

Hao Ju

MASTER'S STUDENT, FULL-STACK RESEARCH ENGINEER

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Skillsets

Programming	MATLAB, C, Python (including OpenCV, SKLearn, Tensorflow), VHDL, JavaScript, HTML/CSS, Java
Hardware Tools	Altium Designer, Quartus, Simulink, Multisim
Design Tools	AutoCAD, Adobe Illustrator, Figma
Data Analysis	SPSS, Microsoft Access (SQL), Gephi, RapidMiner, PowerBI
Embedded Systems	Arduino, STM32, Raspberry Pi, MCS 8051, Xilinx Virtex
UI/UX	User study design, Semi-structured interviews, A/B testing, ANOVA, rapid prototyping
Courses	Data Structure & Algorithms, Applied Machine Learning, Information Systems Design, Usability Analysis & Assessment
Languages	Mandarin (native), English (fluent, IELTS 8.0), French (conversational)

Education

School of Information Studies, McGill University

Montreal, Canada

MIST IN INFORMATION STUDIES, RESEARCH-BASED

Sept 2019 – May 2021

- GPA: 3.86/4.0, final semester 4.0/4.0
- 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

2012 Labs, Huawei Technologies

Toronto, Canada

RESEARCH INTERN

May 2021 –

- Design and develop sensors and corresponding data processing algorithms for voice-controlled digital home solutions.

National Research Council of Canada

Montreal, Canada

RESEARCH INTERN

Jan 2021 - Exp. April 2021

- Designing and developing visualization tools for network graphs & clustering analysis for researchers from non-engineering backgrounds, using Java and Gephi.
- Conduct corresponding user research.

School of Information Studies, McGill University

Montreal, Canada

RESEARCH ASSISTANT

Sept. 2019 - Present

- Designed, built, and troubleshoot firmware & hardware of a wearable limb-based input system from scratch
- Due to COVID-19, we made some technical trade-offs so that the experiment can be conducted remotely by mailing experiment materials to the participants' home contact-free. Built the mats embedded with pressure sensors to track foot movement using Arduino; Designed and built the interface displayed on screen using Python Tkinter and PySerial.
- Collecting and analysing performance data using the prototype, semi-structured interviews, 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 for seated musicians. 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.

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 & manufacturing (PCB boards design, CNC Machines, laser cutting, 3d printing, etc); and embedded system programming in C & VHDL

TEACHING

Maker Space Manager (Incoming)

Montreal, Canada

ALEXANDER VON HUMBOLDT GERMAN INTERNATIONAL SCHOOL

Exp. Sept 2021

- Provide tailored hands-on tutorial & workshops for grade 6-12 students on CNC Machines, circuit design, embedded system programming, robotics, etc.
- Help the school maintain and further develop the maker space.

Senior Session Lecturer

Montreal, Canada

EASY EDUCATION INC.

Oct. 2020 -

- Providing tailored lectures on Data Structures and Algorithms in Java and Python.
- One of the most responsible & enthusiastic lectures rated by students.

Teaching Assistant

Montreal, Canada

DEPARTMENT OF COMPUTER SCIENCE, MCGILL UNIVERSITY

Jan. 2021 - Exp. May 2021

- Teaching Assistant of COMP250 Intro to Computer Science. Providing technical supports for students on Data Structure and Algorithms in Java during class and office hours. Designing homework assignments and lab assignments in Java with other TAs.

Teaching Assistant

Montreal, Canada

DEPARTMENT OF ELECTRICAL AND COMPUTER ENGINEERING, MCGILL UNIVERSITY

Sept. 2020 - Exp. May 2021

- Teaching Assistant of ECSE222 Digital Logic. Teaching, demoing, designing assignments, and providing technical support for students in VHDL. Received high ratings from students taught.

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

Publications

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. The Journal of Engineering, 2019(20):6683-6687, 2019, doi: 10.1049/joe.2019.0174

Selected Honors and Awards

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 (Approx. CAD 6,000)

Aug. 2017

100 AMONG ALL UNDERGRADUATES AND GRADUATE STUDENTS IN CHINA PER YEAR

2017 'Internet Plus' Innovation and Entrepreneurship Competition

Jul. 2017

SECOND PRIZE (PROVINCIAL LEVEL), 7TH AMONG 125 TEAMS

National College Student 'Smarter Connected' System Innovation Competition

July 2016

SECOND PRIZE OF SOUTHWEST CHINA AREA

2016 COMAP Interdisciplinary Contest In Modeling, Honorable Mention

Apr. 2016