

# Yuru Shao

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## RESEARCH INTERESTS

Mobile security and privacy, cyber-physical security, vulnerability discovery and analysis

## EDUCATION

University of Michigan, Ann Arbor 08/2014-present  
PhD student in Computer Science and Engineering  
- Advisor: Professor Z. Morley Mao

University of Michigan, Ann Arbor 08/2014-05/2016  
Master of Science in Computer Science and Engineering

Wuhan University, Wuhan, China 09/2009-06/2013  
Bachelor of Engineering in Computer Science

## PUBLICATIONS

Yuru Shao, Jason Ott, Yunhan Jack Jia, Zhiyun Qian, and Z. Morley Mao, The Misuse of Android Unix Domain Sockets and Security Implications, *Proceedings of the 23rd ACM Conference on Computer and Communications Security (CCS)*, 2016.

Yuru Shao, Jason Ott, Qi Alfred Chen, Zhiyun Qian, and Z. Morley Mao, Kratos: Discovering Inconsistent Security Policy Enforcement in the Android Framework, *Proceedings of the 2016 Network and Distributed System Security Symposium (NDSS)*, 2016.

Qi Alfred Chen, Zhiyun Qian, Yunhan Jia, Yuru Shao, and Z. Morley Mao, Static Detection of Packet Injection Vulnerabilities — A Case for Identifying Attacker-controlled Implicit Information Leaks, *Proceedings of the 22nd ACM Conference on Computer and Communications Security (CCS)*, 2015.

Yuru Shao, Xiapu Luo, and Chenxiong Qian, Towards a Salable Resource-driven Approach for Detecting Repackaged Android Applications, *Proceedings of the 30th Annual Computer Security Applications Conference (ACSAC)*, 2014.

Yuru Shao, Xiapu Luo, and Chenxiong Qian, RootGuard: Protecting Rooted Android Phones, *IEEE Computer* 47(6): 32-40, 2014.

Chenxiong Qian, Xiapu Luo, and Yuru Shao, NDroid: Tracking Information Leaks through Java Native Interface in Android Apps, *Proceedings of the 44th IEEE/IFIP International Conference on Dependable Systems and Networks (DSN)*, 2014.

## POSTERS

Yuru Shao, Jason Ott, Qi Alfred Chen, Zhiyun Qian, and Z. Morley Mao, Discovering Inconsistent Security Policy Enforcement in the Android Framework, *Poster in the 24th USENIX Security Symposium (Security)*, 2015.

Qi Alfred Chen, Zhiyun Qian, Yunhan Jia, Yuru Shao, and Z. Morley Mao, PacketGuardian: Systematic Detection of Packet Injection Vulnerabilities using Precise Static Analysis, *Poster in the 24th USENIX Security Symposium (Security)*, 2015.

**RECENT  
PROJECTS**

- Anomaly detection in smart manufacturing** 09/2016-present
- Studying security challenges brought by the adoption of industrial IoT devices in manufacturing
  - Classifying different anomalies in smart manufacturing, such as sensor faults, device/network failures, and cyber attacks
  - Designing an anomaly detection system that operates on both physical and network layers
- Security study of native IPC channels on Android devices** 08/2015-05/2016
- Studied Linux inter-process communication (IPC) mechanisms available in Android
  - Investigated threats exposed by insecure Unix domain socket channels
  - Developed *SInspector* that is able to detect vulnerable applications and system daemons
- Detecting inconsistent policy enforcement in the Android framework** 08/2014-08/2015
- Analyzed and categorized different types of security checks employed by the Android framework
  - Designed and implemented *Kratos*, an automated tool that supports systematic detection of inconsistent security policy enforcement within the Android framework
  - Applied *Kratos* to various versions of Android, discovered more than 10 zero-day vulnerabilities, and filed bug reports to Google

**WORK  
EXPERIENCE**

- Graduate Research Assistant** 08/2014-present  
Department of EECS, University of Michigan
- Research Intern** 06/2016-08/2016  
B2B Lab, Samsung Research America
- Research Assistant** 11/2013-07/2014  
Department of Computing, The Hong Kong Polytechnic University

**HONORS  
& AWARDS**

- CCS Student Travel Grant, ACM 2016
- Internet of Things (IoT) Technology Research Award, Google 2016
- Rackham Travel Grant, University of Michigan 2015, 2016
- USENIX Security Student Travel Grant, USENIX Association 2015
- Outstanding Undergraduate Award, China Computer Federation 2012
- Google Excellence Scholarship, Google 2012
- National Scholarship, Ministry of Education, China 2010