# Zhijie Liu

*ShanghaiTech University, 393 Middle Huaxia Road, Pudong, Shanghai, 201210*

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## PERSONAL PROFILE

Energetic, creative, and responsible student, currently studying at **ShanghaiTech University** in a graduate program (Sep. 2022 - Jul. 2025) and interning at Tencent Keen Security Lab (Aug. 2023 - current), under the supervision of **Prof. Yutian Tang**, **Prof. Liangfeng Zhang**, **Researcher Sen Nie**, and **Researcher Qiyi Tang**. Passionate about software engineering and security, having three years of expertise, and specializing in Binary Code Similarity Analysis (BCSA), Automatic Malware Analysis, Reverse Engineering, Fuzzing, LLM4SE, and so forth.

## EDUCATION

**ShanghaiTech University**                                                                                        *Pudong, Shanghai*

Master of Science in Computer Science (in English and Chinese), GPA: 3.92/4.0, Specialized Course GPA: 4.0/4.0                                                                                        *September 2022 - July 2025*

- **Courses 2022-2023:** Program Analysis (A+), Algorithm Design (A), Machine Learning (A), Cybersecurity (A+)
- **Courses 2023-2024:** Cryptography (A+), Computer-aided Verification (A)

**Chang'an University**                                                                                                  *Xi'an, Shaanxi*

Bachelor of Science in Computer Science, GPA: 4.20/5.0 (ranking $1^{st}$/350)                *August 2018 - July 2022*

- **Courses:** Compiler, Networking, Operating System, Database, Computer Architecture, etc.
- **Projects:** Remote Control System, MinHook for Windows, etc.

## PUBLICATIONS

### CONFERENCE PROCEEDINGS

Detecting Malicious Accounts in Web3 through Transaction Graph
    Wenkai Li, Zhijie Liu, Xiaoqi Li, Sen Nie
    *Proceedings of the 39th IEEE/ACM International Conference on Automated Software Engineering (ASE) Poster Track*, 2024

Enhancing Malware Detection for Android Apps: Detecting Fine-granularity Malicious Components
    Zhijie Liu, Liang Feng Zhang, Yutian Tang*
    *2023 38th IEEE/ACM International Conference on Automated Software Engineering (ASE)*, 2023

### JOURNAL ARTICLES

No Need to Lift a Finger Anymore? Assessing the Quality of Code Generation by ChatGPT
    Zhijie Liu, Yutian Tang*, Xiapu Luo, Zhou Yuming, Liang Feng Zhang
    *IEEE Transactions on Software Engineering* (2024). 2024

ChatGPT vs SBST: A Comparative Assessment of Unit Test Suite Generation
    Yutian Tang*, Zhijie Liu, Zhichao Zhou, Xiapu Luo
    *IEEE Transactions on Software Engineering* (2024). 2024

### UNDER REVIEW

Geometry Point Embedding for 3D Object Detection with Fully Transformer
    Xin Jin, Kai Liu, Cong Ma, Ruining Yang, Zhijie Liu, Fei Hui*, Wei Wu*

Detecting Mimic Accounts in Illegally Service Providers via Dynamic Graph Evolution
    Wenkai Li, Zhijie Liu, Xiaoqi Li*, Sen Nie, Yuqing Zhang
    *IEEE Transactions on Information Forensics and Security* (2025). 2025

Hashing Programs into Function-aware Embeddings for Large-scale Binary Code Similarity Analysis
    Zhijie Liu, Qiyi Tang, Sen Nie, Shi Wu, Liang Feng Zhang, Yutian Tang*
    *The ACM SIGSOFT International Symposium on Software Testing and Analysis (Major Revision)*, 2025

LLM-CompDroid: Repairing Configuration Compatibility Bugs in Android Apps with Pre-trained Large Language Models
    Zhijie Liu, Yutian Tang*, Meiyun Li, Xin Jin, Yunfei Long, Liang Feng Zhang, Xiapu Luo
    *ACM Transactions on Software Engineering and Methodology (Major Revision)* (2024). 2024

