

MENGFEEI (Angela) REN

Assistant Professor • Electrical & Computer Engineering • UA Huntsville

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RESEARCH STATEMENT

My research lies at the intersection of **Software Engineering** and **Cybersecurity**. I have published at highly selected venues, like ESORICS, WiSec and DTRAP journal. I am endeavoring to apply advanced software techniques, such as **fuzz testing**, **taint analysis** and **combinatorial testing**, to help IoT application developers and protocol vendors find security vulnerabilities in IoT devices.

EDUCATION

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| <p>University of Texas, Arlington Ph.D. in Computer Science Dissertation: Fuzz Testing of Zigbee Protocol Implementation Advisors: Yu (Jeff) Lei and Jiang Ming</p> | <p><i>Aug. 2017 – Aug. 2023</i></p> |
| <p>University of Texas, Arlington M.S in Computer Science</p> | <p><i>Aug. 2011 – Dec. 2013</i></p> |
| <p>China University of Petroleum B.S in Computer Science and Technology</p> | <p><i>Sept. 2007 – Jul. 2011</i></p> |

PEER-REVIEWED PUBLICATIONS

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| <p>P4 Intelligent Zigbee Protocol Fuzzing via Constraint-Field Dependency Inference Mengfei Ren, Haotian Zhang, Xiaolei Ren, Jiang Ming, Yu Lei In <i>Proceedings of 2023 European Symposium of Research in Computer Security</i>. 2023. (Just accepted).</p> | <p><i>ESORICS '23</i> <i>Acceptance Rate: 18.5%</i></p> |
| <p>P3 Security Analysis of Zigbee Protocol Implementation via Device-agnostic Fuzzing Mengfei Ren, Xiaolei Ren, Huadong Feng, Jiang Ming, Yu Lei In <i>ACM Digital Threats: Research and Practice</i>. 2022.</p> | <p><i>DTRAP Journal '22</i></p> |
| <p>P2 One Size Does Not Fit All: Security Hardening of MIPS Embedded Systems via Static Binary Debloating for Shared Libraries Haotian Zhang, Mengfei Ren, Yu Lei, Jiang Ming In <i>Proceedings of the 27th International Conference on Architectural Support for Programming Languages and Operating Systems</i>, Lausanne, Switzerland, 2022 ACM Artifacts Evaluation Badges: Functional, Available, Reproduced</p> | <p><i>ASPLOS '22</i> <i>Acceptance Rate: 20.1%</i></p> |
| <p>P1 Z-Fuzzer: Device-agnostic Fuzzing of Zigbee Protocol Implementation Mengfei Ren, Xiaolei Ren, Huadong Feng, Jiang Ming, Yu Lei In <i>Proceedings of the 14th ACM Conference on Security and Privacy in Wireless and Mobile Networks</i>. 2021. ACM Artifacts Evaluation Badges: Functional, Available, Reproduced 0-day Vulnerabilities Detected: <i>CVE-2020-27890, CVE-2020-27891, CVE-2020-27892</i></p> | <p><i>WiSec '21</i> <i>Acceptance Rate: 28.1%</i></p> |

 SUBMITTED & PENDING PAPERS

S1 Fuzzing Zigbee Protocol Implementation with Combinatorial Testing

Mengfei Ren, Jiang Ming, Yu Lei

 INDUSTRIAL EXPERIENCE

Toyota North America (Plano, TX)
05/2021 – 08/2021
Intern – Vehicle Security Testing

- Automated the network traffic analysis and certification examination.
- Automated one-way TLS testing with JWT token for all server points.
- Developed fuzz testing framework to identify misconfiguration of cache control.

Secureworks (Atlanta, GA)
01/2015 – 07/2016
Software Dev Engineer

- Responsible to develop interactive client-facing UI and RESTful services for the Next Generation Portal for customers.
- Mentored internships for front-end development and JUnit testing.

 HORNORS AND REWARDS

UT Arlington CSE Cyneta Networks Outstanding Graduate GTA
2022
USENIX Security Symposium Diversity Grant
2022
IEEE Symposium on Security and Privacy Student Travel Grant
2019

 TEACHING AND MENTORING EXPERIENCES

UAH CPE 645 Computer Network Security

Fall 2023

UTA CSE 4380/5380 Information Security I

2019 – 2023

UTA CSE 5325 Software Engineering II

Summer 2022

UTA CSE 5349/6349 Special Topics in Networking

Fall 2020

UTA CSE 4321/5321 Software Testing

Fall 2018, Summer 2019, Summer 2020

 PROFESSIONAL SERVICES

External Reviewers:

USENIX Security Symposium (USENIX Sec) 2021(fall, winter), 2022(summer, fall), 2023(summer)

 - Received **Good Review** in 2021 Winter round

IEEE/ACM International Conference on Automated Software Engineering (ASE) 2020

ACM Conference on Computer and Communications Security (CCS) 2019, 2020

International Conference on Information and Communications Security (ICICS) 2019, 2020, 2021

Transactions on Dependable and Secure Computing (TDSC) 2020

Transactions on Software Engineering (TSE) 2022