Shibo Yan

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Education

Southwest University | Software Engineering | Full-time
College of Computer and Information Science & College of Software (the College)
Master's Program Sep 2024 - Jun 2027
Campus Honors: Outstanding Individual in Academic and Technological Innovation; First-Class Academic Scholarship; Outstanding Individual in Campus Cultural Activities, among others.
Bachelor's Degree Sep 2019 - Jun 2023
GPA: 3.95/5.00; rank in major: 8/124.
Course grades: Data Structures 98, Probability Theory 98, Data Mining 94, Software Modeling and Design 96.
Campus Honors: Second-Class Scholarship; Merit Student; Civic Conduct Award; Outstanding Communist Youth League Member, among others.

Research Experience

Southwest University | RISE Sep 2024 - Jun 2027
Centre for Research and Innovation in Software Engineering | Trustworthy Software Laboratory
Academic Master's Student | Safe Control & Formal Verification
Research: learning-aided reach-avoid controller synthesis with formal probability bounds for nonlinear stochastic systems.

- Participate in a National Natural Science Foundation of China General Program project, "Polynomial Algebraic Methods for Safety Verification of Neural-Network-Controlled Systems" (No. 62472362; Jan 2025 - Dec 2028).
- **Conference paper:** *Learning-Aided Reach-Avoid Controller Synthesis with Formal Guarantees for Stochastic Systems*. MEMOCODE 2026 (part of ESWEEK 2026). **First author; published online.**
- *Safety Guarantees for Nonlinear Systems with Bayesian Neural Network Control Policies*. *Formal Aspects of Computing* (CCF B journal). **Second author (supervisor first); submitted.**
- *Formal Reach-Avoid Controller Synthesis for Stochastic Systems via Iterative Neural-Symbolic Learning*. AAAI (passed the first round of review), CCF A conference. **Second author (supervisor first); submitted.**

Projects and Internship Experience

CBF-Rover | Stochastic Mobile Robot Safety Control | Independent Developer Mar 2025 - Jul 2026

- **Background:** Built a safe-control system for mobile-robot reach-avoid under stochastic disturbances, combining reinforcement learning, dynamics modeling, SBC verification, controller refinement and closed-loop simulation.
- **Work:** Trained/optimized RL policies; modeled dynamics; fitted neural controllers with sparse polynomials. Used stochastic barrier-like certificates (SBCs) with SOS/SDP for reach-avoid lower bounds and certificate-guided controller refinement; integrated CBF online action correction. Batch-tested disturbance/obstacle trajectories and safety in Python / MOSEK Fusion.
- **Results:** Simulations achieved safe reach-avoid across disturbance/obstacle scenarios; iterative lower bounds approached Monte Carlo estimates. First-author MEMOCODE 2026 paper published online; follow-up paper submitted to a CCF A conference.

Facial Recognition Attendance System | Undergraduate Capstone Dec 2022 - Jun 2023
Second Prize, University Outstanding Undergraduate Thesis Award. Built a multi-platform attendance system using face detection and recognition on captured or uploaded images, with attendance summaries.

Chongqing Chinasoft International Information Technology Co., Ltd. Jun 2022 - Aug 2022
Internship Project Team Technical Lead & Project Manager | Outstanding Intern; score: 94.
Coordinated **MicFamily** development and integration: karaoke venue management (Spring Boot / MySQL / uni-app).

Honors and Awards

Second Prize, "Huawei Cup" China Post-Graduate Mathematical Contest in Modeling Sep 2024 - Sep 2024
Second Prize (Honourable Mention), 9th "Certificate Authority Cup" Math China International Mathematical Contest in Modeling (CAMCM) Dec 2020 - Dec 2020
Second Prize, 13th and 14th National College Student Mathematics Competition (Chongqing Division) Nov 2021 - Nov 2021

Leadership and Activities

The College, Southwest University | Research Assistant Sep 2023 - Jul 2024
TIPCC, Tsinghua University Press | Appointed Volunteer May 2022 - May 2024
National Higher-Education Expert Committee on Computing and Industry Practice Resource Development
Shapingba District Youth Talent Grassroots Service Program Sep 2021 - Aug 2022
Publicity and Planning Team Lead | University Outstanding Project, 2021 - 2022
The College: Student Union | Academic Affairs & Technology Department Member Sep 2019 - May 2020
Baidu Songguo Elite Program | Outstanding Program Graduate; ranked 2nd by total points Sep 2021 - Dec 2022