

Zane Ma

Assistant Professor
Oregon State University
Computer Science
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POSITIONS

- 2023–PRESENT **Assistant Professor** at *Oregon State University*
- Lead the Applied Security and Trust Research @ OSU (ASTRO) Lab.
 - Lead multi-institution research team for DARPA project on 5G defensive cyber operations.
- 2021–2023 **Research Scientist II** at *Georgia Institute of Technology*
- Advisor: MANOS ANTONAKAKIS
- Co-advised eight Ph.D. students on DNS, malware, IoT, and PKI research projects.
 - Led research team for multi-institution \$8M DARPA project: 5G defensive cyber operations.
 - Developed certificate data and analysis pipeline to enable PKI research.

EDUCATION

- 2015 – 2021 **Doctor of Philosophy** in Computer Science, *University of Illinois at Urbana-Champaign*
- Advisor: Michael D. Bailey
- Committee: Adam Bates Yuile, Gang Wang, Nikita Borisov, Zakir Durumeric
- 2008 – 2012 **Bachelor of Arts** with Honors in Chemistry, *Princeton University*
- Advisor: Erik J. Sorensen

AWARDS AND FELLOWSHIPS

- 2021 Illinois CS Graduate Student Outstanding Service Award
- 2020 Mavis Future Faculty Fellowship
- 2020 Yunni & Maxine Pao Memorial Fellowship
- 2019 Best Paper Award, The Web Conference (WWW)

RESEARCH PUBLICATIONS

13. [IMC '23] [Zane Ma](#), Aaron Faulkenberry, Thomas Papastergiou, Zakir Durumeric, Michael Bailey, Angelos Keromytis, Fabian Monrose, and Manos Antonakakis. “**Stale TLS Certificates: Investigating Precarious Third-Party Access to Valid TLS Keys.**” *ACM Internet Measurement Conference (IMC)*. October 2023. (Acceptance rate: 25.9% = 52 of 201 submissions)
12. [ACSAC '22] Aaron Faulkenberry, Athanasios Avgetidis, [Zane Ma](#), Omar Alrawi, Charles Lever, Panagiotis Kintis, Fabian Monrose, Angelos Keromytis, Manos Antonakakis. “**View from Above: Exploring the Malware Ecosystem from the Upper DNS Hierarchy.**” *Annual Computer Security Applications Conference (ACSAC)*. December 2022. (Acceptance rate: 24.1% = 73 of 303 submissions)
11. [IMC '21] [Zane Ma](#), James Austgen, Joshua Mason, Zakir Durumeric, Michael Bailey. “**Tracing Your Roots: Exploring the TLS Trust Anchor Ecosystem.**” *ACM Internet Measurement Conference (IMC)*. November 2021. (Acceptance rate: 28.1% = 55 / 196 submissions)
10. [USENIX '21] [Zane Ma](#), Joshua Mason, Manos Antonakakis, Zakir Durumeric, Michael Bailey. “**What’s in a Name? Exploring CA Certificate Control.**” *USENIX Security Symposium (Sec)*. August 2021. (Acceptance rate: 18.8% = 248 / 1319 submissions)
9. [WWW '21] Paul Murley, [Zane Ma](#), Joshua Mason, Michael Bailey, Amin Kharraz. “**WebSocket Adoption and the Landscape of the Real-Time Web.**” *The Web Conference (WWW)*. April 2021. (Acceptance rate: 20.6% = 357 / 1736 submissions)

