

Ruizhe Wang

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EDUCATION

University of Wisconsin-Madison

B.S. in Computer Sciences (honor) and Mathematics; GPA: 4.0/4.0

Sep. 2019 - Dec. 2021

- Advisor: Earlence Fernandes

Beijing Institute of Technology

B.Eng. in The Internet of Things Engineering (honor); GPA: 91.5/100 (1/31)

Sep. 2017 - Jun. 2019

RELEVANT EXPERIENCES

Research Assistant, UW-Madison Security and Privacy (Mad S&P)

Nov. 2019 – Present

- Conduct research about the Cyber-Physical System (CPS) Security.

Software Development Engineer Intern, Last Mile, Amazon LLC.

May. 2020 – Aug. 2020

- Co-Implemented a serverless application to increase Amazon package delivery efficiency by automatically providing rescue plans for delayed packages using Typescript and Java.
- Deployed the application on AWS and created four RESTful APIs using Google Guice and AWS CDK
- Fully tested the service with Mockito and JUnit and created AWS Metrics dashboards and thresholds that can automatically fire alarms.

External Reviewer, IEEE Internet of Things Journal (IoT-J)

2021

PUBLICATIONS

Yunang Chen, Amrita Roy Chowdhury, Ruizhe Wang, Andrei Sabelfeld, Rahul Chatterjee, and Earlence Fernandes. Data privacy in trigger-action iot systems. *IEEE Symposium on Security and Privacy (Oakland)*, 2021.

Yuzhe Ma, Jon Sharp, Ruizhe Wang, Earlence Fernandes, and Xiaojin Zhu. Sequential attacks on kalman filter-based forward collision warning systems. *The Thirty-Fifth AAAI Conference on Artificial Intelligence (AAAI)*, 2020.

SELECTED RESEARCH PROJECTS

Adversarial Attacks on Kalman Filter Based Autopilot System

Apr. 2020 – Mar. 2021

- Co-Proposed a Model Predictive Control algorithm to compute the optimization approach to compromise a Machine-Human Hybrid Forward Collision Warning System by causing the Kalman Filter give false state estimations.
- Evaluated the attack on CARLA driving simulator and designed two dangerous situation that could cause collisions after attack.

Data Privacy in Trigger-Action Platforms

Sep. 2019 – Apr. 2020

- Co-Proposed a protocol in Trigger-Action Platforms (TAPs) using Garbled Circuits that can avoid leaking sensitive information when the trigger or the platform is compromised.
- Evaluated the efficiency of the new protocol on the rules of popular commercial TAPS (IFTTT & Zapier) using Python Flask. Showed that more than 90% of the top-500 frequency rules are supported while the latency and throughput reduced less than 60%.

HONORS & AWARDS

CONTEST AWARDS

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|------|--|-----------------------|
| 2021 | 4th Place (4/90) , ACM ICPC NCNA Regional Contest | <i>Madison, WI</i> |
| 2018 | 3rd Place (3/369) , Freshman Programming Contest at BIT | <i>Beijing, China</i> |
| 2017 | 2nd Prize (10%) , Lssec Techall BIT Programming Contest | <i>Beijing, China</i> |

HONORS

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|-----------|--|-----------------------|
| 2020 | Honorable Mention , Computing Research Association (CRA) Outstanding Undergraduate Researcher Award | <i>Madison, WI</i> |
| 2020 | DeWitt Scholarship (\$8000) , Department of Computer Sciences, UW-Madison | <i>Madison, WI</i> |
| All Sems. | Dean's List , College of L&S, UW-Madison | <i>Madison, WI</i> |
| 2018 | First-Class Academic Excellence Scholarship(10%) , BIT | <i>Beijing, China</i> |

OTHER EXPERIENCES

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| Volunteer Translator, Coursera | <i>Mar. 2020 – Present</i> |
| Volunteer Instructor, Charity Primary School | <i>Mar. 2019 – Mar. 2019</i> |

MISCELLANEOUS

- **Languages:** Python, Java, C/C++, JavaScript/TypeScript, SQL, Matlab, nesC
- **Frameworks/Tools:** Flask, PyTorch, Google Guice, React, Mockito, JUnit, Lombok
- **Relevant Courses:** Operation Systems, Computer Networks, Linear Optimization, Real Analysis, Topology, Information Security, Cryptography, Combinatorics, Numerical Algebra, Algorithms & Computing Theory