

MELIH AKAY

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OBJECTIVE

Dedicated and highly motivated individual with a profound passion for advancing the field of autonomous ground vehicles and robotics. Has a foundation in statistics, mathematics, and programming, with a particular focus on machine learning and robotics.

EDUCATION

Middle East Technical University

B.Sc. in Statistics

Sep 2022 - Jul 2026

Ankara, Turkey

After two years in physics, I have shifted my focus from physics to statistics, ranking in the top 20% in my cohorts in physics and statistics.

Member of METU Robotics Society and Jazz Club

Middle East Technical University

B.Sc. in Physics - switched major to Statistics

Sep 2019 - Jul 2022

Ankara, Turkey

Ankara Atatürk Anadolu Highschool

Sep 2015 - Jun 2019

EXPERIENCE

Ford Otosan

Perception Software Engineering, Long Term Intern

November 2024 - August 2025

Ankara, Turkey

- Worked on development of an unified deep learning framework integrating LiDAR and camera models in PyTorch, with primary focus of modularity between models components.
- Created multi-GPU debugging tools for DeterminedAI by mimicing it's architecture, experienced with tools such as Horovod, PyTorch DDP, gloo.
- Conducted multi-GPU hyperparameter search on different scales.
- Developed and implemented a clustering-based LiDAR semi-annotation pipeline that is used as a fallback in case of ML-model failure.

Perception Software Engineering, Intern

July 2024 - August 2024

Ankara, Turkey

- Conducted in-depth research on the state-of-the-art LiDAR semi-annotation methods and contributed to the development of point cloud semi-annotation pipeline.
- Explored potential applications of foundation models such as SAM in the context of point-cloud semiannotation.

METU Robotics and Artificial Intelligence Research Center

Undergraduate Researcher

November 2024 - March 2025

Ankara, Turkey

- Contributed to designing a high-performance swarm robotics simulator based on Isaac Sim, enabling large-scale multi-robot simulations for collaborative behavior research.

METU Formula Racing

Software Engineering Lead

Sep 2024 - Sep 2025

Ankara, Turkey

- Leading software design and development process of an autonomous race car by managing Driverless and Embedded Software teams.
- Ensured the production of clean and readable code base. Utilized UML diagrams and semantic versioning. Experienced in Scrum and Agile methods.

Driverless Team Lead

Sep 2023 - Sep 2024
Ankara, Turkey

- Designed and implemented complete autonomous driving stack, including perception, estimation, localization, planning and control sub-modules.
- Actively developed software with Python and C++, mainly for micro-controllers and ROS packages.
- Experienced in sensor fusion for both state estimation (IMU, GPS, visual/wheel odometry) and visual sensor fusion (LiDAR, Camera).
- Developed a local planning algorithm using Delaunay triangulation and implemented SLAM solutions for both simulation and real vehicles.
- Development of optimized embedded systems with various communication protocols (CAN, UART, SPI, I2C), experienced with various sensors and motor controls.
- Led system-wide transition from ROS to ROS2, containerized entire stack for cross-platform compatibility across Jetson devices (AGX Xavier, TX2, Nano).

Perception Chapter Lead

Sep 2022 - Sep 2023
Ankara, Turkey

- Designed and implemented perception stack, from scratch, utilizing Ouster OS1 LiDAR and ZED stereo camera for object detection and sensor fusion.
- Managed the project development of the perception system and collaborated closely with other team leaders while conducting research on perception systems for autonomous robots.

Salesart

Data Science Intern

Jun 2022 - Jan 2023
Istanbul, Turkey

- Developed an end-to-end ML-based product recommendation system with an API and a dashboard for customers.
- Worked on real-world sales data from P&G and SC Johnson.
- Conducted research on supply chain & demand forecasting algorithms.

PROJECTS

Wheelie: An End-to-End Autonomous Racing Framework for Formula Student Driverless Competition Apr 2022 - Present

- Design and development of autonomous racing software & hardware for Formula Student electric race cars DEVRIM23 and DEVRIM25.
- Granted undergraduate research grant by AdimODTÜ in 2023 Spring term.
- Sponsored by ADASTEC, Leo Drive, FNSS, Pepperl Fuchs and the other valuable sponsors.

PROFESSIONAL SKILLS

Operating Systems

Linux, L4T

Computer Languages

Python, C++, R, MATLAB, Bash, SQL

Frameworks & Libraries

ROS, ROS2, Eigen, Open3D, PCL, OpenCV, PyTorch

Tools

Docker, Git, Bitbucket, Foxglove Studio, Tableau