



# Sauvik Das

Ph.D. Student, HCII @ CMU  
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## Education

### **Carnegie Mellon University, 2011-Present**

Ph.D. in Human-Computer Interaction

Advisers: Dr. Jason I. Hong and Dr. Laura A. Dabbish

Committee: Dr. Jeffrey P. Bigham and Dr. J.D. Tygar

### **University of Tokyo, 2016**

Visiting Student Researcher (as part of NSF EAPSI Grant)

Adviser: Dr. Koji Yatani

### **Georgia Institute of Technology, 2006-2011**

B.S. Computer Science—Media and Intelligence Threads

GPA: 4.0/4.0 (Top 1%)

Adviser: Dr. Mark O. Riedl

### **Nanyang Technological University, 2008-2009**

Exchange Student

## Research Summary

I computationally model security and privacy behaviors and use these models to design, implement and evaluate novel usable security and privacy systems. I am particularly interested in creating more socially compatible security systems.

*Research areas:* HCI, usable privacy & security, social & ubiquitous computing, data science, computational social science

## Selected Honors, Awards and Fellowships 🏆

2017 **CHI Best Paper Honorable Mention [P16]**

2016 **CHI Best Paper Honorable Mention [P12]**

**NSF EAPSI Fellowship**

Nominated for John Karat Usable Privacy and Security Student Research Award

2015 **NSA Best Scientific Cybersecurity Paper Award – Honorable Mention [P8]**

Facebook Fellowship Finalist

2014 **Qualcomm Innovation Fellowship**

2013 **UbiComp Best Paper [P5]**

2012 **National Defense Science and Engineering Graduate Fellowship (2012-15)**

National Science Foundation Graduate Research Fellowship, Honorable Mention (x2)

2011 **Stu Card Graduate Fellowship (2011-2012)**

CMU CyLab CUPS Doctoral Training Program Fellowship (2011-13)

National Science Foundation Graduate Research Fellowship, Honorable Mention

Outstanding Undergraduate Researcher, College of Computing, Georgia Tech

## Most Innovative Video Nomination, AAAI Video Competition [V1]

Awards not relevant to my research career listed in the "Extended Honors & Awards" section below.




## Grants

- 2016 Assisted with *NSF SaTC Grant* entitled "Social Cybersecurity: Applying Social Influence to Cybersecurity" (w/ Jason Hong & Laura Dabbish)
- 2013 Assisted with *NSF EAGER Grant* entitled "Social Cybersecurity: Applying Social Psychology to Improve Cybersecurity" (w/ Jason Hong & Laura Dabbish) [worth \$200,000]

## Academic Publications

Google Scholar: <http://scholar.google.com/citations?user=laPvCf4AAAAJ&hl=en&oi=ao>

## Conference and Journal Papers

- [P17] Jason Wiese, **Sauvik Das**, John Zimmerman and Jason Hong. Evolving the Ecosystem of Personal Behavioral Data. *HCI Journal Special Issue on The Examined Life: Personal Uses for Personal Data* (2017).
- [P16] **Sauvik Das**, Gierad Laput, Chris Harrison and Jason I. Hong. Thumprint: Socially-Inclusive Local Group Authentication Through Shared Secret Knocks. In *Proceedings of the 35<sup>th</sup> SIGCHI Conference on Human Factors in Computing Systems (CHI)*, 2017. To appear. **BEST PAPER HONORABLE MENTION (TOP 4% OF SUBMISSIONS)** 
- [P15] **Sauvik Das**. Social Cybersecurity: Understanding and Leveraging Social Influence to Increase Security Sensitivity. *German Journal of it – Information Technology Special Issue on Usable Security and Privacy*, 2016. **INVITED PAPER**
- [P14] **Sauvik Das**, Jason Wiese and Jason I. Hong. Epistenet: Facilitating Programmatic Access & Processing of Semantically Related Personal Mobile Data. In *Proceedings of the 18<sup>th</sup> International Conference on Human-Computer Interaction with Mobile Devices and Services (MobileHCI)*, 2016. (Acceptance Rate: 23%). To appear.
- [P13] Alexander de Luca, **Sauvik Das**, Iulia Ion, Martin Ortlieb and Ben Laurie. Expert and Non-Expert Attitudes towards (Secure) Instant Messaging. In *Proceedings of the 10<sup>th</sup> International Symposium on Usable Privacy and Security (SOUPS)*, 2016. To appear. 
- [P12] Haiyi Zhu, **Sauvik Das**, Yiqun Cao, Shuang Yu, Aniket Kittur and Robert Kraut. A Market in Your Social Network: The Effects of Extrinsic Rewards on Friendsourcing and Relationships. In *Proceedings of the 34<sup>th</sup> SIGCHI Conference on Human Factors in Computing Systems (CHI)*, 2016. (Acceptance Rate: 23%) **BEST PAPER HONORABLE MENTION (TOP 4% OF SUBMISSIONS)** 
- [P11] **Sauvik Das**, Jason I. Hong and Stuart Schechter. Testing Computer-Aided Mnemonics and Feedback for Fast Memorization of High-Value Secrets. In *Proceedings of the NDSS Workshop on Usable Security (USEC)*, 2016.
- [P10] **Sauvik Das**, Alexander Zook, and Mark Riedl. Examining Game World Topology Personalization. In *Proceedings of the 33<sup>rd</sup> SIGCHI Conference on Human Factors in*

