

Hao Ju

FULL-STACK RESEARCH ENGINEER; SHE/HER/HERS

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Skillsets

Programming

JavaScript, React, Redux, Java, Python (OpenCV, SKLearn, Tensorflow, Pandas), C, VHDL, HTML

Development tools

CI/CD Pipeline, Git, Amazon Web Service (AWS, including Lambda, DynamoDB, S3, etc), Docker, Gradle

Data Analysis & Visualization

SPSS, Microsoft Access (SQL), Gephi, D3, RapidMiner, Excel, PowerBi

UI/UX Research

User study design, Semi-structured interviews, A/B testing, ANOVA, rapid prototyping

Design Tools

AutoCAD, Adobe Illustrator, Figma

Courses

Data Mining, 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

2019.09 – 2021.05

- GPA: 3.82/4.0, final year 3.9/4.0
- Area of specialization: Human Computer Interaction; Accessibility & User Experience; Wearable Devices

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

Chengdu, China

B.ENG. IN ELECTRICAL AND COMPUTER ENGINEERING

2014.09 - 2018.07

- GPA: 3.86/4.0 (Final year 3.91/4.0), Ranking: 5/42 (Final year 3/42)
- Honorary Graduate of UESTC (top 10% in major)

Selected Experiences

RESEARCH & DEVELOPMENT

SAP SE

Montreal, Canada

SOFTWARE DEVELOPER ASSOCIATE, FRONT-END

2023.10 –

- Developed and maintained **cloud-based planner workspace app** using **native JavaScript** on the front end. Deployed through **CI/CD pipeline**.
- Developed corresponding **unit tests & integration tests** using **SAP UI5** framework

Amazon

Toronto, Canada

SOFTWARE DEVELOPMENT ENGINEER, FULL-STACK

2022.02 – 2023.03

- Developed and maintained **Amazon Marketing Cloud Premium Subscription service webpages** using **TypeScript, React & Redux** on the front end, and **Kotlin** on the back end. Deployed through **CI/CD pipeline**
- Developed and maintained the hierarchical list view of datasource items on the QueryEditor page using **Typescript, React & Redux**.
- Investigated and **optimized page latency** of subscription related pages by about 5000ms.
- Developed subscription service Apis and their corresponding **unit tests & integration tests** using **Kotlin, Cypress, and Amazon Web Services (AWS)**. Introduced new subscription related features. Filled in test loopholes in existing tests.
- Introduced code performance analyzing tools such as Coverlay, Linting, and CodeGuru Analyzer for better code quality. Maintained and improved the front end Operations Dashboard and runbook.

Huawei Technologies

Toronto, Canada

SUPPORT RESEARCHER

2021.04 – 2022.01

- Designed and developed sensors and **corresponding data processing algorithms** for voice-controlled digital home solutions using **Python**;
- Perform corresponding **user-centered design and conduct user experiments**.
- Visualize data collected and feature calculated to select the best-performing features for the excessive trees algorithm. Successfully **raised model accuracy from 62% to 96%** by feature engineering.

National Research Council of Canada

Montreal, Canada

RESEARCH INTERN, CO-OP

2021.01 - 2021.04

- Designed and developed the prototype of a **visualization tool for network graphs & clustering analysis on the browser** for researchers from non-engineering backgrounds **based on Gephi** using **Java** in the backend.
- The system allows users to access and interact with the mother branch of the project remotely using TCP-IP Protocol. It also allows timeline and hierarchy display of a graph, allowing roll-ups and drill-ins, similar to that used in the KeyLine.
- Conduct corresponding **user research**.

McGill University

Montreal, Canada

RESEARCH ASSISTANT

2019.09 - 2021.04

- Designed, built, and troubleshot firmware & hardware of a wearable limb-based input system from scratch **using Arduino, C and Python**.
- 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.
- Collected and analysed 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.

City University of Hong Kong

Hong Kong, China

RESEARCH ASSISTANT, FULL-TIME

2018.09 - 2019.05

- 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**.

Univ. of Electronic Science & Technology of China

Chengdu, China

UNDERGRADUATE RESEARCHER, UESTC

2017.10 - 2018.05

- 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**. Published in **The Journal of Engineering**, doi: 10.1049/joe.2019.0174.

McGill University

Montreal, Canada

RESEARCH INTERN

2017.07 - 2017.10

- 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**. Published at **ACM DIS'18** conference, doi: 10.1145/3196709.3196759
- 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.

TEACHING

Senior Session Lecturer

Montreal, Canada

EASY EDUCATION INC.

2020.10 - 2021.09

- 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

2021.01 - 2021.05

- 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. **Leading small group discussions. Designing homework assignments and lab assignments** in Java with other TAs.

Teaching Assistant

Montreal, Canada

DEPARTMENT OF ELECTRICAL AND COMPUTER ENGINEERING, MCGILL UNIVERSITY

2020.09 - 2021.05

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

Publications

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

2017.09

- 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

2018.07

- 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

Honorary Graduate of UESTC

Oct. 2017

TOP 5 IN MAJOR.

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