

ZhiJie Yang · CV

Undergraduate in Electronic Information Engineering (Honors) · Medical imaging deep learning · Multi-agent systems · Model deployment and engineering

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EDUCATION

Southwest University of Science and Technology · Electronic Information Engineering (Honors) · B.Eng.

2026.09 – 2029.06 (expected) · Mianyang, China

Transferred from Pharmaceutical Engineering in September 2026; currently in the second year. This semester: complex functions and integral transforms, probability and statistics, analog electronics, university physics, Japanese and software technology fundamentals. The electronics core — digital electronics, signals and systems — follows in later semesters.

Southwest University of Science and Technology · Pharmaceutical Engineering · first year

2025.09 – 2026.09 · Mianyang, China

Comprehensive evaluation 99.81 / 100

Top 12% of major

1st in innovation credits

No failed courses

First-year comprehensive evaluation 99.81, ranked 7th in the major (top 12%) with the highest innovation-credit score in the major. Selected course results: Programming Fundamentals (Python) 100, Fundamentals and Applications of AI 87, Calculus B1 88, Japanese 88 / 87. Also passed the National Computer Rank Examination (Level 2) and CJT4.

RESEARCH EXPERIENCE

Medical imaging · algorithms and software implementation

2026.04 – present

- **Breast ultrasound benign/malignant classification and diagnosis support:** binary classification trained on BUS-BRA and externally validated on BUSI; implemented the CNN training and evaluation pipeline, fixed the metrics and threshold policy, and produced Grad-CAM attention visualisations
- **Provincial undergraduate innovation training project:** interpretable pulmonary nodule classification and malignancy risk grading from chest CT; data processing and model experiments with fixed splits, seeds and evaluation scripts
- **Fluorescence-guided osteomyelitis imaging software system:** independently implemented the physician workstation prototype and the algorithm side, covering image review, lesion annotation and 3D display, with GPU-accelerated and CPU-fallback release configurations

"One Student One Chip" study group · RISC-V and digital design

2025.10 – present

Studying Verilog and RISC-V processor design from digital logic fundamentals, currently at the E5 stage of RTL simulation.

ENGINEERING PRACTICE

- **Literature corpus pipeline:** content-hash idempotency, task-table-driven resumable execution, mixed local and cloud inference; 30,018 of 30,031 papers completed (99.96%) in 11.2 hours, with evidence links to source papers
- **Research workflow and multi-agent systems:** 13 skill modules and about 20 deterministic scripts (90+ accompanying tests); role-based sub-agents running long-horizon tasks in parallel with resumable progress
- **Model serving deployment and operations:** inference and web services on a self-hosted Ubuntu server, including process supervision, session credential persistence, reverse proxy and HTTPS, and private networking
- **Domestic AI chip operators:** CANN operator competition problems including 2D convolution (FP16/FP32/BF16), HardSwish, INT8 quantised GEMM optimisation and removal of a last-dimension limit

PROJECTS AND OPEN SOURCE

- **osteo-vision** — physician workstation for fluorescence-guided osteomyelitis imaging: Vue3 + FastAPI + Three.js + Electron, dual release configurations and full-interface automated regression
- **bucad** — breast ultrasound diagnosis support: PyTorch classifier with Grad-CAM, trained on BUS-BRA and tested on BUSI
- **ct-nodule-risk** — pulmonary nodule classification and risk grading: 3D medical imaging data processing and experiment records
- **swust-code** — terminal-native coding agent: persistent memory, multi-agent workflows and goal-driven execution
- **IPC_vision** — seven-model comparison: BP / CNN / ConvNeXt / LeNet-5 / ResNet / ViT / MobileNetV2 with a Flask API, web frontend and Electron app

Code and further repositories: github.com/MakeBlackSheepGreat

AWARDS AND APPROVALS

- **11th National College Student Biomedical Engineering Innovation Design Competition** · National third prize (2026.07, Chinese Society of Biomedical Engineering)
- **6th Sichuan Provincial Biomedical Engineering Innovation Design Competition** · Provincial second prize (2026.06, Sichuan Provincial Department of Education)
- **SWUST Biomedical Engineering Innovation Design Competition** · University-level second prize (2026.05)
- **"Xuechuang Cup" National College Student Entrepreneurship Simulation Competition** · University-level third prize (2026)
- **Provincial undergraduate innovation training project**, approved 2026.05 (ongoing)
- **SWUST Science and Technology Innovation Award** · university level (2026)

SKILLS

- **Deep learning**: PyTorch training and evaluation, medical imaging data, interpretability (Grad-CAM), lightweight deployment experiments
- **Agent systems**: multi-agent orchestration and role separation, research workflow design, context and memory management, tooling

- **Engineering and deployment:** Linux, reverse proxies and private networking, process supervision, Git / GitHub Actions, automated regression testing, vector search
- **Programming languages:** Python (comfortable), C (basic), ArkTS (HarmonyOS certified), Verilog (learning)

LANGUAGES

- **Chinese:** native
- **Japanese:** CJT4, preparing for JLPT N2

SERVICE

- **Computing and Artificial Intelligence Association · Vice President (hardware track)** (2025.10 – present)