

# Zhenyu Ning

PH.D. IN COMPUTER SCIENCE

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## Research Interest

My Research interests are in different areas of security and privacy, including system security, mobile security, IoT security, transportation security, trusted execution environments, hardware-assisted security, transparent malware analysis, etc.

## Education

### Wayne State University

PH.D. IN COMPUTER SCIENCE

MI, USA

Aug. 2015 - Apr. 2020

### Tongji University

M.S. IN COMPUTER SCIENCE

Shanghai, China

Aug. 2008 - Apr. 2011

### Tongji University

B.S. IN COMPUTER SCIENCE

Shanghai, China

Aug. 2004 - Jun. 2008

## Employment History

### Research Assistant Professor

SOUTHERN UNIVERSITY OF SCIENCE AND TECHNOLOGY

Shenzhen, Guangdong, China

Jun. 2020 - present

### Research or Teaching Assistant

WAYNE STATE UNIVERSITY

MI, USA

Aug. 2015 - Apr. 2020

### Senior Software Engineer

BOLOME ELECTRONIC COMMERCE

Shanghai, China

May 2015 - Jul. 2015

### Senior Software Engineer

CHINA UNIONPAY

Shanghai, China

Sep. 2012 - Apr. 2015

### Assistant Software Engineer

HUAWEI TECHNOLOGIES

Shanghai, China

Apr. 2011 - Sep. 2012

## Publications

\* indicates these authors contribute equally to the paper.

### [ESORICS'20 (CCF B Conference)] HART: Hardware-assisted Kernel Module Tracing on Arm

YUNLAN DU\*, ZHENYU NING\*, JUN XU, ZILONG WANG, YUEH-HSUN LIN, FENGWEI ZHANG, XINYU XING, AND BING MAO

In Proceedings of the 25th European Symposium on Research in Computer Security, United Kingdom, September, 2020.

### [DSN'20 (CCF B Conference)] KShot: Live Kernel Patching with SMM and SGX

LEI ZHOU, FENGWEI ZHANG, JINGHUI LIAO, ZHENYU NING, JIDONG XIAO, KEVIN LEACH, WESTLEY WEIMER, AND GUOJUN WANG

In Proceedings of the 50th Annual IEEE/IFIP International Conference on Dependable Systems and Networks, Spain, June, 2020  
(Runner-up Best Paper Award, 3 out of 291 submissions).

### [JCDR'19] (CCF A Chinese Journal) A Study of Using TEE on Edge Computing

ZHENYU NING, FENGWEI ZHANG, AND WEISONG SHI

In Journal of Computer Research and Development, Vol.56, No.7, pp.1441-1453, 2019).

### [DIMVA'19 (CCF C Conference)] Understanding the Security of Traffic Signal Infrastructure

ZHENYU NING, FENGWEI ZHANG, AND STEPHEN REMIAS

In Proceedings of the 16th Conference on Detection of Intrusions and Malware & Vulnerability Assessment, Gothenburg, Sweden, 2019.

## **[S&P'19 (CCF A Conference)] Understanding the Security of ARM Debugging Features**

ZHENYU NING AND FENGWEI ZHANG

In Proceedings of the 40th IEEE Symposium on Security & Privacy, San Francisco, California, May, 2019.

## **[TIFS'18 (CCF A Journal, JCR Q1, CAS JCR Q1)] Hardware-assisted Transparent Tracing and Debugging on ARM**

ZHENYU NING AND FENGWEI ZHANG

In IEEE Transactions on Information Forensics & Security, Vol.14, No.6, pp.1595-1609, 2018.

## **[EdgeSP'18] Preliminary Study of Trusted Execution Environments on Heterogeneous Edge Platforms**

ZHENYU NING, JINGHUI LIAO, FENGWEI ZHANG, AND WEISONG SHI

In Proceedings of the 1st ACM/IEEE Workshop on Security and Privacy in Edge Computing, in conjunction with the 3rd ACM/IEEE Symposium on Edge Computing (SEC'18), Bellevue, Washington, October, 2018.

