Overview of Privacy & Security

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Core Research Topics

- User Perceptions & Behaviors
- Design of Privacy & Security Interfaces
- Privacy in Specific Contexts
- Emerging Technologies
- Theoretical and Methodological Approaches
- Ethical Considerations

External Disciplines

- Computer Science
- Social Sciences
  - Psychology, Sociology, Economics
- Law and Policy
  - Law & legal studies, Public policy
- Ethics and Philosophy
  - Applied Ethics, Philosophy of privacy

Discussion

How do you think about privacy and security in your research?

Calls for Papers - CHI, SOUPS, USENIX

- Similarities
  - Interdisciplinary Focus
    - **CHI**: encourages work that integrates human factors w/ security or privacy
    - **Symposium on Usable Privacy and Security (SOUPS)**: calls for papers that integrate usability or human factors with security or privacy
    - **USENIX**: primarily technical, but welcomes human-centered security research
  - Technical Rigor

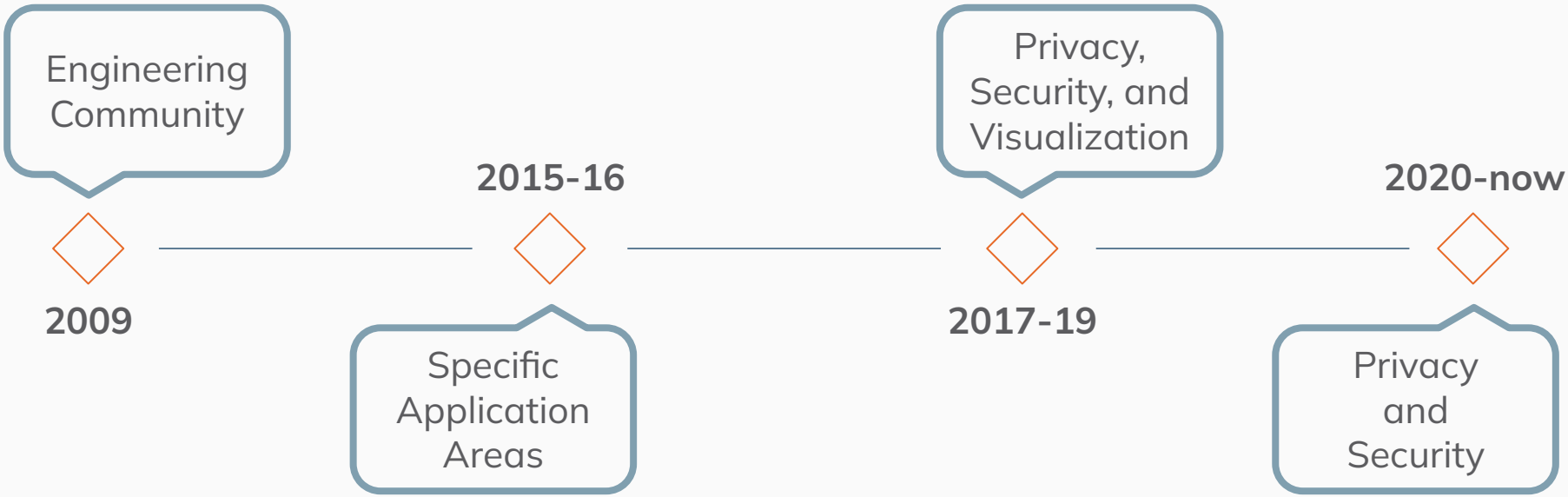
Calls for Papers - CHI, SOUPS, USENIX

- Differences
  - Primary Focus
    - **CHI**: Border human-computer interaction, with privacy and security as one subcommittee among many
    - **SOUPS**: specifically focused on usable security and privacy
    - **USENIX**: primarily technical security research, with some openness to usability aspects
  - Types of Contributions

Calls for Papers - CHI, SOUPS, USENIX

- Scope Differences
  - **CHI**
    - Design of privacy interfaces for emerging technologies
    - Studies on users' mental models of privacy and security
    - Research on privacy in specific contexts (i.e., education, public health)
  - **SOUPS**
    - Detailed usability evaluations of security tools or interfaces
    - Studies on the effectiveness of security awareness training programs
    - Research on how to communicate privacy policies effectively to users
  - **USENIX**
    - Highly technical cryptographic protocols without significant usability components
    - Low-level system security mechanisms without user interaction focus
    - Network security research that doesn't directly involve human factors

History of Privacy & Security



Nudges for Privacy & Security: Understanding and Assisting Users' Choices Online

Alessandro Acquisti, Idris Adjerid, Rebecca Balebako, Laura Brandimarte, Lorrie Faith Cranor, Saranga Komanduri, Pedro Giovanni Leon, Norman Sadeh, Florian Schaub, Manya Sleeper, Yang Wang, and Shomir Wilson

CSUR 2017

What Are Nudges in Privacy & Security

Definition: Small, subtle interventions that influence user-decision-making without restricting choices. Ideally, they align with natural decision making processes and aid users softly in making good privacy and security decisions.

