

Deniz Karakay

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EDUCATION

University of Arizona

M.S. 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, and deep learning applications for MRI and other medical imaging modalities, with a recent focus on diffusion networks.
- 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*.
- Developed a segmentation model for White Matter Hyperintensity (WMH) detection on Brain FLAIR images using nnUNet and ran experiments on ADNI dataset to understand the impact of WMH regions and its correlation with age, cognitive score etc.

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

Software Engineer

Remote
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

Intern

Berlin, Germany
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

Part-time Software Engineer & Special Project Manager

Istanbul, Turkey
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)