Yunang Chen

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RESEARCH INTERESTS

System Security (*cyber-physical systems, web-based applications and services*), Applied Cryptography (*secure multi-party computation, zero-knowledge proof, attribute-based encryption*), Language-based Security, Access Control and Authorization

EDUCATION

2019 – *now*	**University of Wisconsin–Madison**, Madison, WI **Ph.D.** in **Computer Science** Advisors: Rahul Chatterjee, Earlence Fernandes
2017 – 2019	**University of Wisconsin–Madison**, Madison, WI **M.S.** in **Computer Science**
2013 – 2017	**Rensselaer Polytechnic Institute**, Troy, NY **B.S.** in **Computer Science** and **Computer System Engineering** (*summa cum laude*)

PUBLICATIONS

Conference Proceedings

○ **Yunang Chen**, Mohannad Alhanahnah, Andrei Sabelfeld, Rahul Chatterjee, and Earlence Fernandes. "Practical Data Access Minimization in Trigger-Action Platforms". In: *31st USENIX Security Symposium (**USENIX Security**)*. 2022.

○ **Yunang Chen***, Yue Gao*, Nick Ceccio, Rahul Chatterjee, Kassem Fawaz, and Earlence Fernandes. "Experimental Security Analysis of the App Model in Business Collaboration Platforms". In: *31st USENIX Security Symposium (**USENIX Security**)*. 2022.

○ **Yunang Chen**, Amrita Roy Chowdhury, Ruizhe Wang, Andrei Sabelfeld, Rahul Chatterjee, and Earlence Fernandes. "Data Privacy in Trigger-Action Systems". In: *42nd IEEE Symposium on Security and Privacy (**IEEE S&P**)*. 2021.

POSTER PRESENTATIONS

○ **Yunang Chen** and Shivaram Venkataraman. "Fault-Tolerant All-Reduce for Distributed Deep Learning" In: *2019 Midwest Machine Learning Symposium*.

PROFESSIONAL ACTIVITIES

2021 – 2022	**Reviewer**, IEEE Transactions on Dependable and Secure Computing.
2020 – 2022	**External Reviewer**, USENIX Security Symposium.
2022	**External Reviewer**, Privacy Enhancing Technologies Symposium.
2021	**External Reviewer**, IEEE Transactions on Information Forensics and Security.

Research Experience

2020 – *now*   **Security and Privacy Research Group (MadS&P)** @ University of Wisconsin-Madison
Graduate Research Assistant, advised by Rahul Chatterjee and Earlence Fernandes

Projects:

Secure trigger-action platforms. Study the secure and privacy issues in OAuth-based trigger-action platforms (e.g. IFTTT). Apply and tailor cryptographic and language-based techniques to protect the execution of user's automation with confidentiality and integrity guarantees but without compromises in expressivity.

Online collaboration platforms. Analyze the permission model of third-party apps in online team-based collaboration platform (e.g. Slack) in the attacker's perspective — how their OAuth-based permission model can be exploited to bypass access control.

Oblivious smart home systems. Build a privacy-preserving smart home integration system that is oblivious of user's interactions with IoT devices, by splitting the trusts among multiple parties to protect both the data and metadata information.

Smart home traffic analysis. Explore how network traffics generated by smart home devices can leak information about user's activities and especially their home automation rules. Involve a user study to collect data from participants' smart home devices.

2016   **Intelligent Systems Laboratory (ISL)** @ Rensselaer Polytechnic Institute
Undergraduate Research Assistant, advised by Qiang Ji

Projects:

Apply two-pathway convolutional neural network to predict human eye gaze from third-person perspective photos.

Teaching Experience

2021   **Guest Lecturer**

CS 782 – Advanced Computer Security and Privacy

2017 – 2019   **Graduate Teaching Assistant**

CS 537 – Introduction to Operating Systems (*Fall '17, Spring '19*)

CS 540 – Introduction to Artificial Intelligence (*Spring '18, Fall 18', 19'*)

2015   **Undergraduate Teaching Assistant**

ENGR 1400 – Engineering Communications

Awards & Miscellaneous

2022   USENIX Security Student Grant (in-person attendance)

2022   UW–Madison Student Research Grants Competition (SRGC) Award

2022   Slack Bug Bounty ($1500)

Technical Skills

Languages   Python, Java, C++, Go, JavaScript, C, Rust, SQL

Frameworks   Flask, Selenium, Apache Spark, Apache Flink, Ceph, NumPy, PyTorch