

# Alex Chen

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## EDUCATION

### Bachelor of Applied Science, Computer Science

Sept. 2022 – Apr. 2026

McMaster University (cGPA: 3.90 / 4.00)

Hamilton, ON

- **Relevant Coursework:** Data Structures & Algorithms, Computer Architecture, Databases
- **Awards:** McMaster Engineering Award of Excellence

## TECHNICAL SKILLS

**Languages:** Python, Javascript, HTML/CSS, SQL, Java, Haskell, C, Bash, Elm

**Libraries:** React.js, BeautifulSoup4, Wavesurfer.js, Selenium, NumPy, Pygame, Pydub

**Developer Tools & IDEs:** Git/Github, VS Code, Figma, SQLite3, Netbeans

**APIs & Frameworks:** Node.js, Express.js, Flask, SQLAlchemy, Bootstrap, Jinja2, Pytest, Fetch API, React Native

**Methodologies:** Agile, Scrum, Incremental, Waterfall, Integration/Configuration

**Other Tools:** Unified Modelling Language (UML), Microsoft 365 Tools, Linux (Ubuntu), MATLAB, Photoshop

## WORK EXPERIENCE

### Google Developer Student Club McMaster

Sept. 2023 – Present

- Currently one of 20+ members on GDSC's open source team, developing open-source projects through weekly sprints in an **Agile** development environment
- Contributed to the front-end, back-end, and database aspects of web projects throughout the entirety of their 14-week development cycles, from planning to deployment

### Music Recital Piano Accompanist

Mar. 2020 – Apr. 2020

- Jointly coordinated the performances of 10+ music students as a piano accompanist at a recital held by the University Settlement of Toronto
- Planned and organized multiple rehearsals times with each performer to coordinate & fine-tune their performances

## PROJECTS

### Gamified Learning Platform | Javascript, Python, HTML, CSS, SQL &

Sept. 2023 – Present

- Co-produced an educational platform website to help students learn in a productive and enjoyable manner
- Platform is designed to tackle students' distracted learning and low engagement rates by adding interactive game-like elements to education modules (e.g. leaderboards, achievements, point-redemption systems)
- Implemented a responsive front-end and a **REST API** server back-end with **HTML, CSS, JS, Jinja, & Flask**
- Utilized Python's **SQLAlchemy** to create a **relational database** for user data and educational modules, and **designed API endpoints** to access and modify the database from the front-end
- Wrote **unit & integration tests** in **Pytest** to verify the functionality of the front-end, back-end and API calls

### BusBuddy: Route Optimization Tool | Javascript, Python, HTML, CSS, SQL &

Jan. 2024 – Jan. 2024

- Co-developed a web tool prototype for the **hackathon Deltahacks X**, which aims to give more students access to school transportation and commute to school as efficiently as possible
- Project won **1st place** for "Best DEI (Diversity, Equity, & Inclusion) Hack"
- App utilizes a clustering algorithm on students' addresses to formulate optimal bus stop locations in an area, then using depth-first search, finds the shortest fuel-efficient path between stops for bus drivers to follow
- Website uses **Google Maps API** to generate bus stops and routes from inputted coordinates, and manages student addresses within a **relational database** with **SQLAlchemy**
- Implemented the front-end from **Figma mockups**, while hooking up the authentication system to the website's interface and constructing API endpoints in the back-end **Flask** server

### ChordGuru: Chord Identifier Website | Javascript, Python, HTML, CSS &

Jun. 2023 – Sept. 2023

- Deployed a **web application** that identifies music chords from notes using music set theory
- App aims to help students learning music theory, or composers experimenting with note combinations in compositions; supports three input methods: virtual piano, microphone, and music staff builder
- Developed a back-end server using **Node.js** and **Express.js**, while implementing a responsive web design using the **Bootstrap** framework that is **optimized for many popular browsers and devices**
- Utilized **Python** library **aubio**'s YinFFT pitch detection algorithm for microphone input note analysis
- Devised designs for the website and created prototypes using **Figma**