Mahdieh Zabihimayvan

Curriculum Vitae

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Personal Statement

I am a PhD candidate of computer science and a graduate research assistant working on machine learning and soft computing techniques. Through several theoretical and applied projects, I have explored various concepts from computer networks and Web mining to machine learning and anomaly detection. I am particularly interested in machine learning for web systems security and web systems characterization, measurements, and analytics.

Education

Ph.D., Computer Science (GPA:4.0) *2017-Present*
Wright State University, Dept. of Computer Science and Engineering, Dayton, Ohio, USA
Advisor: Dr. Derek Doran
Focus: Machine learning, web systems characterization, measurement, and analytics

M.S., Computer Engineering-Software (GPA:4.0) *2012-2014*
Imam Reza Intl. University, Dept. of Computer and Information Technology, Iran
Advisor: Dr. Majid Vafaei Jahan
Thesis: A Proposed Algorithm Based on Markov Clustering for Web Robot Detection
Focus: Evolutionary computation and optimization methods, soft computing

B.S., Computer Engineering-Software *2007-2011*
Ferdowsi University, Dept. of Computer Engineering, Iran
Advisor: Dr. Mohsen Kahani
Thesis: Designing and Implementing a Web-based Account Framework
Focus: Computer networks, web programming, database design & development

Honors and Awards

- Anita Borg Scholar at Grace Hopper, Houston, Texas 2018
- CRA-W Grad Cohort Scholar, San Francisco, California 2018
- Top M.Sc. Software Engineering student researcher, Dept. of Computer and Information Technology, Intl. University of Imam Reza 2017
- Best paper award, "Detection of Web site visitors based on fuzzy rough sets", Dept. of Computer and Information Technology, Intl. University of Imam Reza 2016
- Top 2 of graduating M.Sc., Dept. of Computer and Information Technology, Intl. University of Imam Reza 2014
- Ranked 2nd in *Nationwide* Azad university entrance exam for graduate studies 2011
- Ranked in top 1% (among over 300,000 students) in Iranian National University entrance exam 2006

Research Experience

Wright State University, Dayton, Ohio, USA
Graduate Research Assistant, Dept. of Computer Science & Engineering *2017-Present*
Advisor: Dr. Derek Doran

- Topic modeling, content evaluation, and structural analysis of Tor
  - Related technologies: PhantomJS, NodeJS, SPARQL, R
- Machine learning and soft computing techniques in web agent detection
  - Related technologies: MATLAB, Python
- Web robot traffic characterization
  - Related technologies: R, Python, JavaScript

Imam Reza International University, Mashhad, Iran *2014-2016*
Dept. of Computer and Information Technology
Advisor: Dr. Majid Vafaei Jahan

- Soft computing and Evolutionary computing techniques in web robot detection
  - Related technologies: MATLAB
- Markov processes with focus on Markov Clustering algorithm
  - Related technologies: Java, MATLAB
- Using Fuzzy Inference System based on decision trees as web visitor classification
  - Related technologies: Weka, JavaScript, MATLAB

Publications

M. Zabihimayvan, D. Doran (2019), "Fuzzy Rough Set Feature Selection to Enhance Phishing Attack Detection", IEEE Conference on Fuzzy Systems (Accepted).

M. Zabihimayvan, Reza Sadeghi, D. Doran, Mehdi Allahyari (2019), "A Broad Evaluation of the Tor English Content Ecosystem", The Web Science Conference (Accepted).

M. Zabihimayvan, D. Doran (2018), "Some (Non-)Universal Features of Web Robot Traffic", 52th Annual Conference on Information Sciences and Systems (CISS), IEEE, Princeton University, NJ, US.

M. Zabihimayvan, R. Sadeghi, N. Rude, D. Doran (2017), "A Soft Computing Approach for Benign and Malicious Web Robot Detection", Expert Systems with applications, 87, 129-140, (Impact factor: 3.928).

J. Hamidzadeh, **M. Zabihimayvan**, R. Sadeghi (2017), "Detection of Web site visitors based on fuzzy rough sets", Soft Computing, 22(7), 2175-2188, (Impact factor: 2.472).

M. Zabihimayvan, M. Vafaei Jahan, J. Hamidzadeh (2014), "A Density Based Clustering Approach for Web Robot Detection," The 4th International IEEE conference on Computer and knowledge Engineering, IEEE, (Accept Rate: 22%).

M. Zabihimayvan, M. Vafaei Jahan, J. Hamidzadeh (2014), "A density based clustering approach to distinguish between web robot and human requests to a web server," The ISC International Journal of Information Security, 6(1), 77-89.

M. Zabihimayvan, M. Vafaei Jahan, J. Hamidzadeh (2014), "Fuzzy Inference for Intrusion Detection of Web Robots in Computer Networks," 45th Annual Iranian Mathematics Conference, In Persian.

M. Zabihimayvan, M. Vafaei Jahan (2014), "An Optimum Markov Clustering Algorithm for Accurate Web Robots Detection," The 7th International Conference of Iranian Operations Research Society, In Persian.

M. Zabihimayvan, M. Vafaei Jahan (2013), "Web Robot Detection with Fuzzy Inference System Based on Decision Trees," The Seventh International Iranian Data Mining Conference, In Persian.

Patent

M. Zabihimayvan, R. Sadeghi, D. Doran (2018), "Soft Computing Methods for Feature Selection for Web Agent Detection", June 2018, U.S. Provisional Patent, Pending.

Teaching Experience

Wright State University, Dayton, Ohio, US *Sept-Dec 2018*
Graduate Teaching Assistant, Dept. of Computer Science and Engineering

- Introduction on Software Engineering
  - Developing mobile applications using Xcode and Android Studio IDE

Imam Reza International University, Iran *2012-2014*
Graduate Teaching Assistant, Dept. of Computer and Information Technology

- Data mining (graduate course)
  - Teaching data mining tools in MATLAB and Weka
- Advanced engineering mathematics in software engineering (graduate course)
  - Statistical analysis and tests, random number generations, finite Markov chain and its algorithmic application
- Computer performance evaluation and modeling (graduate course)
  - Queueing networks and Markov chains, Markov processes for stochastic modeling, test functions for optimization, Fuzzy control of queueing system, hidden Markov model
- Algorithm design
  - Time complexity of algorithms, recursion equations, sort algorithms, dynamic programming

Working Experience

Ferdowsi University, Iran *2011-2012*
Information and Communication Center, Network & Web developing Group

- Web programming **(**PHP, CSS, JavaScript, HTML**)**
- Network management and Security

Mashhad University of Medical Science (MUMS), Iran *2009*
Information Technology Center, Web Designing Group

- Web programming (CSS, HTML) and designing websites
- Working with content management systems based on Microsoft SharePoint

Technical Qualifications

Database Programming: Microsoft SQL Server, MySQL, SPARQL
Programming Language: Python, R, MATLAB, Java, JavaScript, NodeJS, PhantomJS, PHP, CSS, HTML
Data Mining Tools: MATLAB, Python, R

Data Visualization Tools: R, Python

Research service

- Invited talk at the OCWiC conference 2019
- Editorial member of Science Publications
- Journal referee at Computers and Security
- Journal referee at IEEE Transactions on Fuzzy Systems
- Technical Program Committee member of the Web Conference 2018
- Technical Program Committee member of Intelligent Systems Conference 2019
- Technical Program Committee member of Computing Conference 2019
- Technical Program Committee member of International Conference on Computer Science, Engineering and Information Technology 2019