



# Bryan Ling

✉ b3ling@uwaterloo.ca    github.com/bryanling1    linkedin.com/in/bryanling   ☎ 519-591-1889

## SKILLS

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- **Languages:** JavaScript, TypeScript, Python, CSS, HTML
- **Technologies:** React/Redux, Node.js, Firebase, OpenCV, Socket.io, 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-app 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 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 used 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 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 - Online Gamified Classroom React-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 Computer Vision Script

- Trained a convolutional neural network in TensorFlow to detect the game's current menu
- Composed 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