Zaied Zaman . Jarvis Consulting

Self-motivated problem-solver and strong collaborator who always strives for an innovative and most suitable solution. I have started working as a Jarvis consultant after the completion of my Master's degree in Computer Science (Research-Based). Apart from my Master's research project, I have collaborated with several labs to provide software solutions during my master's. These experiences grew interest and confidence inside me to contribute to the data engineering industry. Practicing programming problem-solving is one of my hobbies alongside reading books on different topics.

Skills

Proficient: Algorithms & Data structures, Java, Linux/Bash, RDBMS/SQL, Agile, Git, Springboot, Maven

Competent: Python, C/C++, Matlab, OpenCV, Image Processing, Hadoop & Hive

Familiar: Javascript, Node.js, Express.js, Machine Learning & Computer Vision, Pytorch, scikit-learn, Pandas

Jarvis Projects

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

Cluster Monitor [GitHub]: Developed a Bash and PostgreSQL based cluster monitoring agent for distributed systems. The Node machines send continuous hardware usage and hardware specification data which is monitored and persisted by the server machine in a PostgreSQL database. The PostgreSQL database instance was hosted by a docker container. The container was created based on the PostgreSQL base image from the docker registry. Maven was used to managing dependencies.

Core Java Apps [GitHub]:

- Twitter App: Developed this Java-based Maven managed app. This app shows, posts, deletes tweet data using the Twitter API. Efficient exception handling, logging, and testing frameworks were used in these apps. self4j facade and as the implementation log4j was used for the logging purpose whereas the Mockito framework was used for unit testing and Junit 4 was used for Integration testing. MVC architecture was used where the Dao pattern was used for data access and retrieval. Jackson API was used to parse and create JSON objects to POJO objects or vice versa.
- JDBC App: Developed this dockerized Java-based JDBC app that interacts with the PostgreSQL database with pure Java and JDBC driver. The PostgreSQL database instance is hosted by a docker container that was created from the PostgreSQL base image.
- Grep App: Developed this Java-based command-line-app that recursively traverses directories and subdirectories and perform searching or text-processing.

Springboot App [GitHub]: Developed this maven packaged springboot managed Java app. This is an MVC architecture driven three-tier Microservice REST API web app which can be consumed by any REST API client or browser. It responses back JSON object. It interacts with market data provider API, extracts stock Market data and shows, updates, deletes, and additionally persists them in a dockerized PostgreSQL database. This app itself is also dockerized. Springboot annotations were used to facilitate the IoC container creation, bean creation, and Dependency Injection. Springboot embedded Tomcat server serves as a web servlet API implementation to handle HTTP requests. Repository pattern was used as the data layer and IEX API was used as the market data provider API.PostMan and Swagger were used extensively to test the app end-points. The decoupling of data and app makes it fault-tolerant.

Hadoop [GitHub]: Not Started

Spark [GitHub]: Not Started

Cloud/DevOps [GitHub]: Not Started

Highlighted Projects

Improved Image Denoising Algorithm using Matlab and C++ (M.Sc. Research Algorithm). [GitHub]: My research field was Image Processing and Computer vision. Noises affect images in an unpredictable way. Specifically, my research was to design an algorithm that will efficiently remove those noises. BM3D was one of the state-of-the-arts of such algorithms. As my M.Sc. thesis, I developed an algorithm which works on top of BM3D and produced almost 40% improved results for all images and all noise levels. The publication title was "Optimizing the usage of 2D and 3D transformations to improve the BM3D image denoising algorithm." The implemented final codebase was in C++. Most of the Experiments were done in Matlab and Python. Exception handling and efficient memory usage were kept in mind

during the implementation. The efficient usage of several STL data structures had been done as well. Achieving this target gave me experience on how to manage a large codebase and add features compatible with it in a time and memory-efficient way

Automated Data Extraction from OMR using Python and OpenCV: Developed automated software for extracting student data from OMR. It can also find out attained marks from the OMR sheet. Python offers a convenient ecosystem for Image processing related tasks, used Python and OpenCV to develop the software. Worked under this project assigned by the Bangladesh Education Ministry.

MRI Image Inpainting Software using NIFTI and Matlab [GitHub]: Multiple sclerosis is a well-known disease that can be diagnosed by MRI images. White lesions are usually seen in the MRI images of MS patients and accurate differentiation is needed between actual lesion areas and other white areas which can occur for various reasons. Developed an algorithm that can identify the actual lesion and inpaints the extraneous ones. Published the algorithm in 2016 International Conference on Medical Engineering, Health Informatics, and Technology (Meditec). The publication title was "Inpainting multiple sclerosis lesions for improving registration performance with brain atlas" The implemented codebase was in Matlab and C++. Several open-source brain imaging tools and data formats were used. Collaborated with a remote team in this project.

Professional Experiences

Software Developer, Jarvis (April,2020-present): Primary Responsibility was to develop Java, BASH/SQL, Springboot based services and architectures utilizing GitFlow and other industry-recognized tools and best practices, and collaborating with other team members maintaining standard agile practices. Working in this role made me a better team player and gave me invaluable work environment experience to solve problems individually with minimal supervision.

Research Assistant, Western University (February,2020-March,2020): Primary responsibility was to develop a framework to integrate Quantum computing with Computer networking. Worked with QCL and Python to perform experiments. Finding scopes to utilize newer methods to existing problems improved my problem-solving ability.

Remote Work, Bangladesh Education Ministry (January,2020-March,2020): Primary responsibility was to develop an automated software that extracts student data and calculate marks from OMR exam sheet using Image Processing. Working in this role gave me invaluable experience of collaborating with a remote team towards building software.

Research Assistant, Western University (September,2019-January,2020): Mentored the current lab students and collaborated with labs to deliver an automation software solution. It was a medical imaging software that provides an efficient way to track and count blood cells from dyed brain images of rats. The solution was adaptive with different dyes and several image scenarios and distractions. The solution was written in C++ and iopng library was used to read and write images to reduce latency. However, the solution was packaged as a Mex file to be invoked from Matlab for user convenience. This experience grew leadership and increased my collaboration abilities with clients

Research Assistant, Western University (September,2017-August,2019): Designed and implemented an algorithm to improve image processing (denoising) performance which was my master's research topic. BM3D is the state-of-the-art algorithm for image denoising. My proposed algorithm works on top of BM3D and improves the overall denoising performance. The proposed algorithm beat the performance of BM3D significantly in all noise levels and varieties of images. The codebase was written in C++. To reduce the time complexity approaches like Dynamic programming was used while designing and low latency C libraries like iopng were used to read and write the image. Designing and implementing algorithms with minimal supervision made me confident to work individually.

Teaching Assistant, Western University (September,2017-August,2019): Designed and conducted labs, tutorials, and assignments. Worked as a TA for Introduction to Computer Organization and Architecture course and Python course. Collaboration and mentoring are the primary improvements that I gained from this experience.

Education

Western University (September,2017-September,2019), M.Sc (Research-based), Computer Science - Western Graduate Research Scholarship (WGRS) - GPA: 3.9/4.0 - courses: Advanced Analysis of Algorithms, Image Compression

Islamic University of Technology (December,2011-December,2015), B.Sc, Electrical and Electronic Engineering - Full free studentship for complete 4 years - GPA: 3.89/4.0

Miscellaneous

- Parallel and Concurrent Programming in Java (2020)
- Achieved 3rd place in B.Sc. result in my Department
- Soccer player
- Highly Interested in wild animals
- Reading books