HATİCE KARATAŞ

SOFTWARE ENGİNEER

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https://github.com/Hat13K https://hat13k.github.io/haticekaratas.github.io/ 01.07.2002

ABOUT ME

While specializing in software engineering, I focused intensely on artificial intelligence, computer vision, and reinforcement learning. I have experience developing solutions for autonomous systems, healthcare technologies, and defense applications. I am driven by a motivation to conduct research, develop innovative technologies, and adapt them to real-world applications.

EXPERİENCE

HAVELSAN July 2024 – August 2024

Intern Engineer | Istanbul

I worked as an intern engineer in the Command, Control, and Defense Technologies department. I was involved in a computer vision-based project within the scope of air defense and radar systems. I gained experience in generating masks from YOLO-based annotations, applying various segmentation methods, and detecting aircraft in video frames using the U-Net model.

EDUCATİON

B.Sc. in Software Engineering (100% Scholarship) (2021 - 2025)

Istinye University | Istanbul

GPA: 3.65 / 4.00 – 2nd in Department

PROJECTS

Decision Support System for Pediatric Appendicitis Diagnosis Using US February 2025 – September 2025

Capstone Project | Istinye University

A decision support system based on artificial intelligence was developed to accelerate and objectify the diagnosis of acute appendicitis in pediatric patients. The study utilized the Regensburg Pediatric Appendicitis dataset, and appendix diameter was automatically measured from ultrasound images using U-Net-based segmentation models with ResNet34 and EfficientNet encoders. This diameter data was combined with patient age, gender, laboratory results, and symptoms to perform diagnostic classification using the XGBoost algorithm. Instead of the conventional IoU metric, a custom validation function based on diameter deviation was designed to better reflect diagnostic accuracy. The entire system was integrated into a Docker-based web interface, allowing physicians to receive automated diagnoses based on both imaging and clinical data. The project was submitted to TEKNOFEST 2025 – Technology for the Benefit of Humanity as part of the TEKNOŞİFA team, where team leadership was undertaken. It was showcased at TMMOB BPS2025 and further developed during inzva AI Projects—a 4-month development marathon bringing together AI developers working on real-world challenges—and presented to a community of AI professionals and academics.

PROJECTS

Aircraft Detection via Video Segmentation July 2024 – August 2024

Internship | HAVELSAN

Training was conducted using gradient-based and ROI-OTSU-like masks derived from a YOLO dataset. Models included CNN architectures such as ResNet, EfficientNet, MobileNet, ViT, and a custom “triple input” model. The best performance was achieved with a lightweight U-Net model, generating probability heatmaps of fighter jets at 30 FPS in video frames. In the final stage, video segmentation was applied, and video stabilization algorithms were integrated to enhance robustness against distortions.

Autonomous Rotary-Wing UAV Flight with Reinforcement Learning September 2022 – May 2023

TEKNOFEST

As a team, we developed a reinforcement learning–based autonomous drone flight system and built our own drone, conducting flight training in a simulation environment. With this project idea, we won first place in the BEST For Energy Ideathon, organized under the Competitive Sectors Program by the Ministry of Industry and Technology.

SKİLLS

Computer Vision	●●●●○	Deep Learning (CNN)	●●●●○
Large Language Model	●●●○○	Big Data	●●●○○
MLOps	●●●●○	Python	●●●●○
Validation and Verification	●●●○○	Java	●●●●○
Docker	●●●●○	C/C++	●●●○○

LANGUAGES

- English: B2 (Upper Intermediate)

CERTİFİCATİONS

AI Specialization Program – Advanced Training August 2024

Republic of Türkiye Ministry of Industry and Technology

AI Specialization Program – Fundamental Training March 2024

Republic of Türkiye Ministry of Industry and Technology

REFERENCES

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Project Manager | HAVELSAN