

# Eric Pauley

PH.D. STUDENT · NSF GRADUATE RESEARCH FELLOW · COMPUTER SCIENCES

1210 W. Dayton Street, Madison, WI 53706-1613, USA

✉ epauley@cs.wisc.edu 🏠 pauley.me 🎓 Eric Pauley

## Research Experience

---

### MadS&P - Security and Privacy Research Group at UW-Madison

Madison, WI, USA

RESEARCH ASSISTANT

2022 - Present

- Developing novel Internet measurement approaches through public cloud services

### Systems and Internet Infrastructure Laboratory

University Park, PA, USA

RESEARCH ASSISTANT

2018 - 2022

- Built novel Internet telescope to measure prevalence of latent configuration vulnerabilities on public clouds
- Developed advances in static binary instrumentation for fuzz testing
- Collaboration on research projects in Adversarial Machine Learning, Internet of Things, Trusted Execution Environments

## Education

---

### University of Wisconsin-Madison

Madison, WI, USA

PH.D. IN COMPUTER SCIENCES

2022 - Present

- Researching novel Internet measurement techniques through public clouds
- Advisor: Prof. Patrick McDaniel
- Transfer from Penn State starting Fall 2022

### The Pennsylvania State University

University Park, PA, USA

PH.D. IN COMPUTER SCIENCE AND ENGINEERING

2020 - 2022 (transferred)

- Advisor: Prof. Patrick McDaniel
- Transfer to UW-Madison starting Fall 2022

### The Pennsylvania State University

University Park, PA, USA

M.S. IN COMPUTER SCIENCE AND ENGINEERING

2018 - 2020

- Thesis: *Static Instrumentation for Performant Binary Fuzzing*
- Advisor: Prof. Patrick McDaniel
- Thesis committee: Prof. Patrick McDaniel, Prof. Danfeng Zhang, Prof. Chitaranjan Das

### The Pennsylvania State University

University Park, PA, USA

B.S. IN COMPUTER SCIENCE; B.S. IN ELECTRICAL ENGINEERING

2015 - 2019

- Schreyer Honors Scholar

## Industry Experience

---

### Sendtric, LLC

CO-FOUNDER AND CTO

2015 - 2022

- Co-founded email marketing technology company providing dynamic email elements
- Developed scalable architecture for global distribution of dynamic email content
- Performed sales consultations with clients ranging from small businesses to Fortune 50 companies
- Managed business finances, compliance, and customer success
- Developed business relations and integrations with major email marketing companies
- Successfully negotiated sale of business and effective transition of operations

### Microsoft Corporation

Redmond, WA

SOFTWARE ENGINEERING INTERN

2018

- Developed front-end and back-end considerations for features in a component of the Windows operating system
- Designed tooling for monitoring the power consumption performance of a mobile application linked with Windows

### IBM

Austin, TX

SYSTEMS AUTOMATION INTERNSHIP

2017

- Created a custom private cloud for automated testing on IBM Power machines
- Architected platform including scaling and security.
- Presented platform to stakeholders within organization and developed plans for global scaling

- Developed modular and testable backend used by enterprise customers
- Practiced efficient use of version control and agile development.

## Honors & Awards

---

2019-2024 **National Science Foundation Graduate Research Fellowship**, Awardee

## Publications

---

### CONFERENCE PROCEEDINGS

- Ryan Sheatsley, Blaine Hoak, **Eric Pauley**, and Patrick McDaniel. “The Space of Adversarial Strategies”. In: *32nd USENIX Security Symposium (USENIX Security 23)*. USENIX Association, Aug. 2023.
- Yohan Beugin, Quinn Burke, Blaine Hoak, Ryan Sheatsley, **Eric Pauley**, Gang Tan, Syed Rafiul Hussain, and Patrick McDaniel. “Building a Privacy-Preserving Smart Camera System”. In: *Proceedings on Privacy Enhancing Technologies Symposium (PETS)*. July 2022.
- **Eric Pauley**, Ryan Sheatsley, Blaine Hoak, Quinn Burke, Yohan Beugin, and Patrick McDaniel. “Measuring and Mitigating the Risk of IP Reuse on Public Clouds”. English. In: *2022 IEEE Symposium on Security and Privacy (SP)*. IEEE Computer Society, Apr. 2022.
- **Eric Pauley**, Gang Tan, Danfeng Zhang, and Patrick McDaniel. “Performant Binary Fuzzing without Source Code using Static Instrumentation”. In: *2022 IEEE Conference on Communications and Network Security (CNS)*. IEEE, Oct. 2022.
- Ryan Sheatsley, Blaine Hoak, **Eric Pauley**, Yohan Beugin, Michael J. Weisman, and Patrick McDaniel. “On the Robustness of Domain Constraints”. In: *Proceedings of the 2021 ACM SIGSAC Conference on Computer and Communications Security. CCS ’21*. Association for Computing Machinery, Nov. 2021. ISBN: 978-1-4503-8454-4. DOI: [10.1145/3460120.3484570](https://doi.org/10.1145/3460120.3484570).

### PREPRINTS

- Yohan Beugin, Quinn Burke, Blaine Hoak, Ryan Sheatsley, **Eric Pauley**, Gang Tan, Syed Rafiul Hussain, and Patrick McDaniel. *Privacy-Preserving Protocols for Smart Cameras and Other IoT Devices*. 2022. arXiv: [2208.09776](https://arxiv.org/abs/2208.09776) [cs.CR].

### JOURNALS

- Z. Berkay Celik, Earlence Fernandes, **Eric Pauley**, Gang Tan, and Patrick McDaniel. “Program Analysis of Commodity IoT Applications for Security and Privacy: Challenges and Opportunities”. In: *ACM Comput. Surv.* 52.4 (Aug. 2019). ISSN: 0360-0300. DOI: [10.1145/3333501](https://doi.org/10.1145/3333501). URL: <https://doi.org/10.1145/3333501>.

### THESIS

- **Eric Pauley**. “Static Instrumentation for Performant Binary Fuzzing”. PhD thesis. Pennsylvania State University, Mar. 2020. URL: <https://etda.libraries.psu.edu/catalog/17753eap5377>.

## Professional Activities

---

### TEACHING EXPERIENCE

- |           |   |                   |
|-----------|---|-------------------|
| Fall 2021 | <b>CMPSC 297 - Introduction to C Programming</b> , Guest Lecturer           | <i>Penn State</i> |
| Fall 2021 | <b>CMPSC 311 - Introduction to Systems Programming</b> , Guest Lecturer     | <i>Penn State</i> |
| Fall 2021 | <b>CSE 597 - Emerging Trends in Computer Security</b> , Teaching Assistant  | <i>Penn State</i> |
| Sum 2019  | <b>CMPSC 311 - Introduction to Systems Programming</b> , Teaching Assistant | <i>Penn State</i> |
| Fall 2018 | <b>CMPSC 443 - Introduction to Computer Security</b> , Teaching Assistant   | <i>Penn State</i> |

### REVIEWER (CONFERENCES)

- 2022 **IEEE Symposium on Security and Privacy**, External Reviewer
- 2021 **International Conference on Mobile Computing and Networking (MobiCom)**, External Reviewer
- 2019-22 **ACM Conference on Computer and Communications Security**, External Reviewer
- 2018-23 **USENIX Security Symposium**, External Reviewer

### REVIEWER (JOURNALS)

- 2020 **ACM Computing Surveys**, Invited Reviewer