

Eric Pauley

ASSISTANT PROFESSOR · DEPARTMENT OF COMPUTER SCIENCE · VIRGINIA TECH

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Education

University of Wisconsin-Madison

Madison, WI, USA

PH.D. IN COMPUTER SCIENCES

2025

- Dissertation: *Methods and Applications for Cloud-based Internet Measurement*
- Advisor: Prof. Patrick McDaniel
- Dissertation committee: Prof. Patrick McDaniel, Prof. Paul Barford, Prof. Rahul Chatterjee, Prof. Kassem Fawaz

The Pennsylvania State University

University Park, PA, USA

M.S. IN COMPUTER SCIENCE AND ENGINEERING

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

2019

- Schreyer Honors Scholar, *Summa Cum Laude*

Professional Experience

Virginia Tech

Blacksburg, VA, USA

ASSISTANT PROFESSOR

2025 -

UW-Madison - Security and Privacy Research Group

Madison, WI, USA

RESEARCH ASSISTANT

2022 - 2025

- Designed novel Internet measurement approaches through public cloud services
- Defended against structural risks to public cloud deployments

LEAD GRADUATE STUDENT - MCDANIEL RESEARCH GROUP

2022 - 2024

- Mentored junior students in systems, measurement, and machine learning security

Penn State - Systems and Internet Infrastructure Security 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

Honors & Awards

2025 **Top Program Committee Member**, IEEE Symposium on Security and Privacy

2024 **Outstanding Graduate Student Research Award**, University of Wisconsin-Madison Computer Sciences

2023 **Best paper Runner-Up**, ACM Internet Measurement Conference

2023 **Applied Research Competition Finalist**, CSAW Cybersecurity Games & Conference

2023 **Best paper Award**, EthICS'23 Workshop @NDSS

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

2019 **Tau Beta Pi**, Member

Publications

JOURNALS

- Quinn Burke, Yohan Beugin, Blaine Hoak, Rachel King, **Eric Pauley**, Ryan Sheatsley, Mingli Yu, Ting He, Thomas La Porta, and Patrick McDaniel. “Securing Cloud File Systems with Trusted Execution”. In: *IEEE Transactions on Dependable and Secure Computing (TDSC)* (Sept. 2024). doi: [10.1109/TDSC.2024.3474423](#).
- 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). doi: [10.1145/3333501](#).

CONFERENCE PROCEEDINGS

- Quinn Burke, Ryan Sheatsley, Yohan Beugin, **Eric Pauley**, Owen Hines, Michael Swift, and Patrick McDaniel. “Efficient Storage Integrity in Adversarial Settings”. In: *2025 IEEE Symposium on Security and Privacy (SP)*. May 2025.
- **Eric Pauley**, Kyle Domico, Blaine Hoak, Ryan Sheatsley, Quinn Burke, Yohan Beugin, Engin Kirda, and Patrick McDaniel. “Secure IP Address Allocation at Cloud Scale”. In: *2025 Network and Distributed Systems Security Symposium (NDSS)*. San Diego, CA: Internet Society, Feb. 2025.
- Ryan Guide, **Eric Pauley**, Yohan Beugin, Ryan Sheatsley, and Patrick McDaniel. “Characterizing the Modification Space of Signature IDS Rules”. In: *MILCOM 2023 - 2023 IEEE Military Communications Conference (MILCOM)*. IEEE. Boston, MA, Oct. 2023. URL: <https://arxiv.org/abs/2402.09644>.
- **Eric Pauley**, Paul Barford, and Patrick McDaniel. “DScope: A Cloud-Native Internet Telescope”. In: *Proceedings of the 32nd USENIX Security Symposium (USENIX Security 2023)*. Anaheim, CA: USENIX Association, Aug. 2023.
- **Eric Pauley**, Paul Barford, and Patrick McDaniel. “The CVE Wayback Machine: Measuring Coordinated Disclosure from Exploits Against 2 Years of Zero-Days”. In: *Proceedings of the ACM 2023 Internet Measurement Conference (IMC)*. Montreal, Canada, Oct. 2023.
- 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](#).

WORKSHOPS

- Rachel King, Quinn Burke, Yohan Beugin, Blaine Hoak, Kunyang Li, **Eric Pauley**, Ryan Sheatsley, and Patrick McDaniel. “ParTEETor: A System for Partial Deployments of TEEs within Tor”. In: *Proceedings of the 23rd Workshop on Privacy in the Electronic Society (WPES)*. Salt Lake City, UT, USA: ACM, Oct. 2024.
- **Eric Pauley** and Patrick McDaniel. “Understanding the Ethical Frameworks of Internet Measurement Studies”. In: *The 2nd International Workshop on Ethics in Computer Security (EthICS 2023)*. San Diego, CA, Feb. 2023. doi: [10.14722/ethics.2023.239547](#).

