

Barry Chen

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EDUCATION

University of Toronto	Sep 2023 – Jun 2025 (Expected)
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

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
<ul style="list-style-type: none">Revealed features linked to poor ICU outcomes in patient datasets using model-based unsupervised learning	
Student Data Analytics Research Assistant University of Toronto	May 2024 – Aug 2024
Institute for Studies in Transdisciplinary Engineering Education & Practice	Toronto ON
<ul style="list-style-type: none">Identify 5 major areas to improve students' work-life balance from survey data through LLM-aided clusteringIncreased 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
<ul style="list-style-type: none">Collaborated on designing 4 experiential learning modules for over 900,000 students and educators across OntarioOptimized 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
<ul style="list-style-type: none">Troubleshoot significant performance discrepancy between MPCs in MATLAB and Simulink, achieving 0% deviationResolved 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
<ul style="list-style-type: none">Facilitated manufacturing readiness by reducing TrackWise overdue items by 25% while ensuring GMP/SOP standardsAchieved Involvement Inspire award for helping project managers receive over 50 specification approvals in a week	

PROJECTS

Machine Learning for Finance University of Toronto	Jan 2024 – Present
<ul style="list-style-type: none">Enhanced return analysis by adding 6 additional metrics including Sharpe ratio, Calmar ratio, White's reality checkImproved accuracy by 30% over the baseline random forest model using optimized logistic regression modelsBoosted portfolio profit by 30% through a sentiment-based trading strategy using BERT variants and GPT-2 LLMs	
Could-Based Data Analytics University of Toronto	Jan 2024 – Apr 2024
<ul style="list-style-type: none">Optimized a movie recommendation system by reducing RMSE by 20% using Apache Spark in Databricks NotebooksDeployed 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
<ul style="list-style-type: none">Built n-class ordinal logistic regression and increased 10% performance via grid search and feature engineeringDesigned 7 courses for data science learners by applying Word2Vec, BERT, K-Mean, and DBSCAN to job posting data	
Chemical Engineering Capstone McMaster University & Hatch	Sep 2022 – Apr 2023
<ul style="list-style-type: none">Created a Python optimization tool for GPS-X, improving plant efficiency by over 20% while minimizing costsAwarded Best Industrial Application at McMaster Expo Day for showing business value in wastewater treatment	