

Zane Ma

Research Scientist
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

RESEARCH APPOINTMENTS

- 2021–PRESENT **Research Scientist II** at *Georgia Institute of Technology*
Advisor: MANOS ANTONAKAKIS
- Co-advise six Ph.D. students on DNS, malware, IoT, and PKI research projects.
 - Lead research team for multi-institution \$8M DARPA project: 5G defensive cyber operations.
 - Handle DARPA reporting (monthly reports, quarterly PI meetings, performer coordination).
 - Develop 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.

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

12. [ACSAC '22] Aaron Faulkenberry, Athanasios Avgetidis, Zane Ma, Omar Alrawi, Charles Lever, Panagiotis Kintis, Fabian Monroe, Angelos Keromytis, Manos Antonakakis. “**View from Above: Exploring the Malware Ecosystem from the Upper DNS Hierarchy.**” *Annual Computer Security Applications Conference*. 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 '17)*. 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

- 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

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 APT 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

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

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

manos@gatech.edu

Zakir Durumeric

Assistant Professor of Computer Science

Stanford University

zakir@cs.stanford.edu

Angelos Keromytis

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

Georgia Institute of Technology

angelos@gatech.edu

Fabian Monroe

Julian T. Hightower Chair Professor of Electrical and Computer Engineering

Georgia Institute of Technology

fabian@ece.gatech.edu