

# Mustakimur Rahman Khandaker

System and Software Security Research

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Ph.D. Candidate

*Security is always excessive until it's not enough*

## Research Interests: Systems Security

Defense Control-flow Integrity, Program Analysis.  
Attack Fuzzing, Exploit Generation.  
System Trusted Execution Environment, Virtualization.

## Education

2015–2020 **Graduate**, *Florida State University*, Tallahassee.  
Ph.D. in computer Science.  
2008–2012 **Undergraduate**, *Chittagong University of Engineering and Technology*, Chittagong.  
B.Sc. in Computer Science and Engineering.

## Awards

- Best Paper Award (2019),  
4th IEEE European Symposium on Security and Privacy (EuroS&P '19).
- Graduate Research Assistant Award (2019),  
Department of Computer Science, Florida State University.
- Graduate Teaching Assistant Award (2018),  
Department of Computer Science, Florida State University.
- Outstanding Teaching Assistant Award (OTAA) (2018),  
(Nominated) Florida State University.
- Student Travel Grant (UsenixSecurity'19),  
Department of Computer Science, Florida State University.
- Student Travel Grant (EuroS&P'19),  
Department of Computer Science, Florida State University.
- First position, Spring Programming Contest (2019),  
Computer Science, Florida State University.

## Publications

- **Mustakimur Khandaker**, Yueqiang Cheng, Zhi Wang, and Tao Wei. "COIN attacks: on the insecurity of enclave untrusted interfaces in SGX" *Proceedings of the 25th ACM International Conference on Architectural Support for Programming Languages and Operating Systems (ASPLOS)*, 2020.
- **Mustakimur Khandaker**, Wenqing Liu, Abu Naser, Zhi Wang, and Jie Yang. "Origin-sensitive

Control Flow Integrity" *Proceedings of the 28th USENIX Security Symposium (USENIX Security)*, 2019.

- **Mustakimur Khandaker**, Abu Naser, Wenqing Liu, Zhi Wang, Yajin Zhou, and Yueqiang Cheng. "Adaptive Call-site Sensitive Control Flow Integrity" *Proceedings of the 4th IEEE European Symposium on Security and Privacy (EuroS&P)*, 2019. **[Best Paper Award]**
- Yue Chen, **Mustakimur Khandaker**, and Zhi Wang. "Secure in-cache Execution." *International Symposium on Research in Attacks, Intrusions, and Defenses*. Springer, Cham, 2017.
- Yue Chen, **Mustakimur Khandaker**, and Zhi Wang. "Pinpointing Vulnerabilities." *Proceedings of the 2017 ACM on Asia Conference on Computer and Communications Security*. ACM, 2017.
- **Mustakimur Khandaker**, Tauhidul Alam, and Mahfuzulhoq Chowdhury. "Location based Early Disaster Warning and Evacuation System on Mobile Phones Using OpenStreetMap." *Open Systems (ICOS), 2012 IEEE Conference on*. IEEE, 2012.

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## Experience

### Graduate Research and Teaching Assistant

2015–now **Graduate Research Assistant**, *Florida State University*.

System and Software Security Research

- Extended CFI Protection
- Origin-sensitive Control Flow Integrity.
- Adaptive Call-site Sensitive Control Flow Integrity.
- Secure in-cache Execution.
- Pinpointing Vulnerabilities.

2015–2018 **Graduate Teaching Assistant**, *Florida State University*.

- Recitation
  - Programming Languages (COP 4020)
  - Object Oriented Programming (COP 3330)
- Graduate
  - Computer Security (CIS 5370)
- Other
  - Computer Security (CIS 4360)
  - Cybercrime Detection (CIS 4385)

### Employment

Summer'19 **Research Intern**, *Baidu USDA*, Sunnyvale, CA, USA.

- Study the security of SGX Interfaces.

2012–2015 **Senior Software Engineer**, *Samsung Research and Development*, Bangladesh.

Summer'11 **Software Engineer Intern**, *Sentinel Solution*, Bangladesh.

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## Talks

- Origin-sensitive Control Flow Integrity, USENIX Security 2019.
- On the Security of SGX Interfaces, Baidu USDA Workshop 2019.
- Adaptive Call-site Sensitive Control Flow Integrity, EuroS&P 2019.

- Context-sensitive Control Flow Integrity, Baidu USDA Workshop 2019.
- Concolic Analysis and Triton, Computer Security Grad Course 2018.

## Services

- Shadow PC, 41st IEEE Symposium on Security and Privacy.
- Journal Reviewer, Design Automation for Embedded Systems.
- Volunteer, Corporate Social Responsibility, Samsung Research.
- Organizer, 2011 National Programming Contest, Chittagong University of Engineering and Technology.
- Committee Member, Programming Club, Chittagong University of Engineering and Technology.

## Mentoring

- Derek Yohn, M.Sc. in Computer Science, Florida State University.

## Artifacts

- **OS-CFI**: [github.com/mustakcsecuet/OS-CFI](https://github.com/mustakcsecuet/OS-CFI)
- **CFI-LB**: [github.com/mustakcsecuet/CFI-LB](https://github.com/mustakcsecuet/CFI-LB)
- **Workshop**: [github.com/mustakcsecuet/syssec-workshop](https://github.com/mustakcsecuet/syssec-workshop)

## Skills

Reverse Engineering	Radare2 disassembler, GDB Enhanced Features (GEF), Capstone disassembler	Program Analysis	Intel pin dynamic binary analysis, Triton symbolic engine, Static Value-Flow Analysis (SVF) and its extension SUPA, Unicorn emulator
Programming	C/C++, Python, Rust, Java (Oracle Certified Associate Java Programmer), Android, OCaml	Compiler	Clang, LLVM
System	Linux Kernel, Intel x86-64, Intel SGX, Intel MPX, Intel TSX		

## References

### Dr. Zhi Wang

Associate Professor  
 Department of Computer Science  
 Florida State University  
 Email: [zwang@cs.fsu.edu](mailto:zwang@cs.fsu.edu)

### Dr. David Whalley

Professor  
 Department of Computer Science  
 Florida State University  
 Email: [whalley@cs.fsu.edu](mailto:whalley@cs.fsu.edu)

Dr. Yueqiang Cheng  
Senior Staff Security Scientist  
X-Lab  
Baidu USDA  
Email: chengyueqiang@baidu.com

Dr. Zhiqiang Lin  
Associate Professor  
Department of Computer Science and  
Engineering  
Ohio State University  
Email: zlin@cse.ohio-state.edu