Detection of Review Manipulation

TREO Talk Paper

Kavita Krishnan
University of Houston-Victoria
Kavita1704@gmail.com

Yun Wan
University of Houston-Victoria
WanY@uhv.edu

Abstract

Word-of-Mouth (WOM) is oral, person-to-person communication between a receiver and a communicator, whom the receiver perceives as non-commercial, regarding a brand, product or service (Arndt 1967). Traditional WOM communication has transitioned into an electronic word of mouth (eWOM) due to the widespread use of internet and an increase in the popularity of e-commerce. Consumers use the website to share their opinions also termed as User Generated Content (UGC). Scholars have studied the impact of UGC on sales (Chevalier and Mayzlin 2006; Clemons et al. 2006). Studies also found that the mere presence of online reviews could promote sales of the underlying product compared with those similar products without online reviews (Duan et al. 2008). Thus, we can consider online reviews as being both a cause and an effect of the popularity of a product.

Best-selling products generate a large volume of reviews. On the other side, sellers or product manufacturers could manipulate online reviews to promote their products, like artificially boosting the number of positive reviews as well as the ratings (Luca and Zervas 2016). Studies show that people make their shopping decisions based on UGC. It, therefore, motivates us to examine online reviews to see if there is any correlation between online reviews and bestselling books in the market. For this study, we defined bestseller book as the book which received a large number of online reviews on Amazon. We used unsupervised learning to determine the clusters based on the number of parameters to identify the popular and non-popular books. Further, we build a model to predict the possibility of review manipulation for the bestselling books using different aspects of online reviews, such as fluctuation in rating (change in the review pattern from 1-star to 5-star and vice versa), length of reviews, the ratio of positive to negative reviews, and average rating.

This study analyzed online review manipulation patterns, such as fake reviews by sellers to promote the product. We found the existence of manipulated reviews for the bestselling books. In order to determine the signal of manipulation, we used different attributes of online reviews. We observe the high occurrence of rating fluctuation and a large percentage of reviews with a low-star rating for books whose reviews may be manipulated. Thus, resulting in the deviation of average rating from mean rating for a book. Lastly, we see the word-count for manipulated reviews are less as compared to the genuine reviews.

References


