

Matin Kheirkhahan

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Summary

- Passionate about Artificial Intelligence and Machine Learning research and applications.
- Excellent software engineering skills.

Education

Ph.D. in Computer Science (3.89/4) University of Florida, Gainesville FL, USA	<i>August 2018</i>
M.S. in Computer Engineering University of Florida, Gainesville FL, USA	<i>May 2018</i>
M.S. in Artificial Intelligence and Robotics Iran University of Science and Engineering, Tehran, Iran	<i>May 2012</i>
B.S. in Computer Engineering University of Tehran	<i>September 2009</i>

Key Skills

- **Software Development:** extensive professional experience in academia and industry.
 - Deep understanding of data structures, algorithm designs and analysis.
 - Developed several major projects, such as web servers, smartwatch applications and analytical programs.
 - Proficient in all major object-oriented programming languages.
 - Frequently contributed to open source projects. (stackoverflow reputation: 3K)
 - Experience with version control systems, such as Git and SVN.
- **Machine Learning:** researched and developed machine learning methods as the main focus of PhD works and internship.
 - Professional experience in unsupervised (clustering), supervised (classification) and semi-supervised learning methods.
 - Experience with Deep Learning methods, such as CNN, RNN and one-shot learning.
- **Data Science:** five years of research experience in a multi-disciplinary data science group.
 - Professional experience with all steps of data science: data collection, cleaning, exploration, analysis and result interpretation.
 - Used regression, time series analysis and pattern recognition extensively for extracting information from raw data.
 - Experienced with Big Data frameworks (Map Reduce), such as Apache Spark.
 - Developed analytical frameworks for predictive analysis and real-time data visualization.
 - Mastered inter-disciplinary communication skills to explain the findings to technical and non-technical audience.
- **Leadership:** Led groups of 4 and 5 students and successfully delivered a real-time framework for mobility monitoring and physical activity assessment.

Programming Skills

- **Programming Languages:** C, C++, Java, Python, R, Javascript, Tizen, Bash Script, Matlab, SQL
- **Databases:** MySQL, PostgreSQL, Oracle, MS SQL Server
- **Other:** Git, LATEX, Django, Redhat (Linux)

Professional Experience

Software Engineer, Google
Mountain View CA

11/2018 – present

- Working on Google Home project (Google Hardware).

Machine Learning Research Intern, Philips Research North America,
Cambridge MA

08/2017 – 12/2017

- Developed an automated patient-ventilator asynchrony detection framework.
- Designed a centralized database model for analysis of ventilator waveform big data.
- Researched and developed an active-learning system for generating annotated data in parallel with improving the accuracy of asynchrony detection.

Research Assistant, University of Florida,
Gainesville FL

08/2013 – 11/2018

- Introduced machine learning methods for physical activity assessment using wearable sensors.
- Applied signal processing and time-series analysis for feature derivation from accelerometer data and improved activity recognition accuracy by 10%.
- Designed and implemented a novel transfer learning method to leverage the existing knowledge from different wearables to enhance the performance of smartwatch-based mobility monitoring model.

Software Engineer, Datxsoft
Tehran, Iran

05/2012 – 08/2013

- Designed and implemented user management, security and customer call center for a stock exchange system.

Teaching Experience

- TA of **Database Management Systems** at UF *Spring 2018*
- TA of **Analysis of Algorithms** at UF *Spring & Fall 2016, Spring 2017*
- TA of **Introduction to Data Mining** at UF *Fall 2015*
- Instructor of **C++ Programming** at Allame Helli High School *2012 – 2013*
- TA of **Stochastic Pattern Recognition** at IUST *Fall 2011*
- TA of **Introduction to Artificial Intelligence** at UT *Spring 2008, Spring & Fall 2009*
- TA of **Fundamentals of Computer Programming** at UT *Fall 2007*

Honors and Involvements

- Received full assistantship for Ph.D. program in Computer Science from UF. (2013 – 2018)
- President of Iranian Student Association (ISA) at UF. (2015 – 2016)
- Ranked top 0.001% in nationwide matriculation exam – 215th among 500,000. (2005)

Publications

[1] Real-Time Online Assessment and Monitoring of Mobility. *Journal of Biomedical Informatics*, 2018 (accepted)

[2] Wrist Accelerometer Shape Feature Derivation Methods for Assessing Activities of Daily Living. *Journal of BMC Medical Informatics and Decision Making*, 2018 (accepted)

[3] A Bag-of-Words Approach for Identifying Aspects of Activities of Daily Living using Wrist Accelerometer Data. *IEEE-BIBM'17*

[4] Power-Efficient Real-Time Approach to Non-Wear Time Detection for Smartwatches. *IEEE-BHI'17*

[5] Adaptive Walk Detection Algorithm using Activity Counts. *IEEE-BHI'17*

[6] Identifying Physical Activity Type using Wrist Models Constructed for High-Frequency Accelerometer Data. *ACSM'17*

[7] Effect of Activity-related Pain on Gait Characteristics During 4-meter Usual-pace Walking Across The Lifespan. *ACSM'17*

[8] Actigraphy Features for Predicting Mobility Disability in Older Adults. *Journal of Physiological Measurement*, 2016

[9] ROAMM: A Software Infrastructure for Real-time Monitoring of Personal Health. *IEEEHealthcom'16*

[10] Use of Hip-Worn Accelerometry to Predict Walking Speed in Older Adults: A Methodological Study. (submitted to) *Journal of Physiological Measurement* 2018.

Reviewer

- Journal of Biomedical Health and Informatics (Spring 2017 – present)
- Journal of Knowledge and Information Systems (Fall 2015 – present)
- Transactions on Mobile Computing (Fall 2017 – present)
- Journal of Sensors (Fall 2016)
- Journal of Pervasive Mobile Computing (PMC) (Fall 2013)

University of Florida Relevant Graduate Courses

Course	Grade
Advanced Data Structures	A
Analysis of Algorithms	A
Database Management Systems	A
Distributed Operating Systems	A
Analysis of Multivariate Data	A
Numerical Optimization	A
Machine Learning	A-
Advanced Machine Learning	A-
Deep Learning	deeplearning.ai