

Privacy-Aware Display Strategy in Friend Search

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A large body of work has addressed preserving users' relationship privacy in sharing online social network (OSN) data with third-parties. However, the disclosure of relationship privacy in using the friend search engines on OSNs has not been given sufficient attention. In this paper, we consider that users indicate different comfort levels to share their friendships in OSNs by limiting the number of their friends returned in response to queries through the friend search engine. We propose a new attack model where an attacker attempts to infer more friendship information based on the friendships detected in the query results. Additionally, we define the model of (β, k) -inference privacy preservation which ensures to safely display k friends of individual users in response to queries. We also propose a display strategy which balances the tradeoff between preserving users' friendship privacy and maintaining the sociality of OSNs. From the experimental results, we can see the effectiveness of our strategy in handling such a tradeoff.