Kelsey R. Fulton

kfulton@umd.edu
Mobile Phone: 717-208-0037
www.cs.umd.edu/~kfulton/

Education:

University of Maryland **College Park, MD**
Ph.D., Computer Science, GPA: 3.806 2017-2023
Advised by Michelle Mazurek
Selected Coursework: Program Analysis and Understanding, Computer and Network Security, Human Factors in Privacy and Security, Distributed Algorithms and Verification, Interactive Data Analytics, Empirical Methods, Interactive Technologies, and Computational Linguistics 1

University of Maryland **College Park, MD**
M.S., Computer Science, GPA: 3.806 2017-2019
Advised by Michelle Mazurek
Selected Coursework: Program Analysis and Understanding, Computer and Network Security, Human Factors in Privacy and Security, Distributed Algorithms and Verification, Interactive Data Analytics, Empirical Methods, Interactive Technologies, and Computational Linguistics 1

Millersville University of Pennsylvania **Millersville, PA**
B.S. Computer Science and Mathematics, GPA: 3.91 2014-2017
Selected Coursework: Artificial Intelligence, Parallel Programming, Data Mining, Transformational Geometry, Number Theory, Mathematical Statistics 2

Awards and Honors:

USENIX Security Noteworthy Reviewer Award. Aug. 2023.
John Karat Usable Privacy and Security Student Research Award. Aug. 2023
USENIX Security Distinguished Paper Award. Aug 2020
The National Society of Leadership and Success' Presidential Award (Awarded for completion of training and induction into the society). December 2016
Millersville University's Dean List. Dec. 2014- May 2017
Millersville University Student of Academic Distinction (Given for my performance in my numerical analysis course). May 2016

Publications:

Papers:
Vulnerability Discovery for All: Experiences of Marginalization in Vulnerability Discovery
Kelsey R. Fulton, Samantha Katcher, Kevin Song, Marshini Chetty, Michelle L. Mazurek, Chloé Messdaghi, and Daniel Votipka. In the IEEE Symposium on Security and Privacy, 2023. (Acceptance 17.0%)

Understanding the how and they why: Exploring secure development practices through a course competition
Kelsey R. Fulton, Daniel Votipka, Desiree Abrokwa, Michelle L. Mazurek, Michael Hicks, and James Parker. In the ACM Conference on Computer and Communications Security, 2022. (Acceptance 22.5%)

Benefits and Drawbacks of Adopting a Secure Programming Language: Rust as a Case Study
Kelsey R. Fulton, Anna Chan, Daniel Votipka, Michael Hicks, and Michelle L. Mazurek. In the Symposium on Usable Privacy and Security, 2021. (Acceptance 26.5%)

Understanding Mistakes Developers Make: Qualitative Analysis from Build It, Break It, Fix It (Distinguished paper award)
Daniel Votipka, Kelsey R. Fulton, James Parker, Matthew Hou, Michelle L. Mazurek, and Michael Hicks. In USENIX Security, 2020. (Acceptance 16.1%)

The Effect of Entertainment Media on Mental Models of Computer Security
Kelsey R. Fulton, Rebecca Gelles, Alexandra McKay, Richard Roberts, Yasmin Abdi, and Michelle L. Mazurek . In the Symposium on Usable Privacy and Security, 2019. (Acceptance 22.3%)

Workshops:
Studying the Costs and Benefits of Rust, Compared to C. In WSIW 2019: Workshop on Security Information Workers.

Journals:
Build It, Break It, Fix It: Contesting Secure Development
James Parker, Michael Hicks, Andrew Ruef, Michelle L. Mazurek, Dave Levin, Daniel Votipka, Piotr Mardziel, and Kelsey R. Fulton. In ACM Transactions on Privacy and Security (TOPS), Volume 23: Issue 2. May 2020.

Magazine Articles:
Build it, Break it, Fix it Contests: Motivated Developers Still Make Security Mistakes
Daniel Votipka, Kelsey R. Fulton, James Parker, Matthew Hou, Michelle L. Mazurek, and Michael Hicks. In USENIX ;login;. To appear.

