

Aytekin Erdogan

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Experience

- Apr 2024– **Software Engineer Consultant, EXIN HEALTH** 🏠.
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 - **Position Overview:** Senior Machine Learning Engineer specializing in healthcare applications.
 - Engaged in the development of the ORGenie product, aimed at enhancing the intelligence of operating rooms.
 - Responsible for the development and deployment of AI models for surgical data analysis.
 - Expertise in instance segmentation, stereo vision, and automatic speech recognition.
 - Implementing data anonymization techniques to ensure compliance with GDPR and HIPAA regulations.
 - Implemented a video event annotation software.
- Jun 2022– **Software Engineer, ERICSSON** 🏠.
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 - **Position Overview:** Mid-Senior C++ Developer for 5G/6G.
 - Recognized as one of Key Contributors in 2024 and awarded with stock options. 🏠
 - Contributing to the development of enterprise-level software for the 5G/6G TN.
- Sep 2021– **Software Engineer, FORD OTOSAN** 🏠.
May 2022
 - **Position Overview:** Computer Vision Engineer, C++ Developer.
 - Established a multi-sensor calibration/alignment framework.
 - Conducted research on monocular 2D/3D object detection and obstacle detection.
- Aug 2018– **Software Engineer, METEKSAN DEFENCE** 🏠.
Apr 2021
 - **Position Overview:** C++ Developer.
 - Created Board Support Packages for Linux distributions.
 - Developed C++ applications and cross-compile methodologies mostly on Xilinx UltraScale Architecture.
 - **Position Overview:** Computer Vision Engineer
 - Developed and deployed Face Recognition/License Plate Recognition solutions on servers/ NVIDIA Jetson Platforms.

Education

- PhD 2027 **Middle East Technical University** 🏠.
◦ **Program:** Graduate School of Informatics/Computer Science.
- MSc 2023 **Middle East Technical University** 🏠.
◦ **Program:** Graduate School of Informatics/Computer Science.
◦ **Thesis:** A Transformer-Based Approach for Fusing Infrared and Visible Band Images.
- BSc 2019 **Hacettepe University** 🏠.
◦ **Program:** Electrical and Electronics Engineering
◦ **Rank:** 8/130 **GPA:** 3.3/4.00
- HS 2015 **Isiklar Air Force Military High School** 🏠, **Rank:** 11/171 **GPA:** 80.03/100.

Abilities, Frameworks & Tools

- Languages C/C++, Python, Matlab
Tech C++17, OpenMP, CUDA C/C++, Pytorch, OpenCV, Boost

Publications

Aytekin Erdogan Erdem Akagunduz. FuseFormer: A Transformer for Visual and Thermal Image Fusion. *arXiv.org pre-print*, 2024.

Aytekin Erdogan. A Transformer-Based Approach for Fusing Infrared and Visible Band Images. Master's thesis, Middle East Technical University, 2023.

Aytekin Erdogan. 3D-printed Reflectarray Antenna Design and Fabrication. *Bachelor of Science degree thesis, Hacettepe University*, 2019.

Aytekin Erdogan. Total Quality Management in Training of Airmen. *IJAS Conference, Nevada USA*, 2016.

Scientific Works

- 2023 **CUDA Performance Measuring: A Comparative Study**, High Performance Computing 🏠.
In this project, I have implemented a vanilla computer vision pipeline from scratch for single-thread cpu, openMP and CUDA. I have measured their performances based on their timings. You can find the code via [this link](#).
- 2022 **Lane Detection: A Comparative Study**, Computer Vision 🏠.
In the course project of Machine Learning, I have implemented a low-level feature lane tracker, and different types of algorithms to compare them. You can find the code via [this link](#).
- 2021 **Low-Light Image Enhancement**, Image Processing 🏠.
In the course project of Image Processing, I have implemented low-light image enhancement solutions.
- 2021 **Real-time Multi-Person Pose Estimation: Lightweight OpenPose Test**, Deep Learning 🏠.
In the course project of Motion Capture, I have implemented a stress test for OpenPose network.
- 2021 **Real Time Semantic Segmentation for Autonomous Vehicles**, Deep Learning 🏠.
In the course project of Deep Learning, I have implemented a semantic segmentation network.
- 2019 **Expire Date Detection with FPGA**, Image Processing and Digital Design 🏠.
We tried to detect expire date of a food with image processing algorithms and classify whether it is consumable.
- 2019 **A Low-Cost Home Automation Control System Based-on IoT**, Internet of Things 🏠.
In this project, we wanted to model a smart home with a low budget. Details can be found in video.
- 2015 **Re-Arranging the Energy Transmission Lines by Considering the Fermat-Steiner Point**, Applied Mathematics.
Fermat-Steiner point is a special point in a triangle. In this high school project we aim to find minimum distances in a set of arbitrary points in 3D space. We participated in Google Science Fair 2015.
- 2013 **Alternative Method To Calculate Volume and Field of Quadratic Parabola**, Applied Mathematics.
In this high school project we aim to find an alternative method to calculate parabola field and volume using numerical methods. We participated in TUBITAK National High School Science Fair 2013.

Licenses & Certifications

- May 2023 **C and C++ SEI CERT Based Secure Coding**, by Scademy, 🏠.
- Mar 2022 **Self Driving Car Engineer**, by Udacity, 🏠.
- Jan 2022 **Scrum Team Member**, by Scrum Inc, 🏠.
- June 2020 **TensorFlow Developer Specialization**, by deeplearning.ai Dr.Laurence Moroney, 🏠.
- Apr 2020 **The Deep Learning Specialization**, by deeplearning.ai Dr Andrew NG, 🏠.
- Jan 2020 **Machine Learning**, by Stanford University Dr Andrew NG, 🏠.

Worth To Mention

- Language **Near Native English Speaker**, IELTS Academic 7.5/9 - TOEFL 102/120.
- Hobbies **Social Entrepreneurship**.
- Hobbies **Debate**, Former National Debate Team Candidate.
- Hobbies **Swimming**, Former Professional Athlete.