

"... *It's very unacceptable for someone to peek into your privacy.*"

Chronicles of Shoulder Surfing: Exploring Deep into a Longitudinal Diary Study

Background: Shoulder surfing is a prevailing threat when accessing the information on personal devices like smartphones. Adequate mitigation requires studying shoulder surfing occurrences in people's daily lives. In this paper, we confirm and extend previous research findings on shoulder surfing occurrences using a new method; a one-month diary study.

Research Question

RQ1. What social contexts account for shoulder surfing incidents in the daily lives of people?

RQ2. What shoulder surfing protection mechanisms are preferred by users and why?

RQ3. What are the implications of shoulder surfing?

Method

 Longitudinal (a one-month long)

 23 Participants

 Diary Study

 Logging Reminders

Results

Our results indicated that shoulder surfing often goes unnoticed by the victim user. It mostly happens in public transport followed by workplaces. Shoulder surfing exists in public and as well as in private environments such as an individual's accommodation. Smartphones are the most commonly observed devices. Observers' way of observing is similar to peeking at someone's device i.e. a quick look. **(RQ 1)**

50% of participants expressed willingness to have a mechanism while 41.66% of participants were found to be neutral. Participants mentioned that they would like the mechanism to alert, remind, automatically lock the screen, or blur the screen from side angles. 63.63% of participants voiced that they consider the mechanism will not impact their relationship in any way. From a range of mechanisms to choose from, participants preferred different mechanisms for different levels of the closeness of the relationship with the observer. Hence, one protection mechanism cannot offer a "one-size-fits-all" solution. **(RQ2)**



Content-based shoulder surfing is more prevalent than authentication-based shoulder surfing. Visual privacy invasions such as shoulder surfing are not just invading the user's privacy but also result in user device interaction time wastage. **(RQ3)**

Future Research Directions

Q. What shoulder surfing protection mechanisms are socially acceptable by users?

Q. When detecting bystanders, how can we preserve the gaze privacy of the bystander?

Q. Does realizing being shoulder surfed impact the user's device interaction and task completion?

Q. How can the user-observer relationship information be used to inform the design of shoulder surfing protection mechanisms?

To know more about the study, scan the QR Code



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