Muhammad Zohaib Irfan

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Education

The Hong Kong University of Science and Technology New Territories, HK

Bachelors of Engineering, Computer Science, Minor Business and Social Sciences *Aug 2023 – May 2027*

- Relevant Courses: Design and Analysis of Algorithms, Object Oriented Programming and Data Structures, Data Mining, Business Finance, Linear Algebra, Discrete Mathematics, Applied Statistics, Case Analysis and Product Innovation.

Experience

Web Application Intern Dec 2024 – Jan 2025

IGears Technology Limited *Hong Kong, HK*

- Developed a POS system using Flask, React, and MySQL; integrated QR technology for order placement and service, and implemented receipt printing with industry-standard POS printers.
- Enhanced Apache server response times by up to 50% through optimized server configurations, enabling concurrent request processing and activating child processes.
- Engineered and deployed two server-hosted videos, one with cookie-based authentication, and performed stress testing with JMeter to ensure site performance and reliability.

Undergraduate Research Assistant June 2024 – Aug 2024

The Hong Kong University of Science and Technology *Hong Kong, HK*

- Created a consistent spreadsheet for multiple African countries from multiple data sources to highlight overlapping data as well as registering new available data
- Categorized the unique geographical regions of each country using R code with each new dataset available for that country
- Highlighted what data sources were available for each country, such as Afrobarometer, Census and Geographical

Projects

Huffman Encoder | *Python* Jan 2025

- Implemented a Huffman encoding algorithm to compress data by assigning variable-length codes to characters based on their frequencies.
- Built the Huffman tree using a priority queue (min-heap) and generated Huffman codes by traversing the tree.
- Developed functions to encode and decode data, ensuring lossless compression and decompression and file size reduction of upto 70% of original file size.

TEMG 3950 | *Case Analysis and Start-up Project* Sept 2024 - Nov 2024

- **Part 1: Product Design and Innovation (Start-up Project)**
- Worked on a start-up project for 7 weeks, focusing on research, strategy, and pitching the concept to stakeholders, with a strong emphasis on leveraging technology to drive innovation.
- Applied Design Thinking and business strategy frameworks, including the Business Model Canvas and Value Proposition Canvas, to identify and address customer needs, while integrating tech solutions to enhance user experience.
- Conducted market analysis using TAM, SAM, and SOM frameworks to evaluate market potential and identify growth opportunities, incorporating data analytics and tech-driven insights for a comprehensive evaluation.
- **Part 2: Case Analysis and Consulting Frameworks**
- Applied key consulting frameworks such as McKinsey 7's, Blue Ocean Strategy, Chernev's 5's, and Porter's 5 Forces to analyze business challenges and develop strategic, tech-driven solutions for assignments.
- Conducted a McKinsey 7's analysis on Zespri, a New Zealand-based company, evaluating their vulnerability to weather disasters and providing tech-enhanced solutions as part of a course assignment.

Star Classification | *Python, Scikit-learn, Jupyter Notebook* Jan 2024

- Used a dataset to predict if a given star is a giant or a dwarf using machine learning algorithms.
- Utilized K-nearest Neighbors, Support Vector Machines, Random Forests, Logistic Regression, and Decision Trees.
- Compared metrics such as precision, recall, F1-score, and confusion matrices for each algorithm and plotted boundary classification diagrams for visualization.

Technical Skills

Languages: C++, Python, SQL, R, JavaScript
Frameworks and Libraries: Pandas, Numpy, ScikitLearn, Flask, Pygame, Tensorflow, Keras, Wordpress, React
Developer Tools: Git, Github, LaTeX