

DANIEL J. VOTIPKA

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Research Interests

Computer Security and Privacy, Secure Development, Security Professionals, Human-Computer Interaction, Mobile Security

Academic Appointments

Tufts University

Assistant Professor, Computer Science

Medford, MA

2021-Present

Education

University of Maryland

Ph.D., Computer Science

Advisor: Michelle L. Mazurek

Committee: Michael Hicks, Jeffrey S. Foster, Michael Reiter, and Katie Shilton

Dissertation: ***A Human-Centric Approach to Software Vulnerability Discovery***

Teaching Training: Future Faculty Fellows

College Park, MD

2016-2020

Carnegie Mellon University

M.S. Information Security, Technology, and Management

Advisor: Nicolas Christin

Thesis: ***A General Collection Methodology for Android Devices***

Pittsburgh, PA

2010-2012

Illinois Institute of Technology

B.S. Computer Science

Chicago, IL

2006-2010

Selected Publications

Conference Proceedings

- C.12 Studying Security Information Workers: Comparing Six Software Developer Samples.
USENIX '22 Harjot Kaur, Sabrina Amft, **Daniel Votipka**, Yasemin Acar, Sascha Fahl. In the USENIX Security Symposium, 2022. *In Submission.*
- C.12 How Developers Can be Deceived: the Challenge of Engineering Privacy in iOS App Groups.
ACSAC '22 Maryam Aldairi, Arjun Brar, Hanan Hibshi, Kuixi Song, **Daniel Votipka**, Marjan Salamati-Pour, Akanksha Bubber. In the Annual Computer Security Applications Conference. *In Submission.*
- C.11 An Investigation of Online Reverse Engineering Community Discussions in the Context of Ghidra.
EuroS&P '21 **Daniel Votipka**, Mary Nicole Punzalan, Seth M. Rabin, Yla Tausczik, Michelle L. Mazurek. In the IEEE European Symposium on Security and Privacy, 2021. [*Acceptance Rate: 32%*]
- C.10 Benefits and Drawbacks of Adopting a Secure Programming Language: Rust as a case study.
SOUPS '21 Kelsey R. Fulton, Anna Chan, **Daniel Votipka**, Michael Hicks, Michelle L. Mazurek. In the Symposium on Usable Privacy and Security, 2021. [*Acceptance Rate: 26.5%*].

- C.9 HackEd: A Pedagogical Analysis of Online Vulnerability Discovery Exercises.
IEEE S&P '21 Daniel Votipka, Eric Zhang, Michelle L. Mazurek. In the IEEE Symposium on Security and Privacy, 2021. [*Acceptance Rate: 12%*]
- C.8 Building and Validating a Scale for Security Software Development Self-Efficacy.
CHI '20 Daniel Votipka, Desiree Abrokwa, Michelle L. Mazurek. In the Conference on Human Factors in Computing Systems, 2020. [*Acceptance Rate: 24%*]
- C.7 An Observational Investigation of Reverse Engineers' Processes and Mental Models.
USENIX Sec '20 Daniel Votipka, Seth M. Rabin, Kristopher Micinski, Jeffrey S. Foster, and Michelle L. Mazurek. In the USENIX Security Symposium, 2020. [*Acceptance Rate: 16%*]
- C.6 Understanding Security Mistakes Developers Make: Qualitative Analysis from Build It, Break It, Fix It.
USENIX Sec '20 Daniel Votipka, Kelsey Fulton, James Parker, Matthew Hou, Michelle L. Mazurek, and Michael Hicks. In the USENIX Security Symposium, 2020. [*Acceptance Rate: 16%*] *Distinguished Paper Award*
- C.5 Does Being Verified Make You More Credible? The Effect of Account Verification on Tweet Credibility.
CHI '19 Tavish Vaidya, Daniel Votipka, Micah Sherr, and Michelle L. Mazurek. In the Conference on Human Factors in Computing Systems, 2019. [*Acceptance Rate: 24%*]
- C.4 User Comfort with Android Background Resource Accesses in Different Contexts.
SOUPS '18 Daniel Votipka, Kristopher Micinski, Seth M. Rabin, Thomas Gilray, Michelle L. Mazurek, and Jeffrey S. Foster. In the Symposium on Usable Privacy and Security, 2018. [*Acceptance Rate: 23%*]
- C.3 Battle for New York: A Case Study Using Center of Gravity Theory for Digital Threat Modeling.
USENIX Sec '18 Rock Stevens, Daniel Votipka, Elissa M. Redmiles, Patrick Sweeney, and Michelle L. Mazurek. In the USENIX Security Symposium, 2018. [*Acceptance Rate: 19%*] *Distinguished Paper Award*
- C.2 Hackers vs. Testers: A Comparison of Software Vulnerability Discovery Processes.
IEEE S&P '18 Daniel Votipka, Rock Stevens, Elissa M. Redmiles, Jeremy Hu, and Michelle L. Mazurek. In the IEEE Symposium on Security and Privacy, 2018. [*Acceptance Rate: 14%*]
- C.1 User Interactions and Permission Use on Android.
CHI '17 Kristopher Micinski, Daniel Votipka, Rock Stevens, Nikolaos Kofinas, Jeffrey S. Foster, and Michelle L. Mazurek. In the Conference on Human Factors in Computing Systems, 2017. [*Acceptance Rate: 25%*]

