

Alper Kayabaşı

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Research interests

Few-shot Semantic Segmentation and Video Action Recognition

Education

- 2020 – now **Middle East Technical University** – Ankara, Turkey
M.S. in Electrical and Electronical Engineering
Thesis: Analysis of Few-shot Image Segmentation Techniques
GPA: 3.79.
Supervisor: Prof. Dr. İlkey Ulusoy
- 2015 – 2020 **Hacettepe University** – Ankara, Turkey
B.S. in Electrical and Electronical Engineering
Capstone Project: [Laser Range Finder with Image Tracking](#)
GPA: 3.64 - ranked 1st.
Advisor: Prof. Dr. Feza Arıkan

Course Projects

- *Machine Vision*: Reproducing of "Fully Convolutional Neural Network" paper, and its enhancement with Conditional Random Field. [Video Presentation](#).
- *Deep Learning*: Implementation of the paper without any published code, namely "Moving in the Right Direction: A Regularization for Deep Metric Learning" published at CVPR 2020. [GitHub Repository](#).
- *Sequence Models in Multimedia*: Implementation of the paper without any published code, namely "Scale-Aware Graph Neural Network for Few-Shot Semantic Segmentation" published at CVPR 2021. [GitHub Repository](#).
- *Introduction to Robotics*: Sea-Urchin robot design including derivation of kinematics, inverse kinematics, dynamic, and trajectory with gait planing. [GitHub Repository](#) and [Video for simulation](#).
- *Microprocessor Architecture and Programming*: Implementation of maze game in Assembly Language. [Video for Game](#).
- *Embedded System Design*: Design of IoT Communication Device. [Video for the Design](#).
- *Advanced Digital Design*: 16 bit RISC architecture CPU design in VHDL.

Publications

- WACV 2023 **Elimination of Non-Novel Segments at Multi-Scale for Few-Shot Segmentation**
Alper Kayabaşı, Gülin Tüfekci, İlkey Ulusoy.
- ECCV W, 2022 **Detecting Driver Drowsiness as an Anomaly Using LSTM Autoencoders**
Gülin Tüfekci*, Alper Kayabaşı*, Erdem Akagündüz, İlkey Ulusoy.
(*Equal Contribution)
European Conference on Computer Vision - In-Vehicle Sensing and Monitorization Workshop.
- SIU, 2022 **A Comparative Analysis of Revealing Temporal Patterns for Driver Drowsiness Detection**
Gülin Tüfekci, Alper Kayabaşı, İlkey Ulusoy.
Signal Processing and Communications Applications Conference.
- SPIE, 2021 **Comparison of distance metric learning methods against label noise for fine-grained recognition**
Alper Kayabaşı, Kaan Karaman, İbrahim Batuhan Akkaya.
Society of Photo-Optical Instrumentation Engineers- Automatic Target Recognition XXXI Conference.

Honors

- 2020 Ranked 3rd in capstone projects amongst Department of Electrical and Electronical Engineering at Hacettepe University.
- 2020 Ranked 1st among 132 undergraduate students of Electrical and Electronical Engineering.

Research experience

- 2019 – now **ASELSAN Research Center**
Research Engineer
- Development of Autofocus Algorithms.
 - Design of Image Retrieval Models Using Metric Learning.
 - Design of Video Classification Models for Driver Drowsiness Detection.

Industry experience

- 2019 **ASELSAN, Summer Internship** – Ankara, Turkey
Design and test of raised cosine type finite impulse response filter in VHDL language.

Attended events

- 2022 European Conference on Computer Vision
- 2021 International Conference on Computer Vision
- 2021 Computer Vision and Pattern Recognition Conference

Technical skills

Programming languages and Libraries

Proficient in: Python, PyTorch, NumPy, MATLAB

Languages

English (fluent)

Other interests

Skiing.