MIRANDA CHEN

Email: m48chen@uwaterloo.ca | **GitHub:** github.com/m-chenie | **LinkedIn:** miranda-chen-70a200211

SKILLS

Languages: JavaScript, TypeScript, HTML, CSS, Python, SQL, C++
Tools: Node.js, React, React Router, npm, Bootstrap, NumPy, SciPy, Matplotlib, pandas, MySQL

EXPERIENCE

DATABASE PROGRAMMER, OAK RIDGES HEART CLINIC   MAY 2023 – AUGUST 2023

- Developed a program using **Python** (**NumPy**, **SciPy**, **Matplotlib, pandas, Neurokit2**) that diagnoses ECG rhythm abnormalities from a 10-second ECG with an **accuracy of 80%**, providing a valuable diagnostic support tool to healthcare professionals.
- Created an optical character recognition application using **Tesseract-OCR** to convert scanned faxes into searchable PDFs, reducing manual work by **5+ hours** per week and data entry errors by approximately **95%**.
- Developed a **web scraping** application using **Selenium** to automate the retrieval, upload, and classification of patients' medications, documents, and lab results into the clinic database, improving workflow efficiency by **65%**.
- Designed and developed a streamlined, user-friendly E-form to enhance the process of medication reconciliation and prescription using **JavaScript** and **HTML/CSS.**

AI/ML RESEARCHER, WATOLINK NEUROTECH DESIGN TEAM   JAN 2023 – PRESENT

- Researched EEG signals evoked by visual stimuli to determine the feasibility of **Steady-State Visual Evoked Potential (SSVEP)** as a paradigm to control a **brain-controlled interface (BCI)** wheelchair.
- Developed and executed a testing plan for data collection to evaluate the feasibility of SSVEP as a paradigm.

SOFTWARE DEVELOPER, BIOMECHATRONICS DESIGN TEAM   SEPT 2022 – JAN 2023

- Collected and processed EMG signal data using **pandas**, **NumPy**, and **Matplotlib** to train a machine learning model aimed at predicting muscle contraction.

PERSONAL PROJECTS

MIRANDA-101

- Designed and developed a personal website using **React.js** designed to showcase skills, experience, and software development projects.
- Utilized **Bootstrap** and **React Router** to a create responsive design and provide dynamic user experience.

NUTRICART (IGNITION HACKS 2023)

- Created a Chrome Extension using **React** and **TypeScript** that tracks calories and macronutrients when buying groceries using Instacart.
- Implemented **Nutrient API** to obtain nutritional values of each item in shopping cart.
- Developed interactive UI that calculates the user's recommended nutritional intake and compares it to the nutritional value of the user's shopping cart while giving instant feedback on the user's cart's nutritional status.

MEDI+FORM (HACK THE GLOBE 2023)

- Developed Chrome Extension using **JavaScript** and **HTML/CSS** to improve health literacy by translating medical jargon into simple terms and auto filling personal medical information.
- Incorporated **Speech Synthesis Utterance API** to read aloud medical jargon terms along with their lay definition.

T-REX AI GAME

- Designed and developed an interactive user-versus-AI game using **Pygame**, providing users with the opportunity to witness the AI's learning process as it plays Chrome dinosaur game.
- Employed **NEAT (NeuroEvolution of Augmenting Topologies)** to train the AI and incorporated different difficulty levels by adjusting the population training size.

EDUCATION

UNIVERSITY OF WATERLOO   SEPT 2022 – PRESENT

- **Bachelor of Applied Sciences (Honours) Candidate, Biomedical Engineering with Co-op**
- Co-op Student of the Year 2023 Nominee