Last Updated: 4/30/17

*Computing Systems (CHI)*, 2015. (Acceptance Rate: 23%)

- [P9] **Sauvik Das**, Adam Kramer, Laura Dabbish and Jason I. Hong. The Role of Social Influence in Security Feature Adoption. *In Proceedings of the 18<sup>th</sup> ACM Conference on Computer Supported Cooperative Work (CSCW)*, 2015. (Acceptance Rate: 28.3%) 
- [P8] **Sauvik Das**, Adam Kramer, Laura Dabbish and Jason I. Hong. Increasing Security Sensitivity with Social Proof: A Large Scale Experimental Confirmation. *In Proceedings of the 21<sup>st</sup> Conference on Computer and Communications Security (CCS)*, 2014. (Acceptance Rate: 19.5%). **HONORABLE MENTION FOR NSA BEST SCIENTIFIC CYBERSECURITY PAPER IN 2014 (TOP 3 OUT OF 50 ANONYMOUS NOMINATIONS)** 
- [P7] **Sauvik Das**, Tiffany Hyun-Jin Kim, Laura Dabbish and Jason I. Hong. The Effect of Social Influence on Security Sensitivity. *In Proceedings of the 8<sup>th</sup> International Symposium on Usable Privacy and Security (SOUPS)*, 2014. (Acceptance Rate: 26.5%) 
- [P6] Eiji Hayashi, **Sauvik Das**, Shahriyar Amini, Jason Hong and Ian Oakley. CASA: Context-Aware Scalable Authentication. *In Proceedings of the 7<sup>th</sup> International Symposium on Usable Privacy and Security (SOUPS)*, 2013. (Acceptance rate: 27%)
- [P5] **Sauvik Das**, Eiji Hayashi, and Jason Hong. Exploring Capturable Everyday Memory for Autobiographical Authentication. *In Proceedings of the 2013 ACM International Joint Conference on Pervasive and Ubiquitous Computing (UbiComp)*, 2013. (Acceptance rate: 23%). **BEST PAPER AWARD (TOP 1% OF ALL SUBMISSIONS)** 
- [P4] **Sauvik Das** and Adam Kramer. Self-Censorship on Facebook. *In Proceedings of the 7<sup>th</sup> International AAAI Conference on Weblogs and Social Media (ICWSM)*, 2013. (Acceptance rate: 20%) 
- [P3] Manya Sleeper, Rebecca Balebako, **Sauvik Das**, Amber McConohy, Jason Wiese, and Lorrie Cranor. The Post That Wasn't: Examining Self-Censorship on Facebook. *In Proceedings of the 16<sup>th</sup> annual ACM Conference on Computer Supported Cooperative Work and Social Computing (CSCW)*, 2013. (Acceptance Rate: 35.6%) 
- [P2] Emmanuel Owusu, Jun Han, **Sauvik Das** and Adrian Perrig. ACcessory: Keystroke Inference using Accelerometers on Smartphones. *In Proceedings of the 12th annual ACM/SIG International Workshop on Mobile Computing Systems and Applications (HotMobile)*, 2012. (Acceptance rate: 20.6%)
- [P1] Ken Hartsook, Alexander Zook, **Sauvik Das**, and Mark Riedl. Toward supporting storytellers with procedurally generated game worlds. *In Proceedings of the 2011 IEEE Conference on Computational Intelligence in Games (CIG)*, 2011. 

