Zhixin Xiong

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EDUCATION

McGill University, *B.A. Mathematics and Computer Science*   Sept 2019 — Feb 2024

- **Coursework:** Honours Algorithm Design, Honours Math for Machine Learning, Natural Language Processing.

SKILLS

Programming Languages	Java, Python, SQL, R, C/C++, JavaScript, OCaml
Machine Learning	AzureML, PyTorch, Scikit, NumPy, SpaCy,NLTK, pandas, Seaborn, Matplotlib
Web Development	Elastic Search, Node.js, MongoDB, MySQL, React, Hugo

WORK EXPERIENCE

Deloitte   **Feb 2024 - Present**
Data Scientist   *Montreal, Quebec*

- Developed a Q&A section for Deloitte's internal search website using Python, OpenAI API and Elastic Search
- Refined data retrieval processes using Retrieval-Augmented Genration (RAG)
- Used regex to clean long attachment data by removing HTML elements, extra spaces, and irrelevant information, improving data quality and reducing Azure embedding model costs by an estimated 16% based on token count.

Deloitte   **May 2023 - Aug 2023**
Data Science Intern   *Montreal, Quebec*

- Created a proof of concept (POC) for Azure Machine Learning (Azure ML) Studio, showcasing its use for diabetes diagnosis and gender pay gap analysis, while evaluating service costs and making ML accessible to Deloitte employees.
- Implemented a Sentence Transformer model using MultipleNegativesRankingLoss to identify duplicate questions for a Q&A app
- Presented research on internet shutdowns and power outages in India at the Deloitte Innovation Challenge, securing second place overall and first place in the Business Continuity Category.

McGill University   **May 2022 - Aug 2022**
Research Assistant (RA)   *Montreal, Quebec*

- Collaborated with **Mila - Quebec AI Institute** on research about **Formal Verification** for computer programs' correctness .
- Authored a report on constrained horn clauses (CHC) problems.
- Developed an enumerating approach using Context Free Grammar (CFG) and **Python/NLTK** for CHC problems.
- Explored the Linear Arbitrary method for data-driven program generation.
- Analyzed papers from top venues and conducted experiments with **Spacer, Gspacer, Z3, and pysmt**.

McGill University   **Sept 2022 - April 2023**
Tutor/ Course Assistant   *Montreal, Quebec*

- Facilitated teaching and grading for **Honors Analysis, Statistics,** and **Algebra** courses.
- Tutored students at the McGill Math Helpdesk. Provided feedback and guidance to students.

PROJECTS

Am I OK
- Built a website designed to offer answers to patients' inquiries.
- Contributed to developing the backend with Python, Flask, and Cohere.ai API.
- Won "Honourable Mention" and "Most Creative Use of Twilio" at Mais Hackathon.

Text Classification with Pre-trained Word Embeddings
- Developed spam detection and sentiment analysis models using Python, PyTorch, and Scikit.
- Explored Word2Vec, GloVe, and BERT embeddings.
- Applied data processing techniques with SpaCy and NLTK to improve model performance.

Machine Learning Models Implementations
- From scratch, developed logistic regression and clustering models (K-means, GMM) using Python, NumPy, and pandas.

Delivery Database Website
- Developed login functionalities for users and administrators in Java, securing data in MySQL.

HONORS AND AWARDS

Tomlinson Undergraduate Award for Tutoring	Dec 2022
Mila - Quebec AI Institute Scholarship	Sept 2022