

Hao Ju

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Education

Department of Information Studies, McGill University

Montreal, Canada

MIST IN INFORMATION STUDIES

Sept 2019 - Exp. May 2021

- GPA: 3.67/4.0
- Supervised by Dr. Karyn Moffatt (<http://act.mcgill.ca/karyn/>)

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

Chengdu, P.R.China

B.ENG. IN ELECTRONIC INFORMATION

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

Employment

Research Assistant

Hong Kong, P.R.China

SCHOOL OF CREATIVE MEDIA, CITY UNIVERSITY OF HONG KONG

Sept. 2018 - May 2019

- Provided technical support in Arduino programming and circuit design for other PhD students.
- Designed and developed hardware and firmware prototypes 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.

Research Intern

Montreal, Canada

SHARED REALITY LAB, MCGILL UNIVERSITY

July 2017 - Oct. 2017

- Developed the hardware and firmware of a foot-based interactive system for seated musicians based on Arduino and C. Co-designed the menu layout in Unity using C#. Co-designed and conducted qualitative & quantitative usability study through interviews & NASA-TLX questionnaires. Published at ACM DIS'18 conference.
- 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 Management Intern

Shenzhen, P.R.China

SIGLENT TECHNOLOGIES

Aug. 2016

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

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 embedded system programming in C and VHDL for undergrad students.

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. <http://doi.acm.org/10.1145/3196709.3196759>

A Data-Driven XGBoost-based Filter for Target Tracking

June 2018

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

Research Projects

Prediction Model on Career Paths based on Information Behaviour

Montreal, Canada

STUDENT RESEARCHER, MCGILL UNIVERSITY

Jan. 2019 - Present

- Developing a prediction model on graduate students' academic performance as well as career choices & development based on their information-seeking behaviour through their first semester.

Limb-Based Interactive System for Older Adults

Montreal, Canada

STUDENT RESEARCHER, MCGILL UNIVERSITY

Sept. 2019 - Present

- Designing and developing a wearable limb-based input system for older adults, based on Raspberry Pi. A study on the difference between interaction habits among older adults and their younger peers is to be performed.

The Singing Cubes: A Multi-Sensory Programming Media

Hong Kong

RESEARCH ASSISTANT, CITY UNIVERSITY OF HONG KONG

Oct. 2018 - May 2019

- Designed and developed all hardware and firmware for a set of musical building blocks based on Arduino and C. The system introduces basic programming ideas such as variables and programming sequences (loop, switch and sequential order, etc.) to the visually impaired schoolchildren.

Thermal-Based Displaying Device for the Visually Impaired Schoolchildren

Hong Kong

RESEARCH ASSISTANT, CITY UNIVERSITY OF HONG KONG

Aug. 2018 - Oct. 2018

- Designed and developed a thermal-based displaying device prototype based on peltier matrix, Arduino and C, set in the context of geographical education for visually impaired schoolchildren. Usability of the system (especially in picture displaying) compared with traditional Brailles.

Target Recognition and Tracking based on XGBoost (Undergraduate Thesis)

Chengdu, China

UNDERGRADUATE RESEARCHER, UESTC

Oct. 2017 - May 2018

- Developed a supervised learning based target tracking algorithm and estimated its performance versus traditional target tracking algorithms (filtering algorithm: Kalman, LSM; target co-relating algorithms: JPDA, NNJPDA). Implemented in MATLAB and Python
- Received as poster presentation for IET International Radar Conference 2018

Raising the Heat

Montreal, Canada

RESEARCH ASSISTANT, SHARED REALITY LAB, MCGILL UNIVERSITY

Sep. 2017 - Oct. 2017

- A set of hardware system using Electro-Muscular Stimulation to generate an illusion of burning-hot sensation.
- Improved temperature detection robustness and accuracy. Minimum increment of the prototype was improved from approximately 0.1 °C to 0.0625 °C by re-designing detection method, switching from thermal variable resistors to DS18B20 temperature sensor.

Usability of Multi-Functional Foot-based Interfaces

Montreal, Canada

RESEARCH ASSISTANT, SHARED REALITY LAB, MCGILL UNIVERSITY

Jul. 2017 - Sep. 2017

- Compared the performance of two mainstream foot interaction methods (foot rocking and heel-pivoted rotation) in selection and parameter controlling tasks, set in the use case of a hands-free interface designed for seated musicians.
- Developed the hardware and firmware of the instrumented shoes using Arduino and C. Co-designed the menu layout in Unity using C#. Co-designed and conducted qualitative & quantitative usability study through interviews & NASA-TLX questionnaires.
- Published at ACM DIS'18 conference. <http://doi.acm.org/10.1145/3196709.3196759>

Data Secured USB Mass Storage Device

Chengdu, P.R.China

UNDERGRADUATE RESEARCHER, SCHOOL OF ELECTRONIC ENGINEERING, UESTC

Mar. 2017 - July 2017

- Co-developed a data secured USB Flash Disk capable of data encrypting, anti-losing alerting and data retrieving using STM32 and C.
- Ranked 7th among 125 teams in the provincial final of the National 'Internet Plus' Innovation and Entrepreneurship Competition.

Network-based RF Device Analyzer

Chengdu, P.R.China

UNDERGRADUATE RESEARCHER, SCHOOL OF ELECTRONIC ENGINEERING, UESTC

Mar. 2016 - July 2016

- Developed a network-based RF device analyzer with 4 GHz bandwidth and 125 MHz baseband bandwidth based on Xilinx Virtex VC707.
- Awarded second prize of Southwest China in 2016 National College Student Smarter Connected System Innovation Competition

Honors and Awards

GRADUATE HONORS

Ethelwyn Crossley Memorial Scholarship

May 2019

CAD 4,620, ENTRANCE SCHOLARSHIP FOR TOP 10 IN ALL CANDIDATES.

Mitacs Globalink Graduate Fellowship

Mar 2019

CAD 15,000

UNDERGRADUATE HONORS & AWARDS

Honorary Graduate of UESTC

Oct. 2017

10%

Renmin Scholarship 2017

Oct. 2017

FIRST CLASS IN 2017, CNY 1,500 (USD 226)

National Internet Security Scholarship

Aug. 2017

CNY 30,000 (USD 4,556), 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

Jiuzhou Scholarship 2016

Sep. 2016

CNY 1,000 (USD 150), 2 PER SCHOOL PER YEAR

National College Student 'Smarter Connected' System Innovation Competition

Jul. 2016

SECOND PRIZE OF SOUTHWEST CHINA AREA

National English Competition for College Students 2016

May. 2016

SPECIAL PRIZE IN NATIONAL FINAL (CLASS C, FOR NON-ENGLISH PROFESSIONALS), 0.1%

2016 COMAP Interdisciplinary Contest In Modeling

Apr. 2016

HONORABLE MENTION, 30 %

Renmin Scholarship 2015

Oct. 2015

THIRD CLASS, CNY 500 (USD 75)

Relevant Skills

Programming

MATLAB, C, Python, VHDL, JavaScript, C#, HTML, Java

Tools

Altium Designer, Quartus, Simulink, SPSS, Unity 3D, AutoCAD, Adobe Illustrator, Figma

Embedded Systems

Arduino, STM32, MCS 8051, Xilinx Virtex

Courses

Data Structure & Algorithms, Data Mining, Information Systems Design, User-Centered Design

Languages

Mandarin (native), English (fluent, IELTS 8.0), French (basic)