## Patents

- [PT2] **Sauvik Das** and Adam Kramer. Systems and Methods for Managing Shared Content. *US Patent 2017/0041408*. 2017
- [PT1] **Sauvik Das** and Adam Kramer. Systems and Methods for Increasing Security Sensitivity Based on Social Influence. *US Patent 2016/0140341*. 2016

## Visioning Workshop Papers

- [V2] **Sauvik Das**, Laura Dabbish and Jason Hong. Improving End-User Security Sensitivity by Making Security More Social. CCC Sociotechnical Cybersecurity Workshop. 2017
- [V1] Jason Hong, **Sauvik Das**, Tiffany Hyun-Jin Kim, Laura A. Dabbish. Social Cybersecurity: Applying Social Psychology to Cybersecurity. Human Computer Interaction Consortium (HCIC). 2015.

## Work-in-Progress Workshop Papers

- [W3] David Lu, Taehoon Lee, **Sauvik Das** and Jason Hong. Examining Visual-Spatial Paths for Mobile Authentication. *Who Are You?! SOUPS Workshop on Authentication in Usable Security (WAY)*. 2016
- [W2] **Sauvik Das**, Thomas Zimmermann, Nachiappan Nagappan, Bruce Phillips, and Chuck Harrison. Revival Actions in a Shooter Game. *CHI Workshop on Designing and Evaluating Sociability in Online Video Games (DESVIG)*. 2013.
- [W1] Eiji Hayashi, **Sauvik Das**, Shahriyar Amini, Emmanuel Owusu, Jun Han, Jason Hong, Ian Oakley, Adrian Perrig and Joy Zhang. CASA: context-aware scalable authentication. *SOUPS Workshop on Usable Privacy & Security for Mobile Devices*. 2012.

## Technical Reports

- [TR1] **Sauvik Das**, LaToya Green, Beatrice Perez, Michael Murphy, and Adrian Perrig. Detecting User Activities Using the Accelerometer on Android Smartphones. 2010.

## Demos & Videos

- [V1] Mark O. Riedl, Ken Hartsook, **Sauvik Das**, Alexander Zook, and Boyang Li. Game Forge: An intelligent system that generates computer role playing games. *In Association for the Advancement of Artificial Intelligence, Video Competition, 2011*. **NOMINATED FOR MOST INNOVATIVE VIDEO.**



## Invited Talks

- [T18] Social Cybersecurity: Reshaping Security Through An Empirical Understanding of Human Social Behavior. *Georgia Institute of Technology IC, April 2017*
- [T17] Social Cybersecurity: Reshaping Security Through An Empirical Understanding of Human Social Behavior. *University of Washington CSE, April 2017*
- [T16] Social Cybersecurity: Reshaping Security Through An Empirical Understanding of Human Social Behavior. *University of California, Berkeley iSchool, April 2017*
- [T15] Social Cybersecurity: Reshaping Security Through An Empirical Understanding of Human Social Behavior. *Princeton University CS, March 2017*
- [T14] Social Cybersecurity: Reshaping Security Through An Empirical Understanding of Human Social Behavior. *University of Washington iSchool, February 2017*
- [T13] Social Cybersecurity: Reshaping Security Through An Empirical Understanding of Human Social Behavior. *University of Minnesota CS&E, February 2017*

- [T12] Social Cybersecurity: Reshaping Security Through An Empirical Understanding of Human Social Behavior. *University of Michigan CSE, February 2017*
- [T11] Thumprint: Socially-Inclusive Local Group Authentication through Shared Secret Knocks. *CMU CHIMPS Lab, September 2016*
- [T10] Social Cybersecurity: Understanding and Leveraging Social Influence to Increase Security Sensitivity. *TU Darmstadt, May 2016*
- [T9] Increasing Security Sensitivity with Social Proof: A Large-Scale Experimental Confirmation. *NSA Best Scientific Cybersecurity Paper Award Ceremony, November 2015*
- [T8] Social Cybersecurity: Understanding and Leveraging Social Influence to Increase Security Sensitivity. *Georgia Tech Entertainment Intelligence Lab, October 2015*
- [T7] Thumprint: Socially-Inclusive Local Group Authentication through Shared Secret Knocks. *Qualcomm Innovation Fellowship, Winners Day, September 2015*
- [T6] The Role of Social Influence in Security Feature Adoption. *Google UX-Privacy Lunch, June 2015*
- [T5] The Role of Social Influence in Security Feature Adoption. *CUPS Lunchtime Seminar, March 2015*
- [T4] Increasing Security Sensitivity with Social Proof: A Large-Scale Experimental Confirmation. *CUPS Lunchtime Seminar, October 2014*
- [T3] Everyday Objects for Physical Space Authentication. *Qualcomm Innovation Fellowship, Winners Day, September 2014*
- [T2] Self-Censorship on Facebook. *Facebook Faculty Summit, July 2013*
- [T1] Pro-Social Behavior in a Shooter Game. *Microsoft Research, December 2011*

