

ETHAN RONG

• Phone: (647) 779-9806 • Email: ethan.rong@gmail.com • GitHub: [ethan-rng](https://github.com/ethan-rng) • LinkedIn: [Ethan Rong](https://www.linkedin.com/in/EthanRong)

Date: December 19, 2022

To Whom it May Concern

RE: Application for #191696 Project Assistant

I am writing to express my strong interest in the Project Assistant position posted on the OPS Careers page. Currently, I am a student at the University of Western Ontario majoring in computer science and business administration in the HBA/BSc program and I am excited to bring my technical skills and problem-solving abilities to this role and contribute to the important work of the Ontario government.

I have gained a strong foundation in programming through my coursework and club projects, including classes in data structures, algorithms, and programming languages such as Python. In my current position as Project Director for Western AI (WAI) and Western Founder's Network (WFN), I am apart of some interesting projects. Amongst these projects include a Spotify song recommender which uses data from a user's Spotify account to create a list of suggested songs using a form of unsupervised machine learning. Through these activities, I learned to develop strong self-learning skills and team building skills whilst gaining solid working knowledge in areas such as Python, Jupyter Notebooks, Matplotlib, Pandas, HTML/CSS, Bootstrap, Flask, and Figma.

In addition to my coursework and club projects, I have also gained valuable experience through hackathons. Most recently, I worked with a team of three other students to compete in Hack Western 9, where we developed the Hover Touch project - a gesture-based video technology to convert air-drawn text into text and speech using real-time computer vision and Arduino nano hardware. Our project was ranked 4th out of 80 teams and was created as an alternative to sign language for people who have developed vocal disabilities. I was responsible for implementing the image masking technology that captured the user's drawing and isolated it from the camera stream using object character recognition (OCR) technology via the Google Cloud Vision API. This experience not only allowed me to apply my technical skills, but also gave me the opportunity to work under tight deadlines and in a fast-paced, collaborative environment.

I am confident in my ability to handle challenges and adapt to new environments, and I am excited to continue learning and growing as a data analyst. Attached to this letter is a copy of my resume, which provides more detail on my qualifications and experience. I hope to have the opportunity to discuss my background and your requirements in more detail in an interview. Thank you for considering my application.

Yours truly,

A handwritten signature in black ink that reads "Ethan Rong". The signature is written in a cursive, flowing style with a long horizontal flourish underneath the name.

ETHAN RONG

• Phone: (647) 779-9806 • Email: ethan.rong@gmail.com • GitHub: [ethan-rng](https://github.com/ethan-rng) • LinkedIn: [Ethan Rong](https://www.linkedin.com/in/EthanRong)

EDUCATION

University of Western Ontario | 4.0 GPA (90.6%)

2022-2027

Bachelor of Computer Science; Honors, Ivey Advanced Entrance Opportunity (AEO)

TECHNICAL EXPERIENCE

- **Languages:** Python, Java, HTML5, CSS, JavaScript
- **Operating System:** Windows, Linux/Unix
- **Tools:** PyCharm, Jupyter Notebook, IntelliJ, Github, APIs, Model View Controller Architecture
- **Libraries:** Flask, OpenCV, Pandas, Numpy, Sklearn, Java Swing
- **Soft Skills:** Leadership, Adaptable Team Player, Communications Skills, and Critical Thinking

PROJECTS

Hover-Touch: Python, OpenCV, Google Cloud API, Github

<https://devpost.com/software/hovertouch>

- Developed image-to-text software and hardware that would enable non-verbal individuals to communicate via air-drawn messages that would convert to text and speech using **Python** and **Github**
- Utilized **Arduino Nano** hardware, along with breadboard and flex cables to track gestures and hand position in real time
- Programmed using **Open CV** to perform image processing to recognize user-generated gestures and user-drawn messages
- Connected backend to **Google Cloud Vision API** to enable optical character recognition (OCR)
- Collaborated with a group of three at Hack Western 9 and placed as **4th out of 80** teams through said project

Spotify Bot: YouTube/Spotify API, Flask, HTML/CSS/JS

<https://github.com/ethan-rng/spotifyBot>

- Coded a Python web app that would find songs within a playlist and download them on a user's machine as mp3 files
- Utilized **Spotify API** to locate key data within each playlist/song and **YouTube API** and PyTube to download music
- Compiled mp3 files and metadata in the form of a **Flask** webserver using HTML/CSS/JS to serve to client-end UI

Connect-Four: Java Swing + Network Socket, Model-View-Controller

<https://github.com/ethan-rng/connectFour>

- Created a multiplayer version of connect-four using **Java Swing**, **Socket**, and the **model-view-controller architecture**
- Built using the **server-client model** and a custom network communication protocol over a local area network (LAN)

EXTRACURRICULARS

Project Director | *Western AI*

Sept. 2022 - Present

- Creating a Spotify-music recommender which recommends songs based on a user's past played songs and previous taste
- Responsible for employing the machine learning **k-means clustering algorithm** using **sklearn** to recommend songs and evaluating model performance using metrics such as the **Davies-Bouldin index** and **Dunn index**
- Incorporated backend to a **Flask** web server and **React web-framework** to serve as client-end UI
- Acquired working knowledge on key-technologies such as **sklearn**, **Jupyter Notebooks**, **Pandas/Numpy/Matplotlib**

Junior Analyst | *Global Research Council*

Sept. 2022 - Present

- Delivered presentations for client review after three-month long consultation and research process in a group of four
- Spearheaded efforts in **researching contemporary green practices** for a client in areas such as carbon offset and locating alternative "green" sponsors/grants to **diversify client's funds** to meet client-set sustainability goals

Project Director | *Western Founders' Network*

Sept. 2022 - Present

- Creating **deepfake** voice swapping app that allow users to swap vocals of one artist for another using **Python**
- Responsible for backend implementation and research using libraries such as **pydub**, **noisereduce** and **spleeter**

AWARDS

- **Hackathons** – 4th Out of 80 teams at Hack Western 9 | **Hover Touch**
- **First Tech Challenge** – 4th Place Regionals; Provincial Qualified; Innovate, Inspire, Think Awards
- **Model UN** – 2021 MIT Outstanding Delegate; 2020 Stanford Honorable Mention; 2020 Harvard Honorable Mention