Anita Mathews . Jarvis Consulting

My name is Anita Mathews and I graduated in November 2020 with my M.Sc. in Physics and Astronomy from McMaster University. My M.Sc. thesis involved developing a method in Python to incorporate observational data into a star cluster simulation and analyzing the results. Prior to that, I completed my B.Sc. in Physics from the University of Waterloo and have completed some undergraduate coop terms related to 3D printing and particle physics. My coding experiences in science have sparked my interest in pursuing a career in software as I enjoy developing creative solutions to problems, learning new technologies and collaborating with others.

Skills

Proficient: Python, Linux/Bash, RDBMS/SQL, Git, Agile/Scrum

Competent: Java, C++, R, Docker, Machine Learning in Python

Familiar: HTML, CSS, Excel VBA, Google Analytics, Tableau

Jarvis Projects

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

Linux Cluster Monitoring Agent [GitHub]: Provisioned a postgreSQL database using Docker on a Linux VM hosted on GCP. Programmed bash scripts to extract hardware specifications and resource usage data and insert data into database. Used crontab to record resource data every minute and tested results by performing SQL queries on the database. Used git during the development process and saved source code to GitHub.

Core Java Apps [GitHub]:

- Grep App: Implemented an app in Java that mimics that Linux grep command. Wrote unit tests using JUnit and used the Stream API to optimize memory usage. Built a Docker Image and pushed image to Docker Hub where it can be pulled and run.
- JDBC App: Implemented an app in Java that uses JDBC to execute queries on a database using the DAO pattern.

Highlighted Projects

Incorporating Image Data into a Star Cluster Simulation: Developed method to incorporate observational gas data into a star cluster evolution simulation written in Python. Analyzed results in Python to find trends in the gas densities and clustering of the stars over time.

Interactive Map of Covid-19 Case Counts [GitHub]: Combined open datasets containing data from Hamilton, Toronto, Peel and York Region to create a map of Covid-19 cases using R and leaflet.

Professional Experiences

Junior Software Developer, Jarvis (November 2021-present): Developed an MVP for a Linux Cluster Monitoring agent using Agile techniques, a virtual machine provisioned using Google Cloud Platform, bash scripts, git, Docker and postgreSQL. Developed apps in Java to mimic Linux grep command and connect to postgreSQL database. Performed unit testing using the JUnit library. Participated in daily scrum meetings and weekly code reviews.

M.Sc. Student, McMaster University (September 2018-November 2020): Developed method to incorporate observational gas data into a star cluster evolution simulation written in Python. Analyzed results in Python to find trends in the gas densities and clustering of the stars over time. Used Linux commands and bash scripts to edit files and submit jobs on high performance computing clusters. Helped instruct first year physics lab courses and explained concepts covered in lectures.

Undergraduate Research Assistant, SNOLAB (September 2016-December 2016): Developed models to match testing data obtained from photo-multiplier tubes of DEAP-3600 dark matter detector. Developed simulations in C++ to estimate amount of interference between background signals and potential dark matter signals.

Undergraduate Research Assistant, Xerox Research Center of Canada (January 2015-April 2015): Collaborated with researchers and conducted experiments investigating print quality of 3D printed materials. Tested photosensitive material for printer drums. Recorded and analyzed experimental results using Excel VBA.

Education

University of Waterloo (2013-2018), Bachelor of Science, Honours Physics, Physics & Astronomy

McMaster University (2018-2020), Master of Science, Physics & Astronomy

Miscellaneous

- Applied Machine Learning in Python (Coursera, 2021)
- Regression Models in R (Coursera, 2021)
- R Programming (Coursera, 2021)
- Intermediate SQL (DataQuest, 2021)
- Algorithms I (Coursera, 2021)
- Planetarium Presenter (2018-2020)
- Volunteer, Neighbour to Neighbour Center Food Bank in Hamilton (2019-2020)