Farnaz Mozaffari . Jarvis Consulting

I recently completed my master's degree in Computer Engineering from University of Guelph with a focus on AI applications. During my master's studies, I worked with different datasets and developed machine learning and deep learning models mainly in python for various applications such as cybersecurity systems. With my strong background in analyzing and interpreting large dataset and development of highly accurate forecasting systems, I started my training program at Jarvis Consulting group. Developing various projects at Jarvis led me to become skilled in debugging and increasing code efficiency in PostgreSQL and Java Stream APIs as well as gaining comprehensive knowledge of REST APIs, and Spring framework. I am a self-initiated and motivated person with a passion in implementing complex algorithms. Also, I am eager to have positive impact in business transformation and performance improvement.

With my master of Computer Engineering degree and rewarding experience at Jarvis, I am confident I will be a great candidate for Software Development opportunities mainly in the fields of Data and Machine-learning Engineering.

Skills

Proficient: Java, Python, Linux/Bash, SQL, Git, Machine Learning , Deep Learning , Agile/Scrum

Competent: RDBMS, Springboot, REST APIs, Android App development, XML/HTML5, CSS3, MATLAB, VHDL

Familiar: Computer Networking, C, C++, Verilog

Development Projects

Project source code: https://github.com/jarviscanada/jarvis_data_eng_farnaz

- **Cluster Monitor**: Built real-time internal tool that collects and records the hardware specifications and node resource usages, such as CPU and memory information. Stores the collected data in a locally hosted PostgreSQL database, which is provisioned by docker container. Implemented by using Bash Scripts and PostgreSQL.
- **Core Java Apps**: Consists of three different projects with using Appache Maven for project management and building each application:
    - **Grep App:** Designed Java 8's Stream APIs based application that utilizes pattern matching methods. Searches recursively through all the files in a directory for the lines that matches the provided regular expression. Outputs the matched lines into a new file.
    - **JDBC:** Developed JDBC based application that acts as a bridge between the RDBMS and the Java application. Allows users to connect to PostgreSQL and perform CRUD operations (Create, Read, Update, Delete).
    - **Twitter App:** Implemented Twitter CLI application that interacts via Twitter REST API by forming arguments into HTTP requests. Enables users to create a tweet with a geotag and output the created tweet object in JSON format. Through this minus V based application, looking up or deleting a tweet by ID can be achieved.
- **SpringBoot App**: In progress
- **Cloud & DevOps**: Not started
- **Hadoop**: Not started
- **Spark/Scala**: Not started

Professional Experiences

Software Developer, Jarvis, Toronto (Apr 2020-Present):

- Developed, managed and tracked project plans to implement requested features in a timely manner at the discretion of the product owner
- Responsible for implementing unit testing frameworks (JUnit and Mockito) leading to successful validation of application deployment
- Assisted the project team in identifying code errors and providing methods for resolving issues
- Reported progress to the team members through Sprint Retrospective

Machine-Learning Researcher ,Smart Cyber-Physical System Lab (SCPS), Guelph (May 2019 - Feb 2020)

- Conducted scientific research in areas of Machine-learning and Artificial Intelligence for anomaly detection in cyber-physical systems
- Developed advanced machine learning and deep learning systems to solve complex big data problems
- Deployed machine learning pipelines: dimensionality reduction, feature extraction, data integration, data mapping, and algorithm development
- Collaborated with an engineering team to work on real-life Power systems and Smart grids systems datasets

Graduate Teaching Assistant ,University of Guelph, Ontario (Sep 2019 - Dec 2019)

- Performed all teaching assistant duties for 3 undergrad courses: (ENGG*3050) Embedded Reconfigurable Computing Systems, (ENGG*2410) Digital Systems Design, (ENGG*3410) Systems and Control Theory
- Supervised laboratory. Demonstrated lab equipment functions and reviewed lab results
- Assisted and mentored 200 students in either groups or on an individual basis
- Individually held weekly tutorial sessions

Hardware Service Engineer, Hamianfan Company, Tehran (Aug 2016 - Dec 2017)

- Conducted technical quality control for electronic units prior to commercial distribution
- Worked on placing and rooting high-speed multi layer circuit boards
- Collaborated with hardware engineers to design flex circuits from concept phase to mass production

Education & Academic Projects

University of Guelph (2018-2020), Master of Engineering, Computer Engineering

- **Cyber-Attack Classification with Machine-Learning and Deep Learning:** Developed SVM, Naive Bayes and Neural Networks algorithms for anomaly detection in power systems. Compared the performance of each method in terms of F1 Score, accuracy and computational time. Deployed ANN algorithm pertaining to F1 score of 96 percent and accuracy of 94 percent.

- **Android Mobile Application:** Designed and developed core features for online tutorial Android application using Java and xml.

- **Embedded Design by Using HPS and FPGA Hardware Coprocessor:** Implemented AES algorithm using HDL on DE1-SoC board

- **Real-Time HW/SW Integration for an Embedded Controller System:** Programmed ARM STM32 board in C and implemented real-time operating system based controller on the STM32 board for controlling the plant temperature.

- **Rowhammer Attack detection and prevention:** Predicted and prevented Rowhammer attacks exploiting hardware vulnerabilities by developing pattern recognition models in Python.

- **Real-Time home security systems:** Developed real-time application that relates to "Home-security" by using uc/os- III. The app performed 3 concurrent tasks by unique priorities: 1)Detecting 'intruder' with PIR motion sensor 2)Triggering camera capture if motion is detected 3) Sending alerts. A Real-time analysis was recorded for evaluating the performance of the application.

Azad University (2011-2016), Bachelor of Engineering, Electrical Engineering

Certificates

- **Neural Networks and Deep Learning**-deeplearning.ai (Feb 2020)
- **Python for Data Science and AI** - IBM (Dec 2019)
- **Machine Learning** - Stanford University (Sep 2019)
- **Web Design** - Tehran Institute of Technology (June 2018)
- **FPGA** - Tehran Institute of Technology (May 2016)
- **AVR microcontroller** - Tehran Institute of Technology (Jan 2016)