Posters:
Understanding the how and the why: Exploring secure development practices through a course competition
Kelsey R. Fulton, Daniel Votipka, Desiree Abrokwa, Michelle L. Mazurek, Michael Hicks, James Parker. In SOUPS 2022: Symposium on Usable Privacy and Security. August 2022.

Understanding Mistakes Developers Make: Qualitative Analysis from Build It, Break It, Fix It
Daniel Votipka, Kelsey R. Fulton, James Parker, Matthew Hou, Michelle L. Mazurek, and Michael Hicks. In SOUPS 2019: Symposium on Usable Privacy and Security. August 2019.

Detecting IoT Malware with Power Measurements
Rebecca Gelles, Kelsey Fulton, Rachel Walter, and Dave Levin. In IMC 2018: Internet Measurement Conference. November 2018.

Presentations:

Conferences:
Vulnerability Discovery for All: Experiences of Marginalization in Vulnerability Discovery
Kelsey R. Fulton, Samantha Katcher, Kevin Song, Marshini Chetty, Michelle L. Mazurek, Chloé Messdaghi, and Daniel Votipka. In the IEEE Symposium on Security and Privacy, 2023.

Understanding the how and they why: Exploring secure development practices through a course competition
Kelsey R. Fulton, Daniel Votipka, Desiree Abrokwa, Michelle L. Mazurek, Michael Hicks, and James Parker. In the ACM Conference on Computer and Communications Security, 2022.
Benefits and Drawbacks of Adopting a Secure Programming Language: Rust as a Case Study
Kelsey R. Fulton, Anna Chan, Daniel Votipka, Michael Hicks, and Michelle L. Mazurek. In the Symposium on Usable Privacy and Security, 2021
The Effect of Entertainment Media on Mental Models of Computer Security
Kelsey R. Fulton, Rebecca Gelles, Alexandra McKay, Richard Roberts, Yasmin Abdi, and Michelle L. Mazurek . In the Symposium on Usable Privacy and Security, 2019.
Unwinding the Runtime Stack: Application Runtime Analysis for Anomaly Detection Research. Pennsylvania State System of Higher Education Undergraduate Research Conference in Science, Technology, Engineering, and Mathematics 2016.

Workshops:
Studying the Costs and Benefits of Rust, Compared to C. WSIW 2019: Workshop on Security Information Workers.

Invited Talks:
Benefits and Drawbacks of Adopting a Secure Programming Language: Rust as a Case Study. HCIL Annual Symposium 2021.
The Effect of Entertainment Media on Mental Models of Computer Security. DC-APS Fall 2019.
Understanding Mistakes Developers Make: Qualitative Analysis from Build It, Break It, Fix It. DC-APS Winter 2019.
The Effect of Entertainment Media of People's Mental Models of Computer Security. UMD HCIL Annual Symposium 2019.
Improving Security Automation with System Calls Sites Monitoring. 2017 NIST SURF Colloquium.
Unwinding the Runtime Stack: Application Runtime Analysis for Anomaly Detection Research. Oct. 2016 Millersville University of Pennsylvania Tech Talk.
Unwinding the Runtime Stack: Application Runtime Analysis for Anomaly Detection Research. 2016 NIST SURF Colloquium.

Teaching and Mentorship:

Instructor:
CMSC 398A - Human Factors in Privacy and Security. Winter 2022. Discussion focused course where students read and discussed academic papers and applied methods from these papers through exercises and homework. Tailored class material so students could understand the real-world implications of usable security work.
CMSC 388N - Build it, Break it, Fix it: Competing to Secure Software. Winter 2020. Hands-on course where students competed to build secure software and find vulnerabilities in other teams' code.

Teaching Assistantship:
CMSC 734 - Human Factors in Privacy and Security. Fall 2021. Graduate-level course examining the interaction between humans and security and privacy. Topics covered the usable security space.