TECH REPORTS

- Alban Héon, Ryan Sheatsley, Quinn Burke, Blaine Hoak, **Eric Pauley**, Yohan Beugin, and Patrick McDaniel. *Systematic Evaluation of Geolocation Privacy Mechanisms*. 2023. arXiv: [2309.06263 \[cs.CR\]](#).
- 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 \[cs.CR\]](#).

THESIS

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

OTHER/GUEST ESSAYS

- **Eric Pauley**. *Mismanaged cloud services put user data at risk*. 2022. URL: <https://theconversation.com/mismanaged-cloud-services-put-user-data-at-risk-180289>.

Engagement & Public Speaking

- *Measuring and Mitigating the Risk of IP Reuse on Public Clouds*. 2022 IEEE Symposium on Security and Privacy (SP). Apr. 2022.
- *Performant Binary Fuzzing without Source Code using Static Instrumentation*. 2022 IEEE Conference on Communications and Network Security (CNS). Oct. 2022.
- *DScope: A Cloud-Native Internet Telescope*. 32nd USENIX Security Symposium (USENIX Security 2023). Aug. 2023.
- *Designing and Leveraging Modern Internet Vantage Points*. University of Illinois Urbana-Champaign. Oct. 2023.
- *Designing and Leveraging Modern Internet Vantage Points*. University of California San Diego. Oct. 2023.
- *DScope: A Cloud-Native Internet Telescope*. North American Network Operator's Group meeting (NANOG89). Oct. 2023.
- *The CVE Wayback Machine: Measuring Coordinated Disclosure from Exploits Against 2 Years of Zero-Days*. 2023 ACM on Internet Measurement Conference. Oct. 2023.
- *Designing and Leveraging Modern Internet Vantage Points*. Northeastern University. Nov. 2023.
- *DScope: A Cloud-Native Internet Telescope*. 2024 Network and Distributed Systems Symposium Poster Session. Mar. 2024.
- *Designing and Leveraging Modern Internet Vantage Points*. University of Florida. Mar. 2024.
- *Graduate Student Research Panel*. 2024 University of Wisconsin, College of Letters & Science Board of Visitors. Apr. 2024.
- *Adaptive Defenses for Internet Services*. UW-Madison Day at Wisconsin State Capitol (Poster). Apr. 2024.
- *Fine Tuning Your Research and Finding an Advisor*. UW-Madison Computer Sciences (Panel). Nov. 2024.

Industry Experience

DScope Security, LLC

CO-FOUNDER

2024 - Present

- Developing data-driven threat feeds to protect cloud-deployed assets

Sendtrix, 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
- 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 INTERN

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

Kapost

Boulder, CO

SOFTWARE DEVELOPMENT INTERN

2016

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

Professional Activities

TEACHING EXPERIENCE

Fall 2023	CMPSC 642 - Introduction to Information Security , Guest Lecturer	<i>UW-Madison</i>
Fall 2021	CMPSC 297 - Introduction to C Programming , Guest Lecturer	<i>Penn State</i>
Fall 2021	CMPSC 311 - Introduction to Systems Programming , Guest Lecturer	<i>Penn State</i>
Fall 2021	CSE 597 - Emerging Trends in Computer Security , Teaching Assistant	<i>Penn State</i>
Sum 2019	CMPSC 311 - Introduction to Systems Programming , Teaching Assistant	<i>Penn State</i>
Fall 2018	CMPSC 443 - Introduction to Computer Security , Teaching Assistant	<i>Penn State</i>
2016-2017	EE 210 - Circuits and Devices , Lab/Learning Assistant	<i>Penn State</i>

REVIEWER (CONFERENCES)

2024-26	IEEE Symposium on Security and Privacy , Technical Program Committee
2025	ACM Web Conference , Reviewer
2024	ACM Internet Measurement Conference , Technical Program Committee
2022-23	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)

2023-24	IEEE Transactions on Information Forensics & Security , Invited Reviewer
2020	ACM Computing Surveys , Invited Reviewer

REVIEWER (OTHER)

2025	IEEE IEEE Communications Magazine , Invited Reviewer
2023-24	USENIX Security Symposium , Artifact Evaluator
2024-25	Symposium on Usable Privacy and Security , Poster Jury

OTHER SERVICE

2024	Computer Sciences Department , Incoming Ph.D. Student Mentor	<i>UW-Madison</i>
2023-24	Madison Security & Privacy Seminar , Co-Organizer	<i>UW-Madison</i>
2025	ACM Internet Measurement Conference , Web Chair	