Yuechun SUN

Personal Website: Etha-sun.github.io/
Email: sunyuechun@mail.ustc.edu.cn Tel: (86) 156-1014-8150
Address: East Campus of University of Science and Technology of China, Hefei, Anhui, China

Education

University of Science and Technology of China (USTC), Hefei, China Sep. 2023 - present
Bachelor of Science in Data Science and Big Data Technology
GPA (overall): **3.78/4.30 (89.28/100);** GPA (major): **4.11/4.30 (93.68/100)**

Publications

Jun Yang, **Yuechun Sun**, Yi Wu, Rodrigo Caridad, Yongwei Yuan, Shan Lu, Kexin Pei, "ExVerus: Verus Proof Repair via Counterexamples Reasoning", *under review*, 2026. [website] [pdf]

Yuechun Sun, Shengxue Li, Mu Yuan, Lan Zhang "Efficient Update-Aware Inference via Uncertainty Prediction-Based Input Filtering", *under review*, 2026. [pdf]

Yuechun Sun, Mu Yuan, Lan Zhang, "Don't Recompute It All: Taming Model Update Overheads in Mobile AI Systems", in ANAI@MobiCom2025 [pdf]

Tuo Zhang*, **Yuechun Sun***, Ruiliang Liu, "Provenance Analysis of Archaeological Artifacts via Multimodal RAG Systems", in ArtMetrics@ICCV2025 [pdf]

Research Experiences

ExVerus: Verus Proof Repair via Counterexample Reasoning Jun. 2025 - Oct.2025
Research Intern | Advisor: Assistant Professor Kexin Pei (Dept. of CS, University of Chicago)

- Developed ExVerus, a novel counterexample-guided framework which significantly improves the ability of Large Language Models (LLMs) to reason about and repair formal Verus proofs.
- Designed and implemented the Counterexample Generation and Counterexample Validation modules that are inspired by the traditional IC3/CEGAR (Counterexample-Guided Abstraction Refinement) framework
- Developed a neural-symbolic validation pipeline using non-LLM tools to verify the correctness of counterexamples isolated from LLM-generated SMT queries through the Verus verifier.

Decomposition-based RL for Robust Verus Proof Generation Oct.2025 - Present
Advisor: Assistant Professor Kexin Pei (Department of Computer Science, University of Chicago)

- Designed a disassembly-based Supervised Fine-Tuning (SFT) framework for the QWQ-32B model to decompose formal repair processes into atomic reasoning capabilities.
- Leveraged RL to assemble these atomic capabilities with fine-grained ExVerus rewards, optimizing verifiable Verus proof generation.
- Optimized the model performance for engineering-level verification tasks to enhance the stability and robustness of reasoning in high-complexity scenarios.

PURE: Efficient Update-Aware Inference via Input Filtering Sep. 2024 - Present
Research Assistant | Advisor: Professor Lan Zhang (School of Computer Science and Tech., USTC)

- Addressed the substantial resource consumption and long durations caused by full re-inference after model updates in resource-constrained edge AI applications such as smart photo albums.
- Proposed a novel, lightweight, and budget-aware Uncertainty Prediction-Based Input Filtering router to implement intelligent input filtering and reuse previous inference results.
- Reached a 20% increase in speed and maintained 99% consistency with complete re-inference in the basic scenario, showing a filtering rate of up to 58.45% on a deployed smart photo album system.

Honors and Awards

Yanbao Scholarship, CNY 10,000 (top 1%) 2025
Silver Medal in ICPC Asia Regional Contest (leader) 2024
Silver Medal in China Collegiate Programming Contest (leader) 2024
First Prize in China Undergraduate Mathematical Contest in Modeling (Top 2 in USTC, leader) 2024
First Prize in National Olympiad in Informatics in Provinces (Shandong, 0.01%) 2022
First Prize in Chinese Mathematical Olympiad in Senior (Shandong, 0.003%) 2022

Skills

Computer: C, C++, Java, Python, office, Matlab, 3ds Max, Latex.
Languages: Chinese (native), English (fluent).