He (Shawn) Shuang

Looking for full-time and internship in Summer/Fall 2025
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EDUCATION

Doctor of Philosophy (PhD), University of Toronto 2020-Mar 2025
Web Security, Computer Engineering Supervisor Prof. David Lie

- Thesis: On the security and privacy of web requests
- Project #1: defending against user-impersonation attacks with client-side request certification systems
- Project #2: detecting web trackers (non-mixed and mixed) with the addition of a breakage detector

Master of Applied Science (MASc), University of Toronto 2017-2020
Network Security, Computer Engineering Supervisor Prof. David Lie

- Project: defending against pervasive monitoring in software-defined networks (SDN)

Honours Bachelor of Science (HBSc), University of Toronto 2011-2016
Computer Science with a focus on Web and Internet High distinction, Dean's list (all years)

SELECTED RECENT PUBLICATIONS

- [NDSS 2025] He Shuang, Lianying Zhao, David Lie. 2025. "Duumviri: Detecting Trackers and Mixed Trackers with a Breakage Detector". Acceptance rate 16.1%.
- [CSUR 2024] Lianying Zhao, He Shuang, Shengjie Xu, Wei Huang, Rongzhen Cui, Pushkar Bettadpur, and David Lie. 2024. "A Survey of Hardware Improvements to Secure Program Execution". H-index 213.
- [DSN 2023] He Shuang, Lianying Zhao, David Lie. 2023. "vWitness: Certifying Web Page Interactions with Computer Vision". Acceptance rate 19.58%.

EMPLOYMENT

Researcher, Huawei Research Canada 2024-Present

- Developed LLM-based threat intelligence system reducing vulnerability acknowledgment time by 75%
- Developed multi-agent-based vulnerability patcher reducing mean time to patch (MTTP) by 70%

Research Assistant, University of Toronto, with Prof. Harald Bathelt 2021-2024

- Developed various statistics models in R to analyze ORBIS firm dataset

Software Developer, Trapeze Group, Mississauga 2014-2017

- Front (JavaScript in MVC architecture) and back end (C++, SQL) web-based agile application development

SKILLS

- Web Security: OWASP Top 10, TCP/IP, DNS, HTTP(S), automated test tools (Selenium), malicious script detection & anti-detection, test frameworks (Playwright)
- Operating System Security: dynamic analysis (fuzzing, DAST), static analysis (LLVM-based, SAST, secret detection, Ghidra, IDA Pro), symbolic execution (KLEE), malware identification (ML-based), attack surface reduction, reverse engineering (Frida), program control flow and data flow analysis (LLVM-based), virtualization, docker, malware analysis
- Machine Learning and Data Science: Large language models (LLMs), prompt engineering, model evaluation, LangGraph, RAG
- Programing Languages: Python (model building), R (statistical analysis), PostgreSQL, Javascript, C/C++