano based vehicle conversions.
 - Led teams in assembling and troubleshooting hardware systems, facilitating practical learning and complex problem-solving.
- Part-timer, Student**, Özyeğin University, Student Services – Istanbul, TURKEY June 2023 – Sep 2023
- Assisted students with inquiries regarding transfers, minor/major applications, and enrollment processes.
 - Developed and implemented a Microsoft Power Automate workflow for course assignments, reducing manual processing time by approximately 50%.

Projects

- Battery Health & Performance Management: Senior Project** STM32, KiCad, MATLAB/Simulink
- Co-designed, developed, and fabricated a complete instrumentation system for real-time monitoring of Li-ion batteries.
 - Implemented a novel active cell balancing algorithm, utilizing an STM32F407 Discovery Board, with validation confirmed through extensive MATLAB/Simulink simulations.
 - Interpreted electrical wiring diagrams using KiCad to create a custom PCB, and performed troubleshooting on the prototype.
 - Integrated INA333 instrumentation amplifiers and TMP36GZ sensors, performing calibration and data analysis to ensure system accuracy.
- Remote-Controlled Axial Flux Motor** Arduino, NRF24, ESC, AutoCAD, 3D Printing, PCB
- Co-designed, built, and tested a custom electric-powered axial flux motor (including hand-wiring coils) as part of a two-person project team.
 - Implemented a custom remote controller using NRF24 wireless modules for system operation.
- Wind Turbine Grid Integration Analysis** PowerWorld Simulator
- Performed data analysis on the impact and cost-effectiveness of different wiring configurations for grid integration of wind turbines.
 - Utilized PowerWorld for pre-defined detailed system modeling, analysis, optimization, and documentation.
- PLC Automation Systems** Schneider EcoStruxure Control Expert
- Co-developed and programmed automation logic for a simulated traffic light system to reduce waiting time optimally and created a functional toy claw machine.
 - Gained practical experience in PLC programming, ladder logic, and industrial automation concepts.

Servo Actuated 3-Axis Gimbal

Arduino Nano, MPU6050 IMU, Servos, 3D Printing

- Co-designed and built a 3-axis gimbal using modified 3D models and servo motors.
- Developed Arduino code to calibrate and process raw data from an MPU6050 IMU via I2C connection.
- Mapped processed IMU data to control servo positions for stabilization, overcoming challenges with a defective initial sensor.

Machine Learning in Finance: Bitcoin Market Analysis

Python, Pandas, Scikit-learn (BART), Matplotlib

- Co-investigated the correlation between daily Twitter volume and Bitcoin market fluctuations using the BART model, finding a positive correlation.
- Performed time-series analysis and prediction.

Zumo Robot Object Detection & Counting

Arduino (C++), Zumo, IR Sensor, Reflectance Sensors

- Co-developed an algorithm for a Zumo robot to navigate a defined area, detect obstacles using IR and reflectance sensors, and count them.
- Implemented system logic for multi-angle scanning to improve accuracy and user notification via LED and buzzer.
- Successfully demonstrated functionality in various scenarios, identifying limitations in edge case detection.

Deforestation Analysis & Solution Proposal

Research Methods, Statistical Analysis, Presentation

- Researched causes, consequences (environmental/socio-economic), and existing solutions for deforestation in Turkey's Black Sea region.
- Analyzed and presented statistical data related to deforestation trends and impacts.
- Collaborated on proposing an "Industrial Forest Project" as a sustainable, long-term solution.

Technical Skills

Languages: Turkish (Native), English (Fluent), German (Beginner)

Software Languages: Python, MATLAB, Arduino C/C++

Software & Tools: LTSpice, MATLAB, Simulink & Simscape, Schneider EcoStruxure (PLC), PowerWorld, KiCad, Microsoft Power Automate, MS Office Suite

Hardware: STM Time-of-Flight (ToF) Sensors, STM32 Boards & Sensors, NVIDIA Jetson Nano, Arduino, Raspberry Pi, Electronics Lab Equipments

Competencies: Data Acquisition, System Design & Fabrication, Data Analysis, Troubleshooting, Cross-Functional Collaboration, Problem Solving

Extracurricular Activities

IEEE Özyeğin University Student Branch, President of the Supervisory Board

2021 – 2025

(2024-2025), Chairman (2023-24), RAS Board Member (2022-23), RAS Crew (2021-22) – Istanbul, TURKEY

- Hosted major IEEE events: 2021 TR RAS Congress and 2023 ComSoc Summit at Özyeğin University.
- Significantly increased annual branch activity, growing event numbers from 4 to 23 within two years.
- Expanded club membership substantially from 103 to 652 members over two years.

Peer Advisor, Özyeğin University – Istanbul, TURKEY

2024 – 2025

- Guide newly enrolled students through their academic journey and university life, providing support and resources.

Volunteer, Özyeğin University Clubs Joint Volunteer Event – Istanbul, TURKEY

Apr 2023

- Volunteered to welcome and engage with children affected by the 2023 earthquake as Ozyegin student clubs.

Competitor & Captain, Robotics Competitions – Kocaeli, Turkey

2019 – 2020

- KELEBEKRO 19 (Gebze Technical Univ.): 1st Place - Mini Sumo Robot Category
- İTÜRO 2019 (Istanbul Technical Univ.): 2nd & 3rd Places - Micro Sumo Robot Category

Member, Uğur College Model United Nations (MUN) Team – Kocaeli, TURKEY

Sep 2019 – June 2020

- Represented Nigeria, researched international issues, and collaborated to propose solutions.