SOBHAN MOOSAVI

PhD Candidate & Research Scientist

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EDUCATION

Ph.D. Candidate in Computer Science

Ohio State University

Aug 2014 – Dec 2019 (expected) | Columbus, OH

- Research Areas: Data mining, Spatial Data analysis, Machine Learning
- Research Topic: *Telematics and Contextual Data Analysis for Driving Risk Prediction*
- Advisors: Dr. Rajiv Ramnath and Dr. Arnab Nandi
- GPA: 3.65/4.0

M.S. in Computer Science

Ohio State University

Aug 2014 – Feb 2019 | Columbus, OH

- Advisor: Dr. Rajiv Ramnath and Dr. Arnab Nandi
- GPA: 3.65/4.0

M.S. in Computer Software Engineering

University of Tehran

Aug 2009 – Sept 2012 | Tehran, Iran

- Dissertation Title: *Protein function prediction using protein-protein interaction networks*
- Advisor: Dr. Maseud Rahgozar
- GPA: 3.9/4 (18.43 / 20)

B.S. in Computer Science

Shahid Beheshti University

Aug 2005 – July 2009 | Tehran, Iran

- GPA: 3.6/4.0 (17.19/20)

EXPERIENCE

Research Scientist

Nationwide Mutual Insurance Co.

Sept 2018 – Ongoing | Columbus, OH

- Title: Data Scientist, a member of Enterprise Data Office (EDO) in IT Department
- Focus: Using deep learning to explore safe and risky drivers
- Tools: Python, Scikit-learn, Tensorflow, Java, Hive, Hadoop

Research Science Intern

Lyft Inc.

May 2018 – Sept 2018 | San Francisco, CA

- Title: Research Scientist, collaborated with ETA Research Science team
- Focus: Working on a novel Deep Neural Network model for ETA prediction
- Tools: Python, Tensorflow, Presto, Large-Scale Machine Learning, AWS

INTERESTS

- Data Mining
- Spatiotemporal Data Analysis
- Artificial Intelligence, Machine Learning, and Deep Learning
- Deep Reinforcement Learning
- Graph and Social Network analysis
- Natural Language Processing
- Information Retrieval and Text Mining

AWARDS

- The Nationwide Insurance graduate study fellowship award (∼ $250K) (2014 – 2019)
- The ACM SIGSPATIAL student travel award (2017)

HONORS

- Qualified PhD student By Acceleration Option, Ohio State University (2014 – 2015)
- Rank 4 among all Computer Software Engineering Master students, University of Tehran (2009 – 2012)
- Rank 4 among all Computer Science Undergrad students, Shahid Beheshti University (2005 – 2009)
- Rank 40th (top 0.2 %) in nation-wide Grad school entrance exam in Computer Software Engineering, Iran (2009)
- Rank 10th (top 0.2 %) in nation-wide Grad school entrance exam in Computer Science, Iran (2009)
- Among top 2% in nation-wide Undergrad school entrance exam in Mathematics and Physics, Iran (2005)

SKILLS

Java, Python	●●●●●
C#, C, C++, MATLAB, LISP, Pascal	●●●●○
JavaScript, HTML	●●●●○
PHP	●●●○○
MS SQL, MySQL, HIVE	●●●●●
Tensorflow, Keras, Torch, PyTorch, R, WEKA, GATE, LaTeX	●●●●●

LANGUAGES

English	●●●●●
Persian	●●●●●
Arabic	●●○○○

Data Scientist

Nationwide Mutual Insurance Co.

Sept 2014 – May 2018 Columbus, OH

- Title: Data Scientist, a member of Enterprise Data Office (EDO) in IT Department
- Focus: Analysis of driving behavior to identify safe/risky drivers
- Tools: Python, Scikit-learn, Java, Hive, Hadoop

R&D Engineer

AmnPardaz Software Co.

