İbrahim Doruk Kızıloklu

Robotics Engineer

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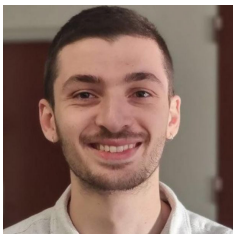

SUMMARY

Robotics Engineer experienced in designing and building a wide range of robotics systems including robot arms, biomimetic robots and medical rehabilitation devices. Skilled in mechanical design ,control theory and system modeling.

EXPERIENCE

Research Assistant

Biomechanics Lab Aalborg University

03/2023 - 09/2023

- Design and development of a Five-Bar Parallel Arm Robot aimed at biomedical applications, focusing on precision and optimized kinematics. Research on motion dynamics and nonlinear control systems to meet the
- application requirements.

Conducted experiments involving human participants to validate the robot's performance and usability in real-world scenarios.

- Revised and upgraded the design of a lower body exoskeleton for Hamstring Injury Rehabilitation and prepare necessary exercise patterns for rehabilitation.

Mechanical Design Engineer

Cyprus Robotics

04/2021 - 7/2022 Famagusta, Cyprus

- Designer for a biomimetic underwater robot, working as a contractor for a Turkish defence company.
- Conducted detailed kinematic and dynamic analyses to optimize the robot's movement patterns and improve maneuverability.
- Developed a specialized tail mechanism for realistic motion.
- Establishing feasibility on manufacturability, material, cost, weight and similar criteria according to design.
- Preparing engineering release processes (2D drawings, 3D CAD, BOM)

Engineering Intern

GÜNSEL Electric Vehicles

10/2020 - 02/2021 Lefkosia,Cyprus

- Design of interior parts(PDU bracket ,BCM bracket)in vehicle design projects.
- Identifying and solving challenges in the production of plastic parts.
- Contributed to the creation of technical documentation to support manufacturing and assembly processes.

EDUCATION

Robotics(MSc)

Aalborg University

09/2022 - 04/2025 Aalborg, Denmark

Mechanical Engineering(BSc)

Dokuz Eylül University

09/2016 02/2021 İzmir, Turkey

LANGUAGES

English IELTS 7.5 Certificated **Turkish** Native

SKILLS

CAD & Modeling: Solidworks, Siemens Nx

Simulation & Analysis:MATLAB Simulink, Gazebo

Programming & IT • Python, C , C, Linux, ROS, Docker, GIT, Matlab, LaTex

PUBLICATIONS

Design and Stiffness Modeling of a Novel Planar Parallel Robot with Variable Stiffness Actuators

2024

https://link.springer.com/chapter/10.1007/978 3 031 67383 2_30

Springer/Mechanism Design for Robotics(MEDERE)
Co-author on research detailing the design of variable stiffness actuators for planar robots.

PROJECTS

A Comparative Analysis Between the Additive and the Multiplicative Extended Kalman Filter for Satellite Attitude Determination

10.48550/arXiv.2307.06300

This project focuses on a practical comparison between the MEKF and the Additive Extended Kalman Filter in satellite attitude estimation.

Underwater Biomimetic Robot Prototype

First prototype for tail mechanism of Biomimetic Robot displayed in SAHA EXPO International Defence & Aerospace Exhibition in Istanbul.

[https://youtu.be/J6A5Eay8ZBc?si=0L 790_pTNBtRrWLG]

Control of an Exoskeleton for Assessing Human Lower Limb Mechanics

Conducted at the Center for Rehabilitation Robotics with the Biomechanics Research Group of Aalborg University
Engineered an exoskeleton prototype targeting the study of hamstring muscle mechanics to enhance sports injury rehabilitation.
IInte precise movement and force measurement.
Developed a modular ROS2-based control system for real-time data acquisition and user-friendly operation.
Demonstrated reliable performance under both loaded and unloaded conditions, validating the system's capabilities.