Zane Ma

Postdoctoral Researcher
Georgia Institute of Technology
School of Electrical and Computer Engineering
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Klaus Advanced Computing Building
266 Ferst Drive Atlanta, GA 30313
zanema@gatech.edu
zanema.com

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 Appointments

2021–2022   **Postdoctoral Researcher** at *Georgia Institute of Technology*
Advisor: Manos Antonakakis
- Co-advised ten Ph.D. students on DNS, malware, IoT, and PKI research projects.
- Led research team for multi-institution $8M DARPA project: 5G defensive cyber operations.
- Handled DARPA reporting (monthly reports, quarterly PI meetings, performer coordination).
- Developed certificate data and analysis pipeline to enable PKI research.

2015–2021   **Graduate Researcher** at *University of Illinois at Urbana-Champaign*
Advisor: Michael D. Bailey
- Ph.D. thesis: "Understanding the Trust Relationships of the Web PKI"
- Authored 11 publications (4 first author, 6 second author) on wide range of security topics: web PKI, IoT botnets, URL usability, cryptocurrency, WebSockets, TLS interception, ICS.
- Advised 5 master student theses and 2 undergraduate students.

Research Publications

11. [**IMC '21**] <u>Zane Ma</u>, 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**] <u>Zane Ma</u>, 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, <u>Zane Ma</u>, 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, <u>Zane Ma</u>, 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**] <u>Zane Ma</u>, 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, <u>Zane Ma</u>, 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, <u>Zane Ma</u>, 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**] <u>Zane Ma</u>, 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 '17)*. August 2017.

    (Acceptance rate: 16.3% = 85 / 522 submissions)

3. [**NDSS '17**] Zakir Durumeric, <u>Zane Ma</u>, 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, <u>Zane Ma</u>, 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, <u>Zane Ma</u>, 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

Aug. 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

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** TEACHING ASSISTANT	
	- Built new network security project: ARP spoofing, MITM attacks, off-path TCP hijacking.	
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%)

MENTORSHIP

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 APT malware analysis.
2021 – PRES.	**Kleanthis Karakolios**	PH.D.	Adversarial ML for DNS reputation.
2021 – PRES.	**Thomas Papastergiou**	PH.D.	TLS certificate ownership.
2022 – PRES.	**Tillson Galloway**	PH.D.	Adversarial ML for DNS reputation.
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

2023	**IEEE Symposium on Security and Privacy (S&P)**	*Program Committee*
2022	**ACM Conference on Computer and Communications Security (CCS)**	*Program Committee*
2018	**ACM Internet Measurement Conference (IMC)**	*Student PC*

Institutional

2019 – 2021	**Engingeering Graduate Student Advisory Committee**	*General Member*
2018 – 2021	**CS Graduate Student Organization**	*General Member*
2016 – 2021	**CS Graduate Ambassador**	
2019 – 2020	**CS Committee on Broadening Participation in Computing**	*Student Member*
2017 – 2019	**Senate Committee on IT**	*Student Member*
2017 – 2018	**CS Graduate Student Organization**	*Social Chair*
2016 – 2018	**Students Advising Graduate Education**	*General Member*