Kangdi Shi . Jarvis Consulting

I received my Ph.D. degree in Electrical and Computer Engineering from McMaster University in December 2022. As a Data Engineer, I possess proficiency in statistical analysis, forecasting/predictive analytics, multivariate testing, and optimization algorithms. Additionally, I have advanced expertise in machine learning-based computer vision, particularly in data restoration, classification, and recognition. I am always passionate and self-motivated to explore cutting-edge AI techniques, and I have already published several papers in top-tier journals such as TIP and TMM. My skills also extend to Python programming and PostgreSQL for efficient database management, as well as PyTorch and TensorFlow for machine learning research.

Skills

Proficient: Python, MATLAB, PyTorch, Tensorflow, RDBMS/SQL, Linux/Bash, Anaconda, Pycharm, Agile/Scrum, Git

Competent: Docker, Java, C, Tableau, GCP

Familiar: Microsoft Excel, Scala, Hadoop, PySpark, C++

Jarvis Projects

Project source code: https://github.com/Jarvis-Consulting-Group/jarvis_data_eng-Derek430

Linux Cluster Monitoring Agent [GitHub]: The aim of this project is to offer a streamlined and user-friendly solution to monitor server hardware and usage info from the server users' viewpoint. Most of the application is built using bash scripts, enabling simple execution and integration with existing server management workflows. For storing the gathered hardware and usage data, a Relational Database Management System is utilized, with PostgreSQL (psql) as the selected database technology. To simplify deployment and isolation, the project is implemented within a Docker container. The development progress is tracked using Git version control.

Highlighted Projects

Progressive image inpainting on Contextual and Structural Information: Proposed a novel Machine Learning-based image inpainting framework that can progressively recover corrupted images while maintaining their structural and contextual feature integrity. Implemented the proposed model using PyTorch and conducted extensive experiments on large datasets (100,000 samples) for performance comparison. Analyzed the data obtained from ablation studies to evaluate the individual contributions of each sub-model on the overall performance of the proposed method.

Canonical Correlation Analysis for Object Retrieval: Applied Canonical Correlation Analysis (CCA) on the image features extracted from a pretrained CNN on Tensorflow for image retrieval. Utilized Statistical Hypothesis Testing to evaluate image similarities. Evaluated the retrieval performance in terms of mean Average Precision (mAP) using MATLAB. Conducted statistical analysis using Python to uncover insights and trends from the data Compared with PCA and LDA-based approaches, the proposed showed better performance and higher robustness to dimensionality reduction.

Professional Experiences

Technical Consultant, Jarvis Technologies Group Inc (2023 - Present): Working in Jarvis Technologies Group Inc as Technical Consultant, specializing in the development of solutions for database construction, maintenance, and monitoring. My role involves creating efficient and robust databases using PostgresSQL with Docker Containers, ensuring their smooth operation, and implementing monitoring mechanisms to track their performance using shell script. I collaborate with clients to understand their requirements and provide tailored solutions to meet their specific needs. By leveraging my expertise in data engineer, I assist in optimizing data structures, implementing security measures, and improving overall database performance.

Machine Learning Engineer Intern, Crater Labs Inc (2019.08 - 2019.11): Worked in Crater Labs Inc as a ML/AI researcher and responsible for developing an image style transfer system. Specifically, Designing and implementing a Generative Adversarial Network (GAN)-based Image Style Transfer algorithm that produces robust results with accurate object boundaries. The system achieved an impressive 18% increase in accuracy for producing object boundaries.

Education

McMaster University (2017 - 2022), Doctor of Philosophy, Electrical and Computer Engineering - McMaster Graduate Scholarship

University of Manitoba (2012 - 2017), Bachelor of Applied Science, Electrical and Computer Engineering - MTS Mobility Scholarship Eng - International Undergraduate Student Scholarship - UMSU Scholarship - INTER ENT SCHOLARSHIP 90

Miscellaneous

- SQL - MySQL for Data Analytics and Business Intelligence (2023)
- Competitive sport: Marathon
- Competitive gaming: League of Legends, Elden Ring