

DEPARTMENT OF COMPUTER SCIENCE

PhD Degree Oral Presentation

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Date	7 September 2022 (Wednesday)
Time:	10:30 am – 12:30 pm (35 mins presentation and 15 mins Q & A)
Venue:	ZOOM (Meeting ID: 996 8389 6115 (The password and direct link will only be provided to registrants))
Registration:	https://bit.ly/sem-zm (Deadline: 5:00 pm, 6 September 2022)

Human-Centered Design and Evaluation of Conversational Recommender Systems

Abstract

With the advancement of chatbot technology in recent years, there has been a surge in interest in conversational recommender systems (CRSs), which mimic human conversations to help users find recommendations (e.g., movies and music) through multi-turn dialogues. Yet, the majority of existing research has focused on optimizing system effectiveness and efficiency, while many human-related issues such as user intent, user experience, and user trust have received insufficient attention, which are crucial for designing CRSs that can better serve users' needs and help them make confident decisions. In our work, we study CRSs from a human-centered perspective, with the aim of answering the main question: **How to design conversational recommender systems that can enhance user experience and inspire user trust?**

To address this question, we place our emphasis on the three concrete problems: 1) understanding and predicting user intents and satisfaction with conversation recommendations; 2) designing and evaluating conversational recommender systems with critiquing techniques; and 3) analyzing the factors influencing user trust in conversational recommender systems.

First, we analyzed a set of over 300 human-human recommendation dialogues to understand how users interact with recommenders, based on which we established two hierarchical taxonomies for classifying user intents and recommender actions, respectively. Then, we defined various categories of features considering content, discourse, sentiment, and context to predict users' intents and satisfaction using machine learning techniques.

Second, given that CRSs can support user feedback intents, we incorporated critiquing techniques (i.e., user-initiated critiquing (UC) and system-suggested critiquing (SC)) into the system to facilitate users' feedback provision and item exploration. Specifically, we designed two kinds of SC, Progressive SC and Cascading SC, and conducted user studies to compare the three critiquing-based recommenders in two recommendation tasks: exploration-oriented task and basic recommendation task. Results showed that incorporating Progressive SC and Cascading SC can increase users' perceived diversity and serendipity when exploring recommendations. Our task-oriented evaluation also verified the impact of task type on user experience with the CRS.

Third, to examine user trust in CRS, we investigated the effects of three types of factors (user-related, system-related, and context-related) on user trust in two types of CRS, i.e., user-initiative and mixed-initiative. Experimental results highlighted the impact of the user-related factors (personal characteristics), showing that users' trust propensity and domain knowledge positively affected their trust in CRS, and that users with high conscientiousness tended to trust the mixed-initiative system.

Based on all of our experimental findings, we provide practical implications for designing CRSs. They should be useful for researchers and practitioners to develop a human-centered CRS, making it capable of better fulfilling users' needs, adapting to different task contexts, and fostering individual trust toward the system, which may ultimately maximize the benefits of conversational recommender systems.

***** ALL INTERESTED ARE WELCOME *****