Barry Chen

linkedin.com/in/barryatwork • +1 (647) 676 2854 • barrychenwork@gmail.com • barryf710.github.io

EDUCATION

University of Toronto Sep 2023 – Jun 2025
Master of Engineering (Specialized in Data Analytics & Machine Learning, Biomanufacturing) Toronto ON

McMaster University Sep 2017 – Jun 2023
Bachelor of Chemical Engineering & Management Co-op (Specialized in Process Systems Engineering) Hamilton ON

- Coursework: Applied Business Economics, Marketing, Managerial Finance, Financial & Operations Modelling

SKILLS

Software: Microsoft Office Suite, MATLAB, GAMS, Simulink, Autodesk Inventor, Aspen Plus, Minitab, Tableau, Hadoop
Library: TensorFlow, PyTorch, Pandas, Polars, NumPy, SciPy, Scikit-learn, Keras, NLTK, Matplotlib, PySpark, Hugging Face
Programming: Python, MATLAB, Rust, GAMS, HTML, CSS, SQL, R, Java, VBA, Scala, Git

EXPERIENCE

Clinical Data Science Research Assistant | Unity Health Toronto Nov 2024 – Present
Keenan Research Centre for Biomedical Science Toronto ON

- Revealed factors linked to poor ICU outcomes using supervised and unsupervised learning from over 600 features

Data Analytics Research Assistant | University of Toronto May 2024 – Aug 2024
Institute for Studies in Transdisciplinary Engineering Education & Practice Toronto ON

- Identified 5 major areas to improve students' work-life balance from survey data through LLM-aided clustering
- Increased accuracy by 30% via feature engineering and optimization of logistic regression and XGBoost models

Engineering Education Research Assistant | McMaster University Oct 2022 – Feb 2023
Faculty of Engineering Hamilton ON

- Collaborated on designing 4 experiential learning modules for over 900,000 students and educators across Ontario
- Optimized student experience by evaluating over 40 activities on design thinking and engineering improvisation

Controller Design Research Assistant | McMaster University May 2022 – Aug 2022
McMaster Advanced Control Consortium Hamilton ON

- Troubleshot significant performance discrepancy between MPCs in MATLAB and Simulink, achieving 0% deviation
- Resolved a continuous setpoints tracking issue, enabling testing in the Simulink reinforcement learning environment

Technical Services Coordinator | Thermo Fisher Scientific May 2021 – Apr 2022
Data Management Team Mississauga ON

- Facilitated manufacturing readiness by reducing TrackWise overdue items by 25% while ensuring GMP/SOP standards
- Achieved Involvement Inspire award for helping project managers receive over 50 specification approvals in a week

PROJECTS

Machine Learning Case Studies in Finance | University of Toronto Jan 2024 – Jun 2025

- Boosted portfolio profit by 30% through a sentiment-based trading strategy using BERT variants and GPT-2 LLMs
- Designed a classification-based Bitcoin trading strategy using EMA crossover, achieving over 90% signal accuracy
- Developed a multi-indicator-based hierarchical trading strategy, leading to over 150% profit gain during testing
- Enhanced return analysis by adding 6 additional metrics including Sharpe ratio, Calmar ratio, White's reality check
- Improved stock movement prediction by 30% over the baseline model using fine-tuned random forest models

Could-Based Data Analytics | University of Toronto Jan 2024 – Apr 2024

- Optimized a movie recommendation system by reducing RMSE by 20% using Apache Spark in Databricks Notebooks
- Deployed 3 resources in Azure Cloud Platform to execute SQL queries, enabling efficient analysis on a large dataset

Data Science & Analytics | University of Toronto Sep 2023 – Dec 2023

- Built n-class ordinal logistic regression and increased 10% performance via grid search and feature engineering
- Enhanced functionality of a DQN-based trading bot by incorporating a feature of saving the most profitable models