

Deniz Karakay

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EDUCATION

University of Arizona

Ph.D. in Electrical and Computer Engineering; *CGPA: 4.0*

Tucson, AZ

Aug. 2023 –Present

Middle East Technical University

B.S. in Electrical Electronics Engineering

Ankara, Turkey

Sep. 2019 –Jun. 2023

PUBLICATIONS

- [1] **D. Karakay**, M. Altbach, D. R. Martin, and A. Bilgin, *Impact of Vessel Removal on Classification of Chronic Liver Disease using Radiomics Features and Quantitative T2 Mapping*, ISMRM, 2024.
- [2] Y. Zhang, A. Bilgin, S. Gokce-Kafali, B. Toner, T. Delgado, E. Ahanonu, **D. Karakay**, W. Zhou, S. Mollus, S. Kannengießer, V. Deshpande, S. Grbic, M. Altbach, and H. Wu, *Enhancing Deep Learning-Based Liver Vessel Segmentation on MRI with Image Translation Techniques*, ISMRM, 2024.
- [3] J. Wei, **D. Karakay**, and A. Yilmaz, *A Gis Aided Approach for Geolocating an Unmanned Aerial System Using Deep Learning*, <https://arxiv.org/abs/2208.12251>, IEEE Sensors, 2022.

RESEARCH EXPERIENCE

Bilgin - Altbach's Lab at University of Arizona

Graduate Research Assistant

Tucson, AZ

Aug 2023 - Present

- Specializing in novel computer vision techniques, image processing, generative models, and deep learning applications for MRI and other medical imaging modalities.
- Currently developing a multi-organ segmentation model using limited data. To enhance the model's performance, leveraging generative models to augment the dataset and improve training results.
- Participated in a project supervised by **Assoc. Prof. Dr. Ali Bilgin** and **Prof. Dr. Maria Altbach** to evaluate the radiomics features of T2 maps and the impact of vessel removal on Chronic Liver Disease classification. The work is accepted by *ISMRM 2024*.

METU Center For Image Analysis(OGAM) at METU

Undergraduate Research Assistant

Ankara, Turkey

Sep 2021 - Sep 2023

- Participated in a project supervised by **Prof. Dr. Aydın Alatan** to interpret and visualize the LIDAR data on a moving car by utilizing IMU data and external GPS data from mobile phone. Developed a mobile application to collect IMU and GPS data and utilized those data in MATLAB's toolbox.
- Involved in an international project funded by *Telespazio* to estimate the position of space objects using a camera through image processing techniques. Building a pipeline in which we receive the locations of stars from a night sky photo

Photogrammetric Computer Vision Lab (PCVlab) at Ohio State University

Affiliated Researcher

Remote

Feb 2021 - Apr 2023

- Participated in a project supervised by **Prof. Dr. Alper Yilmaz** to make geolocalization using only image processing in a UAV. Collected map data from Google Maps and Open Street Maps using Python with various classes to train the models based on image segmentation and GANs. **Our work** has been accepted to the SENSORS 2022 conference
- Worked on pain detection, where we aimed to use face mesh outputs to train a classification model.

PROFESSIONAL EXPERIENCE

AiTerna Technologies

Remote

Software Engineer

May 2022 - 2024

- Worked on optimizing ML-Ops for various models, including a Graph Neural Network-based outfit recommender system, and set up the pipeline with the mobile app.
- Developed a mobile application using Flutter and established the entire pipeline and platform from scratch using Firebase and Google Cloud.

Micropsi Industries

Berlin, Germany

Intern

July 2022 - Oct 2022

- Focused on robotics and improving the MIRAI platform, and the simulation environment for robotic arms using ROS, Gazebo, and Python.

Gamer Arena

Istanbul, Turkey

Part-time Software Engineer & Special Project Manager

July 2020 - Nov 2021

- Selected the optimized ranking system based on simulations made by using Python. Implemented an Elo rating system to the platform using Django REST-API and Django ORM. Prepared a dashboard page to follow KPIs and developed a Discord bot by Python to send messages inside the Gamer Arena server

AWARDS & ACHIEVEMENTS

- **Outstanding Performance Award** in Capstone Projects of METU EEE 2023 [[HK Tech](#)] Jun 2023
- **Global Top 50 Semi-Finalist** in Google Solution Challenge 2022 [[Peter](#)] May 2022
- **3rd Place** in Yıldız Bootcamp [[Peter](#)] Apr 2022
- **2205 TUBITAK Undergraduate** Scholarship Holder Mar 2022
- **Global Top 10 Finalists** in Google Solution Challenge 2021 [[QRegister](#)] Jun 2021
- **1st Place** in Hack for Planet with [[QRegister](#)] Feb 2021
- **Technical Writer** at GDevelop for Google Season of Docs 2020 [[Space Shooter](#)] Jan 2021
- **4th Place and Best Scientists** in European Rover Challenge as METU ROVER Sep 2020
- **1st Place in Ankara** in TUBITAK's University Research Project Competition [[A Torch in Darkness](#)] Aug 2020
- **Apple Swift Student Challenge Winner** (WWDC'20 Scholar) [[Stop Pandemic](#)] Jun 2020
- **3rd Place** in IEEE ODTU & Pixery Hackathon [[A Torch in Darkness](#)] Jan 2020
- **3rd Place in Turkey** in 49th TÜBİTAK High School Research Project Competition (2204-A) May 2018
- **Indie Developer** (selected out of 100+ games) in Gaming Istanbul Feb 2018
- **Google Code-In 2016** Grand Prize Winner Jan 2017
- **Exhibitor** in Germany, **1st Place in Turkey** in Project IRRESISTIBLE Oct 2016

VOLUNTEER & EXTRACURRICULAR ACTIVITIES

- **Open Source speeches** at various places including [MLH Hackcon 2023](#), [4 Corners CS Convening](#) 2023–Present
- **GitHub Campus Expert** at University of Arizona (prev at METU [2020-2023]) 2023–Present
- Mentor & Contributor at **SCoRe Lab** for [Google Summer of Code](#) & formerly [Google Code-In](#) 2016–2023
- **Google Developer Student Clubs Lead** at METU 2020

SKILLS

- **Programming** Python (Advanced), Dart (Advanced), C (Intermediate), C# (Intermediate), Java (Intermediate), Arduino (Intermediate), Machine Learning (Intermediate), MATLAB (Intermediate), Swift (Intermediate)
- **Technologies** Flutter, Android, iOS, Git, Linux, Torch, Docker, Django, Flask, Unity, GDevelop, Tensorflow, ROS
- **Languages** Turkish (native), English (fluent), Spanish (intermediate), German (beginner)