Jeffrey Lu

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Education

McMaster University - *Bachelor of Applied Science in Computer Science* **2022 - Expected 2026**

- GPA: 3.97/4.00
- Awards: Engineering Award of Excellence, Deans' Honours List 2023
- Relevant Coursework: Introduction to Programming (**Python**, **SQL**), Development Basics (**C**, **Git**, **Linux/Unix**, **Bash Scripting**), Data Structures and Algorithms, Introduction to Software Development (**Java, OOP**)

Work Experience

SequoiaDB Ltd. AI Software Developer Intern (Co-op) **May 2023 - Aug 2023**

- Expedited the testing process by 10% for testing team (20+ people) as a member of the Smart Jira project team
- Researched and compared training methods and implementations of localized Natural Language Processing models Alpaca 13b, Vicuna 13b, Koala 13b
- Cleaned datasets (i.e. removed irrelevant data and empty cells) to be used for NLP model training
- Produced demonstration code for HNSW and IVF searching algorithms in **Python** using **NumPy** and **NMSLIB** libraries to show nearest neighbours of a query vector
- Researched Word2Vec and GloVe pre-trained models for converting words to vectors
- Constructed **Python** scripts that convert words to vectors of user specified dimensionality using **Gensim** library with full unit tests

STEM Tutor **Aug 2020 - Aug 2022**

- Designed unique lesson plans for tutoring fundamentals of **Java** (loops, user input and output handling, debugging) and other high school level STEM subjects (i.e. mathematics, science)
- Successfully led all tutored students to achieve or maintain a grade of 90% or above

Projects

Personal Portfolio - Github **Dec 2023 - Present**

- Developed a responsive personal website using **JavaScript, HTML** and **CSS** that displays my projects, achievements and a blog page
- Linked a "Contact Me" form to a Google Sheet using **Google Scripts**

DrumKit Keyboard - Github **Dec 2023 - Jan 2024**

- Developed a frontend DrumKit Keyboard in **JavaScript, HTML** and **CSS** that allows users to press keys on the keyboard or the buttons on the screen that correspond to different playable sounds on a DrumKit

Similar Image Search - Github **July 2023 - Sept 2023**

- Developed and tested a machine learning application in **Python** that searches for the top 5 visually similar images from an updatable HNSW database to a user's input image via URL
- Used **Towhee** library to convert images into vectors, **PIL** library to render images and **NMSLIB** library to create and query the K nearest neighbours in an HNSW database

TLDR (Too Long Didn't Read) Roger Ebert Reviews - Github **July 2023 - Sept 2023**

- Developed and tested an application in **Python** that generates a 4 line summary of a movie review article from www.rogerebert.com
- Used **NLTK** library for natural language processing (e.g. frequency distribution of tokenized words)

Technical Skills

- Languages: C, Java, Python, SQL, Bash, HTML, CSS, JavaScript, NodeJS
- Other Skills: Unix, Linux, MacOS, VS Code, Intellij, Git, OOP, Interest in AI/NLP