MIRANDA CHEN

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EXPERIENCE

MAY 2023 - PRESENT
DATABASE PROGRAMMER (SUMMER 2023 CO-OP), OAK RIDGES HEART CLINIC

- Developed program using **Python** (**NumPy**, **SciPy**, **Matplotlib, Pandas**) that diagnoses ECG rhythm abnormalities (PACs and PVCs) with an accuracy of 80%, providing a valuable diagnostic support tool to healthcare professionals.
- Improved workflow efficiency by 65% using **Selenium** to automate the retrieval, upload, and classification of patients' medications, documents and lab results into the clinic database.
- Designed and developed a streamlined, user-friendly E-form to enhance the process of medication reconciliation and prescription using **JavaScript** and **HTML/CSS.**
- Implemented computer vision **(OpenCV)** to convert non-searchable PDFs into searchable PDFs, reducing manual work by 5+ hours per week.

JAN 2023 - PRESENT
WATOLINK, AL/ML TEAM MEMBER

- Researched frequencies and bio signals in consideration for using 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.

SEPT 2022 – JAN 2023
BIOTRON, SOFTWARE TEAM MEMBER

- Processed EMG signal data using **Python** libraries such as **Pandas**, **NumPy**, and **Matplotlib** to train a machine learning model with the goal of improving prosthetic development.

PERSONAL PROJECTS

MIRANDA CHEN, REACT, JAVASCRIPT, HTML, CSS

- Designed and developed a personal website designed to showcase skills, experience, and software development projects.
- Utilized Bootstrap and React Router for responsive design and optimal user experience.

NUTRICART (IGNITION HACKS 2023), REACT, JAVASCRIPT, TYPESCRIPT, HTML, CSS

- Chrome Extension that helps keep track of calories and macronutrients in your Instacart when you buy groceries online.
- Uses Nutrient API to obtain nutritional values of each item in shopping cart.
- Compares the nutritional value of your shopping cart to your recommended nutritional intake.

MEDI+FORM (HACK THE GLOBE 2023 SUBMISSION), JAVASCRIPT, HTML, CSS

- A health literacy tool in the form of a Chrome extension that saves, auto fills, and translates medical jargon into lay terms.
- Implements Speech Synthesis Utterance API to read aloud medical jargon terms along with their lay definitions.

FAX_PROCESSER, PYTHON

- Created program to transform non-text searchable PDFs into fully searchable ones

M&M'S BOOK NOOK, C++

- Developed a program that allows users to efficiently manage and organize book data in a book database
- Incorporated a login and registration system and implemented face detection using **OpenCV** to enhance program security.

T-REX AI GAME, PYTHON

- Implemented NEAT (NeuroEvolution of Augmenting Topologies) to train an AI to play a simple infinite runner game inspired by the Google Dino Run.

ULTRASOUND IMAGING, C++

- Program generates a beamform ultrasound image containing multiple scanlines from echoes received by an ultrasound transducer.

EDUCATION

SEPT 2022 - PRESENT

UNIVERSITY OF WATERLOO, CANDIDATE FOR BACHELOR OF APPLIED SCIENCE (HONOURS)

- Biomedical Engineering (Co-op)