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 revised 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, 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); MangoDB

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*   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.