8. [CHI '20] Joshua Reynolds, Deepak Kumar, Zane Ma, Rohan Subramanian, Meishan Wu, Martin Shelton, Joshua Mason, Emily Stark, Michael Bailey. “**Measuring Identity Confusion with Uniform Resource Locators.**” *ACM Conference on Human Factors in Computing Systems (CHI)*. April 2020. (Acceptance rate: 24.3% = 760 / 3126 submissions)
7. [CSET '19] Zane Ma, Joshua Reynolds, Joseph Dickinson, Kaishen Wang, Taylor Judd, Joseph D. Barnes, Joshua Mason, Michael Bailey. “**The Impact of Secure Transport Protocols on Phishing Efficacy.**” *Workshop on Cyber Security Experimentation and Test (CSET)*. August 2019. (Acceptance rate: 31.1% = 19 / 61 submissions)
6. [WWW '19] Amin Kharraz, Zane Ma, Paul Murley, Charles Lever, Joshua Mason, Andrew Miller, Nikita Borisov, Manos Antonakakis, Michael Bailey. “**OUTGUARD: Detecting In-Browser Covert Cryptocurrency Mining in the Wild.**” *The Web Conference (WWW)*. **Best Paper Award.** May 2019. (Acceptance rate: 18.0% = 225 / 1247 submissions)
5. [IMC '18] Seoung Kim, Zane Ma, Siddarth Murali, Josh Mason, Andrew Miller, Michael Bailey. “**Measuring Ethereum’s Peer-to-Peer Network.**” *ACM Internet Measurement Conference (IMC)*. November 2018. (Acceptance rate: 24.7% = 43 / 174 submissions)
4. [USENIX '17] Zane Ma, Manos Antonakakis, Tim April, Michael Bailey, Matt Bernhard, Elie Bursztein, Jaime Cochran, Zakir Durumeric, J. Alex Halderman, Luca Invernizzi, Michalis Kallitsis, Deepak Kumar, Chaz Lever, Joshua Mason, Damian Menscher, Chad Seaman, Nick Sullivan, Kurt Thomas, Yi Zhou. “**Understanding the Mirai Botnet.**” *USENIX Security Symposium (Sec)*. August 2017. (Acceptance rate: 16.3% = 85 / 522 submissions)
3. [NDSS '17] Zakir Durumeric, Zane Ma, Drew Springall, Richard Barnes, Nick Sullivan, Elie Bursztein, Michael Bailey, J. Alex Halderman, Vern Paxson. “**The Security Impact of HTTPS Interception.**” *Network and Distributed Systems Symposium (NDSS)*. February 2017. (Acceptance rate: 16.1% = 68 / 423 submissions)
2. [WWW '17] Deepak Kumar, Zane Ma, Zakir Durumeric, Ariana Mirian, Joshua Mason, Michael Bailey, J. Alex Halderman. “**Security Challenges in an Increasingly Tangled Web.**” *World Wide Web Conference (WWW)*. April 2017. (Acceptance rate: 17.0% = 164 / 966 submissions)
1. [PST '16] Ariana Mirian, Zane Ma, David Adrian, Matthew Tischer, Thasphon Chuenchujit, Tim Yardley, Robin Berthier, Josh Mason, Zakir Durumeric, J. Alex Halderman, Michael Bailey. “**An Internet-Wide View of ICS Devices.**” *IEEE Conference on Privacy, Security, and Trust (PST)*. December 2016. (Accepted.)

INVITED TALKS

Conferences & Forums

- Apr. 2022 **Tracing Your Roots: Exploring the TLS Trust Anchor Ecosystem**
Hot Topics in the Science of Security (HotSoS '22)
- Nov. 2021 **Tracing Your Roots: Exploring the TLS Trust Anchor Ecosystem**
ACM Internet Measurement Conference (IMC '21)
- Oct. 2021 **Exploring CA Certificate Control**
CA/Browser Forum
- Aug. 2021 **What's in a Name? Exploring CA Certificate Control**
USENIX Security Symposium (Sec '21)
- Aug. 2019 **The Impact of Secure Transport Protocols on Phishing Efficacy**
Workshop on Cyber Security Experimentation and Test (CSET '19)
- Feb. 2018 **Mirai and the Future of IoT botnets**
M3AAWG: 42nd General Meeting
- Aug. 2017 **Understanding the Mirai botnet**
USENIX Security Symposium (Sec '17)

Seminars & Guest Lectures

- Jul. 2022 **Reflections on Trusting Identifiers: The Foundations of Social Engineering**
Stanford Security Seminar
- Nov. 2021 **WebPKI and Trust**
Stanford CS249i Guest Lecture
- Sept. 2021 **Understanding the Trust Relationships of the Web PKI**
Georgia Tech Cybersecurity Lecture Series
- Apr. 2020 **Fundamentals of Phishing: A Usability Perspective**
UC San Diego Security Seminar
- Mar. 2020 **Grad school life: Finding the best fit**
Illinois CS Graduate Student Recruitment
- Aug. 2018 **Graduate School: A pioneering journey through the Wild West**
Illinois CS Graduate Student Orientation
- Nov. 2017 **Understanding the Mirai botnet**
University of Chicago Security Seminar