Workshop Proceedings

- W.4 The Hackers' Viewpoint: Exploring Challenges and Benefits of Bug-Bounty Programs.
WISW '20 Omer Akgul, Taha Eghtesad, Amit Elazari, Omprakash Gnawali, Jens Grossklags, Daniel Votipka, and Aron Laszka. In the Workshop on Security Information Workers, 2020.
- W.3 On the Other Side of the Table: Hosting Capture-the-Flag (CTF) Competitions.
WISW '20 Benjamin Carlisle, Michael Reininger, Dylan Fox, Daniel Votipka, and Michelle L. Mazurek. In the Workshop on Security Information Workers, 2020.
- W.2 Toward a Field Study on the Impact of Hacking Competitions on Secure Development.
WISW '18 Daniel Votipka, Hongyi Hu, Bryan Eastes, and Michelle L. Mazurek. In the Workshop on Security Information Workers, 2018.

- W.1 All Your Droid Are Belong To Us: A Survey of Current Android Attacks. Timothy Vidas, **WOOT Daniel Votipka**, Nicolas Christin. In the USENIX Security Workshop on Offensive '11 Techniques, 2011.

Selected Journals

- J.3 Dagstuhl Seminar 19231: Empirical Evaluation of Secure Development Processes. Adam Shostack, Matthew Smith, **Daniel Votipka**, Sam Weber, and Mary Ellen Zurko, eds. In **Dagstuhl Reports**, 2019.
- J.2 Applied Digital Threat Modeling: It Works! Rock Stevens, **Daniel Votipka**, Elissa M. Redmiles, Colin Ahern, Patrick Sweeney, and Michelle L. Mazurek. In IEEE Security and Privacy, 2019.
- J.1 Passe-Partout: A General Collection Methodology for Android Devices. **Daniel Votipka**, Timothy Vidas, Nicolas Christin. In the IEEE Transactions on Information Forensics and Security (TIFS), 2013.

Book Chapters

- B.1 ISR and Cyberspace. Robert Johnson, **Daniel Votipka**, Danielle Dye, Trevor Stutting, Jamie Blummer, Tiffany Harbour, Laura LeFevre, and Thomas Shew. In **The Cyber Threat and Globalization: The Impact on U.S. National and International Security**, 2018. Edited by Jack A. Jarmon and Pano Yannakogeorgos.

Media Coverage

Security Professionals:

- Covered by **TechBeacon**: 3 application security fundamentals every developer should know (<https://techbeacon.com/security/3-application-security-fundamentals-every-developer-should-know>)
- Covered by **TechBeacon**: How to defend enterprise apps with threat modeling: 4 lessons learned (<https://techbeacon.com/security/how-defend-enterprise-apps-threat-modeling-4-lessons-learned>)

Funding

- Symantec Graduate Research Fellowship Finalist, **Symantec** (2019, 2020)
- Facebook Research Fellowship Finalist, **Facebook** (2019, 2020)
- University of Maryland Summer Research Fellowship, **University of Maryland** (2019)
- University of Maryland Future Faculty Fellowship, **University of Maryland** (2018)
- Google Student Veterans Association Scholarship, **Google** (2018)
- Lockheed Martin Cyber Scholarship, **Lockheed Martin** (2010)

Awards and Honors

- John Karat Usable Privacy and Security Student Research Award, **SOUPS** (2020)
- Maryland Way Award for Research Excellence - Honorable Mention, **UMD HCIL** (2020)
- Distinguished Paper Award, **USENIX Security** (2018,2020)
- Distinguished Poster Award, **SOUPS** (2018)
- Outstanding Graduate Assistant (**Top 2% of 4000**), University of Maryland (2018)
- Defense Meritorious Service Medal, Department of Defense (2016)
- NSA TAO Military Performer of the Year (**1 of 85**), National Security Agency (2015)

