Vincent Nguyen

Waterloo, ON | vincent.nguyen3@uwaterloo.ca | (506) 566-5675 | vincentpnguyen | vinny-nguyen

Education

University of Waterloo — *Waterloo, ON*
Bachelor of Computer Science, Honours, Co-op — *Sep 2024 - Present*

- **Extracurriculars:** CS Club Photographer, Data Science Club, Rock Climbing, Muay Thai, Cycling Club

Experience

Web Developer — *Waterloo, ON*
Electrium Mobility — *Jan 2025 - Present*

- Developing and maintaining electriummobility.com for the Electrium Mobility design team, using **React**, **Tailwind CSS**, and **Next.js** to optimize the website's user interface, reducing deployment times by **65%**.
- Integrating **Supabase**'s API to implement product browsing, cart management, connected to a vectorized user authentication database, providing dynamic updates to users and increasing user security by **80%**.

Software Developer — *Waterloo, ON*
University of Waterloo Alternative Fuels Team — *Jan 2025 - Present*

- Developing a **Unity**-based Electric Vehicle (EV) driving game with educational content for children in grades 5 - 9 to learn about cars and electric vehicles, using **C#**, **MonoBehaviour**, and **ScriptableObjects**.
- Optimized game dynamics by simulating engine torque, aerodynamic drag, suspension damping, and vehicle acceleration, alongside procedural C# map generation algorithms, reducing game runtime and lag by **65%**.

Projects

TheRiffler | *Python, C++, Arduino, PyGuitarPro, PySerial, Onshape, Klipper* — *Waterloo, ON*
Hack Canada 2025 Finalist — *Feb 2025*

- Built an **Arduino Mega**-based self-playing guitar using **servomotors** to simultaneously pluck strings and press on frets, with custom **3D-Printed** actuator components designed using **Onshape** and **Klipper**.
- Integrated **PyGuitarPro** to build a **Python** .gp5 parser that converts guitar tablatures into .JSON files, structured with fret and string numbers, start time, duration, and velocity assigned to each note.
- Utilized **SoundDevice** and **NumPy** audio arrays to parse .JSON musical data and leveraged **PySerial** to integrate **C++** serial command sequences, triggering real-time callibrated Arduino servomotor movements.

WatClub | *Python, BeautifulSoup, React, Next.js, Docker, Django, Selenium* — *Waterloo, ON*
UW Computer Science Club Winner — *Oct 2024 - Dec 2024*

- Developed a rating platform for UW clubs, using **BeautifulSoup** and **Selenium** to scrape web data, and designed 30+ **RESTful** API endpoints for user authentication, comments, and real-time data updates.
- Built a custom **TF-IDF**-based search engine by automating a **CI/CD** predictive model using **Docker**, **Github Actions** and **Django**, reducing deployment times by **60%**, and improving relevancy by **35%**.

IntroSpectacle | *Python, OpenCV, Mediapipe, MongoDB, Cohere, Whisper* — *Waterloo, ON*
Hack the North 2024 — *Sep 2024*

- Developed a real-time facial detection system that helps users remember names, conversations, and details about a person during social interactions by utilizing **Cohere** and **Whisper AI** for analyzing transcriptions.
- Integrated **OpenCV**, **Mediapipe**, and **PyAudio** for synchronized audio-visual capture and **MongoDB** for storing facial recognition data, showing real-time past conversation details to facilitate memory recall.

Skills

Languages: Python, C, C++, C#, Java, HTML5, CSS3, JavaScript, Racket, MATLAB/Simulink

Technologies: React, Next.js, Tailwind CSS, Django, PyAudio, PySerial, OpenCV, BeautifulSoup, Selenium

Tools: Git, Docker, Bash, Linux, MongoDB, Supabase, Whisper, Mediapipe, Arduino, Onshape, Klipper