Ruthvik Penumatcha . Jarvis Consulting

I am a passionate and driven professional with a strong background in Electrical and Computer Engineering. I hold a Bachelor's degree in Computer Engineering with a specialization in Software Engineering, and a Master's degree in Electrical and Computer Engineering with a specialization in Artificial Intelligence from Toronto Metropolitan University (Formerly Ryerson University). My academic background has equipped me with deep technical expertise and advanced problem-solving skills. Throughout my academic journey, I developed a strong interest in Data Engineering, DevOps, and Software Development fields, and I have gained hands-on working experience in these fields by working on both academic and personal projects. For instance, I worked as a research assistant at Toronto Metropolitan University, where I contributed to the development of a novel bias measurement metric for Large Language Models. I utilized tools and technologies such as Python, PyTorch, Numpy, Pandas, and Matplotlib to process, analyze, and implement the solution. Additionally, I have worked on various personal projects where I utilized tools such as FastAPI, Pandas, and SparkSQL to analyze data extracted from web sources. These projects have enhanced my skills in data analysis, data manipulation, and building scalable systems. I am currently seeking opportunities in Data Engineering, DevOps, or back-end development, where I can apply my technical skills and passion for continuous learning, and collaborative spirit to solve complex technical challenges.

Skills

Proficient: Java, Python, JavaScript, Node.js, Express.js, Linux/Bash, RDBMS/SQL, NoSQL/MongoDB, HTML, CSS, Agile/Scrum, Maven, Git, REST APIs

Competent: Spark, Hive, Hadoop, Docker, React, Google Cloud Platform (GCP), Next.js, Postman

Familiar: MATLAB, C, Jenkins, RabbitMQ, gRPC, VHDL, LaTeX

Jarvis Projects

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

Cluster Monitor [GitHub]: The Linux Cluster Monitoring Resource app is a Minimum Viable Product (MVP) that has been developed for the Linux Cluster Administration (LCA) team at Jarvis. It has been developed to allow the client to monitor the system specifications and resource usage information of 10 Linux clusters which communicate with each other through a network switch. This project has been implemented by creating a PostgreSQL database instance on a docker container to store hardware specifications and resource usage information. Shell scripts were then created to handle various tasks such as creating a docker container, and inserting data into SQL tables. Moreover, the crontab feature in Linux has been used to automate the process of executing a shell script to store resource usage information of a Linux cluster every minute. Finally, Git has been used for Version Control.

Highlighted Projects

Big Data Analysis of Used Car Sales in Europe: Performed analysis of used car sales in Europe over the past 20 years using Google Cloud Platform (GCP), and SparkSQL. Sourced a dataset containing over 3 million rows from Kaggle. Conducted data cleaning to remove irrelevant columns and rows containing null or empty values. Wrote SparkSQL queries to identify trends such as the most popular car makes and models across various price ranges, and determined the least preferred vehicles by users over the past 5, 10, and 20 years.

Schema-Tune: Noise-Driven Bias Mitigation in Transformer-based Language Models [GitHub]: Co-authored the research paper and helped successfully implement the Schema-Tune framework to reduce biases in large language models. The framework introduces curated and adapted noises to the input embeddings of language models to challenge the model's embedded stereotypes. I utilized various tools such as Python, PyTorch, Pandas, Numpy, and Matplotlib to help train the models and evaluate the performance of the models. The paper has been published at the ACML 2024 conference.

Binary Semantic Segmentation of Drone Images: Developed a binary semantic segmentation model using the U-Net architecture to accurately identify foreground and background components. The model was successfully trained on a dataset of drone images and their respective ground truth. The model obtained high training, validation, and testing accuracy over 98%, showing its effectiveness.

Full-Stack E-commerce Platform [GitHub]: Developed a full-stack E-commerce website using Node.js, Express.js, MySQL, and vanilla JavaScript with HTML/CSS. Implemented User Authentication (Login/Signup), product browsing

and search, shopping cart functionality, and a checkout process. Designed a MySQL database to store user accounts, product inventory, and transaction history including the purchase quantities, dates, and total price. Built Restful APIs for front-end and back-end integration, ensuring seamless data flow and dynamic content rendering.

Professional Experiences

Software Developer, Jarvis (2025-present): Donec mattis sed justo et sagittis. Vestibulum lacinia nulla ipsum. Curabitur imperdiet nibh vitae leo lacinia laoreet. Nullam accumsan, lectus ut maximus ultricies, augue justo egestas mi, vel bibendum felis.

Research Assistant, Toronto Metropolitan University (September 2024-December 2024): Donec mattis sed justo et sagittis. Vestibulum lacinia nulla ipsum. Curabitur imperdiet nibh vitae leo lacinia laoreet. Nullam accumsan, lectus ut maximus ultricies, augue justo egestas mi, vel bibendum felis.

Education

Toronto Metropolitan University (2018-2023), Bachelor of Engineering, Computer Engineering - Graduated with Distinction - Dean's List (2018-2019, 2020-2021, 2021-2022) - CGPA: 3.74/4.33

Toronto Metropolitan University (2023-2024), Master of Engineering, Electrical and Computer Engineering - CGPA: 4.08/4.33

Miscellaneous

- Badminton Enthusiast: Played badminton regularly through out middle, and high school.
- Cycling: Passionate about cycling during the summer months, enjoying the opportunity to explore my neighbourhood and discover new local spots.