- Counterterrorism Analysis Team of the Year, **U.S. Intelligence Community (2015)**
- Maj. Gen Robert E. Sadler USAF Honor Award (**Top CS/ECE/EE AFROTC senior nationwide**), AFCEA (2010)

Presentations

Invited Talks

- Security Professionals are Users Too!: Human-Centered Security Research Beyond the End User. **Tufts University 2020.**
- Security Professionals are Users Too!: Human-Centered Security Research Beyond the End User. **Carnegie Mellon University 2020.**
- Security Professionals are Users Too!: Human-Centered Security Research Beyond the End User. **University of Nebraska 2019.**
- Hackers vs Testers: A Comparison of Vulnerability Discovery Processes. **Swiss Cyber Storm Conference 2019.**
- Understanding security mistakes developers make: Qualitative analysis from Build It, Break It, Fix It. **High Confidence Software and Systems Conference 2019.**

Conferences

- An Investigation of Online Reverse Engineering Community Discussions in the Context of Ghidra. **Euro S&P 2021.**
- HackEd: A Pedagogical Analysis of Online Vulnerability Discovery Exercises. **IEEE S&P 2021.**
- An Observational Investigation of Reverse Engineers' Processes and Mental Models. **USENIX Security 2020.**
- Understanding Security Mistakes Developers Make: Qualitative Analysis from Build It, Break It, Fix It. **USENIX Security 2020.**
- Building and Validating a Scale for Security Software Development Self-Efficacy. **CHI 2020.**
- Does Being Verified Make You More Credible? The Effect of Account Verification on Tweet Credibility. **CHI 2019.**
- User Comfort with Android Background Resource Accesses in Different Contexts. **SOUPS 2018.**
- Hackers vs Testers: A Comparison of Vulnerability Discovery Processes. **IEEE S&P 2018.**

Teaching and Mentorship

Instructor

Tufts University

COMP150-4 - **Human Factors in Security and Privacy.** *Spring 2021.*

University of Maryland

CMSC 388N - **Build It, Break It, Fix It: Competing to Secure Software.** *Winter 2020.*

Georgetown University

COSC 235 - **Introduction to Network Security.** *Fall 2017.*

Research Advising

Doctoral

Ronald Thompson
James Mattei

Spring 2021 - Present
Spring 2021 - Present

Undergraduate

Santana Koring'ura	<i>Summer 2021 - Present</i>
Liana Wang	<i>Spring 2021 - Present</i>
Madeline McLaughlin	<i>Spring 2021 - Present</i>
Grant Versfeld	<i>Spring 2021</i>
Mary Punzalan	<i>Fall 2019 - 2021</i>
Eric Zhang	<i>Summer 2019 - 2021</i>
Desiree Abrokwa	<i>Summer 2018 - 2021</i>
Seth Rabin	<i>Fall 2017 - Spring 2019</i>
Matthew Hou	<i>Spring 2018 - Spring 2019</i>
Jeremy Hu	<i>Spring 2017</i>
Daniel Chen	<i>Summer 2016 - Spring 2017</i>

Employment

Tufts University Assistant Professor	<i>Jan 2021 - Present</i>
University of Maryland Research Assistant	<i>May 2016 - Dec 2020</i>
Georgetown University Adjunct Professor	<i>Aug 2017 - Dec 2017</i>
National Security Agency Mobile Technologies Lead	<i>Sep 2014 – Apr 2016</i>
U.S. Air Force Cyber Operations Officer	<i>May 2012 – May 2016</i>
National Security Agency Senior Watch Officer	<i>Jul 2013- Sep 2014</i>

Academic Service

Conference Organizing

Workshop on Security Information Workers, Organizing Committee (2018-2020)
Symposium on Usable Privacy and Security, Mentoring Co-chair (2020)

PC Membership

Privacy Enhancing Technologies Symposium (2021-2022)
USENIX Security Symposium (2021-2022)
ACM Conference on Computer and Communications Security (2021)
Human Factors and Ergonomics Society (2019-2020)
Workshop on Security Information Workers (2018-2020)
Workshop on Cybersecurity Experimentation and Test (2019)
ACM Conference on Human Factors in Computing Systems (2017-2020) - **Outstanding review** recognition in 2018 and 2021.

Working Groups

Dagstuhl Seminar 19231 - Empirical Evaluation of Secure Development Processes (2019)