

Jason Zhijingcheng Yu

PhD student, National University of Singapore

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Research Interests

Computer architecture design, trusted execution environments, capability-based security, microkernels

Education

- Aug 2019 – present **National University of Singapore**
PhD in computer science
Advisor: Prof Prateek Saxena
- Aug 2015 – Jul 2019 **Tsinghua University**
BEng in computer science and technology
GPA (years 1–3): 3.63/4.0 (ranked 54/140)
- Aug 2012 – Jul 2015 **Chengdu No.7 High School**

Research Experience

- Aug 2019 – present **Crystal Centre, National University of Singapore**
Research Scholar
Advisor: Prof Prateek Saxena
- Oct 2017 – Jul 2019 **Natural Language Processing Lab, Tsinghua University**
Undergraduate Researcher
Advisor: Prof Zhiyuan Liu
Research focus: information extraction, knowledge graphs

Publications

- [1] **CAPSTONE: A Capability-based Foundation for Trustless Secure Memory Access**
In proceedings of *USENIX Security Symposium 2023*
Jason Zhijingcheng Yu, Conrad Watt, Aditya Badole, Trevor E. Carlson, Prateek Saxena
- [2] **ELASTICLAVE: An Efficient Memory Model for Enclaves**
In proceedings of *USENIX Security Symposium 2022*
Jason Zhijingcheng Yu, Shweta Shinde, Trevor E. Carlson, Prateek Saxena
- [3] **SMASHEX: Smashing SGX Enclaves Using Exceptions**
In proceedings of *ACM CCS 2021*
Jinhua Cui*, Jason Zhijingcheng Yu*, Shweta Shinde, Prateek Saxena, Zhiping Cai (* indicates equal contributions)

(Citation statistics available in the *Google Scholar profile*)

Talks

- August 2023 **CAPSTONE: A Capability-based Foundation for Trustless Secure Memory Access**
At *USENIX Security Symposium 2023* (Anaheim, USA)
- August 2022 **ELASTICLAVE: An Efficient Memory Model for Enclaves**
At *USENIX Security Symposium 2022* (Boston, USA)
- December 2021 **ELASTICLAVE: An Efficient Memory Model for Enclaves**
As part of tutorial *From EDA to TEEs, Security Tools for Understanding and Mitigating Side-Channel and Fault Injection Attacks*
At *Design Automation Conference 2021* (San Francisco, USA)
- November 2021 **SMASHEX: Smashing SGX Enclaves Using Exceptions**
At *ACM CCS 2021* (virtual)

Posters

November 2022 **SMASHEX: Smashing SGX Enclaves Using Exceptions**
At ACM CCS 2022 (Los Angeles, USA)

Projects

Summer 2018 **SYSTEM-ON-CAT**

A full-stack computer system design and implementation project which consists of an in-order pipelined implementation of RISC-V IMA (in Chisel), a compiler for a custom high-level programming language targeting it (in Java), and a Unix-like OS kernel that runs on top (in C and assembly)

Autumn 2017 **UCORE RISC-V PORT & LKM**

A port of UCORE (an educational Unix-like OS kernel) to RISC-V with SMP and loadable kernel module

Teaching Experience

Spring 2022 **Introduction to Computer Security (CS3235)**
National University of Singapore

Spring 2021 **Introduction to Computer Security (CS3235)**
National University of Singapore

Fall 2020 **Systems Security (CS5231)**
National University of Singapore

Spring 2020 **Data Structures and Algorithms (CS2010)**
National University of Singapore

Fall 2015 **Fundamentals of Programming (30240233)**
Tsinghua University

Professional Services

Jan 2025 – present **Student Member of Security Area Search Committee**
Department of Computer Science, National University of Singapore

Social Experience

Oct 2022 – Aug 2023 **President**
Cycling Interest Group, NUS Graduate Students' Society

Jul 2022 – June 2023 **Vice-President of Public Relations and Sergeant-at-Arms**
NUS Toastmasters Club

Aug 2016 – Jul 2017 **President**
Student Harmonica Society, Tsinghua University

Awards and Certificates

GRE (July 2018) 334/340 (verbal 164 + quantitative 170)

TOEFL IBT (May 2018) 110/120

CCF CSP (March 2018) 500/500

CCF NOI (July 2014) Gold medal. Admitted into National Training Camp for International Olympiad in Informatics

Technical Skills

C, C++, Rust, Python, Java, RISC-V assembly, SystemVerilog, Chisel, Pytorch, Intel Pin, DynamoRIO, FireSim, qemu, gem5, L^AT_EX

Miscellaneous

Language skills: native Mandarin Chinese, full professional English, limited working Russian, elementary Latin
Hobbies: cycling, harmonica