Dimensions of nudges

- **Information**
- **Presentation** (contextualization)
- **Defaults** (effort reduction)
- **Incentives** (motivation)
- **Reversibility** (error mitigation)
- **Timing**

Survey: Experiences with Nudging

- https://www.menti.com/alhiafp5qa8o

Paper Overview

Explores how nudges influence user decision-making regarding privacy and security.

Examines the behavioral aspects behind security choices.

Emphasizes the role of subtle design interventions in improving user security behavior.

Calls for designs that improve the effectiveness of nudging but do not restrict autonomy.

Key Themes

User behavior: Users struggle with balancing security and usability. Many security decisions are made with limited information or due to usability / time constraints.

Designing effective nudges: Effective nudges align with users' user behavior. Transparency and timing of nudges are key.

Challenges: In nudging, there is a risk in manipulation of user behavior vs assistance. The challenge is thus to leave autonomy with the user, while promoting secure behavior.

Solution to privacy and security issues: Focus on Soft Paternalism. Rather than restricting choices, *nudges* guide users toward better privacy/security behaviors while maintaining freedom of choice.

The Behavioral Dimension of Privacy and Security

Bounded rationality and cognitive biases shape online behavior.

Default / Status Quo Bias: Users tend to stick with default settings.

Loss Aversion: Fear of losing privacy but no protection in action.

Optimism bias / Overconfidence: Underestimation of risk.

Hyperbolic Discounting: Prioritization of immediate pay-off over long-term risks.

Framing Effects: Behavior is influenced by presentation.

Challenges in Designing Nudges

Manipulation: Companies can design nudges to encourage the sharing of private information.

Transparency vs Overload: Too much information can overwhelm users.

Measuring Effectiveness: How can we measure the effectiveness of nudges?

Discussion

How can we measure the effectiveness of nudges?

Is there a one-nudge-fits-all approach?

Onto whom can and should we put the responsibility of nudging?

Stories from Survivors: Privacy & Security Practices when Coping with Intimate Partner Abuse

Tara Matthews, Kathleen O'Leary, Anna Turner, Manya Sleeper, Jill Woelfer, Martin Shelton, Cori Mathorne, Elizabeth F. Churchill, and Sunny Consolvo

CHI 2017

Core Research Subtopics

1️⃣User Perceptions & Behaviors in Privacy and Security

- 📦 In general
  - Privacy & Security Challenges
  - The mental models that influence security behaviors
  - Privacy Trade-offs
- 📖 This paper
  - Examines survivors' privacy and security challenges across three phases: Physical Control, Escape, and Life Apart
  - The gap between survivors' expectations of privacy/security mechanisms and their actual effectiveness. Many privacy behaviors described by survivors were based on incomplete or incorrect mental models of digital security.

Core Research Subtopics

2️⃣Usability of Privacy & Security Interface

- 📦 In general
  - Privacy settings
  - Usability challenges and design
- 📖 This paper
  - IPA survivors face even greater usability challenges due to Extreme emotional stress,Abusers controlling devices and accounts,Unclear privacy mechanisms,
  - The study reveals that usability issues in privacy tools are not just an inconvenience but a matter of safety for vulnerable users

Core Research Subtopics

3️⃣ Privacy in Specific Contexts

Privacy concerns vary across domains and user groups

- 📦 In general
  - HCI research explores how privacy needs change based on context
    - Marginalized Populations
    - Healthcare
    - Education...
  - Usability challenges and design
- 📖 This paper
  - IPA survivors
  - Survivors require different privacy tools at each stage of their journey.

Methodology

- Conducted a thorough ethics review, consulting IPA experts, legal, privacy, and security specialists.
- Partnered with two U.S. non-profits; agency staff personally recruited participants (14 female, 1 male).
- Privacy Precautions: No demographic data collected beyond gender.
- Conducted in safe agency spaces, with a $100 gift card incentive.
- Sessions: 31-67 min (Avg: 48 min), with 14.45 hours of recordings (709 pages of transcripts).
- Icebreaker Survey (device & account use)/ Semi-structured interviews (real experiences with privacy/security) / Card Sort Activity (privacy/security practices).

Discussion

How do you think user studies in usable privacy compare to those in other domains we've discussed (health / accessibility/ ....)? What are the key similarities and differences in methodologies, challenges, and user needs?

Discussion

What are some design features that mainstream platforms (social media, messaging, banking apps) could introduce to help survivors protect their digital privacy?