




# Bryan Ling

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## SKILLS

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- **Languages:** JavaScript, TypeScript, Python, CSS, HTML5, C, C++
- **Technologies:** React/Redux, Node.js, Firebase, OpenCV, NumPy, Express, Flask, Git, Material UI, Tensorflow

## WORK EXPERIENCE

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### Cognitive Systems - *Software Engineering Intern*

May 2020 - August 2020

- Deployed a **React**-app to display long-term changes in quiet **WiFi-motion** data through matrix manipulation, streamlining the data visualization process from **15+ minutes to under 60 seconds**
- Integrated a **Flask** backend handling WiFi-motion related API and data vault calls to automate the task of identifying quiet samples within a given timeframe
- Designed frontend interface allowing users to select sections of data and graphs them with ChartJS
- Used Matplotlib and **NumPy** to investigate the effects of device movement on channel response data in a WiFi network

### Ontario League of Associated Esports - *Full Stack Developer*

February 2019 - August 2019

- Built website from scratch that allows users to make accounts, displays competitor statistics, and includes a real-time matchmaking system for over **300 active users** with **React/Redux** and **Firebase**
- Integrated **Node.js** backend to work with **Riot Games' API** to deliver matchmaking statistics to identify top-performing competitors
- Automated social media content using image and video processing libraries PIL and MoviePy in **Python**
- Implemented an admin dashboard used to control lobby status with Socket.io
- Wireframed and implemented a responsive UI with Material UI and Adobe XD for mobile support

### LCR Research - *Software Engineering Intern*

June 2018 - September 2018

- Rebuilt customer-facing desktop application by developing a GUI in Python using Tkinter, integrating features including device settings customization and logging data to CSV files

## PROJECTS

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### Crambarry.com - Classroom Social Network Web-App

- Developed a roulette rewards system, player customizability, multi-user flashcard generator, discussion/question forums, and chat rooms using React/Redux and Firebase
- Application approved by Waterloo Region District School Board for student use

### Pokemon Go Walker - Pokemon Go played with Computer Vision AI

- Trained a convolutional neural network in TensorFlow to detect the game's current menu
- Developed a script in **OpenCV** and Python to automate image generation and file sorting for **Tensorflow** training
- Implemented TensorFlow's object detection API to detect in-game objects in real-time with OpenCV

### Unity Wear - 3D Garment Design Visualizer Web-App

- Developed a PNG to SVG image converter using **OpenCV** contour hierarchy tree to determine relationships between positive and negative space contours of the same color
- Integrated an interactive 3D garment design interface with React and ThreeJS for t-shirt previews

## EDUCATION

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University of Waterloo, Software Engineering

2019 - 2024