Privacy, security and usability

Course Information:

Instructor Information:

- Tzipora Halevi
- halevi@sci.brooklyn.cuny.edu
- Office Hours: Mondays, 2:00 – 3:00 pm

Online Course Webpage: http://thalevi.github.io/CS84400

Hours and location:

Mon 11:45:1:45 AM	Room 4422

Rationale

With our increasing dependence on online services, security and privacy problems present a growing concern. Understanding the interaction between humans and computers is important for computer scientists exploring solutions to these problems. This course covers essential aspects of usable privacy and security principles, methodologies, technologies and user studies carried by researchers in the field.

Course Description

This course introduces students to usability and user interface design challenges related to security and privacy. This course will combine insights from Human-Computer Interaction (HCI) with security and privacy techniques.

The course covers HCI methods used for designing and evaluation of privacy and security features. The course focuses on practical understanding of usability principles and the ability to perform usability analyses of existing security and privacy systems.

Topic List

Topics may include but are not limited to:

- Cyber-security and HCI: overview and motivation. Fundamental principles and human behavior in cyber security. Different aspects, such as user factors, usability, tasks context, and cognitive models will be covered.

- Introduction to HCI methods and user studies. Design methodologies, prototyping, usability studies, quantitative and qualitative evaluation, cybersecurity case studies.

- Introduction to Privacy: definitions, laws, policies, right to be forgotten. User right to control personal information. Privacy laws in the US vs. EU will be covered.

- Introduction to Computer Security: Fundamental Concepts. Malicious software, security models, applications security. Interdisciplinary aspects relating to computer security.

- Web browser security and privacy. How does browser technology affect user privacy? Implications and existing defenses.

- Secure Interaction Design: guidelines for interface design. Protecting legitimate users from threats, such as viruses, spyware, phishing, as well as personal/confidential information leakage

- Human behavior in authentication and access control. What is usable authentication? Different authentication mechanisms, biometrics, two-factor authentication.

Learning Objectives

The learning goals include:

Be able to understand key concepts in security and privacy. This includes online attacks and threats, secure user interaction design, trust and privacy.

Be able to understand how human factors play a significant role within security and privacy.

Learn about current research in usable security.

Learn how to design usability studies

Learn how to analyze the usability of existing systems and propose solutions that will enhance their security and privacy features.

Course Requirements:

Textbooks:

Research Methods in Human-Computer Interaction, 2nd Edition, by Jonathan Lazar, Jinjuan Heidi Feng, Harry Hochheiser , ISBN-13: 978-0128053904 , ISBN-10: 9780128053904

Assessment

Grades will be based on:

Participation: 10%
Homework: 30%
Exams: 30%
Final Project (presentation and report): 30%