## Selected Industry Research Experience

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| 2015 <b>Google</b><br>Zurich, Switzerland<br>Privacy Research Intern<br><i>Mentor: Dr. Sebastian Schnorf</i> | Worked on improving the value of privacy notifications using social and contextual cues.   |
| 2014 <b>Microsoft Research</b><br>Seattle, WA, USA<br>Research Intern<br><i>Mentor: Dr. Stuart Schechter</i> | Created a tool that lets lay people learn strong, randomly-assigned passwords with computer-assisted mnemonics.                        |
| 2013 <b>Facebook</b><br>Menlo Park, CA, USA<br>Data Science Intern<br><i>Mentor: Dr. Adam D.I. Kramer</i>    | Analyzed how security tools diffuse through social networks and ran an experiment using social cues to improve security tool adoption. |
| 2012 <b>Facebook</b><br>Menlo Park, CA, USA<br>Data Science Intern<br><i>Mentor: Dr. Adam D.I. Kramer</i>    | Defined, implemented and conducted a large-scale analysis of “self-censorship” on Facebook.  |

2011 <b>Microsoft Research</b> Seattle, WA, USA Research Intern <i>Mentor: Dr. Thomas Zimmermann</i>	Ran a large-scale analysis associating pro-social behavior in a popular shooter game with retention and other metrics.
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Work experience prior to graduate school listed in the “Extended Professional Experience” section below.

## Selected Press & Coverage

Self-Censorship	<p><u>The Atlantic</u>. <i>71% of Users Engage in Self-Censorship</i>, <a href="http://www.theatlantic.com/technology/archive/2013/04/71-of-facebook-users-engage-in-self-censorship/274982/">http://www.theatlantic.com/technology/archive/2013/04/71-of-facebook-users-engage-in-self-censorship/274982/</a></p> <p><u>Mashable</u>. <i>71% of Users Engage in Self-Censorship</i>, <a href="http://mashable.com/2013/04/15/71-of-facebook-users-engage-in-self-censorship/">http://mashable.com/2013/04/15/71-of-facebook-users-engage-in-self-censorship/</a></p> <p><u>Huffington Post</u>. <i>Self-Censorship on Facebook Is Common, Study Finds</i>, <a href="http://www.huffingtonpost.com/craig-kanalley/self-censorship-facebook_b_3095101.html">http://www.huffingtonpost.com/craig-kanalley/self-censorship-facebook_b_3095101.html</a></p> <p><u>Digital Trends</u>. <i>How The Internet Has a Chilling Effect on Jokes</i>. <a href="http://www.digitaltrends.com/opinion/context-internets-chilling-effect-jokes/#!HjbRo">http://www.digitaltrends.com/opinion/context-internets-chilling-effect-jokes/#!HjbRo</a></p> <p><u>US News</u>. <i>Consumers seek online privacy</i>.</p> <p><u>Pittsburgh City Paper</u>. <i>Saving Face(book)</i>. <a href="http://www.pghcitypaper.com/pittsburgh/saving-facebook/Content?oid=1718331">http://www.pghcitypaper.com/pittsburgh/saving-facebook/Content?oid=1718331</a></p> <p>... much more (<a href="https://www.google.com/#q=self-censorship+on+facebook">https://www.google.com/#q=self-censorship+on+facebook</a>)</p>
GameForge	<p><u>Gamasutra</u>. <i>A World Just For You</i>. <a href="http://www.gamasutra.com/blogs/MichaelCook/20130722/196678/The_Saturday_Paper__A_World_Just_For_You.php">http://www.gamasutra.com/blogs/MichaelCook/20130722/196678/The_Saturday_Paper__A_World_Just_For_You.php</a></p>
Social Cybersecurity	<p><u>Serene RISC Quartlery Knowledge Digest</u>, <a href="http://www.serene-risc.ca/files/prod/page_files/7/SERENE-RISC-Quarterly-Knowledge-Digest-Sample.pdf">http://www.serene-risc.ca/files/prod/page_files/7/SERENE-RISC-Quarterly-Knowledge-Digest-Sample.pdf</a></p> <p><u>Financial Times</u>. <i>Geeks like me put others of safe surfing</i>. <a href="http://www.ft.com/cms/s/0/b1b5e5d6-0dc9-11e5-aa7b-00144feabdc0.html#axzz3iy7j8sEy">http://www.ft.com/cms/s/0/b1b5e5d6-0dc9-11e5-aa7b-00144feabdc0.html#axzz3iy7j8sEy</a></p> <p><u>Vice</u>. <i>People Can't Tell What Apps Use Encryption, And Don't Really Care, Study Finds</i>. <a href="http://motherboard.vice.com/read/people-cant-tell-what-apps-use-encryption-and-dont-really-care-study-finds">http://motherboard.vice.com/read/people-cant-tell-what-apps-use-encryption-and-dont-really-care-study-finds</a></p>

