Farbod Siahkali

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Github Scholar

Education

Bachelor of Electrical Engineering **Sep. 2019 – July 2023**
Control Engineering Branch at University of Tehran *Tehran, Iran*
Score: 18.36/20 - GPA: 3.87/4.0

Diploma of Mathematics **June 2016 – Sep. 2019**
Salam High School *Tehran, Iran*
GPA: 3.89/4.0

Research Interests

- Federated Learning
- Object Re-identification
- Speech Recognition
- Vision Transformers
- Natural Language Processing
- Object Detection

Experience

Research Assistant **Sep. 2022 – Present**
TIL: Telecommunications Innovation Lab *Tehran, Iran*

- Predicting Arterial Blood Pressure (ABP) using subject's PPG signal and 1D convolutional neural networks.

Research Assistant **May 2021 – Present**
TaarLab: Human and Robot Interaction Laboratory *Tehran, Iran*

- Implementing deep convolutional neural networks for person-reID, attribute recognition, and attribute retrieval tasks.
- Implementing human detection and tracking models.

Teaching Assistant **Sep. 2020 – Present**
University of Tehran *Tehran, Iran*

- Neural Networks & Deep Learning — Spring 2023 — Dr. Kalhor.
- Instrumentation — Spring 2023 — Dr. Nayeri.
- Instrumentation — Fall 2022 — Dr. Nasiri.
- Linear Control Systems — Fall 2022 — Dr. Bahrami.
- Engineering Mathematics — Fall 2021 — Dr. Tale Masouleh.
- Electronics I — Fall 2021 — Dr. Sanaei.
- Engineering Mathematics — Spring 2021 — Dr. Taheri.
- Introduction to Computing Systems and Programming — Fall 2020 & Fall 2021 — Dr. Moradi.
- Introduction to Electrical Engineering — Spring 2021 — Dr. Samimi.

Publications

Image-based and Partially Categorical Annotating Approach for Pedestrian Attribute Recognition **July 2023**
In Processing of Computer Vision and Image Understanding Journal

- This research suggests an image-based partially categorical attribute dataset (CA-Duke) and also proposes a two-step learning method for evaluating the separability of data in the latent space via a new metric called the Separation Index.

SIVD: Dataset of Iranian Vehicles for Real-Time Multi-Camera Video Tracking and Recognition **Oct. 2022**
Published in Iranian Conference on Signal Processing and Intelligent Systems (ICSPIS 2022)

- In this paper, we propose a new web-scraped Iranian vehicle dataset (SIVD) (which has 29 classes and more than 36,000 images) for simultaneous real-time vehicle tracking and recognition.

Research Projects

Iranian Vehicle Tracking and Recognition | *Pytorch, Selenium* **Sep. 2022**

- Proposed SIVD: Scraped Iranian vehicle dataset. Implemtented a tracking and recognition using Yolov5 and OSnet.

Pedestrian Re-identification and Attribute Recognition/Retrieval | *Pytorch* **July 2022**

- Developed a multi-branched model for the task of attribute recognition on the CA-Duke dataset without affecting the weights of the Re-ID baseline.
- Improving the results of the pre-trained person re-identification network (Omni-scale) using multiple re-ranking methods on the network's re-ID and attribute recognition features.

Fashion Recommendation System | *Pytorch, Flask* **April 2022**

- Web scraping online fashion stores and developing a recommendation system using ranking methods.

DUKEMTMC Dataset Annotation | *Tkinter* **Dec. 2021**

- Proposed Categorical Attribute DukeMTMC (CA-Duke) which is an extension of DukeMTMC-reID dataset with 76 attributes for over 32,000 train and test images.

Input Image Optimization | *Pytorch* **Oct. 2021**

- Optimizing a convolutional neural network's input based on an specific target in order to visualize the network's concept of the target.

Honors & Awards

Best Undergraduate Project Award **July 2023**

- Have been honored with the Best Undergraduate Project Award at the Project Day held in the Electrical and Computer Engineering Faculty of the University of Tehran. My project focused on implementing a novel approach for Pedestrian Attribute Recognition.

Certificates

IELTS Certificate

- Listening: 8
- Reading: 8.5
- Writing: 7
- Speaking: 7
- Overall Band Score: 7.5

Coursera Courses

- Game Theory
- Getting Started with Git and GitHub
- Introduction to Web Development (HTML, CSS, Js)
- Introduction to Cloud Computing

HackerRank Certificates

- Python (Basic) Certificate
- SQL (Basic) Certificate
- SQL (Intermediate) Certificate
- SQL (Advanced) Certificate

Technical Skills

Coding Languages: Python, C, C++, HTML/CSS, Matlab, Verilog, SQL
Frameworks: Pytorch, TensorFlow, Keras, GitHub, Numpy, Pandas, Flask
Software Tools: VS Code, LaTeX, Git, Tensorboard, IBM Cloud Platform

Relevant Coursework

- Neural Networks & Deep Learning
- Artificial Intelligence
- Linear Algebra
- Game Theory
- Robotics & Mechatronics
- Operational Research
- Computer Networks
- Computer Architecture
- Computer Programming

References

Dr. Mehdi Tale Masouleh ✉ **Mail** **Associate Professor**

- University of Tehran, Electrical and Computer Eng., Human and Robot Interaction Laboratory (TaarLab)

Dr. Ahmad Kalhor ✉ **Mail** **Associate Professor**

- University of Tehran, Electrical and Computer Eng., Human and Robot Interaction Laboratory (TaarLab)

Dr. Saeed Akhavan ✉ **Mail** **Assistant Professor**

- University of Tehran, Electrical and Computer Eng., Telecommunications Innovation Laboratory (TIL)