## WORK EXPERIENCE

**Tencent Keen Security Lab, Security Researcher Intern** *Xuhui, Shanghai*
**Project:** Hashing Programs for Binary Code Similarity Analysis and Threat Intelligence *August 2023 - Current*
- Worked on ***BinaryAI***, the binary file security analysis platform developed by Keen Security Lab, which is based on AI security for applications such as Binary Code Similarity Analysis (BCSA), Malware Analysis, and Software Composition Analysis (SCA);
- Contributed to BinaryAI's downstream tasks, including BCSA, ***Malware Analysis***, Vulnerability Detection, and Threat Intelligence;
- Designed and deployed new algorithms for ***BCSA***, which focuses on large-scale scenarios (e.g., at billion level) at program level;
- Designed and deployed new algorithms for ***CVE Vulnerability Detection*** on binary programs.

**ShanghaiTech University, CATLab, Member** *Pudong, Shanghai*
**Project:** *Malicious Component Detection for Android Apps* *January 2022 - August 2023*
- Summarized the shortcomings of existing Android malware detection systems;
- Designed a new approach based on deep learning and genetic algorithm for detecting Android malicious components adaptively;
- Improved the performance and robustness of Android malware detection by up to 10% and 20%, respectively;
- Supported fine-granularity Android malicious component detection.

# TEACHING EXPERIENCE

**ShanghaiTech University, Teaching Assistant** *Pudong, Shanghai*
**Course:** SI200 Academic Paper Writing (in English and Chinese) *2023 - 2024 (Fall)*

# SKILLS

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|---|---|
| **Programming** | C/C++, Java, Python, x86 Assembly, SQL, Dafny, Promela, Shell, etc. |
| **MLOps** | Pytorch, WandB, Milvus, Faiss, LLM, cuML, etc. |
| **DevOps** | Docker, Git, Redis, SpringBoot, gRPC, etc. |
| **SE & Security** | IDA Pro, Ghidra, angr, Soot, FlowDroid, Tai-e, Z3, MinHook, Neo4j, CodeQL, SonarQube, Spin, etc. |
| **Miscellaneous** | Windows, Linux, Android, LaTeX, Microsoft Office, etc. |

# SERVICES

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|---|---|---|
| 2025 | **Junior Program Committee**, The International Conference on Mining Software Repositories (MSR) | *CANADA* |
| 2024 | **Program Committee**, International Conference on Software Engineering & Knowledge Engineering (SEKE) | *ITALY* |
| 2023 | **Subreviewer**, Asia-Pacific Software Engineering Conference (APSEC) | *KOREA* |
| 2023 | **Program Committee**, International Conference on Software Engineering & Knowledge Engineering (SEKE) | *USA* |

# AWARDS

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|---|---|---|
| 2024 | **National Scholarship**, Graduate Scholarships, ShanghaiTech University | *China* |
| 2023 | **Outstanding Student**, Graduate Scholarships, ShanghaiTech University | *China* |
| 2022 | **Outstanding Thesis Award**, Undergraduate Research Scholars, Chang'an University | *China* |
| 2022 | **Outstanding Graduate Award**, Undergraduate Scholarships, Chang'an University | *China* |
| 2022 | **The Second Class Prize Winner**, ASC22 Student Supercomputer Challenge | *China* |
| 2021 | **National Scholarship**, Undergraduate Scholarships, Chang'an University | *China* |
| 2021 | **Meritorious Winner**, 2021 Interdisciplinary Contest in Modeling | *USA* |
| 2020 | **National Scholarship**, Undergraduate Scholarships, Chang'an University | *China* |
| 2019 | **Second Prize of Zhaoshang-Road Scholarship**, Undergraduate Scholarships, Chang'an University | *China* |

# NEWS INTERVIEW/MEDIA COVERAGE

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|---|---|---|
| 2024 | **News Interview**, IEEE Spectrum "How Good Is ChatGPT at Coding, Really? Study finds that while AI can be great, it also struggles due to training limitations" | *IEEE Spectrum* |

# COPYRIGHT

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| 2023 | **Copyright (Yutian Tang; Zhijie Liu)**, Big Data-based Mobile Application Malicious Component Detection System V1.0 (No. 2023SR0897296) | *National Copyright Administration of P.R.China* |