

Xihang Shan

Xiamen University | 19020232202354@stu.xmu.edu.cn | github.com/AndyShan11

Research interests: trustworthy machine learning, AI agents, and structured reasoning for real-world decision systems.

Education

Xiamen University, School of Mathematical Sciences

Sep 2023 – Expected Jun 2027

B.S. in Mathematics and Applied Mathematics | GPA: 85.94/100 Rank: 7/39

Selected Manuscripts Under Review

- PRCD-MAP: Learning How Much to Trust Imperfect Priors in Causal Discovery [PDF]**
Xihang Shan, Da Zhou*. *NeurIPS 2026, under review.*
Post-rebuttal reviews: 4/4/5. Learns edge-specific trust from data, using useful prior structure while safely reverting to data-only discovery when the prior is misleading.
- Testing Before Trusting: Causal Skeptic Bandits under Unreliable Historical Evidence [PDF]**
Xihang Shan. *AAAI 2027, under review.*
Treats historical causal knowledge as a hypothesis to be tested online; diagnostic falsification and a causal veto prevent misleading graphs from steering decisions.
- DeltaNAR: Learning What to Reuse and What to Recompute in Neural Algorithmic Reasoning [PDF]**
Xihang Shan, Ye Luo*. *AAAI 2027, under review.*
Separates state that remains valid after a graph update from state that must be recomputed, enabling incremental reasoning without unsafe copying.
- Failure-Learning Claims Need Controls: A Claim-Control Evaluation of Language Agents [PDF]**
Xihang Shan. *AAAI 2027, under review.*
Uses claim-matched controls to distinguish repair, transfer, target-solving, and executable validity, preventing ordinary task success from being misreported as failure learning.
- Bounded Path Context: Visible Path History in LLM-Based KGQA [PDF]**
Xihang Shan, Ye Luo*. *EMNLP 2026, under review.*
Uses bounded visible path history to reduce prompt exposure while preserving effective, auditable symbolic reasoning.
- Recipe-Controlled Decoder Audit for Structural Knowledge-Graph Completion [PDF]**
Xihang Shan, Ye Luo*. *PRICAI 2026, under review.*
Shows how decoder choice and training recipe can confound structural KGC comparisons, motivating controlled reporting across architectures and datasets.

*Corresponding author.

Research Experience

- Summer Research – LocSource [Project PDF]**
Hong Kong University of Science and Technology (HKUST) Jul 2026
Worked with Prof. Can Yang.
 - Designed candidate donors, interface-level aggregate evidence, abstention, and reversible per-RNA proposals for post-segmentation transcript ownership in Xenium spatial transcriptomics.
 - Applied frozen rules across a multi-tissue cohort and evaluated them with held-out protein and spatial evidence; outputs are conservative proposals, not donor ground truth or complete decontamination.
- National Undergraduate Innovation and Entrepreneurship Training Program**
Xiamen University | National-level project Nov 2025 – Present
Worked with Prof. Da Zhou on the trust-calibration research underlying PRCD-MAP.
- Research Collaboration – Graph Reasoning and Neural Algorithms**
Xiamen University Jul 2024 – Present
Worked with Prof. Ye Luo on DeltaNAR, Bounded Path Context, and the decoder audit.
- Summer School Project – Structured Methods for Boolean Functions [Project PDF]**
Institute of Information Engineering, Chinese Academy of Sciences Jul 2025
Developed Walsh-spectral affine approximation, derivative-guided affine covers, and feedforward sequence recovery.
Outstanding Student, top 10 of 60 participants.

Honors

- Fujian Province First Prize, National Undergraduate Mathematical Modeling Contest, Team Leader, 2025.
- Fujian Province Third Prize, National Undergraduate Mathematical Modeling Contest, Team Leader, 2024.

Technical Skills

Programming	Python, C++17, LaTeX, OpenMP
ML/Graphs	PyTorch, PyG, DGL, vLLM; causal discovery, bandits, knowledge graphs, controlled audits
Languages	Mandarin Chinese (native); English (IELTS 6.5)