Dec 2013 – Aug 2014 Tehran, Iran

- Title: Associate, collaborated with Security Algorithms Design group
- Project: Design of effective Malware clustering solution
- Tools: C#, Java, WEKA

IT Consultant

Information Technology Organization of Iran (ITO)

Sept 2012 – Sept 2013 Tehran, Iran

- Title: Consultant, collaborated with Search Engine platform group
- Project: Design and development of a novel framework to evaluate search engine crawler modules
- Used C# as the primary development language

R&D Engineer

Iran Telecommunication Research Center (ITRC)

July 2011 – Dec 2013 Tehran, Iran

- Title: Associate, collaborated with IT platform group
- Project 1: Framework design for evaluation of Persian search engines (2011-2012)
- Project 2: Design of FAQ-based question-answering solution for Persian text collection (2013)
- Project 3: Design of NER-based question-answering solution for Persian text collection (2013)

INDUSTRIAL PATENTS

- **Title**: System and Method for Analyzing Vehicle Data (Filed in March 2017)
- **Inventors**: Robert B. Craig, and Sobhan Moosavi
- **Current Status**: Pending, under the final review

PUBLICATIONS

Conference Proceedings

- Sun, Jiankai, Sobhan Moosavi, Rajiv Ramnath, and Srinivasan Parthasarathy (2018). "QDEE: Question Difficulty and Expertise Estimation in Community Question Answering Sites". In: *The 12th International Conference on Web and Social Media*. AAAI. California, USA.
- Moosavi, Sobhan, Behrooz Omidvar-Tehrani, R Bruce Craig, Arnab Nandi, and Rajiv Ramnath (2017). "Characterizing Driving Context from Driver Behavior". In: *Proceedings of the 25th ACM SIGSPATIAL*. California, USA.
- Moosavi, Sobhan, Behrooz Omidvar-Tehrani, and Rajiv Ramnath (2017). "Trajectory Annotation by Discovering Driving Patterns". In: *Proceedings of the 3rd International Workshop on Smart Cities and Urban Analytics, 25th ACM SIGSPATIAL*. California, USA.
- Moosavi, Sobhan, Rajiv Ramnath, and Arnab Nandi (2016). "Discovery of driving patterns by trajectory segmentation". In: *Proceedings of the 3rd ACM SIGSPATIAL PhD Symposium*. California, USA.
- Aghajanbaglo, Samaneh, Sobhan Moosavi, Maseud Rahgozar, and Amir Rahimi (2014). "Predicting protein-protein interactions based on rotation of proteins in 3D-space". In: *2nd International Workshop on Parallelism in Bioinformatics (PBio), IEEE Cluster*. Madrid, Spain.

- Moosavi, Sobhan, Masoumeh Azimzadeh, Maryam Mahmoudy, and Alireza Yari (2013). "A comprehensive and effective framework for Persian search engines evaluation and analysis". In: *18th National CSI Computer Conference*. Tehran, Iran.
- Moosavi, Sobhan, Maseud Rahgozar, and Amir Rahimi (2012). "A novel approach for protein function prediction using protein-protein interaction network". In: *19th International Conference on Neural Information Processing*. Springer. Doha, Qatar.

Journal Article

- Moosavi, Sobhan, Maseud Rahgozar, and Amir Rahimi (2013). "Protein function prediction using neighbor relativity in protein–protein interaction network". In: *Computational biology and chemistry* 43, pp. 11–16.

Technical Report

- Moosavi, Sobhan, Behrooz Omidvar-Tehrani, R. Bruce Craig, and Rajiv Ramnath (2017). *Annotation of Car Trajectories based on Driving Patterns*.

