

Xiwen Teoh

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Education

- PhD** **National University of Singapore**, Computer Science 2024 – present
- Advised by Prof. Jin Song Dong and Prof. Yun Lin.
 - Research interests: Agentic AI for Internet security and software testing.
- BE** **Shanghai Jiao Tong University**, Computer Science 2019 – 2023

Experience

- National University of Singapore**, Research Assistant 2023 – 2024
- Published industry research with GovTech Singapore under the TAICeN project (log anomaly detection) and Guotai Junan Securities (mobile UI testing).

Selected Publications

- WebTestPilot: Agentic End-to-End Web Testing against Natural Language Specification by Inferring Oracles with Symbolized GUI Elements** 2026
International Conference on the Foundations of Software Engineering
[Xiwen Teoh](#), Yun Lin, Duc-Minh Nguyen, Ruofei Ren, Wenjie Zhang, Jin Song Dong
- Are CAPTCHAs Still Bot-hard? Generalized Visual CAPTCHA Solving with Agentic Vision Language Model** 2025
USENIX Security Symposium
[Xiwen Teoh](#), Yun Lin, Siqi Li, Ruofan Liu, Avi Sollomoni, Yaniv Harel, Jin Song Dong
- GUIPilot: A Consistency-Based Mobile GUI Testing Approach for Detecting Application-Specific Bugs** 2025
International Symposium on Software Testing and Analysis
 Ruofan Liu[†], [Xiwen Teoh](#)[†], Yun Lin, Guanjie Chen, Ruofei Ren, Denys Poshyvanyk, Jin Song Dong
- PhishDecloaker: Detecting CAPTCHA-cloaked Phishing Websites via Hybrid Vision-based Interactive Models** 2024
USENIX Security Symposium
[Xiwen Teoh](#), Yun Lin, Ruofan Liu, Zhiyong Huang, Jin Song Dong

Publications

- PiMRef: Detecting and Explaining Ever-evolving Spear Phishing Emails with Knowledge Base Invariants** 2026
ACM SIGSAC Conference on Computer and Communications Security
 Ruofan Liu, Yun Lin, Yuxin Wang, [Xiwen Teoh](#), Zhenkai Liang, Gongshen Liu, Haojin Zhu, Jin Song Dong
- Compiling Large Multi-Modal Requirement Documents into Runnable Software Systems: From an Agentic Test-Driven Perspective** 2026
International Symposium on Software Testing and Analysis
 Weiyu Kong, Yun Lin, [Xiwen Teoh](#), Duc-Minh Nguyen, Ruofei Ren, Jiaxin Chang, Haoxu Hu, Haoyu Chen
- MINES: Explainable Anomaly Detection through Web API Invariant Inference** 2026
International Conference on Software Engineering
 Wenjie Zhang, Yun Lin, Chun Fung Amos Kwok, [Xiwen Teoh](#), Xiaofei Xie, Frank Liauw, Hongyu Zhang, Jin Song Dong

Detecting and Explaining Anomalies Caused by Web Tamper Attacks via Building Consistency-based Normality <i>International Conference on Automated Software Engineering</i> Yifan Liao, Ming Xu, Yun Lin, <u>Xiwen Teoh</u> , Xiaofei Xie, Ruitao Feng, Frank Liauw, Hongyu Zhang, Jin Song Dong	2024
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Less Defined Knowledge and More True Alarms: Reference-based Phishing Detection without a Pre-defined Reference List <i>USENIX Security Symposium</i> Ruofan Liu, Yun Lin, <u>Xiwen Teoh</u> , Gongshen Liu, Zhiyong Huang, Jin Song Dong	2024
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Invited Talks

Towards Trustworthy GUI Agents via Neuro-Symbolic Reasoning The First Global PhD Student Forum for Interdisciplinary and Innovative Research, Jiao Chuang Forum, Shanghai Jiao Tong University	2026
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Service

Reviewer ACM The Web Conference (WWW)	2027
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Reviewer International Sports Analytics Conference and Exhibition (ISACE)	2024 – 2026
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ACM Professional Membership	2026 – 2027
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Teaching and Mentorship

Teaching Assistant National University of Singapore • CS4211 Formal Methods for Software Engineering (AY2025/2026 Semester 2).	2026
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Mentor for Siqi Li (NUS Undergraduate Researcher) National University of Singapore • Research on agentic vision-language-model CAPTCHA solving, resulting in a USENIX Security 2025 publication. • Mentee received the NUS SoC Outstanding Undergraduate Research Prize, AY2024/2025.	2025
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Awards

First Prize Prototype System Competition, CCF ChinaSoft	2025
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Research Achievement Award National University of Singapore, AY2025/2026 Semester 1	2025
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Gold Medal China International College Students' Innovation Competition, Southeast Asia (SEA-CICSIC)	2025
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Silver Medal China International College Students' Innovation Competition (CICSIC / Shanghai Division)	2024 – 2025
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NUS Research Scholarship	2024
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Shanghai Government Scholarship	2019
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National Top 10, Computing and Information Technology Unified Examination Certificate (UEC), Malaysia	2018
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