

# Furkan Aldemir

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## Experience

### Team Lead

Novit.AI

Oct 2023 - Present

Ankara, TR

- Lead a tech team of seven engineers.
- Operated accumulation and distribution of know-how in the form of clear documentation.
- Cloud / DevOps: (FastAPI, Docker, GitHub Actions, AWS EC2 & ECR & S3 & Lambda & DynamoDB & Lightsail)
  - Oversaw development of a telemetry server for deployed devices.
  - Improved environment setup speeds with containerization via Docker and distribution via AWS ECR.
  - Reduced runtime errors and improved consistency across projects by introducing checks on code changes with GitHub Actions.
  - Owned responsibility for reverse SSH and VPN servers for deployed devices and CVAT servers for annotation purposes.

### Machine Learning Engineer

Novit.AI

Mar 2022 - Oct 2023

Ankara, TR

- Renovated the company website and made it easier to create and modify its content. (React / Vue)
- Ground Observation Unit: (NVIDIA Jetson, TensorRT, GPU, Docker, TAK, Edge AI)
  - Refactored and maintained a legacy embedded AI camera system that is deployed on Jetsons with TensorRT object detection / tracking models.
  - Improved setup automation to reduce development time and frictions.
  - Investigated, figured out, and documented how to use the Team Awareness Kit (TAK) interface. Created modules that allow communication with TAK clients via images, videos, and chat.
  - Documented the usage of routers, GPS modules, USB and IP cameras, AIS transmitters/receivers with NVIDIA Jetson devices.
- ML / Data Engineering: (PyTorch, Web scraping, GitHub Actions, Django)
  - Maintained and debugged a legacy data extraction pipeline that uses an undocumented third party API.
  - Constructed projects to convert image segmentation results into more usable formats.
  - Scraped and generated datasets with clean structures to aid training object detection models.
  - Trained object detection models and prepared pipelines that compare the models' results against the state-of-the-art.
  - Created and maintained parsers that convert between different annotation types for segmentation masks/polygons.

### Research Assistant

METU Heart Research Laboratory

Oct 2020 - Mar 2022

Ankara, TR

- Worked with my thesis advisor on TUBITAK funded projects: (MATLAB, Digital Signal Processing, Bayesian MAP Estimation)
  - Application of Bayesian Estimation Methods to Electrocardiographic Imaging: Prior Model Selection and Reduction of Noise Effects
  - Performance Evaluation of Noninvasive Electrocardiographic Imaging for the Localization of Premature Ventricular Contractions from Clinical Data
- Inspected and reduced the effect of errors in heart and torso geometric models on the performance of the inverse problem of electrocardiography.

### Machine Learning Engineer Intern

Darkblue Telecommunications

Summer 2019

Ankara, TR

- Trained a road detecting model with CNNs and tested it on videos from a drone.

### Electronics Engineer Intern

AirCar Corp

Summer 2019

Istanbul, TR

- Ensured the safety of electronic components and researched battery management systems.

### Electrical Engineer Intern

ELTEMTEK

Summer 2018

Ankara, TR

- Designed and modeled new electric distribution networks for several districts in Turkey.

## Education

### Master of Science in Electrical - Electronics Engineering

Middle East Technical University

2020 - 2023

Ankara, TR

- Thesis: Geometric model error reduction in inverse problem of electrocardiography
- Course: CENG501 Deep Learning
- CGPA: 3.11/4.00

### Bachelors of Science in Electrical - Electronics Engineering

Middle East Technical University

2016 - 2020

Ankara, TR

- CGPA: 3.53/4.00

## Publications

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Aldemir, F., & Dogrusoz, Y. S. (2021). Compensation of Model Errors in Electrocardiographic Imaging Using Bayesian Estimation. *2021 Computing in Cardiology (Cinc)*, 48, 1–4. <https://ieeexplore.ieee.org/abstract/document/9662933>

## Other

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**Languages**   Turkishs (Native)   |   English (Advanced)   |   German (Beginner)   |   Spanish (Beginner)  
**Interests**   Songwriting   |   Reading   |   Playing soccer