ROGERS (HAOCHONG) YANG

(437) 981-3043 | haochong.yang@mail.utoronto.ca | University of Toronto | | | Personal Website

QUALIFICATIONS

- Programming: Proficient in **Python**, **Java**, **HTML/CSS**, **SQL**, and **Shell scripting**, with a strong understanding of version control using **git** and GitHub
- Data Technologies: Experienced in working with **R**, **MySQL**, and **PostgreSQL**, and adept at leveraging tools like **Tableau**, and **PowerBI** for effective data analysis and visualization
- Frameworks: Knowledgeable in utilizing **TensorFlow**, **PyTorch**, and **CNN** for reinforcement learning. Familiar with **LangChain**, Django, Streamlit, and Selenium to build robust and efficient software solutions

EDUCATION

Candidate for Honours Bachelor of Science *(cGPA: **3.98**/4.0)* *Expected in Apr 2025*

University of Toronto (St. George Campus), Toronto, ON, Canada

- Programs: Double major in **Computer Science** and **Statistics**
- Honours: C.L. Burton Scholarship, Louis Savlov Scholarship, U of T Scholar Award, Dean's List Scholar Awards

WORK EXPERIENCE

Data Analyst (Co-op), *Toromont Cat, Concord, ON* *May – Aug 2023*

- Trained a **large language model** with documentation and system data using **LangChain** and OpenAI API to develop a company chatbot "**CatGPT**" which will benefit over **2000 people** as users to look for company business solution
- Optimized the **Strategic Asset Management** platform through the implementation of **Power BI** and **Python**, enabling real-time monitoring and efficient tracking of heavy mining machinery status and operational activities
- Created **predictive model** with **Matplotlib** to keep track of machine usage patterns and forecast component replacement
- Collaborated with **16** Canadian **mine owners** to update machine component status, resulting in a significant reduction of **$57 million** in overdue value

Software Developer (Intern), *BL Innovare, Markham, ON* *May – Aug 2022*

- Spearheaded daily **data analysis**, **software development**, and **support operations** for a leading company specializing in vehicle inspection and maintenance products and services
- Enhanced the performance of Bodyguard 2.0, an advanced **machine learning** application designed to simulate human perceptual and decision-making processes for **vehicle inspection** and damage analysis
- Contributed to the back-end development of a **language translating** platform using **Python** and the **Django** framework
- Demonstrated proficiency in crafting intricate **SQL queries** to process customer data and conduct in-depth data analysis

RESEARCH EXPERIENCE

Research Assistant, *SocialAI Research Group, U of T* *Sept 2023 – Present*

Supervisor: Prof. William Cunningham

- Developed the integration of **AI** and **social cognition** through the creative use of **reinforcement learning** (RL)
- Created user interfaces for game and server, facilitating seamless **game logic execution** and **efficient storage** of data
- Designed cutting-edge RL environments to **explore** and **validate** various **social cognition theories**
- Leveraged machine learning techniques to **train CPU players** for optimal game performance, and utilized **statistical analysis** to gain insights from game data

Research Volunteer, *MiDATA Lab, U of T* *May – Aug 2023*

Supervisor: Prof. Pascal Tyrrell

- Employed **data augmentation** techniques to enhance the chest x-ray imaging dataset and facilitate the training of a binary Convolutional Neural Network (CNN) with **EfficientNetB0** for accurate **chest tumour classification**
- Trained the CNN model and rigorously evaluated its **performance** in terms of accuracy, specificity, and sensitivity, providing valuable insights for **model improvement** and comparison

Research Volunteer, *Department of Economics, U of T* *May – Aug 2023*

Supervisor: Prof. Jonathan Hall

- Conducted an extensive **case study** to investigate the historical and legal regulations of typical vehicle **safety features**
- Curated and compiled a comprehensive **dataset** of over **5000** vehicle safety features **records** from 2000 to 2020, laying the groundwork for further research endeavours

Last Update: Dec 25, 2023

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RELEVANT PROJECTS

Course Mates Connect Application, *U of T* *Dec 2023*

- Leaded the development of a **Java** Swing application that recommends course mates to users with a group of four
- Embedded the **Clean Architecture** with **MVVM** structure in developing the backend and interface of the application
- Integrated the backend with a **PostgreSQL** remote server that handles profile queries and information updating requests

CatGPT, *Toromont Cat* *Aug 2023*

- Developed a **web-based chatbot** application using **Python** for the backend and **Streamlit** for the frontend framework
- Applied **LangChain** and **OpenAI** API to power the app's **large language model** for precise and efficient responses
- Fine-tuned the model to focus on **company-related** knowledge with documentation and business data, enabling it to provide responses based on the industry and organization's expertise and domain

Covid-19 Data Analysis and Visualization, *Kaggle.com* *Aug 2022*

- Conducted comprehensive Covid-19 **trend analysis** for various geographic regions in Canada by creating and executing **SQL queries** on relational databases
- Developed dynamic **Tableau dashboards** presenting COVID-19 case trends, including hospitalization, deaths, and age

Machine Learning for Flappy Bird Game Automation, *Udemy.com* *Jul 2022*

- Designed and implemented a **machine learning** algorithm to achieve **higher scores** in the **Flappy Bird** game
- Trained the model using the **Neat** framework, demonstrating a hands-on understanding of machine-learning techniques

Commercial Report for Hotels on Expedia, *U of T* *Apr 2022*

- Utilized **R scripts** with various libraries to analyze factors influencing hotel **cancellation decisions**
- Demonstrated strong analytical and documentation skills by preparing a **comprehensive report** with detailed explanations of experimental design, analytical steps, and interpretations of statistical metrics

Canadian Governmental Election Voting System Simulation, *U of T* *Dec 2021*

- Conducted real-time quantitative analysis in Python to report **election updates** for candidates and parties
- Transformed raw data into insightful visualizations using **NumPy** and **Matplotlib** to provide support for the analysis

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