TEACHING

Fall 2023	CS499/579: Empirical Computer Security[†]	INSTRUCTOR
Spring 2021	CS 461: Intro to Comp. Security	TEACHING ASSISTANT
Fall 2020	CS 461: Intro to Comp. Security	TEACHING ASSISTANT*
Spring 2020	CS 461: Intro to Comp. Security - Built new network security project: ARP spoofing, MITM attacks, off-path TCP hijacking.	TEACHING ASSISTANT
Fall 2019	CS 461: Intro to Comp. Security	TEACHING ASSISTANT
Spring 2019	CS 461: Intro to Comp. Security	TEACHING ASSISTANT
Spring 2018	CS 461: Intro to Comp. Security	TEACHING ASSISTANT
Fall 2015	CS 241: System Programming	TEACHING ASSISTANT*

*Outstanding instructor rating (top 10%)

[†] Newly created course

MENTORSHIP

2022 – PRES.	Boladji Vinny Adjibi	PH.D.	Defensive DNS registrations.
2022 – PRES.	Pierros-Christos Skafidas	PH.D.	Security threat log correlation.
2022 – PRES.	Tillson Galloway	PH.D.	Adversarial ML for DNS reputation.
2021 – PRES.	Aaron Faulkenberry	PH.D.	DNS name registration abuse.
2021 – PRES.	Athanasios Avgetidis	PH.D.	Malware DNS lifecycle dynamics.
2021 – PRES.	Kevin Sam Tharayil	PH.D.	DNS flow-stitching.
2021 – PRES.	Kevin Valakuzhy	PH.D.	Automated malware analysis.
2021 – PRES.	Thomas Papastergiou	PH.D.	TLS certificate ownership.
2021 – 2022	Anthony Boueid	MASTERS	Web tracking via DNS/SMTP/HTTP.
2020 – 2021	James Austgen	UNDERGRAD	Mapping IoT root certificate stores from firmware.
2019 – 2020	Zhengdai Hu	UNDERGRAD	Working on CA audit/policy analysis.
2018 – 2019	Kaishen Wang	MASTERS	Thesis: Web scanning domain blacklists.
2017 – 2018	Siddarth Murali	MASTERS	Thesis: Ethereum neighbor inference.
2017 – 2018	Simon Kim	MASTERS	Thesis: Ethereum P2P network measurement.
2017 – 2018	Joseph Dickinson	UNDERGRAD	Thesis: Tracking browser security indicators.
2016 – 2017	Alex Mitsdarfer	MASTERS	Thesis: Institutional Active Directory usage.

SERVICE

Professional

2024	IEEE Symposium on Security and Privacy (S&P)	<i>Program Committee</i>
2023	Workshop on IoT Security and Cyber Threat Intelligence (IoT SCTI)	<i>Program Committee</i>
2023	Workshop on Cryptography Applied to Transparency Systems (CATS)	<i>Program Committee</i>
2023	NSF Secure and Trustworthy Computing (SaTC)	<i>Panel Reviewer</i>
2023	IEEE Symposium on Security and Privacy (S&P)	<i>Program Committee</i>
2022	ACM Conference on Computer and Communications Security (CCS)	<i>Program Committee</i>
2018	ACM Internet Measurement Conference (IMC)	<i>Student PC</i>

Institutional

2023 – PRESENT	Graduate Admissions Committee	<i>General Member</i>
2019 – 2021	Engineering Graduate Student Advisory Committee	<i>General Member</i>
2019 – 2021	Engineering Graduate Student Advisory Committee	<i>General Member</i>
2018 – 2021	CS Graduate Student Organization	<i>General Member</i>
2016 – 2021	CS Graduate Ambassador	
2019 – 2020	CS Committee on Broadening Participation in Computing	<i>Student Member</i>
2017 – 2019	Senate Committee on IT	<i>Student Member</i>
2017 – 2018	CS Graduate Student Organization	<i>Social Chair</i>
2016 – 2018	Students Advising Graduate Education	<i>General Member</i>

REFERENCES

Michael Bailey

Professor and Founding Chair of School of Cybersecurity and Privacy (SCP)

Georgia Institute of Technology

mbailey@gatech.edu

Manos Antonakakis

Associate Professor and Dean's Professorship in Electrical and Computer Engineering

Georgia Institute of Technology

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Zakir Durumeric

Assistant Professor of Computer Science

Stanford University

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Angelos Keromytis

John H. Weitnauer Endowed Chair Professor of Electrical and Computer Engineering

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Fabian Monroe

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Georgia Institute of Technology

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