Yuqiang Sun, Ph.D.

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https://scholar.google.com/citations?user=KAWDTzsAAAAJ&hl=en

Employment History

2025.4 – 2025.9 **Research Engineer,** Nanyang Technological University.
2025.10 – · · · · · · **Research Fellow,** Nanyang Technological University.

Education

2021 – 2025 **Ph.D., Nanyang Technological University** in Computer Science.
Supervisor: Prof. Yang Liu
Thesis: Intelligent Code Auditing for Solidity Smart Contracts

2017 – 2021 **B.Eng., Sichuan University** in Cyber Security.
GPA: 3.8/4

Research Interests

My research interests focus on automatic code auditing and vulnerability detection through the integration of deep learning method and static program analysis. Besides, I'm also interested in software supply chain security and program repair.

Publications

1. C. Liu, C. Wang, J. Cao, J. Ge, K. Wang, et al., "A vision for auto research with LLM agents," *arXiv preprint arXiv:2504.18765*, 2025.
2. H. Liu, D. Wu, **Y. Sun**, S. Wang, and Y. Liu, "Have we solved access control vulnerability detection in smart contracts? a benchmark study," in *Proceedings of the 40th IEEE/ACM International Conference on Automated Software Engineering (ASE 2025)*, 2025.
3. H. Liu, D. Wu, **Y. Sun**, S. Wang, Y. Liu, et al., "Demystifying openzeppelin's own vulnerabilities and analyzing their propagation in smart contracts," in *Proceedings of the 40th IEEE/ACM International Conference on Automated Software Engineering (ASE 2025)*, 2025.
4. Y. Liu, Y. Xue, D. Wu, **Y. Sun**, Y. Li, et al., "Propertygpt: Llm-driven formal verification of smart contracts through retrieval-augmented property generation," in *Network and Distributed System Security (NDSS) Symposium 2025*, 2025.
5. W. Ma, D. Wu, **Y. Sun**, T. Wang, S. Liu, et al., "Combining fine-tuning and llm-based agents for intuitive smart contract auditing with justifications," in *Proceedings of the IEEE/ACM 47th International Conference on Software Engineering*, 2025.
6. K. Sun, Z. Xu, K. Li, L. Zhang, **Y. Sun**, et al., "Faultseeker: Llm-empowered framework for blockchain transaction fault localization," in *Proceedings of the 40th IEEE/ACM International Conference on Automated Software Engineering (ASE 2025)*, 2025.
7. **Y. Sun**, S. Ding, L. Tan, Y. Xue, B. Li, et al., "Beyond stars and commits: A fair and manipulation-resistant framework for measuring developer contributions," in *Proceedings of the 33rd ACM International Conference on the Foundations of Software Engineering*, 2025, pp. 1764–1767.

8. Z. Wei, J. Sun, **Y. Sun**, Y. Liu, D. Wu, et al., "Advanced smart contract vulnerability detection via llm-powered multi-agent systems," *IEEE Transactions on Software Engineering*, 2025.
9. Y. Zhang, Z. Xu, Z. Lang, C. Liu, **Y. Sun**, et al., "Binstruct: Binary structure recovery combining static analysis and semantics," in *Proceedings of the 40th IEEE/ACM International Conference on Automated Software Engineering (ASE 2025)*, 2025.
10. J. Zhao, **Y. Sun**, C. Huang, C. Liu, Y. Guan, et al., "Towards secure code generation with llms: A study on common weakness enumeration," *IEEE Transactions on Software Engineering*, 2025.
11. H. Liu, D. Wu, **Y. Sun**, H. Wang, K. Li, et al., "Using my functions should follow my checks: Understanding and detecting insecure openzeppelin code in smart contracts," in *Usenix Security Symposium 2024*, 2024.
12. **Y. Sun**, D. Wu, Y. Xue, H. Liu, W. Ma, et al., "Llm4vuln: A unified evaluation framework for decoupling and enhancing llms' vulnerability reasoning," *arXiv preprint arXiv:2401.16185*, 2024.
13. **Y. Sun**, D. Wu, Y. Xue, H. Liu, H. Wang, et al., "Gptscan: Detecting logic vulnerabilities in smart contracts by combining gpt with program analysis," in *Proceedings of the IEEE/ACM 46th International Conference on Software Engineering*, 2024, pp. 1–13.
14. **Y. Sun**, Z. Xu, C. Liu, Y. Zhang, and Y. Liu, "Who is the real hero? measuring developer contribution via multi-dimensional data integration," in *The 38th IEEE/ACM International Conference on Automated Software Engineering (ASE 2023)*, 2023.
15. **Y. Sun**, D. Li, Y. Wu, X. Wan, and C. Huang, "Wain: Automatic web application identification and naming method," in *Proceedings of the 13th Asia-Pacific Symposium on Internetware*, 2022, pp. 37–44.
16. P. Wang, **Y. Sun**, C. Huang, Y. Du, G. Liang, et al., "Minedetector: Javascript browser-side cryptomining detection using static methods," in *2021 IEEE 24th International Conference on Computational Science and Engineering (CSE)*, IEEE, 2021, pp. 87–93.
17. Y. Wu, **Y. Sun**, C. Huang, P. Jia, and L. Liu, "Session-based webshell detection using machine learning in web logs," *Security and Communication Networks*, vol. 2019, no. 1, p. 3 093 809, 2019.

Projects

Open-source Software Quality Measuring Platform. Aug. 2021 – Nov. 2022

- Build a platform with quality assurance tools from different aspects of open-source software.
- Implement a pipeline to automatically collect and analyze projects from GitHub.
- Develop a web application to visualize the results and provide insights to users.
- The project has been integrited to the products of our industry partner Scantist.

Vulnerability Detection by Combining LLMs and Program Analysis. Mar. 2023 – Dec. 2023

- Propose a novel approach to detect vulnerabilities in source code by combining language models and program analysis.
- Develop a tool to automatically detect 10 types of logic vulnerabilities in Solidity projects.
- Evaluate the performance of the tool on real-world projects.
- The project has been integrited to the products of our industry partner MetaTrust Labs.

Services

Journal Reviews	Transactions on Dependable and Secure Computing (TDSC), ACM Transactions on Software Engineering and Methodology (TOSEM)
Conference Reviews	MSR 2024, 2025 Junior PC; ICSE 2026 Shadow PC;

Services (continued)

Artifact Evaluation	Usenix Security 2024, ISSTA 2024
Sub-Reviews	ICSE, ASE, FSE, ISSTA, CCS, NDSS, ACSAC, DSN, ICICS, AsiaCCS

Honors & Awards

- 2024 **Member**, DataCon 2024 Technical Committee
- 2021 **Research Scholarship**, Nanyang Technological University
- 2020 **3nd Prize**, 2020 CCF Chinasoft - A Software Defect Detection Contest
- 2019 **2nd Prize**, 12th National College Student Information Security Contest CTF Competition Final
- **3nd Prize**, West Lake Cybersecurity Conference CTF Competition Final

Talks

- 2024 **GeekCon 2024**, Transforming Language Models into Smart Contract Audit Experts.