Under Preparation

- Bar, Amir, Serdar ColaK, Sobhan Moosavi, and Asif Haque (2019). *Estimating Travel Times by Routing-Aware Supervised Learning*. In: *N/A*.
- Moharreri, Kayhan, Sobhan Moosavi, Jayashree Ramnathan, and Rajiv Ramnath (2019). *Service Level Aware Queue Management for Reliable Expert collaborations*. In: *N/A*.
- Moosavi, Sobhan, Pravar Mahajan, Eric Fosler-Lussier, and Rajiv Ramnath (2019). *Driving Style Representation in Convolutional Recurrent Neural Network Models of Driver Identification*. In: *N/A*.
- Moosavi, Sobhan, Mohammad Samavatian, Arnab Nandi, Srinivasan Parthasarathy, and Rajiv Ramnath (2019). *Short and Long-term Pattern Discovery Over Large-Scale Geo-Spatiotemporal Data*. In: *N/A*.

NOTABLE RESEARCH PROJECTS

- Proposing a novel deep neural network architecture to improve estimated arrival time (ETA) prediction (2018)
- Proposing a novel nested neural network architecture to improve transfer learning in deep reinforcement learning (2017)
- Augmenting Visual Question Answering by additional features from object detection pipeline (2017)
- Estimation of user's expertise and question difficulty to improve question routing in Stack Overflow (2016-2017)
- Using a Neural Network-based EM approach to estimate user expertise in a collaborative expert network system (2016-2017)
- Expert role prediction using non-negative matrix factorization (NMF) in Stack Overflow (2016)
- Taxi Destination Prediction based on initial part of a trajectory, A Kaggle Competition (2015)
- A Regularization Scheme for Generative Transfer Models in ticket resolution Process (2015)
- Predicting protein-protein interactions based on rotation of proteins in 3D-space (2012-2013)
- Using topological features of protein-protein interaction networks for Gene Ontology prediction (M.Sc. thesis) (2012)
- Enzyme Commission number (EC) prediction using proteins structural conserved patterns (3D motifs) by SVM (2012)
- Link prediction in Persian weblog communities by graph based heuristic approaches (2011)

PUBLISHED DATASETS

- **DACT**: A Dataset of Annotated Car Trajectories for driving behavior analysis and transportation research (2017)
- **Large-scale Traffic and Weather Event Dataset**: A unique, very Large Dataset of Traffic and Weather Event Dataset for transportation and safety research (2019)

PAPER REVIEWS

Journal Articles

- Attal, Ferhat, Abderrahmane Boubezoul, Allou Samé, Latifa Oukhellou, and Stéphane Espié (2018). "Powered Two-Wheelers Critical Events Detection and Recognition Using Data-Driven Approaches". In: IEEE. chap. IEEE Transactions on Intelligent Transportation Systems.

- Bermingham, Luke and Ickjai Lee (2018). “A probabilistic stop and move classifier for noisy GPS trajectories”. In: Springer. Chap. Data Mining and Knowledge Discovery, pp. 1–29.
- Hong, Zihan, Ying Chen, and Hani S Mahmassani (2018). “Recognizing Network Trip Patterns Using a Spatio-Temporal Vehicle Trajectory Clustering Algorithm”. In: vol. 19. 8. IEEE. chap. IEEE Transactions on Intelligent Transportation Systems, pp. 2548–2557.

TEACHING ASSISTANT EXPERIENCES

- **Special Topics in Database** (Grad Course): Dept. Of Software Engineering, University of Tehran, Spring 2012.
- **Human Computer Interaction** (Undergrad Course): Dept. Of Software Engineering, University of Tehran, Spring 2010 – 2012.
- **Technical and Scientific Writing** (Undergrad Course): Dept. Of Software Engineering, University of Tehran, Spring 2010 – 2012.
- **Technical and Scientific Writing** (Undergrad Course): Dept. Of Software Engineering, University of Tehran, Autumn 2010 and 2011.
- **Advanced Database** (Grad Course): Dept. Of Software Engineering, University of Tehran, Autumn 2011.
- **Programming and Algorithm design** (Undergrad Course): Dept. of Statistics, Shahid Beheshti University, Autumn 2009.