

Mohammadmahdi Zafarmand

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EXPERIENCE

Research Assistant

Oct 2020 – Present

University of Alberta, AMII (Alberta Machine Intelligence Institute)

Edmonton, AB

- Developed Meerkat, a data analytic tool for analyzing changes over time in a network of entities. [\[GitHub Link\]](#)
 - * Organized and updated old or obsolete implementations, as the project started a few years ago; Rectified it so different parts of the project are compatible, then added new features to it.
 - * Maintained and made improvements to reduce memory usage and to get faster performance on the logical back-side of the application, *technology: Java8*
 - * Implemented the front-side user interface of the application, *technology: JavaFX*
- Mentored A Graduate Student
 - * Checked on a current MSc student through weekly meetings, discussed their progress, collaborated on improving our current project, and planned for their future research path
 - * Worked on "Link Prediction in Social Networks" (a conference paper to submit)

Graduate Research Assistant

May 2019 – Sep 2020

University of Alberta

Edmonton, AB

- Studied and implemented many SOTA community detection methods for large social networks
- Introduced novel approaches to detect communities in deterministic and uncertain complex social networks (two conference papers to submit) [\[MSc Thesis Link\]](#)
- Published "Addressing the Resolution Limit and Field of View Limit in Community Mining" [\[Publication Link\]](#)

Graduate Teaching Assistant

Sep. 2018 – Apr. 2020

University of Alberta

Edmonton, AB

- Introduction to Foundations of Computation I & II (CMPUT 174 & 175)
 - * Instructed more than 100 students in lab sessions, helped them with their coding assignments
 - * Designed assignments and marked projects and exams.

SKILLS

Languages: Python (3 years), C/C++ (3+ years), Java (proficient), MatLab and R (familiar)

ML / DL Libraries: Scikit-Learn, Numpy, Scipy, Pandas, Matplotlib, Plotly, Pytorch, TensorFlow, Keras

Database: Proficient in relational databases (SQL); MySQL, familiar with non-relational databases (NoSQL); MongoDB

Cloud Computing Platforms: Familiar with Amazon Web Services (AWS) and Google Cloud Platform

Developer Tools: Git, Docker, Linux, Networkx, VS Code, PyCharm, Jupyter Notebook, Eclipse

Personality: Skillful in problem-solving, Quick learner and team player who can also work independently

ONLINE CERTIFICATES

Deep Learning Specialization:

[\[Certificate Link\]](#)

DeepLearning.AI TensorFlow Developer:

[\[Certificate Link\]](#)

IBM AI Engineering Professional Certificate:

[\[Certificate Link\]](#)

Applied Data Science with Python Specialization:

[\[Certificate Link\]](#)

SELECTED PROJECTS

- Fast Local Community Discovery: Relying on the Strength of Links** | *Python, Java, C++* Fall 2020
• NetworkX implementation for novel community discovery algorithms LSWL and LSWL+. [\[GitHub Link\]](#)
- Fast Apriori Implementation for Association Rule Mining** | *C++* Data Mining: Winter 2019
• The most prominent practical application of Apriori algorithm is to recommend products based on the products already present in the user's cart. This is a fast implementation usable for very large databases. [\[GitHub Link\]](#)
- Analyzing Q-sigma over the Grid World Problem** | *Python, Numpy* Reinforcement Learning: Winter 2019
• Analyzed and evaluated $Q(\sigma)$, a unifying method between various tabular methods. Performed many experiments to find out how well this method performs in diverse deterministic environments. [\[GitHub Link\]](#)
- Classification of Wireless Indoor Localization** | *Python, Scikit-Learn, Numpy* Machine Learning: Fall 2018
• Evaluated different traditional classification algorithms on "Wireless Indoor Localization" dataset.
• To determine the room with the wireless receiver based on the power of the signals obtained from various routers.
- Web-based Project Management Application** | *C++* Advanced Programming: Fall 2016
• Implemented a Trello-inspired kanban board containing multiple to-do lists, in which users can add/remove/move, etc., any tasks. The program presents a bash environment where users could easily manage different tasks or assign them to group members.
- Image Mosaic Maker** | *C++* Advanced Programming: Fall 2016
• The goal of the project was to convert images to mosaic style using a large set of different images.
- Implementation of Super Mario Game** | *C* Introduction to Computer and Programming: Fall 2012
• Implemented the classic Nintendo game to be played in the terminal.

EDUCATION

- University of Alberta** Edmonton, AB
M.Sc. in Computer Science (GPA 3.6/4) Sep. 2018 – Sep. 2020
- University of Tehran** Tehran, Iran
B.Sc. in Electrical Engineering (last year GPA 3.7/4) Sep. 2012 – Jul. 2017

SELECTED COURSES (CLASS ROOM/ONLINE)

Linear Algebra, Introduction to Machine Learning, Introduction to Statistics and Probability, Advanced Programming, Introduction to Reinforcement Learning, Deep Learning Specialization

ELECTIVE PROGRAM

- Ericsson's ICT Professional Foundation** Summer & Fall 2015
Tehran, Iran
- This program was launched for the Middle East, which aimed to help graduates position themselves for a career in the ICT industry. I was then offered a full-time position in the Ericsson, Tehran branch.