A NOVEL APPROACH FOR CALCULATING USERS' PRIVACY SCORES IN ONLINE SOCIAL NETWORKS

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Abstract

Online social networks (OSNs) are defined as web-based services that allow individuals to construct a profile and connect to each other. OSNs are becoming highly popular among individuals. Facebook, LinkedIn, MySpace are a few of the examples of OSN platforms where users can connect with each other. OSNs are primarily organized around people and are profile-centric. While joining any OSN, a user has to create a profile on the website. Most of the social networking websites provide privacy settings, thereby providing the personal information in control of the users. However, many a times the users keep the default privacy settings provided by the social networking websites' provider. One of the prime reasons to do so is that the users find it difficult to understand the privacy settings over OSNs. Myriad of data sharing on OSNs comes with a cost of privacy threats to the users. In a hustle of using social networking sites and sharing data, the users knowingly or unknowingly expose their personal data to the un-intended users. Users connect over OSNs and there are high chances of revealing sensitive personal information over the network like birth date, phone number, political views, and so on. Literature identifies the need of a metric (score) that could measure the privacy exposure of the user over a social networking site so that the users could easily identify the level of disclosure of their personal information in the OSN.

Efforts are already in place for this comparatively recent research phenomenon, and different studies tried to measure the privacy metric (score) via different approaches, but the existing studies did not differentiate between different types of social networks and did not use a well established definition of the OSNs. Also, most of the existing studies did not take into account the network characteristics of the real-world social networks. In the current work, we

will analyze and find the parameters based on the network characteristics of the OSN. Further, we propose a novel approach to calculate the privacy score of the users in an OSN. The calculated privacy score of the user takes into consideration the user's profile (personal information) attributes' exposure within the OSN along with the network characteristics of the real world OSNs. Further, the calculated privacy score provides adequate awareness to the users about the extent of revelation of their personal (sensitive) information. The current work serves as a ready reference to the social network providers to gauge the vulnerability of the user profiles. This will help in bringing down the mentioned privacy invasion threats considerably in an OSN.

Keywords: Online Social Networks, Privacy, Privacy Score, Sensitivity, Visibility

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