

User-Tailored Privacy for Interactive Recommender Systems

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Abstract

Privacy issues are an undying obstacle to the adoption of recommender systems, because recommender systems critically rely on their users to disclose information about themselves. While there exist several technical solutions to reduce the exposure of such personal information (e.g. client-side personalization, homomorphic encryption, k -anonymity), the concept of privacy is an inherently human attitude associated with the collection, distribution and use of disclosed data, and this disclosure itself is also a human behavior.

This talk discusses one particular human-centric solution to reduce users' privacy concerns in using recommender systems: User-Tailored Privacy. User-Tailored Privacy is an approach to privacy that measures users' privacy-related characteristics and behaviors, uses this as input to model their privacy preferences, and then provides them with adaptive privacy decision support. In effect, it takes the decision-supporting functionality of recommender systems, and applies it to users' privacy decisions.

The talk will revolve around the implementation and evaluation of User-Tailored Privacy in an interactive, demographics-based recommender system that gives healthy living advice. This system personalizes its recommendations based on the answer to a broad array of questions that range from innocuous (e.g. age, gender) to very sensitive (e.g. religion, sexual activity, household income, and savings). The system asks these questions in a sequential order, and recommendations are adapted to the user's answers on the fly. User-Tailored Privacy is implemented in the form of *adaptive request orders* that prioritize questions that are likely to benefit the recommender, but skips questions that the user is likely to deem too sensitive to answer. I will present the outcomes of a user experiment with 672 participants that tested several means of ordering the recommendations.