Fangrui Sima

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Education

Huazhong University of Science and Technology Wuhan, China
B.Eng. in Electromagnetic Field and Wireless Communication *Sep 2022 – Jun 2026 (Expected)*

- Major Avg: 89.8/100, Year 3 Avg: 91.22/100, Rank: 6/61
- **Selected Coursework:** Stochastic Processes (97), Mathematical Physics Equations (98), Complex Function & Integral Transform (93), Computer Networks (92), Modern Networking Technologies (98), Information Theory (90)

Industrial experience

Bosch (China) Investment Ltd., Global Service Shanghai, China
AI Full-Stack Developer / Product Engineer Intern *Oct 2025 – Present*

- **Built and maintained a full-stack Planning Board platform** (Vue.js/FastAPI/PostgreSQL), leading requirement clarification, data-model design, API planning, and UI/UX updates from Figma prototypes to production deployment
- **Developed the internal "Docupedia Chatbot"**, designing ETL pipelines, document-processing workflows, hybrid retrieval, and LLM response logic
- **Architected an enterprise-grade "Asset Class Finder"** using RAG and vector databases, improving asset-classification search efficiency across multiple business units
- **Built workflow modules for "Purchase Provision" automation** using Temporal, integrating rule-based validation and LLM-driven analysis for multi-step contract review

Research experience

University of Notre Dame Notre Dame, IN
Research Assistant
Project on AI-Agent-Based Kindergarten Teacher Evaluation System
Advisor: Prof. Toby Jia-Jun Li *Aug 2025 – Present*

- Developing an LLM-powered mobile system that evaluates and provides actionable feedback on shared book-reading sessions using the SABR framework (17 focal aspects of classroom discourse)
- **Refactored the AI training pipeline** by replacing hard-coded examples with a modular, scalable data-access architecture, enabling flexible expansion as the dataset grows
- **Implemented simulated child and coach agents** that model realistic student responses and generate targeted, evidence-based feedback aligned with the SABR evaluation framework
- **Redesigned the mobile-app interface** (Figma → Flutter/Firebase), ensuring reliable data flow and synchronization for real-time teacher feedback delivery

Project on Large-Signal Nonlinear Simulation (Angelov Model)
Advisor: Prof. Patrick Fay *Jul 2025 – Aug 2025*

- **Built large-signal models for GaN transistors** using the Angelov framework, resolving non-linear convergence issues through MATLAB-based optimization
- **Developed an end-to-end circuit simulation workflow** from data processing to model construction and performance prediction

Yangtze Delta Region Institute, UESTC Huzhou, China
Research Assistant *Jul 2024 – Aug 2024*

- **Conducted system-level feasibility analysis for UAV swarm architectures** by synthesizing algorithmic research and hardware constraints
- **Granted Patent** *Reconfigurable antenna array for composable UAV swarms* (CN 202411167448.2) (2nd Inventor)

Honors & awards

Corporate & Industrial Scholarships

CETC Instrumentation & Meters Co., Ltd. Scholarship *Nov 2024*

- Top-tier industrial award from China Electronics Technology Group; **¥2,500**

Fangu Electronics Scholarship *Jun 2024*

- Sponsored by Wuhan Fangu Electronic Technology for technical excellence; **¥2,000**

Institutional Honors & University Recognition

College Scholarship for Academic Excellence *Sep 2024, Sep 2025*

- Awarded for achieving **Rank 3/61** (sophomore) and **Rank 6/61** (junior); **¥800** each

College Scholarship for Outstanding Student Leader *Sep 2024, Sep 2025*

- Recognized for exceptional leadership within university organizations; **¥800** each

Freshman Scholarship for Social Public Welfare *Feb 2023*

- Awarded for community service and social impact contributions; **¥400**

Service

Class Representative, HUazhong University of Science and Technology *Sep 2023 – Present*

- Initiated and led bi-semesterly one-on-one conversations with all 61 classmates, addressing academic progress, research planning, and personal well-being
- Established a confidential peer support environment, offering thoughtful guidance to students navigating stress and personal challenges

Student Union Member, General Services Department, HUST *Sep 2022 – Present*

- Managed reimbursement workflows and coordinated weekly meetings for partnered teams, including expense tracking, meeting minutes, and action-item follow-through
- Created visual deliverables for Student Union communications, including the university annual yearbook poster (portfolio: link)

Community Volunteer *2022 – Present*

- Engaged in social welfare programs focused on community outreach and public service

Projects

EEG-Controlled Brick-Breaker Game – BCI-based interactive game using TGAM EEG module *May – Jun 2025*

- Implemented signal acquisition, serial communication, and real-time EEG parsing; developed C# modules and GUI integrating eye-blink and attention-level responses with dual control modes

Douban Movie Recommendation System – End-to-end recommendation platform (Django/MySQL) *Nov – Dec 2024*

- Built collaborative-filtering recommendation engine with Echarts-based visualizations for ratings, genres, and popularity trends

Generative AI in Audio and Video – Team Leader, Nanyang Technological University *Aug 2024*

- Led team project implementing Spleeter-based source separation and customized SoVits models to explore timbre learning and cross-modal feature extraction

Skills

Languages: Python, SQL, C#, C, Verilog, Assembly
Web & Mobile: Vue.js, FastAPI, Flutter, Firebase, Django
AI/ML: LLM Agents, RAG, LangGraph, Temporal, Vector Databases, Pydantic
Tools: PostgreSQL, MySQL, Docker, Git, MATLAB, Figma, Adobe Suite