

Xian Wu

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Beijing, China

EDUCATION

University of Toronto Sep 2022 - Jun 2024
Electrical and Computer Engineering, Master , The Edward S. Rogers Sr. Department Toronto

- Will be started in 2022 Fall.

Beijing University of Posts and Telecommunications (BUPT) Sep 2018 - Jul 2022
Information Engineering, Bachelor School of Information and Communication Engineering (SICE)

- **GPA:** 88/100 (senior GPA: 92/100)
- **Minor:** Intelligent Robotics in *Ye Peida Innovation School*
- **Publication:**
 1. K. Cheng *et al.*, “Glioma Sub-region Segmentation on Multi-parameter MRI with Label Dropout”, in *Brainlesion: Glioma, Multiple Sclerosis, Stroke and Traumatic Brain Injuries*, 2021, bll 420–430.
- **Patent:**
 1. No.202110421949.9, *Device and method for typesetting heteromorphic characters based on touch control and voice control*, First Student Author
 2. No.202110767255.0, *Device and method for transmitting visible light information on external walls of buildings*, Second Student Author

HONORS & AWARDS

Meritorious Winner in 2021 Interdisciplinary Contest In Modeling 2020-2021
Google Girl Hackathon semi-finalist 2019-2020
Third-Class Scholarship in Beijing University of Posts and Telecommunications 2019-2020, 2020-2021
Second-Class Scholarship in Beijing University of Posts and Telecommunications 2018-2019

SKILLS LIST

Programming Languages: Python (proficient), MATLAB (proficient), C/C++ (familiar), Verilog HDL (familiar)

Frameworks: Linux (proficient), Git

Packages: Pytorch (proficient), Scikit-Learn (proficient), OpenCV (familiar)

PROFESSIONAL EXPERIENCE

OpenSNN Jul 2021 - Present
Research Intern Institute of Computing Technology, Chinese Academy of Sciences(ICT)

- Working in the OpenSNN team to deploy **Spiking Neural Network (SNN)** to classify sEMG and gestures.
- Proposed solutions to preprocess the dataset NinaPro and regulated the parameters of the model to improve the performance of the gesture classification.
- Writing a publishable paper on the result of the experiment.

Research in State Key Laboratory of Networking and Switching Technology Aug 2020 - Oct 2021
Research Intern SICE, BUPT

- Applied for two patents as the First and the Second student author, respectively.
- Collaborated with *HiSilicon Co.* in an NLP project, transforming ASN text into natural language text precisely.
- Worked as Prof. Dong Chen's teaching assistant for the graduate-level course, '*Mathematical Derivation in Classical Papers on Communication*'.
- Reproduced SOTA artificial intelligence models and classic communication papers.
- Replaced the detectors for OFDM with neural networks to accelerate the model.

A Surgical Navigation System based on Medical Images May 2020 - Jan 2021
Research Intern, Project Leader School of Automation, BUPT

- Led the team to research and accomplish projects under the guidance of the instructor.
- Got familiarized with the application of **MITK**, **ITK**, and **VTK** in processing medical images.
- Applied a classical 3D reconstruction solution, **Marching Cubes**, and **Convolutional Neural Network (CNN)** to the segmentation

of slices of lesions in Python and Pytorch.

- Designed and accomplished a prototype of the software with Axure, C++, and Qt5.

BraTS 2020: Brain Tumor Segmentation

Jul 2020 - Oct 2020

Student Researcher, Team Member

Queen Mary School, Beijing University of Posts and Telecommunications

- **Publication:** Cheng, Kun, Caihao Hu, Pengyu Yin, Qianlan Su, Guancheng Zhou, **Xian Wu**, Xiaohui Wang, en Wei Yang. “*Glioma Sub-region Segmentation on Multi-parameter MRI with Label Dropout*”. In *Brainlesion: Glioma, Multiple Sclerosis, Stroke and Traumatic Brain Injuries*, 420–30. Cham: Springer International Publishing, 2021.
- Reproduced **3D-Unet** and applied the model to segmenting brain tumor images.
- Programmed the prototype of a software platform to visualize segmentation results.

To-do list Feishu Mini-Program

Mar 2020 - Jun 2020

Project Leader & Software Development Engineer

ByteDance & BUPT

- Developed a mini-program plugin called *2048 todo-list* for Feishu, which is supported by the *Feishu* department of *Bytedance* and the *School of Information and Communication Engineering (SICE)* in BUPT.
- Designed the product prototype with MockPlus.
- Implemented a plug-in that uglifies a photo uploaded by the user with a face-processing AI whenever the user fails to finish their work before the deadline.
- Presented the final program to Bytedance, Feishu Department.

Music Optical Character Recognition - Optical Music Recognition (OCR-OMR)

Oct 2019 - Jun 2020

Team member

International School, BUPT

- Applied Hough Transform and other digital image processing to modify the lines in the scanning picture by Scikit-image in Python.
- Trained the model to recognize notes in staves with CNN and Faster-RCNN according to the related position of notes with other notes and lines.

COURSE PROJECT

Movie Recommendation System

Apr 2021 - Jun 2021

Team Leader, Algorithm Engineer

SICE, BUPT

- Used algorithms including **UserCF**, **ItemCF**, **LFM**, **PersonalWalk based on random walk** to realize personalized recommendation of movies based on *MovieLens*.
- Improved the performance of the recommendation system by introducing advanced algorithms in classic publications.
 - Applied **User-IIF** to penalize the similarity of popular items.
 - Applied **Item-IUF** to penalize active users for their activity.
 - Applied **ItemCF-Norm** to avoid errors caused by different similarity values of different categories.
- Manifested the effectiveness with the evaluation metrics of Coverage, Recall, Precision, and Diversity, reaching a coverage rate of 70% and a Precision-Recall Curve close to the upper right corner.

Rock-paper-scissors Arcade based on Verilog and FPGA

Nov 2019 - Dec 2019

Programmer, Individual

SICE, BUPT

- Implemented a rock-paper-scissors game on an FPGA board using Verilog HDL, with basic game mechanics, simultaneous score display, fairness guarantee, music playing, etc.

Hand-freer: An Arduino Internet of Things project

Dec 2018 - Apr 2019

Team Leader, Product Designer, Software Development Engineer

SICE, BUPT

- Designed and constructed a robot to detect the temperature and moisture of the environment, and send them to a mobile device through OneNet and WeChat mini-program.
- Applied ultrasonic module and infrared module to enable obstacle avoidance and automatic following.
- Developed a WeChat mini-program to show the real-time updated data and control the car remotely.

WORK EXPERIENCE

BUPT Course: Intro to Science of Information and Communication

Feb 2019 - May 2020

Teaching Assistant

SICE, BUPT

- The course is the prerequisite for many required major courses. Students are required to learn basic knowledge of computer networks through Wireshark, Internet of Things with applications of microcomputers, WeChat mini-program and cloud platforms, computer principles, and communication principles using microCookie and Arduino.
- Answered students' questions about the bugs and misunderstandings mainly about Computer Networks, Javascript programming, and Product Design.
- Collaborated in creating the course's online question bank and blogs, which are available at <https://www.oursparkspace.cn/>.