

A study on how consumer preferences can be used to improve content-based recommendations

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Recommendation Systems (RS) support users to find items that are interesting and more aligned with their tastes. RS are used in diverse application areas to recommend movies, music, books, etc. The current generation of recommendation systems is often classified into content-based, collaborative, and hybrid approaches based on the filtering methods used by them. During the analysis of the research articles, limited content analysis and overspecialization problems in the content-based approaches have been identified as important research areas. These problems occur mainly due to the lack of product descriptions and consider only product descriptions. In this research, we investigate how the above problems could be addressed by complementing product descriptions using consumer preference data such as product reviews available, for instance, in e-commerce sites. We propose, to extract *Context of Use, Ratings, and Transaction Quality* details from product reviews in addition to generic product descriptions available. Since the descriptions about products are increased, it reduces the limited content analysis problem and since the descriptions are obtained from customer reviews that contain other users' opinions, it reduces the overspecialization problem. The proposal is tested using a content-based recommendation algorithm available in GitHub which was improved to use *Context of Use* details extracted from product reviews. The product recommendations obtained by using this improved algorithm and the original algorithm were compared and the results show that the recommendations obtained by considering the *Context of Use* from product reviews yield a more focused set of recommendations than when the *Context of Use* is not considered.

Key words: *Content-based filtering, Limited Content Analysis and Overspecialization, Context of Use*

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