

Xinxin Wang

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EDUCATION

- **Case Western Reserve University (CWRU) and Cleveland Clinic (CC)** Aug 2023 - Now
PhD program of Computer Science; **GPA:** 4.0/4.0; **Advisors:** Prof. Xiaojuan Li and Prof. Shuo Li
- **Sun Yat-sen University (SYSU)** Aug 2019 - June 2023
Bachelor of Engineering in Intelligence Science and Technology; **GPA:** 3.7/4.0; **Advisor:** Prof. Shen Zhao

INTERNSHIP

- **Index Engines** May 2025 - Aug 2025
Machine Learning Engineer; under the mentorship of *Jairo Esteban*;
 - **Ransomware detection model:** Designed and implemented an end-to-end machine learning pipeline for ransomware detection. Responsibilities included data curation, literature review of recent academic research, experimentation with various model architectures, and optimization of hyperparameters for improved performance.
 - **Agile development:** Collaborated in a cross-functional team using Agile methodology. Participated in sprint planning, daily stand-ups, and regular retrospectives. Contributed to iterative development, task tracking, and milestone-based project delivery.
- **Shenzhen Institute of Artificial Intelligence and Robotics for Society (AIRS)** Apr 2023 - Jul 2023
Research Assistant at Medical Robotics Center; under the guidance of *Dr. Zhixiong Yang*;
 - **Improve segmentation workflow:** Establish the pipeline of pulmonary airway and artery-vein segmentation from CT scans, for visualization and navigation of our self-developed lung intervention surgery platform.
- **Hao Yi Environmental Protection and Energy Storage Technology Co., Ltd.** Feb 2023 - Mar 2023
Assistant Product Manager of Battery Passport Development;
 - **Launching Ebatte Passport:** Read the latest EU Battery Regulation, outline the full lifecycle of the digital battery passport, and further extract the requirements for manufacturers exporting to the EU that must be met regarding the battery passport to assist in advancing the Ebatte product line.

ACADEMIC RESEARCH

- **3D Medical Imaging Pre-training for Knee MRI Analysis** Mar 2024 - Now
Core member; collaborating with IBM team; under the guidance of *Prof. Xiaojuan Li*;
 - **Milestone:** Manuscript accepted to the conference of International Society for Magnetic Resonance in Medicine 2025
 - **Responsibility:** Help IBM team with the understanding of Osteoarthritis Initiative database (OAI); conduct experiments and validate code deliveries from IBM side; provide clinical insights and contribute to the OAI example of an open source code platform FUSEMEDML([link](#)); transfer to in-house data validation.
- **Reliable Lesion Segmentation with Calibrated Uncertainty** Aug 2023 - Now
First author; under the guidance of *Prof. Xiaojuan Li* and *Prof. Shuo Li*;
 - **Manuscript:** “CalDiff: Capture uncertainty in lesion segmentation via step-wise and sequence-aware calibrated diffusion model” is under review by IEEE Journal of Biomedical and Health Informatics.
 - **Innovation:** Caldiff is proposed with uncertainty calibrated on both step-wise and sequence-aware level, providing calibrated uncertainty maps generated from multiple plausible segmentation results, which can serve as a robust tool for lesion segmentation in clinical practice.
- **Efficient Uncertainty-aware Lesion Segmentation** Oct 2021 - June 2023
Joint First author; under the guidance of *Prof. Shen Zhao*;
 - **Publication:** “Customized T-time Inner Sampling Network with Uncertainty-aware Data Augmentation Strategy for Multi-annotated Lesion Segmentation” accepted by *Computers in Biology and Medicine* ([link](#)).
 - **Innovation:** An efficient and flexible probabilistic model architecture with a low-cost data augmentation strategy devised from multi-annotated datasets to adaptively capture both high and low degree of uncertainty in lesion segmentations.
- **Deep Active Contour Model for Vertebrae Segmentation** Nov 2022 - June 2023
Third author; under the guidance of *Prof. Shen Zhao*;
 - **Publication:** “Attractive Deep Morphology-aware Active Contour Network for Vertebral Body Contour Extraction in Heterogeneous MR ” accepted by *Medical Image Analysis* ([link](#)).
 - **Contribution:** Investigating latest literature on semantic segmentation methods for comparison with proposed contour-based segmentation model; preprocessing publicly accessible datasets; carrying out additional comparison experiments.

