

Zhijie Liu

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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 Lab (Aug. 2023 - 2025), under the supervision of **Prof. Yutian Tang**, **Prof. Liangfeng Zhang**, **Researcher Sen Nie**, and **Researcher Qiyi Tang**. Passionate about software security and software engineering, 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 1st/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

Sweeping the Blockchain: Unmasking Illicit Accounts in Web3 Scams

Wenkai Li, Zhijie Liu, Xiaoqi Li*, Sen Nie

Black Hat Asia, 2025

KEENHash: 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, 2025

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

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 (2025). 2025

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

WORK EXPERIENCE

Tencent Keen Lab, Researcher Intern
Project: Binary Code Similarity Analysis and Threat Intelligence

- Worked on **BinaryAI**, the binary file security analysis platform developed by Tencent Keen 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 algorithm for **BCSA**, which focuses on large-scale scenarios (e.g., at billion level) at program level;
- Designed and deployed new algorithm for **CVE Vulnerability Detection** on binary programs.
- Designed and deployed new algorithm for **Code Summarization** on binary programs.

Xuhui, Shanghai
August 2023 - July 2025

ShanghaiTech University, CATLab, Member
Project: Malicious Component Detection for Android Apps

- 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.

Pudong, Shanghai
January 2022 - August 2023

TEACHING EXPERIENCE

ShanghaiTech University, Teaching Assistant
Course: SI200 Academic Paper Writing (in English and Chinese)

Pudong, Shanghai
2023 - 2024 (Fall)

SKILLS

Programming

C/C++, Java, Python, x86 Assembly, SQL, Dafny, Promela, Shell, etc.

MLOps

Pytorch, Ray, 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

2025	Program Committee , International Conference on Software Engineering & Knowledge Engineering (SEKE)	ITALY
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

2025	Outstanding Thesis Award , Graduate Research Scholars, ShanghaiTech University	China
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

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
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