

Oguzhan Esen

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🎓 EDUCATION

Technical University of Munich

10.2024 – present | Munich, Germany

Mechatronics and Robotics, Master of Science

Coursework: Optimal Control and Decision Making, Multidisciplinary Design Optimization, Adaptive and Learning-based Control, SW Design for Cyber-physical-systems, Reinforcement Learning for Biomechanics, Introduction to ROS, Mobile Robotics

Yildiz Technical University

2018 – 2022 | Istanbul, Turkey

Electrical Engineering, Bachelor of Science

GPA: 3.57/4.0 (1.6 German equivalent)

💼 WORK EXPERIENCE

AVL Software and Functions

11.2024 – present | Munich, Germany

Working Student

- I have transitioned to a part-time role, continuing my responsibilities from my previous full-time position as part of the BMS ASW Team at the AVL Munich branch after I started my master's education.

AVL

Control Development Engineer

04.2022 – 10.2024 | Istanbul, Turkey

- Actively worked on model-based control software development projects for diverse applications including electric vehicles, hybrid systems, autonomous robotics, and e-mobility platforms in battery domain.
- Designed and implemented application-layer software using MATLAB/Simulink in accordance with ASPICE and MISRA compliance standards.
- Developed and maintained control functions and algorithms for BMS modules such as battery protection, thermal management, electrical hazard protection, contactor control, isolation measurement, cranking capability estimation, diagnostics, warranty management, thermal runaway detection, and vehicle communication.
- Executed Model-in-the-Loop (MiL) and Software-in-the-Loop (SiL) testing; actively supported Hardware-in-the-Loop (HiL) integration and validation processes.
- Requirement management and test management on component level
- Participated in the definition and enhancement of software architecture, ensuring modularity, reusability, and integration with broader system platforms.
- Developed a battery model calibration tool using Python and SciPy to optimize cell model parameters.
- Implemented deep learning algorithm prototypes for SOX estimation
- Collaborated closely with cross-functional teams from various disciplines and different AVL locations worldwide.

SIEMENS

05.2021 – 04.2022 | Gebze, Turkey

Working Student

- Supporting after-sales operations and customer incident solutions.
- Troubleshooting of non-conformities in high and low voltage switchgears, busbars, circuit breakers and protection elements from both electrical and mechanical perspective.
- Coordinating different stakeholders and subject matter experts at different disciplines of operations.
- Tracking and reporting continuously non-conformities of after sales scope in order to improve quality requirements.

📁 MASTER COURSE PROJECTS

Autonomous Driving using ROS

Built a ROS-based system with perception, planning, and control for autonomous driving.

Mobile Robot Development for Intralogistics

Implemented kinematics, perception, control, navigation, and localization modules for a Raspberry Pi-based mobile robot in Python as part of Mobile Robotics Laboratory; integrated PID control, Dijkstra path planning, OpenCV object detection, and multi-sensor inputs (camera, ultrasonic, color).

Humanoid Gait Imitation with Reinforcement Learning

Developed a reinforcement learning framework to train a MuJoCo humanoid model for human-like walking. Integrated OpenSim inverse kinematics into the reward function to guide motion imitation based on real motion capture data.

Embedded Ball Control using PD controller on dsPIC33F

Implemented a PD controller on dsPIC33F microcontroller to achieve circular ball following, actuated with 2 servo motors.

🧠 SKILLS

Python

MATLAB&Simulink

C++

GIT

Object-Oriented Programming

Linux

ROS

🌐 LANGUAGES

English

C1, IELTS 7.0

Turkish

Native