- **Boundary-aware Osteosarcoma Segmentation based on Multi-modality MRIs** Feb 2023 - May 2023
Third Author; under the guidance of *Prof. Shen Zhao*;
 - **Publication:** “DECIDE: A decoupled semantic and boundary learning network for precise osteosarcoma segmentation by integrating multi-modality MRI” accepted by *Computers in Biology and Medicine* ([link](#)).
 - **Innovation:** Context Attention Module is introduced into the existing segmentation framework to form a prediction module of tumor contour, which was supervised and learned in training to refine segmentation results.
- **Omics-based Covid-19 Pneumonia Diagnosis** Mar 2021 - Dec 2021
Group leader; under the guidance of *Prof. Calvin Yu-Chian Chen*;
 - **Defense Passed:** Rated Good in College Students’ Innovation and Entrepreneurship Training Program
 - **Innovation:** A hierarchical feature fusion strategy integrating radiomics features and clinical features, embeded in a multi-task framework to utilize ground-truth segmentations to assist the diagnosis task.

PROJECT DESIGN

- **Dorm Life Helper - a WeChat Small Program** Spring semester of 2022
Group leader; coursework of Software Engineering;
 - **App Launched:** *Dorm Life Helper* was developed in JavaScript and launched on WeChat small program platform. It can be searched in WeChat and is available to provide convenient services related to dorm life.
 - **Modules:** Login Module - login, create/join/exit from/dissolve a dorm; Member Module - check/edit dorm’s info, check/edit members’ info; Maintaining Module - duty rotation, bill record, cost splitting; Moments Module: add/edit/delete shared memories; Community Module - post advertisements/messages/comments.
- **Retracing the Long March - a 3D Shooter Game** Fall semester of 2021
Group leader; coursework of VR and AR Technology;
 - **Software Copyright Registered:** The software copyright registration was approved by Copyright Protection Center of China. (Registration Number: 2022SR0438810)
 - **Innovation:** A creative 3D game developed with C# in Unity, combining quiz with shooting, set in three historic scenes.
- **GNN-based Diagnostic Reports System for Skin Diseases** July 2021 - Sep 2021
Group leader; under the guidance of *Prof. Shancheng Jiang*;
 - **Prize Won:** Silver Award of National College Students’ ‘Internet+’ Innovation and Entrepreneurship Competition in Guangdong Province.
 - **Innovation:** An applicable diagnostic reports generation system for dermoscopy image data, including an edge-labeling graph neural network tackling the problem of few-shot learning, and a basic LSTM language model for text generation.
- **Selfie2anime - a Real-time Style Transfer Demo** Spring semester of 2021
Group member; coursework of Deep Learning;
 - **Innovation:** A real-time demo developed in JupyterLab; Face Alignment employed to refine the result generated from Unsupervised Generative Attentional Networks with Adaptive Layer-Instance Normalization.
- **Template Matching Model for License Plate Recognition** Fall semester of 2020
Individual; coursework of Image Processing
 - **Innovation:** A graphical user interface demo built in Matlab for uploading images and testing intermediate outputs.

TEACHING ASSISTANTSHIP

- **ISE357: Comprehensive Experiments of Intelligent Robot, SYSU** Sep 2022 - Oct 2022
Teaching Assistant; Instructor: *Prof. Jianqing Peng*;

COMMUNITY ACTIVITY

- **A Speech Contest Hosted for All Freshmen of SYSU** Aug 2021 - Sep 2021
Chief planner; the first speech contest at SYSU directly facing nearly 8000 newcomers;
- **Human Cyber Physical Intelligence Integration Club** Oct 2021 - Sep 2022
Student Member; founded by School of Computer Science and Engineering, SYSU;

VOLUNTEER EXPERIENCE

- **AI Boot Camp for Middle School Students (Online)** Jan 2021 - Feb 2021
Volunteer instructor; organized by School of Intelligent Systems Engineering, SYSU;
- **Enrollment Promotion of SYSU** Jan 2020 - Jan 2020
Excellent Volunteer awarded;

SKILLS SUMMARY

- **Languages:** English (fluent), Chinese (native)
- **Programming Languages:** Python, Matlab, Javascript, Latex, C#, C, C++
- **Tools:** Git, Origin, Pycharm, Vscode, VMware, Unity, AutoCAD, Creo