

YAN WANG (Sophie)

sophieew777@gmail.com | 86-19138473517 | Chengdu, China, 611731

EDUCATION

University of Electronic Science and Technology of China (UESTC) 08/2023-07/2028(*Expected*)
B.Eng. in Communication Engineering, Glasgow College

University of Glasgow 08/2023-07/2028(*Expected*)
B.Eng. in Electronics and Electrical Engineering

- **Honor & Award:** Excellence Award for Short-Term Academic Exchange (Top 10%) 06/2025
Outstanding Student Scholarship (Top 15%) 10/2024
- **Relevant Courses:** Linear Algebra and Spatial Analytic Geometry, Probability Theory and Mathematical Statistics, Communication Network, Signals and Systems, Microelectronic Systems, Embedded Processor, Artificial Intelligence and Machine Learning, Digital Circuit Design

Cambridge University 02/2025
Deep Learning Course (Non-degree, In-Person), Department of Computer Science and Technology | **Grade:** A (Top 15%)

TEACHING EXPERIENCE

Introductory Programming UESTC1005 | *Glasgow Teaching Assistant* 08/2025-01/2026

- Provided problem-shooting support and coding guidance during lab sessions, reviewed and graded lab reports.
- Conducted exam-oriented tutorial sessions for approximately 300 undergraduate students with positive feedback, and arranged coding competitions with over 50 participants.
- Proposed curriculum improvement suggestions based on hands-on teaching experience and student learning patterns.

RESEARCH EXPERIENCES

AI-based Assistive Communication Tools for Dementia Care

Undergrad. Research Fellow, iSURE, Advisor: Prof. Jarek Nabrzyski, University of Notre Dame 07/2026-08/2026

- Selected through a competitive review process for the iSURE program at the Center for Research Computing.
- Implemented an environment sensing pipeline by integrating non-invasive room sensors with an embedded Jetson platform for real-time patient monitoring.
- Employed lightweight AI models for multimodal inference to support patient state assessment and assistive communication.
- Collected and processed longitudinal patient trajectory data to enable health trend analysis and adaptive caregiving strategies.

Attention-Based Deep Learning Model for Large Vocabulary Speech Recognition

Research Assistant, Advisor: Senior Researcher Ian Deng, University of California, San Diego 03/2025-present

- Leading baseline model development by implementing the HuBERT masked prediction framework on the LibriSpeech dataset using PyTorch and Fairseq for character-level speech recognition benchmarking.
- Conducting k-means clustering on MFCC features extracted via LibROSA, and analyzing cluster quality using phone-normalized mutual information (NMI) metrics with scikit-learn.
- Performing ablation studies on Transformer configurations by tuning masking probability, batch size, and training schedules to optimize word error rate (WER) on development sets.
- Iteratively refining cluster assignments across Transformer layers and documenting experimental findings to inform ongoing model optimization.

Target Detection in Sea Clutter with Deep Learning Approach Based on WaveGAN

Research Member, Advisor: Prof. Wei Zhang, UESTC 09/2025-02/2026

- Designing a WaveGAN-based anomaly detection model for maritime radar target detection, using dual-channel amplitude-phase features to alleviate CFAR model mismatch.
- Implementing a modified generator loss with dispersed loss in PyTorch, with current experiments indicating an expected ~30% improvement in detection probability under identical SCR conditions.
- Conducting experiments on measured X-band sea clutter data, with projected detection probability approaching 90% at 10

dB SCR, indicating potential performance gains over CA-CFAR.

- Extending experimental settings based on reviewer feedback by adding anomaly detection baselines, phase-feature ablation studies, and extended target simulations.

HIGHLIGHTED COURSE PROJECTS

Multi-zone Greenhouse Environmental Control System | *Digital Circuit Design, UESTC* 10/2025-01/2026

- Designed a digital multi-zone environmental control system using combinational logic circuits to automate greenhouse climate management, optimized Boolean expressions to minimize hardware cost for fan, heater, and irrigation control.
- Implemented a sequential irrigation cycle controller using D flip-flops and finite state machine design to enable automated timed irrigation cycles.

Smart Locker Security and Environmental Monitoring System | *Embedded Processor, UESTC* 04-06/2025

- Designed and implemented an energy-efficient smart locker system with password-based access control and environmental monitoring, and validated system functionality and reliability through systematic testing.
- Integrated ADXL345 accelerometer and TMP102 temperature sensor via I2C communication using an interrupt-driven, low-power design for continuous monitoring.
- Developed firmware in Mbed OS to implement sleep-active state transitions, sensor data acquisition, and event-triggered alarm logic.

Image Classification and Architecture Optimization on CIFAR-10 & Fashion-MNIST | *Deep Learning, University of Cambridge* 02/2025

- Led a four-member team by coordinating task decomposition, implementation roadmap, and experimental reporting; served as primary programmer and final presenter.
- Applied feature selection, dropout tuning, data augmentation, and batch normalization, and redesigned and transferred a CNN-based model from CIFAR-10 to Fashion-MNIST using PyTorch and Torchvision.
- Improved classification accuracy from 60% to 91.3% while reducing model parameter size by approximately 40%.

EXTRACURRICULAR ACTIVITIES

Student Association Union, UESTC | *Secretariat Minister* 09/2023-06/2025

- Coordinated administrative operations for 150+ student clubs and co-organized 10+ university-wide events, supporting cultural activities, competitions, and skills training programs with participation exceeding 10,000 students.
- Supervised and optimized financial auditing workflows across student organizations, improving efficiency and compliance in multi-club budget management.
- Developed proficiency in MS Office tools and delivered peer training sessions on document management, data organization, and administrative best practices.

2025 Meet Melbourne in China, Chengdu Stop | *Volunteer for the University of Melbourne* 05/2025

- Assisted with on-site personnel arrangement and crowd coordination for events with 200+ participants.
- Provided English-Chinese interpretation for prospective students and graduates, facilitated effective communication across diverse audiences.

Student Union of Glasgow College | *External Relations Department* 09/2023-06/2024

- Led and hosted inter-university academic forums with 100+ attendees, facilitated academic collaboration and cross-cultural communication.
- Planned and coordinated college-level academic events and moderated on-site sessions to ensure smooth execution.
- Co-organized internal academic seminars and activities, collaborated with faculty and student representatives.

ADDITIONAL INFO

- **Languages:** Mandarin (Native), English (IELTS: **7.5**, L 8.0 / R 8.5 / W 6.5 / S 6.5)
- **Technical Skills:**
 - Machine Learning & Deep Learning: PyTorch; model training, optimization, and evaluation
 - Embedded Systems, Digital & Analog Circuits: Keil Studio, Mbed Studio; Logisim, Xilinx Vivado (FPGA); LTSpices
 - Programming & Data Analysis: Python, C/C++, MATLAB (signal processing, numerical computing, visualization)