ALİ TEKEŞ

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ABOUT ME



I am a patient person with leadership qualities and a willingness to take risks. My interests are in Robotics and Autonomous Systems. I worked as an Intern Researcher at TUBITAK and Saha Robotik. Currently, I am working at LTC Innovation, where I focus on enhancing the software capabilities of Quadruped and Humanoid robots.

EDUCATION

Computer Engineering BSc (GPA: 3.22/4.0) — Sakarya University — 2022-2026

SKILLS

- Robotics Core: ROS2, SLAM, 3D Mapping, Navigation, Simulation, Legged Robotics.
- Artificial Intelligence: Classical techniques, CNN, ANN, Deep Learning.
- Programming: C++, C, Python, MATLAB, SQL.
- Software Tools: Docker, Gazebo Sim, Git, Micro-ROS, PCL.

WORK EXPERIENCE

Long Term Intern Researcher — Sensor AI LAB -TU Delft / Netherlands — August' 26 - Current

- Developing navigation and localization solutions for quadruped robots across indoor and outdoor environments.
- Implementing EKF-based sensor fusion by integrating LiDAR, IMU, and RTK-GNSS data.
- Testing and validating quadruped robot navigation and control in simulation environments using ROS2 and GazeboSim.

Robotic Software Engineer — LTC Inovation — Sept' 25 - Current

- Designing and implementing a complete autonomous navigation pipeline for Unitree Go2 and G1 robots, including localization, mapping, path planning, and obstacle avoidance.
- Integrating LiDAR SLAM, Visual SLAM, and multi-sensor fusion to achieve robust indoor navigation, validated through real-world experiments on quadruped and humanoid robots.
- Deploying and integrating navigation algorithms on robot platforms, optimizing computational performance and ensuring real-time operation under onboard hardware constraints.

Intern — Saha Robotik — August' 25 - Sept' 25

- Worked with Point-LIO and LIO-SAM algorithms using the Unitree L1 LiDAR sensor.
- Focused on sensor data handling and integration within ROS2-based systems for SLAM evaluation.
- Collected and processed data through ros2bag files and tackled challenges arising from real-world environments.

Long Term Intern Researcher — TUBITAK (Scientific and Technological Research Council of Turkey) — Jan' 25 - August' 25

- Conducted research under the supervision of Prof. Dr. Ayşegül Uçar as part of the TUBITAK 1001 project titled "Development of Advanced Autonomous Technologies for Rapid and Stable Disaster Management in GPS-Denied, Unstructured Environments Using Multi-Sensor Dispersed Robots."
- Ensured seamless integration and control of a quadruped robot within a simulation environment using ROS2 and GazeboSim.
- Implemented and evaluated state-of-the-art SLAM algorithms, including LIO-SAM, RTAB-Map, and D-LIO, in complex, custom-designed simulation environments.
- Contributed to the model testing phase for object detection using DETR in a simulation setting.
- Worked on 3D path planning using the D*+ Planner for the quadruped robot within the simulation environment.

LANGUAGE

English - B2 — YOKDIL-25/1: 75.00/100

PROJECTS

Ackermann Steering System Simulation (ROS2, GazeboSim, Nav2, SLAM, Autonomous Vehicle, Github)

- Developed a vehicle simulation with Ackermann steering dynamics in GazeboSim Harmonic, integrating ROS2 for real-time sensor data processing. Implemented SLAM, AMCL and Nav2 for localization, mapping and autonomous navigation while exploring various path-planning algorithms. Project received 180+ GitHub stars, demonstrating community impact.

Implementation of Multi-Sensor SLAM Techniques in ROS2: Drone and Quadruped Simulation for Dynamic Environments (ROS2, GazeboSim, RTAB-MAP, LIO-SAM, D-LIO, VSLAM)

- Developed and simulated drone and quadruped robots using ROS2, implementing various SLAM techniques such as LIO-SAM, RTAB-Map, DLIO for real-time mapping and localization with 3D LiDAR and IMU. This project enhanced autonomous navigation, sensor fusion and the accuracy of environment mapping in complex robotic simulations.

IoT-Based Smart Water Bottle - **TUBITAK 2209-A** (IoT, ESP32, Real-Time Data Processing, Mobile App,AI)

- Developing WaterMate, an AI-powered smart hydration system using ESP32, IMU and other sensors. The system features contactless water level sensing for improved hygiene, BLE wireless communication, and offline data storage with cloud synchronization. Implemented AI-based personalized coaching that adapts to user activity patterns. Focused on embedded systems design, low-power optimization, and reliable IoT communication for health monitoring applications.

ⓘ For my other projects, check my Github account.

ACHIEVEMENTS

2247/C STAR-Intern Researcher Scholarship Programme - TUBITAK

I have been selected for the 2247-C STAR Intern Researcher Scholarship Program, organized by TUBITAK BIDEB. This program allows undergraduate and graduate students to take part in scientific research projects while receiving financial support. Through this opportunity, I have gained hands-on research experience and strengthen my academic and technical skills.

Erasmus+ Intership Mobility at Netherlands - with Grant

I have been selected as the 1st-ranked student at my faculty for a Erasmus+ internship at Delft University of Technology (TU Delft), one of the leading technical universities in Europe. I will work under the supervision of Dr. R.T. Rajan and gain research experience in robotics and autonomous systems.

ACADEMIC PAPER

Transformer-Based Object Detection in Unconstructed Environments: A ROS-Gazebo Simulation Framework

Co-authored a paper presented at IEEE INISTA 2025 proposing a ROS2-integrated, transformer-based object detection pipeline for GPS-denied, unstructured environments. The framework deploys DETR on a Unitree Go2 quadruped in a Gazebo DARPA SubT-style cave world and benchmarks it against a YOLOv11 baseline on a custom dataset.The results show improved detection accuracy and generalization under clutter and occlusion. I built the modular ROS2 node pipeline and the Dockerized deployment setup.

REFERANCES

Prof. Dr. Aysegul Ucar (she/her), PhD Senior Member of IEEE
Professor of Engineering Faculty, Mechatronics Engineering Department of Firat University
E-mail: agulucar@firat.edu.tr
Expertise: Artificial Intelligence, Autonomous Technologies, Robot Vision, Human–Robot Interaction
Note: Supervisor in the TUBITAK STAR Researcher Support Program