Personality in Recommender Systems

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ABSTRACT

The personality-based recommender systems (RS) has emerged as a new type of RS in recent years, given that personality contains valuable information enabling systems to better understand users' preferences [7]. This presentation first gives an overview of the state-of-the-art in this area, including the approaches developed for enhancing collaborative filtering (CF) by computing users' or items' personality similarity [1,4,5,8], as well as the one that incorporates personality into matrix factorization to predict items that users are able to rate for active learning [3].

We then discuss several open issues. One issue is how to utilize personality to improve recommendation diversity. Diversity refers to the system's ability in returning different items in one set, which may help users more effectively explore the product space and discover unexpected items [6]. Our recent studies identified the effect of personality on users' diversity differences [2], and demonstrated that people perceive the system, which considers personality in adjusting recommendations' diversity degree, more competent and satisfying [9].

We also show how to acquire personality through unobtrusive and implicit way, so as to save users' efforts in answering personality quizzes. Through testing an inference model in movie domain that unifies both types of domain-dependent and -independent features for deriving users' personality from their behavior, we proved that the implicitly inferred personality can also be helpful to augment the system's recommendation accuracy [10].

Other open issues include how to develop personality-based *cross domain RS* for addressing the critical cold-start problem, how to exploit the influence of personality on users' emotions for boosting *context-aware RS*, and how to elicit more domain-independent features for generalizing the personality inference procedure.

CCS Concepts

• **Information systems** → **Information retrieval** → **Retrieval tasks and goals** → **Recommender systems** • **Human-centered computing** → **Human computer interaction (HCI)** → **HCI design and evaluation methods** → **User models.**

Keywords

Recommender systems; user personality; collaborative filtering.

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Bio

Dr. Li Chen is now an Assistant Professor in the Department of Computer Science at Hong Kong Baptist University. She obtained her PhD degree with specialty in Human-Computer Interaction from Swiss Federal Institute of Technology in Lausanne (EPFL), and Bachelor and Master degrees in Computer Science from Peking University, China. Her research focus has mainly on developing user-centered Web technologies, especially recommender systems and complex decision supports, for the application in social media and e-commerce environments. She has co-authored over 70 research papers that were published in journals UMUAI, TIIS, TIST, TOCHI, KNOSYS, etc., and conferences UMAP, SIGKDD, IJCAI, ACM RecSys, AAAI, IUI, etc. Her supervised student was the recipient of Best Student Paper award in UMAP 2015. She has served as committee member in a number of conferences and workshops. She was the guest editor of special issues in ACM TIIS and TIST, and demo and poster co-chair of RecSys'14.