

**SOUPS 2016: Twelfth Symposium on  
Usable Privacy and Security  
June 22–24, 2016  
Denver, CO**

Message from the Program Co-Chairs.....v

**Thursday, June 23, 2016**

**Security Interfaces**

**Rethinking Connection Security Indicators.....1**

Adrienne Porter Felt, Robert W. Reeder, Alex Ainslie, Helen Harris, and Max Walker, *Google*; Christopher Thompson, *University of California, Berkeley*; Mustafa Emre Acer, Elisabeth Morant, and Sunny Consolvo, *Google*

**A Week to Remember: The Impact of Browser Warning Storage Policies.....15**

Joel Weinberger and Adrienne Porter Felt, *Google*

**Follow My Recommendations: A Personalized Privacy Assistant for Mobile App Permissions .....27**

Bin Liu, Mads Schaarup Andersen, Florian Schaub, Hazim Almuhammedi, Shikun Zhang, Norman Sadeh, Alessandro Acquisti, and Yuvraj Agarwal, *Carnegie Mellon University*

**“They Keep Coming Back Like Zombies”: Improving Software Updating Interfaces .....43**

Arunesh Mathur, Josefine Engel, Sonam Sobti, Victoria Chang, and Marshini Chetty, *University of Maryland, College Park*

**Behavior 1**

**Why Do They Do What They Do?: A Study of What Motivates Users to (Not) Follow**

**Computer Security Advice.....59**

Michael Fagan and Mohammad Maifi Hasan Khan, *University of Connecticut*

**Expecting the Unexpected: Understanding Mismatched Privacy Expectations Online .....77**

Ashwini Rao, Florian Schaub, Norman Sadeh, and Alessandro Acquisti, *Carnegie Mellon University*; Ruogu Kang, *Facebook*

**Do or Do Not, There Is No Try: User Engagement May Not Improve Security Outcomes.....97**

Alain Forget, Sarah Pearman, Jeremy Thomas, Alessandro Acquisti, Nicolas Christin, and Lorrie Faith Cranor, *Carnegie Mellon University*; Serge Egelman and Marian Harbach, *International Computer Science Institute*; Rahul Telang, *Carnegie Mellon University*

**Encryption and Surveillance**

**An Inconvenient Trust: User Attitudes toward Security and Usability Tradeoffs**

**for Key-Directory Encryption Systems.....113**

Wei Bai, Doowon Kim, Moses Namara, and Yichen Qian, *University of Maryland, College Park*; Patrick Gage Kelley, *University of New Mexico*; Michelle L. Mazurek, *University of Maryland, College Park*

**User Attitudes Toward the Inspection of Encrypted Traffic .....131**

Scott Ruoti and Mark O’Neill, *Brigham Young University and Sandia National Laboratories*; Daniel Zappala and Kent Seamons, *Brigham Young University*

*(Thursday, June 23 continues on the next page)*

<b>Expert and Non-Expert Attitudes towards (Secure) Instant Messaging</b> . . . . .	<b>147</b>
Alexander De Luca, <i>Google</i> ; Sauvik Das, <i>Carnegie Mellon University</i> ; Martin Ortlieb, Iulia Ion, and Ben Laurie, <i>Google</i>	
<b>Snooping on Mobile Phones: Prevalence and Trends</b> . . . . .	<b>159</b>
Diogo Marques, <i>Universidade de Lisboa</i> ; Ildar Muslukhov, <i>University of British Columbia</i> ; Tiago Guerreiro, <i>Universidade de Lisboa</i> ; Konstantin Beznosov, <i>University of British Columbia</i> ; Luís Carriço, <i>Universidade de Lisboa</i>	

## Friday, June 24, 2016

### Authentication

<b>Understanding Password Choices: How Frequently Entered Passwords Are Re-used across Websites</b> . . . . .	<b>175</b>
Rick Wash and Emilee Rader, <i>Michigan State University</i> ; Ruthie Berman, <i>Macalester College</i> ; Zac Wellmer, <i>Michigan State University</i>	
<b>A Study of Authentication in Daily Life</b> . . . . .	<b>189</b>
Shrirang Mare, <i>Dartmouth College</i> ; Mary Baker, <i>HP Labs</i> ; Jeremy Gummesson, <i>Disney Research</i>	
<b>Use the Force: Evaluating Force-Sensitive Authentication for Mobile Devices</b> . . . . .	<b>207</b>
Katharina Krombholz, <i>SBA Research and Ruhr-University Bochum</i> ; Thomas Hupperich and Thorsten Holz, <i>Ruhr-University Bochum</i>	
<b>Ask Me Again But Don't Annoy Me: Evaluating Re-authentication Strategies for Smartphones</b> . . . . .	<b>221</b>
Lalit Agarwal, Hassan Khan, and Urs Hengartner, <i>University of Waterloo</i>	

### Behavior 2

<b>Turning Contradictions into Innovations or: How We Learned to Stop Whining and Improve Security Operations</b> . . . . .	<b>237</b>
Sathya Chandran Sundaramurthy, <i>University of South Florida</i> ; John McHugh, <i>RedJack, LLC</i> ; Xinming Ou, <i>University of South Florida</i> ; Michael Wesch and Alexandru G. Bardas, <i>Kansas State University</i> ; S. Raj Rajagopalan, <i>Honeywell Labs</i>	
<b>Productive Security: A Scalable Methodology for Analysing Employee Security Behaviours</b> . . . . .	<b>253</b>
Adam Beauteament, Ingolf Becker, Simon Parkin, Kat Krol, and Angela Sasse, <i>University College London</i>	
<b>Intuitions, Analytics, and Killing Ants: Inference Literacy of High School-educated Adults in the US</b> . . . . .	<b>271</b>
Jeffrey Warshaw, <i>University of California, Santa Cruz</i> ; Nina Taft and Allison Woodruff, <i>Google, Inc.</i>	

### Privacy

<b>Forgetting in Social Media: Understanding and Controlling Longitudinal Exposure of Socially Shared Data</b> . . . . .	<b>287</b>
Mainack Mondal and Johnnatan Messias, <i>Max Planck Institute for Software Systems (MPI-SWS)</i> ; Saptarshi Ghosh, <i>Indian Institute of Engineering Science and Technology, Shibpur</i> ; Krishna P. Gummadi, <i>Max Planck Institute for Software Systems (MPI-SWS)</i> ; Aniket Kate, <i>Purdue University</i>	
<b>Sharing Health Information on Facebook: Practices, Preferences, and Risk Perceptions of North American Users</b> . . . . .	<b>301</b>
Sadegh Torabi and Konstantin Beznosov, <i>University of British Columbia</i>	
<b>How Short Is Too Short? Implications of Length and Framing on the Effectiveness of Privacy Notices</b> . . . . .	<b>321</b>
Joshua Gluck, Florian Schaub, Amy Friedman, Hana Habib, Norman Sadeh, Lorrie Faith Cranor, and Yuvraj Agarwal, <i>Carnegie Mellon University</i>	
<b>Addressing Physical Safety, Security, and Privacy for People with Visual Impairments</b> . . . . .	<b>341</b>
Tousif Ahmed, Patrick Shaffer, Kay Connelly, David Crandall, and Apu Kapadia, <i>Indiana University Bloomington</i>	