Sepehr SeifiZarei

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About Me

I am a dedicated researcher in health technology, focusing on machine learning and data science. My work aims to advance unobtrusive monitoring systems for cardiovascular diseases, blending technical expertise with a passion for improving healthcare outcomes.

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, Associate 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: Associate Prof. 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: Prof. Soheil Ganjefar

Work Experience

Doctoral 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

Electrical motors fault diagnosis, 2015-2016, Hamedan Technical Electric

Skills

Programming Languages: Python, MATLAB

Deep Learning Frameworks: Keras, Tensorflow, PyTorch

Cloud and Tools: AWS, GitHub, Linux

Data Science: Data Analytics, Data Visualization, Cluster Computing (CSC-PUHTI)

Software: AutoCAD, Altium, Onshape, Proteus Design Suite, Code Vision AVR

Markup Language: LaTeX, HTML/CSS

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

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 for Electrocardiogram (ECG)

Medical Image Processing (GPA: 4/4 - 16.1/20)
- Under supervision of Assistant Prof. Aboozar Ghaffari
- **Final Project:** A Hierarchical Image Matting Model for Blood Vessel Segmentation in Fundus Images

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

Research Interest

- Health Technology
- Data Science
- Machine Learning
- Deep Learning

Language Proficiency

- **Persian:** Native
- **English:** Fluent (TOEFL: 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