**Conversational Recommender Systems and natural language:: A study through the ConveRSE framework**

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## Highlights

•

a general framework for building conversational recommender systems is proposed

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disambiguation emerged as a crucial step of the dialog

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the framework demonstrated to be robust on three domains

•

a dataset of real dialogs has been released

•

the best interaction mode for a conversational recommender is a combination of buttons and natural language

## Abstract

Digital Assistants (DA) such as Amazon Alexa, Siri, or Google Assistant are now gaining great diffusion, since they allow users to execute a wide range of actions through messages in natural language. Even though DAs are able to complete tasks such as sending texts, making phone calls, or playing songs, they do not yet implement recommendation facilities. In this paper, we investigate the combination of Digital Assistants and Conversational Recommender Systems (CoRSs) by designing and implementing a framework named ConveRSE (Conversational Recommender System framEwork), for building chatbots that can recommend items from different domains and interact with the user through natural language. Since a CoRS architecture is generally composed of different elements, we performed an in-vitro experiment with two synthetic datasets, to investigate the impact that each component has on the CoRS in terms of recommendation accuracy. Additionally, an in-vivo experiment was carried out to understand how natural language influences both the cost of interaction and recommendation accuracy of a CoRS. Experimental results have revealed the most critical components in a CoRS architecture, especially in cold-start situations, and the main issues of the natural-language-based interaction. All the dialogues have been collected in a public available dataset.