CMSC 412 - Operating Systems. Spring 2018. Examined fundamental principals of operating systems. Topics included processes, threads, scheduling, synchronization, memory management, file system interface and implementation, disk and storage systems, security, and networking
CMSC 216 - Introduction to Computer Systems. Fall 2017. Examined an introduction to how programs run on hardware. Topics broadly included how different programming constructs work a low level.

Undergraduate Students:
Joe Lewis. Spring 2021 - Present. Developed a platform for conducting developer centered user studies and will help analyze data from a study that uses this platform.

Kevin Song. Winter 2021 - Present. Helped conduct, transcribe, and analyze interviews with participants exploring the barriers for underrepresented populations in both entering and staying in vulnerability discovery.

Desiree Abrokwa. Summer 2020 - Spring 2021. Qualitatively analyzed code and data for a winter course aimed at understanding secure software development.

Anna Chan. Spring 2020 - Present. Helped transcribe interviews of participants exploring the adoption of secure programming languages as well as analyze the interview transcripts.

Yasmin Abdi. Fall 2018 - Spring 2019. Helped conduct and transcribe interviews of participants surveying how the entertainment media affect people's mental models of computer security, helped fill out and submit an IRB application, helped conduct in-person programming sessions to understand the cost and benefits of using Rust in place of C.

Hackathons:
Tech+Research. Fall 2020. Mentored a team of undergraduate women through a research project exploring the privacy boundary collapse during the COVID-19 pandemic. Helped them understand and learn how to develop, deploy, analyze, and present a short research project.

Academic Service:

Organizing Committee:
Symposium on Usable Privacy and Security Workshops Junior Co-Chair (2023)
Symposium on Usable Privacy and Security Posters Junior Co-Chair (2022)
Workshop on Security Information Workers (2020 - Present). Organizing chair in 2022.

PC Membership:
USENIX Security Symposium (2024)
IEEE Symposium on Security and Privacy (2024)
The Network and Distributed System Security Symposium (2023)
USENIX Security Symposium (2023)
ACM Conference on Computer and Communications Security (2022)
Workshop on Technology and Consumer Protection (2022)
ACM Conference on Computer and Communications Security (2021)
Workshop on Technology and Consumer Protection (2021)

Poster Jury:
Symposium on Usable Privacy and Security Poster Jury (2019 and 2020)

External Reviews:
CHI (2023)
PoPETS (2022)
CHI (2021)
ACM TOPS (2021)
HFES (2021)
COSE (2020)
CHI Late Breaking Works (2020)

Subreview Service:
NDSS (2019 and 2020)

Department Service Positions:
CS Graduate Student Peer Mentoring Program. 2021 - Present. I co-created a graduate student peer mentoring program for computer science graduate students. The program was created to provide a platform for new graduate students to get mentoring from older students and provide a sense of community within the department. We hosted a variety of workshops and meetups to facilitate inter-department knowledge exchange and mingling.
Graduate Student Executive Council (GradCo). 2021 - Present. Group of graduate students that are meant to encourage communication between graduate students and faculty, encourage communication among graduate students, and organize social events for graduate students.
Department Education Council. 2020 - 2021 and 2021-2022. Represented CS graduate students on an advisor committee on matters related to education in the department. Elected by my peers.

Reading groups:
MC2 Security Reading Group. Spring 2020, Fall 2020, Fall 2021. Directed weekly discussions of recent work in computer security.

Employment:

Colorado School of Mines **August 2023 - Present**
Assistant Professor

University of Maryland **August 2018 - August 2023**
Research Assistant

Federal Trade Commission **May 2020 - August 2020**
Student Researcher

National Institute of Standards and Technology **August 2017 - May 2020**
Pathways Student Researcher

University of Maryland **August 2017 - May 2018**
Teaching Assistant

National Institute of Standards and Technology **May 2017 - August 2017**
SURF Student

Sheetz **June 2015 - May 2018**

Salesperson

National Institute of Standards and Technology **May 2016 - August 2016**
SURF Student

Millersville University's Computer Science Department **August 2015 - May 2016**
Grader