Peter Snyder

Department of Computer Science, University of Illinois at Chicago
psnyde2@uic.edu

Research Interests

I research web security and privacy, including browser hardening techniques, fingerprinting detection and evasion, and measuring how the growth of the Web API has impacted privacy and security. This research supports my work building access control systems for browser functionality, developing new web application systems that provide client-enforced privacy and security guarantees, and measuring the harms of online privacy violations.

Education

Ph.D. Computer Science **2012 - Present**
University of Illinois at Chicago, Chicago, IL
Expected graduation: Spring 2018

B.A. Political Science **2002 - 2006**
Lawrence University, Appleton, WI

Publications

Peter Snyder, Cynthia Taylor, and Chris Kanich. "Most Websites Dont Need to Vibrate: A Cost-Benefit Approach to Improving Browser Security." *In Proceedings of the 2017 ACM Conference on Computer and Communications Security* (CCS, 2017).

Peter Snyder, Periwinkle Doerfler, Chris Kanich, and Damon McCoy. "Fifteen Minutes of Unwanted Fame: Detecting and Characterizing Doxing." *In Proceedings of the 2017 Internet Measurement Conference* (IMC, 2017).

Peter Snyder, Laura Watiker, Cynthia Taylor, and Chris Kanich. "CDF: Predictably Secure Web Documents." *In Proceedings of the 2017 IEEE Workshop on Technology and Consumer Protection* (ConPro, 2017).

Peter Snyder, Lara Ansari, Cynthia Taylor, and Chris Kanich. "Browser Feature Usage on The Modern Web." *In Proceedings of the 2016 ACM Internet Measurement Conference* (IMC, 2016).

Peter Snyder and Chris Kanich. "Characterizing Fraud and Its Ramifications in Affiliate Marketing Networks." *Journal of Cybersecurity* (2016).

Peter Snyder, Chris Kanich, and Michael K Reiter. "The Effect of Repeated Login Prompts on Phishing Susceptibility." *In Proceedings of the Workshop on Learning from Authoritative Security Experiment Results* (LASER, 2016).

Peter Snyder and Chris Kanich. "No Please, After You: Detecting Fraud in Affiliate Marketing Networks." *In Workshop on the Economics of Information Security* (WEIS, 2015).

Jason W Clark, Peter Snyder, Damon McCoy, and Chris Kanich. "I Saw Images I Didn't Even Know I Had: Understanding User Perceptions of Cloud Storage Privacy." *In Proceedings of the 33rd ACM Conference on Human Factors in Computing Systems* (CHI, 2015).

Peter Snyder. "Yao's Garbled Circuits: Recent Directions and Implementations." *In Written Critique and Presentation Exam (qualifier) Report* (2014).

Peter Snyder and Chris Kanich. "Cloudsweeper and Data-centric Security." *ACM SIGCAS Computers and Society* (2014).

Peter Snyder and Chris Kanich. "Cloudsweeper: Enabling Data-Centric Document Management for Secure Cloud Archives." *In Proceedings of the 2013 ACM Workshop on Cloud Computing Security* (CCSW, 2013).

External Reviewer

2017 USENIX Security, NDSS
2016 S&P, CCS
2015 CCS
2013 NDSS

Other Contributions

Fingerprinting Protection Improvements in Brave Browser **https://github.com/brave/browser-laptop**
Improved the technique used to block fingerprinting related Web API methods to reduce the impact on non-fingerprinting related code, expanded the set of blocked Web API methods to cover additional fingerprinting methods, and worked with Brave engineers to address vulnerabilities in the browser's fingerprinting-blocking technique.

Web API Hardening Browser Extension **https://github.com/snyderp/web-api-manager**
Developed Firefox and Chrome extension to improve web privacy and security by controlling what browser functionality web sites can access. Web API access controls can be defined globally, or on a per-host level, to allow only trusted hosts access to privacy-threatening functionality, such as high resolution timers, WebGL, and WebRTC.

Dataset of Web API Use in Alexa 10k **http://imdc.datcat.org/collection/1-0723-8**
Public dataset documenting what Web API features popular sites use, both in a default web browser configuration, and with advertising and tracking blocking extensions installed.

CDF: Abstractions for Security Guarantees in Interactive Web Applications **https://github.com/bitslab/cdf**
Built client and server-side tools for implementing CDF, a document format for building dynamic, interactive web applications that provide increased security and privacy guarantees for users of commodity web browsers.

Cloudsweeper **https://cloudsweeper.cs.uic.edu**
Developed tool to measure and mitigate plaintext password sharing in Gmail archives. The tool allows users to redact or encrypt found passwords to reduce the harm of account compromise. The site has served over 2,500 users and has secured over 38,000 messages.

Related Activities

Finalist **2017**
CSAW Applied Research Competition for work on browser privacy and security

Lead Instructor **2017**
CS 342: Software Design - https://www.cs.uic.edu/~psnyder/cs342-summer2017/

Invited Talk **2017**
Tandon School of Engineering, New York University
Fifteen Minutes of Unwanted Fame: Detecting and Characterizing Doxing

IGERT Fellow **2013 - 2017**
Electronic Security and Privacy IGERT Fellow

Security Advisor **2015 - 2017**
Advisor for web and mobile application security for citizen reporting group TIMBY.org

President **2013 - 2014, 2015 - 2016**
UIC Computer Science Graduate Student Association

Founder **2015 - 2016**
UIC Cryptography and Privacy Reading Group

Invited Talk **2015**
Department of Information Engineering, Chinese University of Hong Kong
No Please, After You: Detecting Fraud in Affiliate Marketing Networks

Invited Talk **2014**
No Secrets: Journalism in the Age of Surveillance
Surveillance Defense: Practical Steps for Security and Privacy

1st Place **2013**
Symantec Cyber Challenge Competition, a capture the flag style security competition.