Reza Jahromi

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Education

Ph.D. in Industrial and Systems Engineering (Data Science) **September 2019 – May 2023**
Texas A&M University, College Station, TX, USA
Thesis: Investigating non-intrusive wrist-worn acceleration data for the detection of chronic diseases and stress-related disorders using machine learning (using **Python**)
Cumulative GPA: 3.90
Relevant coursework: Statistics in Research, Design and Analysis of Industrial Experiments (Advanced Statistics)

Master of Computer Science **January 2020 – December 2022**
Texas A&M University, College Station, TX, USA
Cumulative GPA: 4.00
Relevant coursework: Machine Learning, Deep Learning, Data Mining, Analysis of Algorithms, Software Engineering

M.Sc. in Mechanical Engineering **September 2013 – January 2016**
Sharif University of Technology, Tehran, Iran
Thesis: Computer simulation of blood flow in a stenotic left coronary bifurcation to predict the location of the secondary stenosis (using **C++**)
Cumulative GPA: 3.60
Relevant coursework: Advanced Mathematics

B.Sc. in Mechanical Engineering **September 2009 – July 2013**
University of Tehran, Tehran, Iran
Cumulative GPA: 3.43
Relevant coursework: Mathematics I and II, Differential Equations, Numerical Computation, Engineering Mathematics, Object-Oriented Programming (C++)

Certificates

- Machine Learning coursera.org/verify/27MLNZENF6W7
- Deep Learning coursera.org/verify/YKR9ZK52HY5P
- Neural Networks and Deep Learning coursera.org/verify/P9WCQAEEYVWX
- Structuring Machine Learning Projects coursera.org/verify/QB4H3MHZH277
- Improving Deep Neural Networks:

HyperParameter Tunning, Regularization and Optimization coursera.org/verify/QP5M6EN59RHP
- Convolutional Neural Networks coursera.org/verify/EEPMNWDKL5AW
- Sequence Models coursera.org/verify/ZVKE38PZYR83
- Mathematics for Machine Learning: Linear Algebra coursera.org/verify/3NKH7REEPY2Q
- Python Data Structures coursera.org/verify/C6USRM7E6ALD

Work Experience

Graduate Research Assistant **September 2019 – present**

Data Scientist at Applied Cognitive Ergonomics Lab (ACELab), Texas A&M University, College Station, TX, USA:

- Implemented different **machine learning** algorithms and **ensemble learning** for hypoglycemia **detection** using wrist-worn acceleration data
- Developed stress **detection tool** on **smartwatch** via heart rate and **acceleration data** using various **machine learning** models
- **Human activity recognition** in the nurse care domain through **wearable devices** acceleration data
- Collaborated with a team in Houston Methodist Hospital as a **data scientist** for data collection, processed the collected data from wearable devices with an end-to-end data processing pipeline
- Implemented a **continuous-time recurrent neural network (CRNN)** for **human activity recognition** using wrist-worn acceleration data

Course Projects

Data Mining **Fall 2021**

- Project: "Find user communities in a **big Twitter dataset** using **LDA, PageRank**, and **Trawling** algorithm with **Apache Spark**" (using **Python**)
- Project: "Implementing the Apriori and the Son algorithms from scratch in a **big movie rating dataset** to find **frequent itemsets** and **association rules**" (using **Python**)
- Project: "Predicting Covid19 risk level using geographical, meteorological and health data of the US Counties: a novel approach by combining **unsupervised** and **supervised learning**"

Software Engineering **Fall 2021**

- Project: "Design of a **website** and a **mobile application** for Operation Airdrop to manage the database of donations, volunteers, missions, and pilots" (Using **JavaScript**, **HTML**, **CSS**, **React**, **ReactNative**, and **Firebase**)

Machine Learning **Fall 2020**

- Project: "COVID-19 diagnosis from chest X-ray **images** using **transfer learning** and **ResNet** pretrained model" (using **Python**)
- Project: "Implementing **regularized linear regression** and **logistic regression algorithms** from scratch to predict the outcome of interest in Pokeman GO!" (using **Python**)

Deep Learning **Spring 2020**

- Project: "**Video**-based **human activity recognition** using hybrid (**CNN Transfer learning** and **LSTM**) **neural networks** with **Keras** and **openCV**" (using **Python**)

Area of Expertise

- Artificial Intelligence – Machine Learning – Deep Learning
- Computer Vision – Signal/Image/Sound Processing
- Statistics – Data Analytics – Probabilities – Mathematics – Time Series Analysis
- Software Engineering

Technical Skills

- **Programming languages/Package/Toolkit:** Python, C++, MATLAB, R, SQL, JavaScript, HTML, CSS, Pandas, Numpy, Scipy, Scikit Learn, TensorFlow, PyTorch, Spark, React, ReactNative, Firebase
- **Visualization Software/Package:** Matplotlib, Seaborn
- **Operating systems:** Windows, MAC OS, Linux

Publications

- **Jahromi, R**., Ziyadidegan, S., Sasangohar, F., & McDonald, A. (**2022**). Automatic Stress Detection in College Students from Smartwatch Accelerometer Data. *Journal of Biomedical Informatics*. [Under review]
- **Jahromi, R**., Zahed, K., Sasangohar, F., Erraguntla, M., Mehta, R., & Qaraqe, Kh. (**2022**). Hypoglycemia Detection Using Hand Tremors: A Home Study in Type 1 Diabetes Patients. *IEEE Sensors Journal*. [Under review]
- **Jahromi, R**., Rezaei, M., Samadi, S. H., & Jahromi, H. (**2021**). Biomass gasification in a downdraft fixed-bed gasifier: Optimization of operating conditions. *Chemical Engineering Science*, 116249.
- **Jahromi R**, Mogharab V, Jahromi H, Avazpour A. (**2020**). Synergistic effects of anionic surfactants on coronavirus (SARS-CoV-2) virucidal efficiency of sanitizing fluids to fight COVID-19. Food and Chemical Toxicology, 111702.
- **Jahromi, R**., Avazpour, A., Jahromi, M., & Alavi, J. (**2020**). COVID-19 with positive bronchoalveolar lavage fluid but negative nasopharyngeal and oropharyngeal swabs: a case report and insights. *Indian Journal of Case Reports*, 380-382.
- **Jahromi, R**., Pakravan, H. A., Saidi, M. S., & Firoozabadi, B. (**2019**). Primary stenosis progression versus secondary stenosis formation in the left coronary bifurcation: A mechanical point of view. Biocybernetics and Biomedical Engineering, 39(1), 188-198.

Conference presentations

- **R. Jahromi**, N. Ahmadi, F. Sasangohar, V. Danesh. "Workload intensity in the intensive care unit: Naturalistic physical activities assessment using accelerometer data". Oral presentation. HEALTHCARE SYSTEMS PROCESS IMPROVEMENT CONFERENCE. February 26, **2021**.
- **R. Jahromi**, M. S. Saidi, B. Firoozabadi. "Computer simulation of an atherosclerotic left coronary bifurcation to study the effects on the endothelial cells". Oral presentation. HEALTHCARE SYSTEMS PROCESS IMPROVEMENT CONFERENCE. Tehran, Iran, January 21, **2016**.