

# Personalizing Online Reviews for Better Customer Decision Making

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## Research Interests:

Classification in Systems Analysis and Design, Crowdsourcing, Information Quality, Data Management, Design Science, Recommender Systems, Object-Oriented Systems and Reuse, E-Commerce

## Abstract:

Online consumer reviews have become an important source of information for understanding markets and customer preferences. When making purchase decisions, customers increasingly rely on user-generated online reviews, which in some cases are more credible and trustworthy than information provided by vendors. Many studies have revealed that online reviews influence demand and sales. Others have shown the possibility of identifying customer interest in product attributes. However, little work has been done to address customer and review diversity in the process of examining reviews. This research intends to answer the research question: how can we solve the problem of customer and review diversity in the context of online reviews to recommend useful reviews based on customer preferences to improve product recommendation? Our approach to the question is through personalization. Similar to other personalization research, we use an attribute-based model to represent products and customer preferences. Unlike existing personalization research that uses a set of pre-defined product attributes, we explore the possibility of a data-driven approach for identifying a more comprehensive set of product attributes from online reviews to model products and customer preferences. Specifically, we introduce a new topic model for product attribute identification and sentiment analysis. By differentiating word co-occurrences at the sentence level from co-occurrences at the document level, the model better identifies interpretable topics. The use of an inference network with shared structure enables the model to predict product attribute ratings accurately. Based on this topic model, we develop attribute-based representations of products, reviews and customer preferences and use them to construct the personalization of online reviews. We hypothesize the effects of personalization from the lens of consumer search theory and human information processing theory and test these hypotheses in an experimental setting. The empirical evidence shows that the personalization of online reviews can: 1) recommend products matching customer's preferences; 2) improve customer's intention towards recommended products; 3) best distinguish recommended products from products that do not match customer's preferences; and 4) reduce decision effort.