**Skills**

* **Programming Languages:** Python, JavaScript, C, C++, Assembly, SQL
  + - * + **Tools:** Pycharm, Anaconda, Wireshark, NS3, Git, Android Studio, MATLAB, VS Code
        + **Additional Skills:** Pytorch, TensorFlow, TensorFlow Lite, machine learning, deep learning, reinforcement learning, transformer, computer vision, Google Cloud Platform, MLOps, OpenCV, TCP/IP, vital signs, ECG/EEG, PPG, signal processing, Scrum

**Education**

**Ph.D. Candidate of Electrical and Computer Engineering** Sep. 2018-Present

University of Ottawa, Ottawa, Canada

Master of Electronics and Communication Engineering Sep. 2015-Jul. 2017

Beijing Institute of Technology, Beijing, China

**Bachelor of** **Information Engineering** Sep. 2011-Jul. 2015

Beijing Institute of Technology, Beijing, China

**Work Experience**

Research Assistant, MCRLab at University of Ottawa Sep. 2018-Present

* Conducted scientific research on computer vision, healthcare, and extended reality (XR), to facilitate citizens' well-being and improve users' quality of experience (QoE) by using advanced machine learning algorithms, such as CNN, transformer, and reinforcement learning.
* Led several full ML life-cycle projects, including emotion detection, vital signs estimation, exercise recognition and counting, and XR network optimization.

Teaching Assistant, University of Ottawa Jan. 2021-Present

* Assisted in courses covering computer architecture and real-time system design, managing lab equipment, and providing guidance to students.

**Research Projects**

Interconnected NPMD-XR Network (Jan. 2021-Dec. 2022)

* Developed solutions to ensure high QoE for XR content transmission.
* Built an XR network testbed using the NS3 and Nginx.
* Proposed a multimodal transformer-based viewpoint prediction and dynamic programming-based packet scheduling solution for data volume reduction at the network layer.
* Proposed a multi-agent reinforcement learning-based adaptive bitrate streaming for optimal XR content delivery at the application layer.

A Real-time Contactless Vital Signs Estimation System (Mar. 2020-Dec. 2020)

* Designed a novel framework combining CNN and Phase-based Video Motion Processing for simultaneous heart rate and breathing rate estimation using PPG signal.
* Achieved accurate real-time estimations using a short video sequence of 48 frames.
* Deployed the proposed signal processing algorithms and deep learning model into an Android App.

**Deep Learning (DL)-enabled system for emotion care** (Sep. 2018-Sep. 2020)

* Developed an emotion care system for autism disorder patients utilizing CNN and OpenCV to detect facial expressions in real time.
* Developed an Android App integrating the proposed CNN model and image processing algorithm.

**Publications**

* VitaSi: A Real-time Contactless Vital Signs Estimation System - Computers and Electrical Engineering, 2021
* Deep Learning (DL)-enabled system for emotion care and autism disorder patient monitoring - IEEE Access, 2021
* Deep Learning-Enabled Multitask System for Exercise Recognition and Counting - Multimodal Technologies

and Interaction, 2021

* Tile-Weighted Rate-Distortion Optimized Packet Scheduling for 360° VR Video Streaming (under review)
  + - Multi-Agent Reinforcement Learning Based Rate Adaptation for VR Video Streaming with Multi-Viewpoint

Prediction (under review)

* Multimedia Communications for Metaverse: Experimental Studies of Metaverse Streaming (under review)

**Academic Awards**

* Won the **Admission Scholarship** of University of Ottawa
* Won the **Academic Scholarship** of Beijing Institute of Technology