

Quinn Burke

PhD Student · Computer Sciences · UW-Madison

1210 W. Dayton St., Madison, WI 53706, USA

✉ qkb@cs.wisc.edu

🏠 <https://www.quinnburke.net>

Professional Experience

Security and Privacy Research Group

RESEARCH ASSISTANT

Madison, WI, USA

08/2022—Present

Systems and Internet Infrastructure Security Laboratory

RESEARCH ASSISTANT

University Park, PA, USA

01/2018—08/2022

Capital One Financial Corporation

SOFTWARE ENGINEERING INTERN

McLean, VA, USA

05/2018—08/2018

Penn State Applied Research Laboratory

SOFTWARE ENGINEERING INTERN

University Park, PA, USA

12/2016—01/2018

JPMorgan Chase & Co.

SOFTWARE ENGINEERING INTERN

Newark, DE, USA

05/2017—08/2017

Xerox Corporation

SOFTWARE ENGINEERING INTERN

Rochester, NY, USA

05/2016—08/2016

Education

University of Wisconsin-Madison

PHD, COMPUTER SCIENCES

Advisor: Prof. Patrick McDaniel

Madison, WI, USA

2022—Present

The Pennsylvania State University

PHD, COMPUTER SCIENCE AND ENGINEERING

Advisor: Prof. Patrick McDaniel

University Park, PA, USA

2020—2022 (transferred)

The Pennsylvania State University

MS, COMPUTER SCIENCE AND ENGINEERING

Advisor: Prof. Patrick McDaniel

University Park, PA, USA

2018—2020

The Pennsylvania State University

BS, COMPUTER SCIENCE

University Park, PA, USA

2014—2018

Publications

Conference Proceedings

1. Mingli Yu, **Quinn Burke**, Thomas La Porta, and Patrick McDaniel. “mMLSnet: Multilevel Security Network With Mobility”. In: *MILCOM 2023-2023 IEEE Military Communications Conference (MILCOM)*. Oct. 2023.
2. 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.
3. Tian Xie, Sanchal Thakkar, Ting He, Patrick Drew McDaniel, and **Quinn Burke**. “Joint Caching and Routing in Cache Networks with Arbitrary Topology”. In: *Proceedings of the International Conference on Distributed Computing Systems (ICDCS)*. July 2022.
4. 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 (S&P)*. IEEE Computer Society, May 2022.
5. Kyle Domico, Ryan Sheatsley, Yohan Beugin, **Quinn Burke**, and Patrick McDaniel. “A Machine Learning and Computer Vision Approach to Geomagnetic Storm Forecasting”. In: *Machine Learning in Heliophysics (ML-Helio)*. Mar. 2022.

6. **Quinn Burke**, Patrick McDaniel, Thomas La Porta, Mingli Yu, and Ting He. “Misreporting Attacks in Software-Defined Networking”. In: *International Conference on Security and Privacy in Communication Networks (SecureComm)*. Cham: Springer International Publishing, Oct. 2020, pp. 276–296. ISBN: 978-3-030-63086-7.
7. Mingli Yu, Ting He, Patrick McDaniel, and **Quinn Burke**. “Flow Table Security in SDN: Adversarial Reconnaissance and Intelligent Attacks”. In: *IEEE INFOCOM 2020 - IEEE Conference on Computer Communications*. ISSN: 2641-9874. July 2020, pp. 1519–1528. DOI: [10.1109/INFOCOM41043.2020.9155538](https://doi.org/10.1109/INFOCOM41043.2020.9155538).

Journal Articles

1. Tian Xie, Sanchal Thakkar, Ting He, Patrick McDaniel, and **Quinn Burke**. “Joint caching and routing in cache networks with arbitrary topology”. In: *IEEE Transactions on Parallel and Distributed Systems* (2023).
2. **Quinn Burke**, Fidan Mehmeti, Rahul George, Kyle Ostrowski, Trent Jaeger, Thomas La Porta, and Patrick McDaniel. “Enforcing Multilevel Security Policies in Unstable Networks”. In: *IEEE Transactions on Network and Service Management* (2022).
3. **Quinn Burke**, Patrick McDaniel, Thomas La Porta, Mingli Yu, and Ting He. “Misreporting Attacks Against Load Balancers in Software-Defined Networking”. In: *Mobile Networks and Applications, Springer* (Dec. 2021).
4. Mingli Yu, Tian Xie, Ting He, Patrick McDaniel, and **Quinn Burke**. “Flow Table Security in SDN: Adversarial Reconnaissance and Intelligent Attacks”. In: *IEEE/ACM Transactions on Networking* (Aug. 2021). Conference Name: IEEE/ACM Transactions on Networking, pp. 1–14. ISSN: 1558-2566. DOI: [10.1109/TNET.2021.3099717](https://doi.org/10.1109/TNET.2021.3099717).
5. Stefan Achleitner, **Quinn Burke**, Patrick McDaniel, Trent Jaeger, Thomas La Porta, and Srikanth Krishnamurthy. “MLSNet: A Policy Complying Multilevel Security Framework for Software Defined Networking”. In: *IEEE Transactions on Network and Service Management* 18.1 (Mar. 2021). Conference Name: IEEE Transactions on Network and Service Management, pp. 729–744. ISSN: 1932-4537. DOI: [10.1109/TNSM.2020.3045998](https://doi.org/10.1109/TNSM.2020.3045998).

Technical Reports

1. **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 using Shielded Execution*. (in submission). 2023. URL: <https://arxiv.org/abs/2305.18639>.
2. Eric Pauley, Kyle Domico, Blaine Hoak, Ryan Sheatsley, **Quinn Burke**, Yohan Beugin, and Patrick McDaniel. *EIPSIM: Modeling Secure IP Address Allocation at Cloud Scale*. (in submission). 2023. URL: <https://arxiv.org/abs/2210.14999>.
3. 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*. (in submission). 2023. URL: <https://arxiv.org/abs/2208.09776>.
4. **Quinn Burke**. *Misreporting Attacks Against Load Balancers in Software-Defined Networking*. Master’s Thesis. The Pennsylvania State University, May 2020. URL: https://etda.libraries.psu.edu/files/final_submissions/21551.

Professional Activities

Reviewer (Conferences)

IEEE Symposium on Security and Privacy	2022 (External Rev.), 2023, 2024 (PC Member)
USENIX Security Symposium	2019, 2020, 2021, 2022 (External Rev.)
ACM Conference on Computer and Communications Security (CCS)	2019, 2020, 2021 (External Rev.)
IEEE Computer Security Foundations Symposium (CSF)	2021 (External Rev.)
Annual International Conference on Mobile Computing and Networking (MobiCom)	2021 (External Rev.)
ACM SIGCOMM Symposium on SDN Research (SOSR)	2021 (External Rev.)

Reviewer (Journals)

IEEE Transactions on Communications 2019

Invited Talks

DEVCOM Army Research Laboratory, *Misreporting Attacks Against Load Balancers in Software-Defined Networking* 2021

Teaching Experience

CMPSC311—Introduction to Systems Programming, Teaching Assistant	SUM2019
CMPSC311—Introduction to Systems Programming, Teaching Assistant	SP2020
CMPSC311—Introduction to Systems Programming, Teaching Assistant	F2020
CSE597—Emerging Trends in Computer Security, Teaching Assistant	F2021
CMPSC311—Introduction to Systems Programming, Teaching Assistant	F2021
CSE297—Introduction to C Programming, Teaching Assistant	F2021

Honors & Awards

Graduate Student Teaching Assistant Award, The Pennsylvania State University 2020