

# Steven Sprecher

Ph.D. Candidate  
Computer Science  
Northeastern University

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## RESEARCH OVERVIEW

*My research reflects my passion for security and privacy, especially that of users that may not know any better. My interests include, but are certainly not limited to: network and web security, systems security, security application of machine learning, network measurement, censorship measurement and circumvention, and data security.*

## EDUCATION

**Northeastern University**, Boston, MA  
Ph.D. Computer Science, Expected Fall 2024  
• Advised by Engin Kirda

**University of Michigan**, Ann Arbor, MI  
Master of Science, Computer Science, May 2019  
• Overall GPA: 3.73/4.0

Bachelor of Science, Computer Science, May 2017  
• Security Concentration  
• Stephen M. Ross School of Business, Business Minor  
• Overall GPA: 3.44/4.0

## RESEARCH

**TBD: Client-Side Detection of Latent CDN Connection Downgrading via Fuzzing, Machine Learning, and Side-Channel Analysis**  
Steven Sprecher, et. al.  
(In Progress) , Present

**TBD: Formal Verification for Multi-System Web Content Delivery Security and Privacy**  
Steven Sprecher, et. al.  
(In Progress) , Present

**Investigating the Robots Exclusion Protocol and its Security Implications**  
Steven Sprecher, Kartik Sharma, Rakshit Jain, Kaan Onarlioglu, Engin Kirda  
(Under Submission) , June 2024

**Frameshifter: Security Implications of HTTP/2-to-HTTP/1 Conversion Anomalies**  
Bahrüz Jabiyev, Steven Sprecher, Anthony Gavazzi, Tommaso Innocenti, Kaan Onarlioglu, Engin Kirda  
(USENIX'22) , August 2022

**SoK: All or Nothing - A Postmortem of Solutions to the Third-Party Script Inclusion Permission Model and a Path Forward**  
Steven Sprecher, Christoph Kerschbaumer, Engin Kirda  
(EuroS&P'22) , June 2022

**T-Reqs: HTTP Request Smuggling with Differential Fuzzing**  
Bahrüz Jabiyev, Steven Sprecher, Kaan Onarlioglu, Engin Kirda  
(CCS'21) , November 2021

**Decentralized Control: A Case Study of Russia**  
Reethika Ramesh, Ram Sundara Raman, Matthew Bernhard, Victor Ongkowitzaya, Leonid Evdokimov, Anne Edmundson, Steven Sprecher, Muhammad Ikram, Roya Ensafi  
(NDSS'20) , February 2020

**Beyond Acceptable Advertisement: Better Understanding Blocking Extensions**  
Benjamin VanderSloot, Steven Sprecher, J. Alex Halderman  
(Technical Report) , December 2019

- EXPERIENCE**      **NORTHEASTERN UNIVERSITY - Boston, MA**      2019 Sept - Present  
*Research Assistant*
- Perform cutting edge systems security research
  - Mentor younger graduate students in multiple research projects
- UNIVERSITY OF MICHIGAN - Ann Arbor, MI**      2017 Sept - 2019 May  
*Head Graduate Student Instructor - Introduction to Computer Security*
- Lead and mentor a team of ten teaching assistants, comprised of both undergraduate and graduate students in the operation of a class with over 350 undergraduate students
  - Collaborate with team and course instructors to draft and revise assignments and a two-hour final exam covering security in cryptography, web, networking, applications, and forensics
  - Design and teach a weekly discussion curriculum covering course material, including real world applications that serve as motivating examples for course concepts
  - Host office hours both scheduled and one on one by appointment to help students grasp concepts, to aid with the assignments of the course, and to mentor interested students
- UNITED STATES DEPARTMENT OF DEFENSE**      2016 May-September  
*Cooperative Education Intern - Research*
- Research was classified
- UNITED STATES DEPARTMENT OF DEFENSE**      2015 Sept-December  
*Cooperative Education Intern - Malware*
- Planned and organized all meetings as the Cooperative Education Senior Ambassador and brought in presenters from all over the organization to help fellow students pick work tours
  - Assembled a knowledge base on the windows environment, assembly code, python, various malware analysis tools, and virtual machines in order to better understand malicious threats
  - Reverse engineered and analyzed malicious code both dynamically and statically in order to understand how to defend against new and advanced threats to national security
  - Demonstrated the insight and technical ability needed to become an intermediate malware analyst able to work on pieces of malware in the production chain for clients
- UNITED STATES DEPARTMENT OF DEFENSE**      2015 January-April  
*Cooperative Education Intern - Web*
- Designed and Implemented all core functionality, user interfaces, and REST layer communication to the database for a new qualitative information capturing product
  - Lead demonstration meetings to potential clients in order to secure funding for completion of a specific product, which will roll out to 30,000 people enterprise-wide
  - Utilized web and software development practices such as code revision, merging, branching, building and deploying to seamlessly integrate with other team members' work

## TEACHING

**CS 4973: Foundations of Computer Security & Privacy: Breakthroughs and Research**  
*Instructor of Record at Northeastern University*  
Winter 2023

**CY(S)-5770: Software Vulnerabilities and Security**  
*Guest Lecturer - Buffer Overflows at Northeastern University*  
Fall 2021

**EECS 388: Introduction to Computer Security**  
*Head Graduate Student Instructor at University of Michigan*  
Winter 2019; Fall 2018; Winter 2018; Fall 2017

**EECS 388: Introduction to Computer Security**  
*Undergraduate Instructional Aide at University of Michigan*  
Winter 2017; Fall 2016

## SKILLS

Python, Machine Learning, Static and Dynamic Security Testing, Reverse Engineering, Fuzz Testing, Virtualization, Cloud Services, Web Protocols, HTTP Servers, X86 Assembly, HTML/CSS, JavaScript, JQuery, LaTeX, Git, Excel, Mentoring, Leadership, Some experience: C++, Golang, Jekyll, Liquid Templates, Databases

## AWARDS

- Nominated for Distinguished Leadership Award (2017)
- TS/SCI with FSP Security Clearance (2015-2020)