Mohammad Arvan

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Education

2018-2023 (expected) **PhD, Computer Science**; University of Illinois at Chicago (UIC), Chicago, IL

GPA: 4.0/4.0

Thesis title: Machine Leanring and Open Science: On Risks and Challenges

2012-2016 **BSc, Software Engineering**; Qazvin Islamic Azad University, Qazvin, Iran

Ranked 2nd among 180 students

Skills

Languages Python, C++, SQL, Octave/MATLAB, Java, C#

Libraries and Technologies PyTorch, Huggingface Transformers, NumPy, Numba, TensorFlow, Keras, OpenCV, scikit-learn, SciPy, Pandas, Matplotlib, Spacy, NLTK, Docker, AWS, GCP, Azure, Linux/Unix, ssh, Git

Experience

2018-2023: **Research Assistant at UIC Natrual Language Processing Laboratory**

- Investigated and implemented cutting-edge techniques to enhance computational efficiency in training and inference of sequence processing neural networks for language modeling tasks, resulting in a significant reduction in processing time.
- Spearheaded research, experimentation, and evaluation on diverse tasks, including machine translation, question answering, language models, and image classification, leveraging advanced neural networks such as LSTM, Transformers, and Convolutional Networks.
- Actively involved in ongoing research focused on detecting and asserting desired medical symptoms from unstructured clinical notes, contributing to advancements in medical data analysis.

2016-2018: **Data Engineer at Kara Intelligent System:**

- Led the extraction, transformation, and loading of over 100 GB of data files into a high-performance data warehouse, ensuring data accuracy and availability for analytical purposes.
- Developed interactive dashboards and visualization tools using Tableau and Microsoft ASP.NET MVC, enabling stakeholders to gain valuable insights and make data-driven decisions effectively.
- Designed and implemented an Android application for visualizing plots and charts, providing users with an intuitive and convenient data exploration experience.

2015-2016: **Co-Founder and Developer at Indooria Startup:**

- Pioneered the development of an innovative Android application for indoor navigation and localization utilizing Bluetooth Low Energy (BLE) beacons, leading to enhanced user navigation experience and increased efficiency.
- Implemented Djikstra's algorithm to optimize pathfinding, enabling users to find the shortest routes between two points on the map.
- Leveraged Kalman filter to significantly improve the accuracy of localization, ensuring precise indoor positioning for users.

2012-2015: **Research Assistant at Mechatronics Research Laboratory (MRL):**

- Developed and evaluated a highly accurate classifier using AdaBoost for detecting humans from 2-dimensional range scans, enhancing the safety and efficiency of robotic systems.
- Optimized code base for efficient execution on edge devices with limited computational resources, allowing for real-time human detection in resource-constrained environments.
- Implemented state-of-the-art algorithms for path planning, motion planning, and obstacle avoidance, enabling autonomous navigation of a mobile robot in complex indoor environments.

▬▬▬▬ Publications

- **Mohammad Arvan**, Rotem Dror, Manmohan Dogra, Luis Pina, Natalie Parde. "Evil Deeds of Random Seeds". (*Under review* in) The 2023 Conference on Empirical Methods in Natural Language Processing (**EMNLP 2023**).
- **Mohammad Arvan**, A. Seza Doğruöz, Natalie Parde. "Investigating Reproducibility at Interspeech Conferences: A Longitudinal and Comparative Perspective". The 24th INTERSPEECH Conference (**INTERSPEECH 2023**)
- Maja Popović, **Mohammad Arvan**, Natalie Parde, Anya Belz. "Exploring Variation of Results from Different Experimental Conditions". The Findings of 61st Annual Meeting of the Association for Computational Linguistics (**ACL Findings 2023**)
- **Mohammad Arvan**, Mina Valizadeh, Parian Haghighat, Toan Nguyen, Heejin Jeong, Natalie Parde. "Linguistic Cognitive Load Analysis on Dialogues with an Intelligent Virtual Assistant". The 45th Annual Meeting of the Cognitive Science Society (**CogSci 2023**)
- Anya Belza, Craig Thomson, Ehud Reiter, Gavin Abercrombie, Jose M. Alonso-Moral, **Mohammad Arvan**, Jackie Cheung, Mark Cieliebak, Elizabeth Clark, Kees van Deemter, Tanvi Dinkar, Ondrej Dušek, Steffen Eger, Qixiang Fang, Albert Gatt, Dimitra Gkatzia, Javier González-Corbelle, Dirk Hovy, Manuela Hürlimann, Takumi Ito, Emiel van Miltenburg, Chris van der Lee, John D. Kelleher, Filip Klubicka, Saad Mahamood, Margot Mieskes, Malvina Nissim, Natalie Parde, Ondrej Plátek, Verena Rieser, Pablo Mosteiro Romero, Joel Tetreault, Xiaojun Wan, Leo Wanner, Lewis Watson, Diyi Yang. "Missing Information, Unresponsive Authors, Experimental Flaws: The Impossibility of Assessing the Reproducibility of Previous Human Evaluations in NLP". The Forth Workshop on Insights from Negative Results in NLP (**Insights 2023**)
- **Mohammad Arvan**, Luís Pina, Natalie Parde. "Reproducibility in Computational Linguistics: Is Source Code Enough?". The 2022 Conference on Empirical Methods in Natural Language Processing (**EMNLP 2022**)
- Parian Haghighat, Toan Nguyen, Mina Valizadeh, **Mohammad Arvan**, Natalie Parde, Myunghee Kim, Heejin Jeong. "Effects of an Intelligent Virtual Assistant on Office Task Performance and Workload in a Noisy Environment". **Applied Ergonomics**, 109, 103969.

- Parian Haghighat, Toan Nguyen, Mina Valizadeh, **Mohammad Arvan**, Natalie Parde, Myunghee Kim, and Heejin Jeong. "Human Interaction with Intelligent Virtual Assistant in a Noisy Environment". The 66th Proceedings of the Human Factors and Ergonomics Society Annual Meeting
- **Mohammad Arvan**, Luís Pina, Natalie Parde. "Reproducibility of *Exploring Neural Text Simplification Models*: A Review". The 15th International Natural Language Generation Conference (**INLG 2022**)
- Farshid Najafi, Mehdi Dadvar, Soheil Habibian, Alireza Hosseini, Hossein Haeri, **Mohammad Arvan**, Behzad Peykari, Hamed Bagheri."RoboCup Rescue 2016 Team Description Paper MRL". Robocup Rescue 2016 TDP Collection

Honors and Awards

- Recipient of 2023 The **Cognitive Science Society Diversity and Inclusion Conference Award** ($1000)
- **Ranked top 8%** on Stackoverflow's 2020 year
- Recipient of 2020 **Provost's Graduate Research Award** ($5000)
- **Graduate Assistantship**, University of Illinois at Chicago (UIC), 2018-2023
- **Undergraduate Assistantship**, Qazvin Islamic Azad University, 2013-2016
- **Ranked 3rd**, RoboCup World Championship, Rescue Robot League in Nagoya, Japan, 2017
- **Ranked 2nd**, RoboCup World Championship, Rescue Robot League in Leipzig, Germany, 2016
- **Innovative User Interface Award**, RoboCup World Championship, Rescue Robot League in Hefei, China, 2015
- **Ranked 1st**, RoboCup World Championship, Rescue Robot League in Hefei, China, 2015
- **Ranked 2nd**, RoboCup World Championship, Rescue Robot League in João Pessoa, Brazil, 2014