

Wendian Luo

Sichuan University Wangjiang Campus, Wuhou District, Chengdu, China, 610065

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Research interests: Edge Intelligence, Federated Learning, Computer Vision, Large Language Models, and Embodied Intelligence

Education

Sichuan University, College of Computer Science

Chengdu, China

M.ENG. IN COMPUTER TECHNOLOGY

Sep. 2024 – Jun. 2027 (Expected)

- GPA: 3.65/4.00.
- First-Class Graduate Academic Scholarship.

Sichuan University, College of Computer Science

Chengdu, China

B.ENG. IN COMPUTER SCIENCE AND TECHNOLOGY

Sep. 2020 – Jun. 2024

- GPA: 3.76/4.00; GPA ranking: 38/318 (top 12%); graduate recommendation ranking: 8/318.
- Outstanding Graduate of Sichuan Province, 2024.

Research Experience

TMSC: Zero-Shot Industrial Anomaly Detection

Open-Source Research Project

RESEARCHER AND DEVELOPER · PROJECT REPOSITORY

2026

- Developed a zero-shot anomaly detection pipeline using DINOv3 and CLIP, integrating multi-layer representations, dual-branch prompt adapters, cross-modal attention, and three-region semantic calibration.

FedSAE: Semi-Asynchronous Energy-Efficient Federated Prototype Learning

Sichuan University

FIRST AUTHOR AND RESEARCHER

2025

- Designed a semi-asynchronous end-edge-cloud federated prototype learning framework that exchanges class-level feature statistics instead of raw data or full model parameters.
- Validated the energy-saving effectiveness of the framework's dynamic DVFS mechanism through experiments on an NVIDIA Jetson TX2 edge platform.

LPSAFS: Low-Power Scheduling with Segmented Frequency Scaling

Sichuan University

FIRST AUTHOR AND RESEARCHER

2024

- Designed a segmented frequency-scaling algorithm based on minimum-slack allocation for periodic real-time tasks under discrete DVFS states, deadline constraints, and reliability requirements.

Publications

JOURNAL ARTICLES

- Wendian Luo**, Tong Yu, Junnan Li, Shengxin Dai, Bing Guo, and Zhuohang Jiang, "TMSC: A Tri-Regional Mask-Guided Semantic Calibration Framework for Zero-Shot Anomaly Detection," **Pattern Recognition** (Major Revision).
- Wendian Luo**, Tong Yu, Shengxin Dai, Bing Guo, Xuesen Lin, and Yanglin Pu, "Semi-Asynchronous Energy-Efficient Federated Prototype Learning for End-Edge-Cloud Architectures," **Future Generation Computer Systems**, vol. 179, Art. no. 108351, 2026. <https://doi.org/10.1016/j.future.2025.108351>
- Wendian Luo**, Shengxin Dai, Cheng Dai, Bing Guo, Sherif Moussa, and Mubarak Alrashoud, "BDTest: A Diversity-Oriented Test Case Generation Framework for Deep Neural Networks in 6G-IOT," **IEEE Internet of Things Journal**, vol. 13, no. 5, pp. 8190–8203, 2026. <https://doi.org/10.1109/JIOT.2025.3616358>
- Shengxin Dai, Zheng Luo, **Wendian Luo**, Siyi Wang, Cheng Dai, Bing Guo, and Xiaokang Zhou, "Energy-Efficient Inference With Software-Hardware Co-Design for Sustainable Artificial Intelligence of Things," **IEEE Internet of Things Journal**, vol. 11, no. 24, pp. 39170–39182, 2024. <https://doi.org/10.1109/JIOT.2024.3482288>

CONFERENCE PAPERS

1. **Wendian Luo**, Shengxin Dai, and Bing Guo, “A Low Power Scheduling Algorithm for Segmented Frequency Scaling,” in **2025 IEEE International Symposium on Parallel and Distributed Processing with Applications (ISPA)**, pp. 828–837, 2025. <https://doi.org/10.1109/ISPA67752.2025.00112>

Professional Experience

Media Intelligence Laboratory, Chengdu Sobey

LARGE LANGUAGE MODEL ALGORITHM R&D INTERN

- Constructed and cleaned English instruction-tuning datasets for Story-to-Scene generation, scene keyword extraction, and shot-level visual description tasks; developed scripts for translation, provenance tracing, deduplication, and format validation.
- Fine-tuned and evaluated Qwen-72B with LLaMA-Factory and LoRA on an eight-GPU NVIDIA A800 server.
- Deployed inference services using vLLM, Flask, and HTTP APIs, and completed capability integration, API documentation, and project handover.

Chengdu, China

Jul. 2024 – Sep. 2024

Selected Projects

OpenClaw-Enabled Mobile Robot Control and Vision-Guided Grasping

PROJECT DEVELOPER · SYSTEM INTEGRATION AND DEPLOYMENT

- Deployed and configured an OpenClaw-based natural-language robot-control platform integrating MCP/FastMCP with ROS 2, enabling tool-based access to the omnidirectional chassis, 6-DoF arm, and perception modules.
- Integrated and validated a closed-loop RGB-D tracking-and-grasping workflow spanning visual grounding, mobile-base alignment, 3D grasp-point estimation, inverse-kinematics control, and collision-aware retreat; tuned grasp offsets and diagnosed visual/depth localization errors.

ROSMaster M3 Pro

May 2026 – Jul. 2026

PaddlePaddle-Based 3D Medical Data Analysis Platform

PRIMARY DEVELOPER · NATIONAL SECOND PRIZE

- Developed the medical platform, 3D imaging workspace, and UI/UX using Vue.js, Vuetify, and VTK.js; contributed to the Python/Django backend and Tencent Cloud COS integration.
- Integrated PaddlePaddle MedicalSeg into an end-to-end workflow covering medical-image upload, AI-assisted segmentation, 3D visualization, and patient management.

12th China Software Cup

Jun. 2023 – Aug. 2023

Tingyin: Deep Learning-Based Acoustic Life Detection for Earthquake Rescue

CORE TEAM MEMBER · NATIONAL INNOVATION TRAINING PROGRAM

- Developed the mobile application, conducted hardware feasibility analysis, and contributed to algorithm deployment and end-to-end system integration.
- Integrated TSTNN-based speech enhancement and Whisper-based speech recognition; completed the project ahead of schedule and received First Prize in the Sichuan Division of the 2023 Chinese College Students Computer Design Competition.

Sichuan University

Oct. 2022 – Sep. 2023

Technical Skills

Programming	Python, C, LaTeX
Machine Learning	PyTorch, CLIP, DINOv3, federated learning, zero-shot anomaly detection
Edge AI	NVIDIA Jetson Thor/AGX/Orin, DVFS, Model deployment, vLLM, Ollama
AI Development	Cursor, Codex, Trae, OpenClaw
Languages	Chinese (native); English (CET-4 and CET-6); Prepare for IELTS

Honors & Awards

2024	Outstanding Graduate of Sichuan Province, Sichuan Province	China
2024–27	First-Class Graduate Academic Scholarship, Sichuan University	Chengdu
2023	National Second Prize, 12th China Software Cup	China
2023	First Prize, Sichuan Division, Chinese College Students Computer Design Competition	Sichuan
2020–24	Merit and Academic Scholarships, Sichuan University	Chengdu