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Workshop on Ubicomp Privacy (UbiPriv'07)

Technologies, Users, and Policy

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Abstract The UbiComp Privacy Workshop 2007 is the fifth in its series, having been part of all UbiComp conferences except 2001 and 2006. It tries to offer a snapshot of current issues in UbiComp privacy research and provides a forum for researchers in the field to present their work and exchange ideas.

1 Introduction

Privacy is often considered the small sibling of security, assuming that a secure system invariably offers privacy as well. Indeed, without basic security precautions, individuals or groups would not be able to “determine for themselves” [5] how information about them would be accessible to others. Privacy, however, usually demands much more than having “just good firewalls” [4] or a set of lengthy passwords, its requirements for transparency and control prompt the need for interdisciplinary work spanning technical, social, and legal issues [1].

Privacy in ubiquitous computing is particularly challenging, as traditional user interfaces, interaction patterns, communication paradigms, and administrative domains no longer support the data collection and data processing models of the 20th century [3]. The UbiComp Privacy Workshop (UbiPriv) has long since acknowledged this complexity, and has offered a forum for “system developers, security researchers, social scientists, legal experts and consumer privacy advocates” [2] continuously (with the exception of 2006) since the second UbiComp conference in Gothenburg, Sweden, in 2002.

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2 This Year's Program

For 2007, we sought a special format of the workshop, in conjunction with the prestigious Personal and Ubiquitous Computing Journal (PUC), published by Springer. We invited major experts in the field to summarize state-of-the-art insights on ubicomp privacy from different angles, as well as with a view to the different underlying technologies. On top of these introductory summaries, the workshop solicited short research notes describing current activities in the individual topics. All submissions were reviewed by an international program committee comprised of experts in the field; authors of accepted submissions were then invited to the workshop for brief presentations. Both the invited articles and selected research notes will later be updated for a special journal issue.

As a result, the 2007 workshop edition offers concise overviews of major research areas and provides ample room for discussion and deliberation, hopefully appealing to both seasoned researchers and those new in the field. Our goal was to create an event that features a comprehensive overview on past and current research in privacy in Ubiquitous Computing – both through the in-depth survey articles from the invited experts, and by assembling current hot topics and promising research venues in short research notes of high quality.

Lorrie Cranor and Jason Hong, together with colleagues from Carnegie Mellon University, offer an invited paper on their experiences in building usable privacy system in the form of a people finder application. In a laboratory study with over 60 participants, they found that it is difficult for users to articulate privacy preferences, unless help in the form of user awareness functionalities and machine learning techniques are offered. Rastogi et al. explore this topic in the context of a timely RFID ecosystem, where they investigate how best to express privacy policies. Starting from an intuitive, spatially-based default access-control policy, they

propose authorization views to visualize the effects of more complex access control rules to users.

Paul de Hert, Serge Gutwirth, and Anna Moscibroda from the Free University Brussels then give an overview of legal safeguards in the context of ubiquitous computing, based on their substantial experience within the SWAMI project,¹ in which they analysed several “dark” scenarios and identified legal gaps (*lacunae*) in existing legislation. Bryce et al. complement this invited paper with a position paper calling for technology that is developed in sync with social and legal frameworks.

The invited paper by John Krumm summarizes the state-of-the-art in computational location privacy, drawing on his vast experience in developing location-based systems and analyzing their resilience against privacy attacks. He notes that many studies demonstrate a lack of consumer interest in location privacy, and shows how even anonymized and/or obfuscated location traces can in many cases be resolved to an individual. Assad et al. performed a study asking users to choose a set of location privacy policies, noting that most participants were comfortable with a small set of predefined access policies, and indeed chose a very public disclosure policy of their location.

Marc Langheinrich’s invited paper on RFID similarly summarizes current issues and research in RFID privacy, noting that one of the key problems is actually key management, unless a keyless authentication model is used. Han et al. offer an interesting insight into the hitherto sparsely explored area of sensor network privacy, describing how even anonymous, innocuous humidity measurements can be used to disclose identifiable data such as presence.

In the fifth invited paper, Sarah Spiekermann reports the results of a focus group study that tried to probe the actual privacy concerns of consumers when confronted with a privacy-invasive technology, such as RFID. She identifies six main issues of concern, most notable the fear of becoming “responsible” for objects, as well as their level of control exerted by “paternalistic” environments. Accorsi and Bernauer argue for the introduction of “privacy evidence” in order to allow users to verify the compliance of data collection environments to stated privacy policies.

Taken together, these ten contributions offer a snapshot of the current state-of-the-art in privacy research – in terms of technology, users, and policy. We hope that much of what will be discussed during the workshop itself will also find its way into the selected and expanded contributions in the corresponding special journal issue, providing a lasting record of the event in addition to its public web site.²

3 Acknowledgements

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Our thanks go also to the authors who submitted their work to the workshop, and we hope that authors of contributions that we were unable to accommodate at this year’s workshop will submit updated accounts of their work to the journal’s special issue, and/or a future version of this workshop.

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¹ See swami.jrc.es

² See www.vs.inf.ethz.ch/events/uc07privacy/