

# Justin Xue

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## EDUCATION

### McGill University

*Bachelor of Science, Computer Science (GPA: 3.9/4.0)*

Expected Graduation: May 2026

*Montréal, QC*

## EXPERIENCE

### Software Developer

May 2024 – Aug 2024

*QNX Blackberry*

*Ottawa, ON*

- Enhanced **LibC** coverage for the **QNX real-time operating system** by developing **30+** tests in **C** for functionalities such as **IPC** and **file I/O**, ensuring compliance with safety certification standards required for product release
- Conducted **over 25 code reviews** to ensure **100%** portability across multiple SDP versions, with comprehensive testing on various platforms such as **ARM, x86**, and embedded systems like **Raspberry Pi** and **BeagleBoard**
- Reverse-engineered **Jama Software's** internal API to build a **FastAPI** application with **Uvicorn** and integrated a front-end interface to display outstanding review items, automating workflows and improving project planning efficiency by **25%**
- Gained hands-on experience in **Linux/Unix** environments, developing OS-level code, and automating tasks using **shell scripting** to streamline operations

### Coding Instructor

Sep 2021 – Jun 2023

*Logiscool*

*Ottawa, ON*

- Prepared over **30** lessons in introductory programming and advanced **Python** courses to students online and in person
- Monitored students' learning progress and provided constructive feedback on their development

## EXTRACURRICULARS

### Web Executive

Sep 2023 – Present

*Hackthe6ix*

*Remote*

- Revamped the authentication system by integrating **Keycloak** with a custom theme (**FTL, CSS, JavaScript**) and containerizing it with **Docker** for streamlined deployment
- Developed **React** components for the Hackthe6ix website in **Typescript**, leveraging wireframe designs
- Designed the landing page and user dashboard in **Figma**, using insights from **UX** research through interviews and A/B testing, resulting in a **22%** improvement in user engagement.

### Software Subteam Member

Sep 2022 – Jun 2023

*FIRST Robotics*

*Ottawa, ON*

- Implemented the vision detection system for Apriltags and reflective tape using homography-based pose estimation and **OpenCV-Python**
- Collaborated with over **20** software students using a feature branch Git workflow to deliver a competitive robot

## PROJECTS

### AI Music Analyzer 🎵 | *Flask, p5.js, Three.js, Moises, Basic Pitch*

- Developed an AI app for track separation and song analysis at Canada's largest AI hackathon (MAIS Hacks)
- Leveraged AI technology to analyze the waveform of a user-selected song using **Moises API** and implemented an interactable user interface to visualize frequency, pitch, and chord progression
- Produced a **2x award-winning project**, securing the **People's Choice** and **Best Hack for All Arts** awards

### Fridge Friend 🥒 | *React, Flask, PostgreSQL, Supabase, Google Cloud Vision, Cloudflare Workers AI, Auth0*

- Created a virtual fridge to help university students keep track of expiring food items and reduce food waste (Hack Western)
- Built a robust backend using **Flask** and **PostgreSQL**, hosted on **Supabase**, to handle efficient data storage and retrieval
- Integrated **Google Cloud Vision** for OCR to scan and digitize text from food items for accurate inventory updates, and utilized **Cloudflare Workers AI LLM** to generate recipes from soon-to-expire foods.
- Implemented basic user authentication with **Auth0** on a **React** front-end, allowing users to log in securely

### Smart Wallpaper Fitter 🖼️ | *Go, Python Pillow, OpenAI, HTML/CSS*

- Developed a web app that resize images for phone backgrounds while preserving quality and aspect ratio with AI
- Handled image processing using **Python Pillow** and image generation using **OpenAI API**
- Built a simple full-stack application using **HTML/CSS** for the front-end and **Go** for the back-end

### 2D Roguelike Game 🎮 | *Unity, FL Studio, Photoshop*

- Led a team of 4, delegated tasks, and served as lead presenter, resulting in the **team winning 1st place**
- Implemented game mechanics, collision detection, visual effects, audio, and menu UI

## TECHNICAL SKILLS

**Languages:** Python, Java, Go, C, C++, C#, JavaScript, TypeScript, Bash, OCaml, HTML/CSS

**Frameworks and Libraries:** React, Node.js, Three.js, Tailwind CSS, Flask, Selenium, OpenCV, FastAPI

**Technologies and Tools:** Docker, PostgreSQL, Supabase, Google Cloud Vision, Cloudflare Workers AI, Auth0, Figma, Git