Mohammadmahdi Zafarmand

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Experience

Software Developer Mar 2022 – Present
Google *Kitchener, Canada*

- Working in *Google Cloud Platform: Anthos Enablement* team

Software Developer Intern Oct 2021 – Mar 2022
Oracle *Edmonton, Canada*

- Worked in "MySQL & HeatWave Development" with a focus on auto compression in RAPID. [RAPID website]
- Gathered categorical and numerical data from decision support benchmarks such as TPCH and designed machine learning models (linear and ensemble models) to predict the cost of compression of table columns based on various criteria, *technologies: numpy, sklearn, pandas, matplotlib*

Research Assistant Oct 2020 – Oct 2021
University of Alberta, AMII (Alberta Machine Intelligence Institute) *Edmonton, Canada*

- Developed Meerkat, a data analytic tool for analyzing changes over time in a network of entities. This application has numerous ML tools to be used to analyze graph structured datasets. [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 got 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 Teaching & Research Assistant Sep 2018 – Sep 2020
University of Alberta *Edmonton, Canada*

- Studied, implemented, and introduced SOTA community detection and clustering methods for large deterministic and uncertain social networks (unsupervised learning in graphs) [MSc Thesis Link]
- Published "Addressing the Resolution Limit and Field of View Limit in Community Mining" [Publication Link]
- TAed for 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

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 Projects

Fast Local Community Discovery: Relying on the Strength of Links | *Python, numpy, 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(σ), 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
- Exploited various machine learning and deep learning algorithms to classify and predict signal powers 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.

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, PyTorch for Deep Learning

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]