

# Hao Ju

MASTER'S STUDENT, FULL-STACK RESEARCH ENGINEER

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## Skillsets

<b>Programming</b>	MATLAB, C, Python, VHDL, JavaScript, C#, HTML/CSS, Java
<b>Hardware Tools</b>	Altium Designer, Quartus, Simulink, Multisim
<b>Design Tools</b>	AutoCAD, Adobe Illustrator, Figma
<b>Data Analysis</b>	SPSS, Microsoft Access, RapidMiner, PowerBi
<b>Embedded Systems</b>	Arduino, STM32, Raspberry Pi, MCS 8051, Xilinx Virtex
<b>Languages</b>	Mandarin (native), English (fluent, IELTS 8.0), French (basic)

## Education

### School of Information Studies, McGill University

Montreal, Canada

MIST IN INFORMATION STUDIES, RESEARCH-BASED

Sept 2019 - Exp. May 2021

- GPA: 3.73/4.0
- Area of specialization: Human Computer Interaction; Accessibility & User Experience; Wearable Devices

### School of Electronic Engineering, Univ of Electronic Sci & Tech of China (985,211)

Chengdu, P.R.China

B.ENG. IN ELECTRICAL AND COMPUTER ENGINEERING

Sept. 2014 - July 2018

- GPA: 3.86/4.0 (Final year 3.91/4.0), Ranking: 5/42 (Final year 3/42)
- Honorary Graduate of UESTC

## Selected Experiences

### RESEARCH & DEVELOPMENT

#### Dept. of Electrical and Computer Engineering, University of California, Los Angeles

Montreal, Canada

RESEARCH INTERN (REMOTE)

Sept. 2020 - Present

- Designing and developing a system to perform hand activity sensing with wearable millimeter wave sensor TI IWR 1448 and machine learning algorithm Long Short-Term Memory (LSTM).

#### School of Information Studies, McGill University

Montreal, Canada

RESEARCH ASSISTANT

Sept. 2019 - Present

- Designing, building, and troubleshooting firmware & hardware of a wearable limb-based input system from scratch using Arduino and Python.
- Collecting and analysing performance data using the prototype and System Usability Questionnaire to qualitatively and quantitatively analyse the difference in interaction patterns, performances, and user preferences between older adults and their younger peers.

#### School of Creative Media, City University of Hong Kong

Hong Kong, P.R.China

RESEARCH ASSISTANT

Sept. 2018 - May 2019

- Provided technical support in Arduino programming and circuit design & troubleshooting for other PhD students.
- Designed and developed hardware and firmware prototypes for visually challenged schoolchildren based on Arduino and C, e.g. musical building blocks introducing programming languages, thermal display systems for geographical education, etc.
- Co-designed and co-conducted user study experiments.

#### Dept. of Electrical and Compute Engineering, McGill University

Montreal, Canada

RESEARCH INTERN

July 2017 - Oct. 2017

- Developed the hardware and firmware of a foot-based interactive system based on Arduino, C, and VICON. Co-designed the menu layout in Unity using C#. Co-designed and conducted qualitative & quantitative usability study through interviews & NASA-TLX questionnaires.
- Enhanced the performance of an existing prototype generating burning-hot illusion with Electro-Muscular Stimulation. Improved temperature detection accuracy by 37.5% by re-designing the system, switching from thermal variable resistors to digital sensors.

### PRODUCTION & QUALITY CONTROL

#### Production Management Intern

Shenzhen, P.R.China

SIGLENT TECHNOLOGIES

Aug. 2016

- Co-managed production and quality control process with full-time employees at the leading Chinese oscilloscope manufacturer

### OUTREACH & LEADERSHIP

#### Core Member, Technical Volunteer

Chengdu, P.R.China

TECHNOLOGY ASSOCIATION FOR SCHOOL OF ELECTRONIC ENGINEERING

Oct. 2014 - Dec. 2015

- Provided technical support and hosted weekly workshops on circuit design and embedded system programming in C and VHDL

### TEACHING

#### Senior Private Session Tutor

Montreal, Canada

EASY GROUP INC.

Sept.2020 - April 2021

- Providing tailored on-on-one lectures on 100-300 level classes in Computer Science and Electrical & Computer Engineering

## Teaching Assistant

DEPARTMENT OF ELECTRICAL AND COMPUTER ENGINEERING, MCGILL UNIVERSITY

Montreal, Canada

Sept. 2020 - Dec. 2020

- Teaching Assistant of ECSE 222 Digital Logic. Job responsibility including teaching, demoing, and providing technical support in VHDL

## Publications

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### Limb-Based Interactive System for Older Adults

Exp. Nov. 2020

- Hao Ju and Karyn Moffatt. To be submitted to ACM International Conference on Ubiquitous Computing (UbiComp) 2020

### Pressure or Movement? Usability of Multi-Functional Foot-Based Interfaces

Sept. 2017

- Taeyong Kim, Hao Ju, and Jeremy Cooperstock. 2018. In proceedings of ACM SIGCHI Conference on Designing Interactive Systems (DIS) 2018. ACM. 1219-1227. doi: 10.1145/3196709.3196759

### A Data-Driven XGBoost-Based Filter for Target Tracking

July 2018

- Bowen Zhai, Wei Yi, Ming Li, Hao Ju, and Lingjiang Kong. Poster presentation in IET Radar Conference 2018.

## Honors and Awards

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### Ethelwyn Crossley Memorial Scholarship, CAD 4,620

May 2019

### Mitacs Globalink Graduate Fellowship, CAD 15,000

Mar 2019

### National Internet Security Scholarship, CNY 30,000 (CAD 5,680), 100 among all undergraduates and graduate students in China per year

Aug. 2017

### 'Internet Plus' Innovation & Entrepreneurship Competition, Provincial Second Prize

July 2017

### National College Student 'Smarter Connected' System Innovation Competition, 2nd Prize of Southwest China

July 2016

### 2016 COMAP Interdisciplinary Contest In Modeling, Honorable Mention

Apr. 2016