Seyit Kubilay ULUÇAY

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Education

Özyeğin University — Istanbul, TURKEY
B.Sc. in Electrical and Electronics Engineering, Minor in Computer Science — *2021 – Present (Expected: [2025])*

- Cumulative GPA: 2.92 / 4.00
- Honors: 50% Performance Scholarship

Uğur College High School — Kocaeli, TURKEY
High School Diploma — *2017 – 2021*

- Grade: 94.10 / 100.00

Experience

BEKO R&D Advanced Sensor Technologies — Istanbul, TURKEY
Intern, R&D Department — *July 2024 – Aug 2024*

- Contributed to the development of a gap and newly patented floor detection system for an electric robot vacuum using STM ToF sensors.
- Focused on implementing sensor-based power management to optimize cleaning performance across different floor and carpet types while avoiding getting stuck in any situation to perform continuous cleaning.
- Gained hands-on experience with sensor integration, data analysis, and R&D processes in a corporate environment.

Özyeğin University, Faculty of Engineering — Istanbul, TURKEY
Undergraduate Assistant — *Mar 2023 – June 2023*

- Provided hardware support for the newly opened Autonomous Driving course, assisting students with NVIDIA Jetson Nano based vehicle conversions.
- Assisted teams in assembling and troubleshooting hardware, facilitating practical learning and problem-solving.

Özyeğin University, Student Services — Istanbul, TURKEY
Part-timer, Student — *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

Remote-Controlled Axial Flux Motor — Arduino, NRF24, ESC, AutoCAD, 3D Printing, Custom PCB

- Designed, built, and tested a custom, electric-powered axial flux motor (including hand-wiring coils) in only 2 months as a two-person team.
- Implemented a custom remote controller using NRF24 wireless modules.

Wind Turbine Grid Integration Analysis — PowerWorld Simulator

- Analyzed the impact and cost-effectiveness of different wiring configurations for grid integration of wind turbines.
- Utilized PowerWorld for detailed system modeling, analysis, optimization, and documentation.

PLC Automation Systems — Schneider EcoStruxure Control Expert

- 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 (MG996R), I2C, 3D Printing*

- Co-designed and built a 3-axis (Roll, Pitch, Yaw) 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

- 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 Platform, IR Sensor, Reflectance Sensors

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

Deforestation Analysis & Solution Proposal — Research Methods, Statistical Analysis, Presentation Tools

- 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, Java, C, C++, MATLAB, Arduino C/C++
Software & Tools: LTSpice, MATLAB, Simulink & Simscape, Schneider EcoStruxure (PLC), PowerWorld, NI LabVIEW, 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
Areas of Interest: Power Energy Systems, Sustainable Technologies, Electric Vehicles, Electric Motors, Electronics Design, Control Systems, Automation, Robotics

Leadership & Extracurricular Activities

IEEE Özyeğin University Student Branch — Istanbul, TURKEY
President of the Supervisory Board (2024-Pres), Chairman (2023-24), RAS Board Member (2022-23), RAS Crew (2021-22) — *2021 – Present*

- 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.

Özyeğin University — Istanbul, TURKEY
Peer Advisor — *2024 – Present*

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

Özyeğin University Clubs Joint Volunteer Event — Istanbul, TURKEY
Volunteer — *Apr 2023*

- Volunteered to welcome and engage with children affected by the 2023 earthquake.

Robotics Competitions — Kocaeli, Turkey
Competitor & Captain — *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

Uğur College Model United Nations (MUN) Team — Kocaeli, TURKEY
Member — *Sep 2019 – June 2020*

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