

# Zane Ma

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University of Illinois at Urbana-Champaign  
Department of Computer Science  
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## EDUCATION

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2015 – PRESENT **Doctor of Philosophy**  
COMPUTER SCIENCE *University of Illinois at Urbana-Champaign*  
Advisor: Michael D. Bailey

2008 – 2012 **Bachelor of Arts**  
CHEMISTRY W/ HONORS *Princeton University*  
Advisor: Erik J. Sorensen

## RESEARCH SUMMARY

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My research applies an empirical lens to understand and improve the security, performance, and availability of networked systems. My current research falls into two categories: 1) improving the transparency and usability of web server identity/authentication, and 2) studying trustworthiness as a property of networked communications, building upon the properties of confidentiality, integrity, and authenticity.

## FELLOWSHIPS AND AWARDS

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2020 – 2021 Mavis Future Faculty Fellowship  
2020 – 2021 Yunni & Maxine Pao Memorial Fellowship  
2019 Best Paper Award, World Wide Web Conference (WWW)

## PUBLICATIONS

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### What's in a Name? Exploring CA Certificate Control

Zane Ma, Joshua Mason, Manos Antonakakis, Zakir Durumeric, Michael Bailey. *USENIX Security Symposium (Sec '21)*. August 2021.

*Accepted*

### WebSocket Adoption and the Landscape of the Real-Time Web

Paul Murley, Zane Ma, Joshua Mason, Michael Bailey, Amin Kharraz. *World Wide Web Conference (WWW '21)*. April 2021.

*Accepted: 357 / 1736 submissions (20.6%)*

### Measuring Identity Confusion with Uniform Resource Locators

Joshua Reynolds, Deepak Kumar, Zane Ma, Rohan Subramanian, Meishan Wu, Martin Shelton, Joshua Mason, Emily Stark, Michael Bailey. *ACM Conference on Human Factors in Computing Systems (CHI '20)*. April 2020.

*Accepted: 760 / 3126 submissions (24.3%)*

### The Impact of Secure Transport Protocols on Phishing Efficacy

Zane Ma, Joshua Reynolds, Joseph Dickinson, Kaishen Wang, Taylor Judd, Joseph D. Barnes, Joshua Mason, Michael Bailey. *Workshop on Cyber Security Experimentation and Test (CSET '19)*. August 2019.

*Accepted: 19 / 61 submissions (31.1%)*

### OUTGUARD: Detecting In-Browser Covert Cryptocurrency Mining in the Wild

#### Best Paper Award

Amin Kharraz, Zane Ma, Paul Murley, Charles Lever, Joshua Mason, Andrew Miller, Nikita Borisov, Manos Antonakakis, Michael Bailey. *World Wide Web Conference (WWW '19)*. May 2019.

*Accepted: 225 / 1247 submissions (18.0%)*

### Measuring Ethereum's Peer-to-Peer Network

Seoung Kim, Zane Ma, Siddarth Murali, Josh Mason, Andrew Miller, Michael Bailey. *ACM Internet Measurement*

Conference (IMC '18). November 2018.

Accepted: 43 / 174 submissions (24.7%)

### Understanding the Mirai Botnet

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. *USENIX Security Symposium (Sec '17)*. August 2017.

Accepted: 85 / 522 submissions (16.3%)

### The Security Impact of HTTPS Interception

Zakir Durumeric, Zane Ma, Drew Springall, Richard Barnes, Nick Sullivan, Elie Bursztein, Michael Bailey, J. Alex Halderman, Vern Paxson. *Network and Distributed Systems Symposium (NDSS '17)*. February 2017.

Accepted: 68 / 423 submissions (16.1%)

### Security Challenges in an Increasingly Tangled Web

Deepak Kumar, Zane Ma, Zakir Durumeric, Ariana Mirian, Joshua Mason, Michael Bailey, J. Alex Halderman. *World Wide Web Conference (WWW '17)*. April 2017.

Accepted: 164 / 966 submissions (17.0%)

### An Internet-Wide View of ICS Devices

Ariana Mirian, Zane Ma, David Adrian, Matthew Tischer, Thasphon Chuenchujit, Tim Yardley, Robin Berthier, Josh Mason, Zakir Durumeric, J. Alex Halderman, Michael Bailey. *IEEE Conference on Privacy, Security, and Trust (PST '16)*. December 2016.

Accepted

## TEACHING

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Fall 2020	<b>CS 461: Intro to Comp. Security</b>	TEACHING ASSISTANT*
Spring 2020	<b>CS 461: Intro to Comp. Security</b>	TEACHING ASSISTANT
Fall 2019	<b>CS 461: Intro to Comp. Security</b>	TEACHING ASSISTANT
Spring 2019	<b>CS 461: Intro to Comp. Security</b>	TEACHING ASSISTANT
Spring 2018	<b>CS 461: Intro to Comp. Security</b>	TEACHING ASSISTANT
Fall 2015	<b>CS 241: System Programming</b>	TEACHING ASSISTANT*

\*Outstanding instructor rating (top 10%)

## MENTORSHIP

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2020 – PRESENT	<b>James Austgen</b>	UNDERGRAD	Mapping IoT root certificate stores from firmware.
2019 – 2020	<b>Zhengdai Hu</b>	UNDERGRAD	Working on CA audit/policy analysis.
2018 – 2019	<b>Kaishen Wang</b>	MASTERS	Thesis: Malicious web content from domain blacklists.
2017 – 2018	<b>Siddarth Murali</b>	MASTERS	Thesis: Ethereum neighbor inference.
2017 – 2018	<b>Simon Kim</b>	MASTERS	Thesis: Ethereum P2P network measurement.
2017 – 2018	<b>Joseph Dickinson</b>	UNDERGRAD	Thesis: Tracking changes in browser security indicators.
2016 – 2017	<b>Alex Mitsdarfer</b>	MASTERS	Thesis: Institutional Active Directory usage.

## SERVICE

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### Institutional

- 2019 – PRESENT    **Engineering Graduate Student Advisory Committee**  
*General Member*
- 2018 – PRESENT    **CS Graduate Student Organization**  
*General Member*
- 2016 – PRESENT    **CS Graduate Ambassador**  
2019 – 2020    **Computer Science Committee on Broadening Participation in Computing (BPC)**  
*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*

### Professional

- 2018    **IMC Student TPC**  
*Student member*

## TALKS

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### Conferences

- 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

- 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. 2018/2019    **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*

## RESEARCH INTERNSHIPS

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- Jun 2018 – Jul 2018    **Manos Antonakakis**  
GEORGIA TECH
- Jun 2016 – Aug 2016    **Vern Paxson**  
ICSI, UC BERKELEY