Jiwon Ha

(548)-255-1144 | jiwon.ha@uwaterloo.ca | jiwnha.github.io

Skills

Languages: C/C++, Python, Java, SQL, JavaScript, HTML/CSS, R
Frameworks/Libraries: React Native, React.js, Node.js
Developer Tools: Git, Bash, Firebase, Google Analytics, Valgrind, Vim, VS Code, Xcode, Eclipse

Experience

Undergraduate Research Assistant Jan 2022 – Apr 2022
University of Waterloo *Waterloo, ON*

- Overhauled a deep breathing mobile app to fix animation issues, add slideshow features, and enhance visual appeal
- Overcame previous limitations in the app's animation capabilities by devising a method to embed and sync complex animations
- Engineered an algorithm for a six-axis robot arm to perform tasks on conveyors using C++
- Self-learned inverse kinematics and microcontroller architecture in a highly independent research environment
- Collaborated with professors, professional engineers, and other researchers in brainstorming sessions for troubleshooting intricate issues

Projects

Shanti | *JavaScript, React Native, React.js, Expo, After Effects*

- Enhanced user experience of a deep breathing app by resolving animation syncing issues, resulting in a smooth and synchronized visual experience
- Implemented slideshow features in the app, enabling users to explore guided deep breathing sessions with accompanying relaxing visual content
- Leveraged After Effects, Bodymovin, and a wide range of libraries to create, embed, and sync animations
- Led a team of two wellness coordinators and a kinesiology student to incorporate feedback from a physical and mental health perspective

Robot Manipulator | *STM32 Nucleo, C++, Keil µVision, Node-RED*

- Derived inverse kinematics angle equations using matrix algebra
- Engineered various mechanical modifications for increased mobility, including a redesigned end effector and changes to motors, link lengths and shapes, and motor switch locations
- Composed a Node-RED program for communication with programmable logic controllers on conveyors

3D Printer | *Arduino, C++, Marlin, SketchUp*

- Constructed a 3D printer from scratch using an Arduino programmed using C++
- Created an extensive range of hardware parts using SketchUp to design 3D-printable models
- Produced a demo video and a report detailing design, components, methods, problems encountered, and solutions

Education

University of Waterloo Waterloo, ON
Candidate for Bachelor of Computer Science *Sep 2019 – Apr 2026*

- Relevant courses: Object-Oriented Software Development, Data Structures and Data Management, Intro to Database Management, Intro to Data Abstraction and Implementation, Programming Principles
- President's Scholarship of Distinction recipient