Furkan **Aldemir**

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Summary

ML / Backend / DevOps Engineer with proven ability to lead cross-functional & international teams, deliver automations to save developer time and sanity, and maintain cloud services.

Skills:
- Containerization (Docker)
- CI/CD (GitHub Actions, GitLab Pipelines)
- Cloud (AWS, GCP, Oracle)
- Rest APIs (Fastapi, Flask, Django)
- ML (Pytorch, Mlflow, Tensorrt, Cuda)

I am passionate about delivering value by solving real-world challenges, and I am committed to collaboration, continuous learning, and delivering high-quality results.

Experience

Machine Learning Engineer *Sep 2024 - Present*
Archangel Imaging *Oxford, UK*

- Developed smart camera systems, utilizing Python, CUDA, Jetsons.
- Delivered and maintained internal/external servers for telemetry, communication, and ML model improvements, using AWS, Docker, MLflow.
- Oversaw development of mobile Android applications for remote configuration of devices.

Team Lead *Oct 2023 - Sep 2024*
Novit.AI *London, UK - Remote*

- Lead a tech team of six 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.
  - Managed and maintained Django-based websites for internal tools.

Machine Learning Engineer *Mar 2022 - Oct 2023*
Novit.AI *London, UK - Remote*

- 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 *Oct 2020 - Mar 2022*
METU Heart Research Laboratory *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 *Summer 2019*
Darkblue Telecommunications *Ankara, TR*

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

Electronics Engineer Intern *Summer 2019*
AirCar Corp *Istanbul, TR*

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

Electrical Engineer Intern *Summer 2018*
ELTEMTEK *Ankara, TR*

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

Education

Master of Science in Electrical - Electronics Engineering *2020 - 2023*
Middle East Technical University *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 *2016 - 2020*
Middle East Technical University *Ankara, TR*

- CGPA: 3.53/4.00

Projects

Korsan Jaime Bot *2019 - Present*

- A Telegram bot that keeps track of debts between a group of people. The code is open sourced and shared on my GitHub account. Initially, I used to run my instance on the cloud. After a few years, I made the project footprint smaller, added containerization, and started hosting my instance on a Raspberry PI Zero at home. The bot is named after two lovely cats who were once housemates of mine.

School Projects *2018 - 2020*
METU EEE

- **Autonomous Cat Feeding System:** An integrated system of cameras, object detection and recognition models, and a web interface.
- **Mouse Tracker:** A Kalman Filter software, developed with C and LabVIEW and running on an FPGA, that tracks and predicts the movement of the mouse.
- **Ball & Beam:** A PID controller designed to control the position of a ball on a beam. (Arduino)
- **Fake Quidditch:** An FPGA game that is coded with Verilog, displayed with the VGA interface, and controlled with analog buttons.
- **Optical Wireless Communication System, Photophone:** An analog system that takes an input audio signal, transmits that through air via light, to be played out at the other end by a speaker.
- **Wireless Fire Detection System:** An analog system in which various LEDs indicate the position of the highest temperature among spaced out sensors.
- **Single-Axis Solar Tracking System:** An analog system in which a servo motor rotates a panel to where it faces the brightest light.

Publications

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

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