Sepehr SeifiZarei

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Born 16 Aug 1996

Education

2023 – Present

Doctor of Technology in Computer Science - Health Technology

University of Turku (UTU) **Turku , Finland**

Thesis: Unobtrusive Physiological Monitoring and Diagnosis of Cardiovascular Diseases using Machine Learning
Supervisors: Assistant Prof. Matti Kaisti, Assistant Prof. Antti Airola

2018 – 2022

Master of Science in Biomedical Engineering - Bioelectric

Iran University of Science and Technology (IUST) **Tehran , Iran**

GPA: 4/4 - 17.42/20

Thesis: Despeckling of Medical Ultrasound Images using Deep Learning
Supervisor: Dr. Hamid Behnam

2013 – 2018

Bachelor of Science in Electrical Engineering - Electronics

Bu-Ali Sina University (BASU) **Hamedan , Iran**

GPA: 3.5/4 - 16.5/20

Thesis: Application of FibroScan® device in liver diseases
Supervisor: Dr. Soheil Ganjefar

Research Interest

1. Health Technology
2. Data Science
3. Machine Learning
4. Deep Learning

Publications

Conference

- S. Seifizarei et al, "**Evaluating Piezoelectric Ballistocardiography for Post-Surgical Heart Rate Monitoring** .", Computing in Cardiology 2024

Journal

- S. Seifizarei et al, "**Continuous Radar-based Heart Rate Monitoring in Intensive Care Unit** .", IEEE Journal of Biomedical and Health Informatics

In preparation

- S. Seifizarei et al, "**Robust Multi-node Accelerometer-Based Bed Monitoring System for Longitudinal Heart Rate Detection in Clinical Setting** .", Target Journal: JMIR mHealth and uHealth

Work Experience

Project Researcher

- RM4Health: Algorithm development and heart failure investigation, 2023-Present, University of Turku
- Moore4Medical: Signal processing and atrial fibrillation detection using radar and bed sensors, 2022-2023, University of Turku

Teaching Assistant

- Medical Instrumentation: ECG and PPG circuit simulation with LT Spice software and hands-on implementation, Spring 2024, University of Turku
- Physiology Lab: ECG signal acquisition and processing with LabChart software, 2019-2020, Iran University of Science and Technology

Internship

- Electric-motors repairing and wiring, 2015-2016, Hamedan Technical Electric

Awards and Honors

- Received national graduate and undergraduate full scholarship
- Ranked within top 5% among more than 40,000 participants in Iranian university entrance exam for Master's degree
- Ranked within top 1% among more than 222,000 participants in Iranian university entrance exam for Bachelor's degree
- 2nd Rank in Handball national universities competitions - 2018

Selected Courses and Projects

Graduate

Statistical Pattern Recognition (GPA: 4/4 - 18.65/20)

- Under supervision of Prof. Mohammadreza Daliri
- **Final Project:** ECG arrhythmia classification using a 2D convolutional neural network
- Implementing a deep two-dimensional convolutional neural network (CNN) for Electrocardiogram (ECG) arrhythmia classification in MATLAB environment

Medical Image Processing (GPA: 4/4 - 16.1/20)

- Under supervision of Prof. Aboozar Ghaffari
- **Final Project:** A Hierarchical Image Matting Model for Blood Vessel Segmentation in Fundus Images
- Extracting blood vessels from fundus images using a hierarchical image matting model in MATLAB environment

Ultrasound in Biomedical Engineering (GPA: 4/4 - 16/20)

Brain-Computer Interface Systems (GPA: 4/4 - 17.6/20)

Undergraduate

Linear Control, Digital Control, Electronic Circuit

Online Courses

Linkedin Learning

Course: Robot Framework Test Automation: Level 1 2, **Taught by:** Bryan Lamb **Course:** API Test Automation with SoapUI, **Taught by:** Dave Westerveld **Course:** Robot Framework Test Automation: Jenkins CI and Git Version Control, **Taught by:** Bryan Lamb **Course:** Robot Framework Test Automation: Sauce Labs, **Taught by:** Bryan Lamb

COURSERA

Course: Neural Networks and Deep Learning, **Taught by:** Andrew Ng, by Deeplearning.io

Robotech Academy

Course: Deep Learning for Computer Vision, **Main skills covered:** Object Detection, OpenCV, Google Colab, Neural Networks

Skills

- **Programming Languages:** Python, MATLAB
- **Deep Learning Frameworks:** Keras, Tensorflow, PyTorch
- **Data Science:** Data Analytics, Data Visualization, Cluster Computing (CSC-PUHTI)
- **Software:** Code Vision AVR, Proteus Design Suite, Onshape, AutoCAD, Altium
- **Markup Language:** LaTeX, HTML/CSS

Language Proficiency

Persian: Native

English: Fluent

TOEFL Score: 105/120

Finnish: Basic

Voluntary work

- Member of Hamedan Animals Rescue Non-governmental Organization, Hamedan, Iran, 2018-Present

Hobbies and Interests

Sport

- Cycling
- Handball
- Ping-Pong

Music

- Piano
- African Drum