

# 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>Courses</b>	Data Structure & Algorithms, Data Mining, Applied Machine Learning, Information Systems Design, Usability Analysis & Assessment
<b>Languages</b>	Mandarin (native), English (fluent, IELTS 8.0), French (basic)

## Education

### School of Information Studies, McGill University

MIST IN INFORMATION STUDIES, RESEARCH-BASED

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

Montreal, Canada

Sept 2019 - Exp. May 2021

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

B.ENG. IN ELECTRICAL AND COMPUTER ENGINEERING

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

Chengdu, P.R.China

Sept. 2014 - July 2018

## Selected Experiences

### RESEARCH & DEVELOPMENT

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

RESEARCH INTERN (REMOTE)

- 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).

Montreal, Canada

Sept. 2020 - Present

#### School of Information Studies, McGill University

RESEARCH ASSISTANT

- 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.

Montreal, Canada

Sept. 2019 - Present

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

RESEARCH ASSISTANT

- 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 (follow-up work published in DIS' 20 Companion. doi: 10.1145/3393914.3395895), thermal display systems for geographical education, etc.
- Co-designed and co-conducted user study experiments.

Hong Kong, P.R.China

Sept. 2018 - May 2019

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

RESEARCH INTERN

- 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.

Montreal, Canada

July 2017 - Oct. 2017

### PRODUCTION & QUALITY CONTROL

#### Production Management Intern

SIGLENT TECHNOLOGIES

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

Shenzhen, P.R.China

Aug. 2016

### OUTREACH & LEADERSHIP

#### Core Member, Technical Volunteer

TECHNOLOGY ASSOCIATION FOR SCHOOL OF ELECTRONIC ENGINEERING

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

Chengdu, P.R.China

Oct. 2014 - Dec. 2015

### TEACHING

## Senior Private Session Tutor

EASY GROUP INC.

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

Montreal, Canada

Sept.2020 - April 2021

## Teaching Assistant

DEPARTMENT OF ELECTRICAL AND COMPUTER ENGINEERING, MCGILL UNIVERSITY

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

Montreal, Canada

Sept.2020 - Dec. 2020

## Publications

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### Millimeter Wave Gesture Sensing

Exp. Jan. 2021

- Hao Ju and Yang Zhang. To be submitted to ACM Conference on Human Factors in Computing Systems (CHI) 2021 Late breaking works

### 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