

# MUHAMMED SEZER

Machine Learning Engineer | Data Science & AI Specialist

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METU, Ankara, Turkey

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## IN THIS CV, COLOR MATTERS!

ARTIFICIAL INTELLIGENCE

WEB DEVELOPMENT

ROBOTICS

## EXPERIENCE

Account Manager

**ODTÜ TEKNOKENT**

September 2023 – Present

Ankara, Türkiye

- Strategic Management and Enhancement of Entrepreneurial Ventures
- Advanced Django Backend Development with Integrated ChatGPT and API Support
- Leveraged Machine Learning for Data Classification, Project Analysis, and Visualization
- Implemented ChatGPT-Assisted Models and Open Source Algorithms for Enhanced Project Generation and Classification
- Drove an Eightfold Increase in Operational Efficiency through AI and Machine Learning Innovations

Co-Founder & Machine Learning & Robotics Engineer

**Orion Robotics, Robotics Start-up**

September 2021 – Present

Ankara / Turkey

- Pioneered End-to-End Development of Robotic Solutions with Integrated AI Capabilities
- Designed and Implemented ROS2 Packages for Enhanced Robot Functionality
- Conducted Rigorous Hardware and Software Testing to Ensure Optimal Performance
- Developed and Simulated Advanced Robotic Systems
- Integrated Machine Learning Algorithms for Robotic Perception and Decision-Making
- Drove Business Growth through Strategic Entrepreneurship and Sales Initiatives
- Led a Multidisciplinary Team, Fostering a Culture of Innovation and Problem-Solving

Swarm Robotics Researcher

**Middle East Technical University Robotics Center**

September 2021 - Present

Ankara / Turkey

- Advanced Research in Swarm Robotics, focusing on AI-Driven Collective Behaviors and Decision-Making
- Simulation of Swarm Behaviors in Virtual Environments to Predict and Optimize Real-World Performance
- Development of Optimized Communication Protocols for Efficient Swarm Interactions
- Integration of Computer Vision for Enhanced Navigation and Object Recognition in Swarms
- Implementation of Data Fusion Techniques for Comprehensive Environmental Analysis
- Comprehensive Technical Documentation and Research Publication
- Project Management in Interdisciplinary Teams

Research Intern

**TED University**

2022, Summer

Ankara / Turkey

- Conducted Rehabilitation Robotics Research, Focusing on Human-Machine Interaction
- Development and Integration of Hardware and Software for Rehabilitation Robots
- Designed and Implemented an AI Model to Simulate Human Behavior, Enhancing Test Setup Accuracy
- Conducted User Testing to Validate Robot Performance and Human Interaction
- Contributed to Academic Publications on AI-Enhanced Rehabilitation Robotics

Part-Time Engineer

**TUBITAK**

September 2021 - September 2022

Gebze / Turkey

- Developed Advanced Image Processing Algorithms for License Plate and ID Card Detection
- Implemented Robust Object Detection and Tracking Systems for Real-Time Applications
- Specialized in Anomaly Detection Algorithms for Security and Surveillance Purposes
- Conducted Comprehensive Data Analysis and Processing for Optimizing Detection Accuracy

## PROJECTS

### Teknofest Fighting UAV Competition

#### Teknofest Finalist

 2021 – 2023

 Istanbul / Turkey

- Designed and Constructed a Custom UAV from Scratch for Competitive Purposes
- Authored and Shared Open Source Code for UAV Operation on ROS2 Platform
- Acquired and Processed a Specialized Dataset for Advanced UAV Functionality
- Developed and Optimized a YOLOv8 Model for Efficient Performance on Jetson Devices
- Played a Key Role in the Manufacturing Process and Conducted Flight Tests for UAV Validation
- Performed Simulations in Software-in-the-Loop (SITL) Environments for Enhanced Testing
- Developed Autonomous Algorithms for Kamikaze and Target UAV Recognition Tasks
- Contributed to the UAV Community through Extensive Documentation and Knowledge Sharing

### Teknofest Artificial Intelligence Competition

#### Self-organized Team

 2021 – 2023

 Istanbul / Turkey

- Exhibited Team Leadership and Project Management in a Competitive AI Environment
- Achieved Recognized Success in AI Competition
- Prepared and Published a Comprehensive Computer Vision Dataset Publicly
- Developed Custom Algorithms, Including Advanced YOLOv8 Model Optimizations
- Implemented Custom Tracking Algorithms for Enhanced Detection Accuracy
- Utilized AI Tools for Data Analysis and Algorithm Development
- Developed Django-Based Tools for Data Visualization and Management
- Contributed to the Public Knowledge Base through Code Sharing and Mentorship

### Mobile Robotic Vehicle Development

#### Self-managed Project

 September 2019 - September 2022

 Ankara / Turkey





- Directed End-to-End Development of an Autonomous Robotic Vehicle
- Designed and Modeled Components using CAD & 3D Modeling Techniques
- Managed Production and Assembly of Robotic Components
- Optimized Vehicle Performance for Enhanced Efficiency and Reliability
- Engineered Custom Circuit Boards for Specific Control Tasks
- Implemented a Robust Control System for Autonomous Operations
- Developed and Integrated ROS2 for System Coordination and Navigation
- Incorporated Advanced Object Detection and Tracking Algorithms for Real-Time Environmental Interaction
- Established Remote Control and Monitoring Capabilities
- Compiled Comprehensive Documentation Covering All Development Phases

## PUBLICATIONS

### Journal Articles

- E. Muslu, M. Sezer, A. Okasha, A. E. Turgut, and K. B. Arıkan, “Effect of adaptive assisted exoskeleton control system on motor learning skills,” *Fırat Üniversitesi Uzay ve Savunma Teknolojileri Dergisi*, 2022.
- Ş. Dikkaya and M. Sezer, “Remote sensing in traffic dataset,” *GitHub repository*, 2021.

## ACHIEVEMENTS

-  #1 in Entrepreneurship competition  
Atılım University
-  #1 and #2 Artificial Intelligence competition around Turkey  
Teknofest 2022
-  #2 Young Entrepreneurs Idea Marathon  
UNICEF 2023
-  Mansion in University Students Research competition  
Tubitak 2242

## STRENGTHS

Python

YOLO (You Only Look Once)

Machine Learning

Deep Learning

Natural Language Processing

PyTorch

Data Analysis

Pandas

Computer Vision

C++

ROS2

Gazebo

IsaacSim

ArduPilot

PX4

Digital Signal Processing

Dynamic Control Systems

Embedded Systems

Ground & Aerial Robotics

HTML

CSS

JavaScript

Django

React

MySQL

Node.js

Git

Strategic Planning

Innovation Management

Team Leadership

Project Management

Problem Solving

Decision Making

Research

Data Visualization

Scientific Writing

Public Speaking

Teaching

Latex


## LANGUAGES

Turkish



English



Russian

## EDUCATION

B.Sc. in Electrical & Electronics Engineering  
**Middle East Technical University**  
 2017-2023

## REFEREES

**Prof. Klaus Werner Schmidt**  
 Electrical Electronics Engineering  
 schmidt [at] metu.edu.tr  
Middle East Technical University

**Prof. İlkey Ulusoy**  
 Head of Electrical Electronics Engineering  
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**Ali Rıza Küçük**  
 Intel - Former Regional Consumer Sales Director  
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