Muhammed Sezer

Passionate about AI and combines other hobbies into it

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Education

- **Middle East Technical University**   2017 – 2023
  B.Sc. in Electrical and Electronics Engineering
  QS World University Rankings by Subject (2024): 113th
  University Entrance Exam Ranking: 213/2,265,402 (**Top 0.01%**)

Experiences

- **Software Team Lead at HubX**   January 2025 – Present
  İzmir, Turkey

  - Creating a Python package for internal use, integrating video, audio, and text generation models with optimization and fine-tuning pipelines.

  - Integrated automated evaluators to benchmark state-of-the-art models used across the company.

  - Led a cross-functional team to streamline model deployment and performance monitoring.

  - Developed scalable solutions for efficient model training and inference in production environments.

- **Software Developer at Spacture AI**   January 2024 – December 2024
  New York, USA

  - Developed a backend pipeline for person search from images, achieving 97% accuracy.

  - Created pipelines for body and face matching, along with grouping algorithms for efficient identity clustering of body images in local stores.

  - Engineered an text-based search system capable of processing millions of images in real-time.

- **Software Developer at ODTÜ TEKNOKENT**   September 2023 – January 2024
  Ankara, Türkiye

  - AI driven automated system development for analysing more than 10,000 personel and 400 companies monthly in METU Technocity

  - Achieved an x8 increase in operational efficiency through AI and machine learning innovations.

  - Developed trend analysis using the technocity database to guide future investment projects.

- **Co-Founder & Machine Learning & Robotics Engineer at Orion Robotics (Robotics Start-up)**
  September 2021 – December 2023
  Ankara, Turkey

  - Pioneered end-to-end development of robotic solutions with integrated AI capabilities.

  - Designed and implemented ROS2 packages to enhance robot functionality.

  - Conducted rigorous hardware and software testing to ensure optimal performance.

  - Developed and simulated advanced robotic systems for real-world applications.

  - Integrated machine learning algorithms for robotic perception and autonomous decision-making.

  - Drove business growth through strategic entrepreneurship and sales initiatives.

- – Led a multidisciplinary team, fostering a culture of innovation and problem-solving.
- **Researcher at Middle East Technical University Robotics Center** September 2021 – December 2023
  Ankara, Turkey
  - – Conducted research in swarm robotics, focusing on AI-driven collective behaviors and decision-making.
  - – Simulated swarm behaviors in virtual environments to predict and optimize real-world performance.
  - – Integrated computer vision techniques for navigation and object recognition in swarm systems.
- **Research Intern at TED University** Summer 2022
  Ankara, Turkey
  - – Conducted rehabilitation robotics research, focusing on human-machine interaction.
  - – Developed and integrated hardware and software for rehabilitation robots.
  - – Designed and implemented an AI model to simulate human behavior, enhancing test setup accuracy. Trained on past human actions.
  - – Contributed to academic publications on AI-enhanced rehabilitation robotics.
- **Part-Time Engineer at TUBITAK** September 2021 – September 2022
  Gebze, Turkey
  - – Developed image processing algorithms for license plate and ID card detection.
  - – Implemented plate and tracking systems for real-time applications with 99+% accuracy.

Achievements

- **2nd Place** in Young Entrepreneurs Idea Marathon UNICEF, 2023
- **1st Place** in Entrepreneurship Competition Atılım University, 2022
- **1st and 2nd Place** in Artificial Intelligence Competitions Teknofest, 2022
- **2nd Place** in Undergraduate Research Projects Competition METU, 2020
- **Honorable Mention** in University Students Research Competition TÜBİTAK, 2019

Projects

- **2024: Anadolu Agency GenAI Project** Developed a system that combined generative AI models to automatically generate visual aids, such as visualizations and infographics, from news articles, significantly enhancing user engagement.
  - – Speed up infographics creation process by 80% (POC).
  - – Received a job offer from Anadolu Agency to further develop and implement the idea.
- **2022 – 2023: Eflatun UAV (Team Leader)** Developed an autonomous UAV that could track and follow other UAVs, leveraging artificial intelligence capabilities to enhance autonomy and tracking accuracy.
  - – Designed, built, and deployed the UAV from scratch within 5 months.
  - – Successfully built and tested the UAV; participated in **Teknofest 2023 Fighting UAV Competition**.
  - – Sponsored by **Intel**, Nurus, Asisguard, **T-motor**
- **2021 – 2023: Eflatun AI (Team Leader)** Developed an AI model capable of recognizing vehicles and people in transportation contexts, utilizing bird's-eye view imagery.
  - – 1st Place in **TEKNOFEST 2022 Artificial Intelligence in Transportation Competition** with all-time record (Award: $6,500).
- **2019 – 2023: FENER Mobile Robot (Team Leader)** Led the development of a modular mobile robot platform used for mobile autonomous applications, including object following, mapping, and path planning, capable of carrying payloads for different purposes.
  - – Completely **Open-Sourced**: All Sources

- Secured funding from various programs, including AdımODTÜ Undergraduate Research Programs, **TÜBİTA 2209-A Research Project Support Program**, and **TEKNOFEST**.
- 1st Place at <u>Atılım University - Entrepreneurship Competition 2022</u> (Award: $5,000).
- Incentive Award (4th Place) in **TÜBİTAK 2242 Undergraduate Research Project Competitions 2021**.

Social Activities and Media Presence

- **2022:** <u>Featured on Türkiye's National Radio (TRT Radyo1)</u> Hosted with my team during peak listening hours to discuss our undergraduate projects and insights for success in technology competitions.
- **2022:** <u>Television Interview on National News</u> Interviewed regarding our 1st-place achievement in the Artificial Intelligence in Transportation Competition.
- **2021:** <u>METU Student Projects Special Presentation</u> Delivered a motivational speech to undergraduates, encouraging participation and building confidence in undertaking research projects.
- **2018 – 2022: Board Member, METU Machinery and Innovation Student Club** Organized and led over 15 university-wide training sessions on AI and its applications in undergraduate projects.

Publications and Datasets

- 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.

Skills

- **Programming Languages:** Python, C/C++, JavaScript, SQL, HTML, CSS
- **Artificial Intelligence:** Machine Learning, Deep Learning, Natural Language Processing (NLP), Computer Vision, Data Analysis, PyTorch, TensorRT, Diffusers, Transformers
- **Robotics:** ROS2, Gazebo, IsaacSim, ArduPilot & PX4
- **Web Development:** Django, flask, fastapi, REST API
- **Tools & Software:** MS Office's, LaTeX, MATLAB, Siemens NX, Fusion 360
- **Academic Skills:** Scientific Writing, Public Speaking, Teaching
- **Languages:** Turkish (Native), English (Advanced), Russian (Basic)

References

- **Yunus Emre**
  Current Supervisor
  Formerly at Meta, Google, Apple
- **Ali Rıza Küçük**
  Former EMEA Consumer Sales Director at Intel

- **Prof. Klaus Werner Schmidt**
  Electrical and Electronics Engineering, Middle East Technical University

- **Prof. İlkay Ulusoy**
  Head of Electrical and Electronics Engineering, Middle East Technical University