S.M. Hossein Hosseini

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Education

York University — Toronto, Canada
MASc. in Electrical and Computer Engineering, GPA: 4 — 2022–2024

University of Tehran — Tehran, Iran
BSc. in Electrical Engineering, GPA: 3.6 (17.16/20) — 2016–2021

- Thesis: "Single-view 3D Reconstruction of Surface of Revolution"

Experience

Graduate Research Assistant at Elder Laboratory — Toronto, Canada
Working on monocular depth estimation. — 2022-2024

Research Assistant at NBML — Tehran, Iran
Implementing a data-driven framework for medical image (dMRI) analysis — 2021 - 2022

- Proposing a novel convolutional + transformer model to process MRI data
- Introducing an automatic end-to-end tractography pipeline

Research Intern at Daha Tech — Tehran, Iran
Developing a wireless indoor positioning system using BLE antennas — Summer 2019

- Implementing real time locating system (RTLS) using Kalman filter and clustering algorithms

Publications

1. S.M.H. Hosseini, M. Hassanpour, S. Masoudnia, S. Iraji, S. Raminfard, M. Nazem-Zadeh, "CTtrack: A CNN+Transformer-based framework for fiber orientation estimation & tractography," *Neuroscience Informatics*, Volume 2, Issue 4, 2022.

2. S.M.H. Hosseini, S.M. Nasiri, R. Hosseini, H. Moradi, "Single-view 3D Reconstruction of Surface of Revolution," *Pattern Recognition Letters*, submitted.

Teaching

- **Student Teaching Assistant** at York University — Winter 2023
  Introduction to programming (Python)
- **Student Teaching Assistant** at York University — Fall 2022
  Computational Thinking through Mechatronics (Matlab)
- **Student Teaching Assistant** at University of Tehran — Fall 2020
  Linear Control System
- **Student Teaching Assistant** at University of Tehran — Fall 2020

Industrial Control

- **Student Teaching Assistant** at University of Tehran — Fall 2019
  Engineering Mathematics

Skills

- **Programming:** Python, Matlab, C/C++
- **Deep Learning:** Pytorch, TensorFlow/Keras
- **Tools/Techs:** LaTeX, Ubuntu, CUDA
- **Hardware/System Design:** AVR, Proteus, Simulink

Languages

- **English:** Proficient - TOEFL iBT score: 108/120
- **Persian:** Native language

Projects

- **Transformer-based Framework for Fiber Orientation Estimation & Tractography**
  Research Assistant (Python, 2022)
- **Optical-Flow from scratch**
  Computer vision (Python, 2022)
- **Voice Gender Classification**
  Pattern Recognition (Python, 2020)
- **Text Generator**
  Neural Network (Python, 2020)
- **Route Optimization**
  Operational Research (Python, 2019)
- **Single-view 3D Reconstruction of SOR**
  Bachelor's Thesis (Matlab, 2021)
- **Movie Server**
  Advanced Programming (C++, 2019)
- **YOLOv5 fine-tuning for chess piece detection**
  Neural Network (Python, 2020)
- **Comparison of Feature Selection Algorithms for Tabular data**
  Pattern Recognition (Python, 2020)
- **Super Mario Game**
  Advanced Programming (C++, 2019)

References

- **Prof. James Elder** — Toronto, Canada
  Professor at Department of Electrical Engineering & Computer Science, York University, Member of the Center for Vision Research, Director of Elder Laboratory
- **Prof. Reshad Hosseini** — Tehran, Iran
  Assistant Professor at Electrical and Computer Engineering School, University of Tehran, Director of Computational Audio-Vision Lab
- **Prof. Manouchehr Moradi** — Tehran, Iran
  Associate Professor at Electrical and Computer Engineering School, University of Tehran, Director of Advanced Robotics and Intelligent Systems Lab
- **Dr. Masoud Hassanpour** — Tehran, Iran
  Researcher at the Molecular and Cellular Imaging Center, Advanced Medical Technologies and Equipment Institute (AMTEI), Tehran University of Medical Sciences
- **Prof. Fariba Bahrami BoodeLalou** — Tehran, Iran
  Associate Professor at Electrical and Computer Engineering School, University of Tehran, Director of Human Motor Control and Computational Neuroscience Lab