Zhixin Xiong

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Education

- **McGill University** — Montreal, Canada
  Bachelor of Arts in Honors Math and Computer Science — *Sept. 2019 –May. 2024*
  Relevant Courses:
  - ***Computer Science****: Natural Language Processing, Foundation of Machine Learning, Statistical Computing, Computer Systems, Model-Based Programming, Algorithms and Data Structures, Programming Challenges, Functional Programming, Theory of Computation*
  - ***Mathematics****: Honors Mathematics for Machine Learning, Statistics, Abstract Algebra, Analysis, Calculus, Linear Algebra*
  - ***Others****: Macroeconomics, Microeconomics, Intro to finance.*

Skills Summary

- **Programming Languages**: Java, Python, SQL, C++, C, Bash, git, HTML/CSS, Javascript, R language, Ocaml
- **Frameworks**: Pytorch, Scikit, NLTK
- **Language**: English(Fluent,ILETS 7.5/9.0), Chinese(Native), French(Intermediate)

Experience

- **China Post** — Nanchang, China
  Software Engineer Internship — *May 2020- June 2020*
  - : Built websites that provide delivery service to local people with Java, SpringBoot, and MySQL tools.
  - : Implemented Login features for different account types such as normal users and administrators.

- **Solving CHC(Constrained Horn Clause) Problems** — Montreal, Canada
  Undergraduate Research Assistant — *June 2022- Aug 2022*
  - : Collaborated with a team in Mila (Mila - Quebec AI Institute) to conduct research in the field of Formal Verification to prove the correctness of computer programs.
  - : Implemented an enumerating approach using Context Free Grammar (CFG) to generate candidate programs for CHC problems with Python and NLTK.
  - : Investigated Linear Arbitrary method to generate programs from data, Read papers from top venues and conducted experiments with this method and other state-of-the-art tools such as Spacer and Gspacer with Z3, pysmt

Projects

Text Classification with Pre-trained Word Embeddings (NLP): Sept 2021- Dec 2021
- : Conducted specific tasks such as spam detection for messages, sentiments analysis for tweets reviews with famous word2vec, glove, LSTM-based classifier and cutting-edge models such as BERT using Python,Pytorch, Scikit.
- : Improved experiment results by processing the data. For example, we removed the @ symbol and emoji symbol. We also filtered words of low frequency and removed stop-words using SpaCy and NLTK.
- : Explored the effects of different embeddings layers on different datasets through trial-and-error and fine-tuning

Flexibook Reservation System: Sept 2020- Dec 2020
- : Built a FlexiBook application for micro-enterprises to provide reservation service for their customers using JAVA, cucumber plugin, java swing, umple, and state machine tools
- : Implemented features for the appointment booking process

Machine Learning Models Implementations: Jan 2021- Apr 2021
- : Conducted sentiment analysis by building logistic regression and Naive Bayes models from scratch using python, NumPy
- : Implemented both K-means and a Gaussian mixture model (GMM) from scratch to cluster using python, NumPy

Simple File System Implementations: Sept 2021- Dec 2021
- : Designed and implemented a simple file system (SFS) that can be mounted by the user under a directory in the user's machine using C language

MiniCAML: April 2022
- : Implemented a programming language called MiniCAML in OCaml. The goal is to explore concepts such as free variables, substitution, evaluation, type checking, and type inference

Honours and Awards

- Mila - Quebec AI Institute Scholarship Sept.2022
- McGill-UQAC French Immersion Program Award May.2022
- Second prize in China High School Biology Olympiad 2017
- First prize in Nanchang High School Chemistry Olympiad 2016
- First prize in Jiangxi High School Biology Olympiad 2017

Main Interests

- **Member of McGill Finance and Technology club** — Montreal, Canada
  coordinated with team members to promote upcoming events and keep records of them — *Oct 2021 - Present*