Dennis Fong

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Education

McMaster University Hamilton, ON
Bachelor of Engineering (Software Engineering, 3.7 CGPA) *Sep. 2020 – Present*
Courses: Data Structures (Java), Algorithms and Complexity, Intro to Machine Learning (Python, PyTorch), Software Design (Java, Python), Concurrent Programming (Go, Python), Databases (SQL)

Technical Skills

Languages: Python, JavaScript, C/C++, Java, SQL, Go, MATLAB, HTML/CSS
Libraries/Frameworks: Git, AWS, TensorFlow, PyTorch, NumPy, Node.js, Flask, Docker, React

Experience

Cloud Engineer Intern Jan. 2024 – Aug. 2024
Purolator *Missisauga, ON*
- Orchestrated a real-time data pipeline to monitor **500+ AWS** resources using **CloudWatch**, **Lambda**, and **S3**
- Automated deployment of **IAM** roles in **47** accounts with **CloudFormation** to warrant cross account monitoring
- Collaborated with solution architects to design applications adhering to best practices and architectural patterns
- Visualized data on **Amazon QuickSight**, leveraging **SQL** queries executed on **Athena** against a **Glue** database

Teaching Assistant - Algorithms and Complexity Jan. 2024 – Apr. 2024
McMaster University *Hamilton, ON*
- Facilitated **200** students' learning of algorithms and computational tractability assisting them with understanding complex topics such as **dynamic programming**, **network flow**, **divide & conquer**, and **complexity classes**

Quantitative Developer - DeGroote Finance and Investment Council Oct. 2022 – Feb. 2024
McMaster University *Hamilton, ON*
- Analyzed sentiment of financial headlines with **80%** accuracy by implementing natural language processing model
- Developed trading strategy in **Python** yielding a **278% profit over 10 years** by leveraging mean reverting pairs
- Projected stock value within a **9%** margin from true market price by utilizing long-short term memory in PyTorch
- Created and verified validity of **11** algorithms through back-testing on **over 1,000,000** historical data points

Undergraduate Research Assistant May. 2023 – Aug. 2023
McMaster University *Hamilton, ON*
- Solved software version dependencies and conflicts in polynomial time with linear programming in **Python** and **Z3**
- Explored methods of optimizing package management in supercomputers by formulating them as SAT problems
- Detected cycles in dependencies at **97%** accuracy by devising an algorithm that implements dynamic programming

Projects

Track.it | *JavaScript, SQL, MySQL, React, Express.js, Node.js*
- Built a full-stack web application that tracks the daily and total change of a portfolio created by the user
- Implemented front-end design with React to display user interface for **up to 10 pages** using **MaterialUI**
- Used Express.js to communicate **various relevant data** between the front-end and the database entities
- Created and maintained database schema using MySQL to store asset data leveraging Express.js functionality

Discord.GPT Discord Bot | *Javascript, NodeJS, OpenAI, Alpaca*
- Fine-tuned GPT-3.5 model to impersonate communication styles using personal message history as training data
- Interfaced **Alpaca API** to retrieve market data on **millions of stocks** and send requested data from user input
- Implemented **12 custom commands** that take in user input to process and provide a wide range of functionality

London Tube Pathfinding | *Python, PyTest, flake8*
- Experimented with pathfinding algorithms on **more than 300 train stations** in the London Tube transit system
- Applied **object oriented programming** and **SOLID principles** to create proficient and maintainable code
- Tested algorithm implementations using **PyTest** and **Flake8** for automated error checking and code organization
- Utilized **dynamic programming** in order to reduce algorithm execution time from **factorial to exponential**