## **[DSN'18 (CCF B Conference)] DexLego: Reassembleable Bytecode Extraction for Aiding Static Analysis**

ZHENYU NING AND FENGWEI ZHANG

In Proceedings of the 48th IEEE/IFIP International Conference on Dependable Systems and Networks, Luxembourg, June, 2018.

## **[Security'17 (CCF A Conference)] Ninja: Towards Transparent Tracing and Debugging on ARM**

ZHENYU NING AND FENGWEI ZHANG

In Proceedings of the 26th USENIX Security Symposium, Vancouver, BC, Canada, August, 2017.

## **[HASP'17] Position Paper: Challenges Towards Securing Hardware-assisted Execution Environments**

ZHENYU NING, FENGWEI ZHANG, WEISONG SHI, AND LARRY SHI

In Proceedings of the Hardware and Architectural Support for Security and Privacy, In conjunction with the 44th International Symposium on Computer Architecture (ISCA), Toronto, ON, Canada, June, 2017.

# **Research Grants**

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## **A Trusted Execution Environment Based on RISC-V Architecture**

NATIONAL NATURAL SCIENCE FOUNDATION OF CHINA, NO.62102175

2022.01-2024.12, 240,000 RMB, Principal Investigator

## **Research on Secure EL2 of Arm Cloud Platforms**

ANT GROUP

2021.03-2022.03, 520,000 RMB, Principal Investigator

# **Talks**

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## **SecLabel: Enhancing RISC-V Platform Security with Labelled Architecture**

ZHENYU NING, YINQIAN ZHANG, AND FENGWEI ZHANG

In China RISC-V Forum (CRVF), Shenzhen, China, November, 2019.

## **Nailgun: Breaking the Privilege Isolation on ARM**

ZHENYU NING AND FENGWEI ZHANG

In Mobile Security Conference (MOSEC), Shanghai, China, May, 2019.

## **Transparent Malware Debugging on x86 and ARM**

ZHENYU NING AND FENGWEI ZHANG

In DEFCON China, Beijing, China, May, 2018.

# **Posters**

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## **Poster: SecLabel: Enhancing RISC-V Platform Security with Labelled Architecture**

ZHENYU NING, YINQIAN ZHANG, AND FENGWEI ZHANG

In China RISC-V Forum (CRVF), Shenzhen, China, November, 2019.

## **Poster: Enhancing ARM Platform Security with Hardware Tags**

ZHENYU NING AND FENGWEI ZHANG

In the 40th IEEE Symposium on Security & Privacy, San Francisco, California, May, 2019.

## **Poster: Revealing True Behavior via Instruction-level Extraction and Reassembling on Android**

ZHENYU NING AND FENGWEI ZHANG

In the IEEE Southeastern Michigan 2016 Spring Conference, Livonia, MI, April, 2016.

## **Teaching Experience**

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### **CSC 4111 Laboratory for Software Engineering, *Instructor***

DEPARTMENT OF COMPUTER SCIENCE, WAYNE STATE UNIVERSITY, FALL 2017.

### **CSC 4110 Software Engineering, *Teaching Assistant***

DEPARTMENT OF COMPUTER SCIENCE, WAYNE STATE UNIVERSITY, FALL 2017.

## **Professional Services**

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### **Program Committee Membership**

[CCSW]: ACM Cloud Computing Security Workshop, 2020.

### **Artifact Evaluation Committee**

[USENIX-Security]: USENIX Security Symposium, 2021

[ACSAC]: Annual Computer Security Applications Conference, 2019, 2020

### **External Reviewer**

[CCS]: ACM Conference on Computer and Communications Security, 2017, 2018, 2019

[ACSAC]: Annual Computer Security Applications Conference, 2017, 2018, 2019

[EuroSec]: European Workshop on Systems Security, 2018, 2019

### **Reviewer**

[TDSC]: IEEE Transactions on Dependable and Secure Computing, 2021

[Computer & Security]: Elsevier Computer & Security, 2020, 2021

[TMC]: IEEE Transactions on Mobile Computing, 2020

[LOCS]: IEEE Letters of the Computer Society, 2018

## **Awards**

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2019 **Faculty Competitive for Graduate Research Assistantships Award**, Wayne State University

2019 **Student Travel Grant**, IEEE S&P

2018 **Student Travel Grant**, IEEE/IFIP DSN