## Academic Service

### Invited Program Committees

2017	WWW (Security & Privacy Track), ICWSM, SOUPS (Poster Jury)
2016	ICWSM

### External Reviewer

2015+	MobileHCI, ToCHI, ISWC
2014+	ACM CSCW, Social Science Review, ACM IUI
2013+	ACM UbiComp, ACM MobiSys, IEEE Pervasive Computing

## Teaching Experience

### 05-3/820: Social Web: Content, Communities and Context

*Invited lecture, Fall semester 2015*

I was invited to give a guest lecture on the social aspects of security and privacy.

### 05-4/633: Software Structures for User Interfaces – Mobile Lab, Carnegie Mellon University

*Fall Semester 2012, Fall Semester 2013*

I was the Instructor for this lab course, which focused on teaching students how to implement user interface software engineering techniques on Android. My responsibilities included:

- Making and teaching weekly lectures,
- Holding weekly office hours,
- Creating and grading five project-based assignments

### CS2340: Objects and Design, Georgia Institute of Technology

*Spring Semester 2008*

I was a Teaching Assistant for this course. I taught students about object-oriented programming. My responsibilities included:

- Personally mentoring 4 groups of students for a semester long software engineering project
- Creating and grading assignments

### CS1332: Data Structures & Algorithms, Georgia Institute of Technology

*Fall Semester 2007*

I was a Teaching Assistant for this course. I taught students about basic data structures and algorithms, including arrays, linked lists, hashes, trees, heaps, Big O, sorts, searches, dynamic programming. My responsibilities included:

- Teaching weekly recitations,
- Creating and grading several assignments,
- Creating a final exam review

## Individual Research Mentorship: Students Supervised

Tuan Ahn Le	Fall 2016 – Present. CMU EE
Joanne Lo	Fall 2015 – Present. CMU SDS
Haley Bryant	Spring 2015. CMU SDS
Taehoon Lee	Fall 2014 – Present. CMU CS.

	<i>Publications: W3</i>
David Lu	Fall 2014 – Present. CMU CS
	<i>Publications: W3</i>
Yiqun Cao	Spring 2014 – Fall 2015. CMU BA
	<i>Publications: P12</i>
Shuang Yu	Spring 2014 – Fall 2015. CMU IS
	<i>Publications: P12</i>
Solon Mao	Fall 2014. CMU IS.
Ethan Chan	Spring 2014. CMU IS.
Barath Chandrashekhhar	Spring 2014. CMU HCI

## Extended Professional Experience

### **OpenStudy, August 2010-May 2011**

Atlanta, GA, U.S.A.

Software Development Engineer

### **Carnegie Mellon University, June 2010-August 2010**

Atlanta, GA, U.S.A.

TRUST-REU Research Intern

Mentor: Dr. Adrian Perrig

### **Fukui Byora, May 2009-May 2010**

Daishoji, Ishikawa, Japan

3D Modeling and Animation Intern

## Extended Honors & Awards

2011 Invited Student Panelist: Models for Preparing the Global Workforce

2010 WACE International WIL student achievement award

2008 International Plan Stipend, Georgia Tech

2006 Intel Opportunity Scholarship (2006-08)

HOPE Scholarship (2006-11)

India America Cultural Association Scholarship

Golden Key, The Scholastic Arts and Writing Awards, Senior Portfolio for Region-at-Large

## References

Other references available upon request.