Characterizing and Predicting Early Reviewers for Effective Product Marketing on E-Commerce Websites

ABSTRACT

Online reviews have become an important source of information for users before making an informed purchase decision. Early reviews of a product tend to have a high impact on the subsequent product sales. In this paper, we take the initiative to study the behavior characteristics of early reviewers through their posted reviews on two real-world large e-commerce platforms, i.e., Amazon and Yelp. In specific, we divide product lifetime into three consecutive stages, namely early, majority and laggards. A user who has posted a review in the early stage is considered as an early reviewer. We quantitatively characterize early reviewers based on their rating behaviors, the helpfulness scores received from others and the correlation of their reviews with product popularity. We have found that (1) an early reviewer tends to assign a higher average rating score; and (2) an early reviewer tends to post more helpful reviews. Our analysis of product reviews also indicates that early reviewers’ ratings and their received helpfulness scores are likely to influence product popularity. By viewing review posting process as a multiplayer competition game, we propose a novel margin-based embedding model for early reviewer prediction. Extensive experiments on two different e-commerce datasets have shown that our

proposed approach outperforms a number of competitive baselines.

**EXISTING SYSTEM**

* In the existing system, the term of early adopter originates from the classic theory for Diffusion of Innovations. An early adopter could refer to a trendsetter, e.g., an early customer of a given company, product and technology. The importance of early adopters has been widely studied in sociology and economics. It has been shown that early adopters are important in trend prediction, viral marketing, product promotion, and so on the existing system.
* Moreover, the influence of early adopters is closely related to the studies of herd behavior which describes that individuals are strongly influenced by the decisions of others, such as in stock market bubbles, decision-making, social marketing and product success. As for product marketing, consumers frequently select popular brands because they believe that popularity indicates better quality.
* For example, in digital auctions, buyers tend to bid for listings that others have already bid for, while ignoring similar or more attractive unbid-for listings. Similarly, an experimental study shows that the social influence of early adopters’ choices of songs leads to both inequality and unpredictability of the songs in terms of download counts. Some further investigations also reveal that product evaluations from previous adopters, such as star ratings and sales volume, influence customers’ online product choices. The analysis and detection of early adopters in the diffusion of innovations have attracted much attention from the research community.
* Generally speaking, three elements of a diffusion process have been studied: attributes of an innovation, communication channels, and social network structures. Early studies are mainly theoretical analysis at the macro level. With the rapid growth of online social platforms and the availability of a high volume of social networking data, studies of the diffusion of innovations have been largely conducted on social networks, including resource-constrained networks, following or retweet networks, user-click graphs and text-based innovation networks.

**Disadvantages**

* + There is no estimating the Product Lifetime which results no early review detections.
  + There is no early reviewer which tends to assign a higher average rating score.

**PROPOSED SYSTEM**

The proposed system presents a first study to characterize early reviewers on an e-commerce website using two real-world large datasets.

In the proposed system, the system quantitatively analyzes the characteristics of early reviewers and their impact on product popularity. Our empirical analysis provides support to a series of theoretical conclusions from the sociology and economics.

The system views review posting process as a multiplayer competition game and develop a embedding-based ranking model for the prediction of early reviewers. Our model can deal with the cold-start problem by incorporating side information of products.

Extensive experiments on two real-world large datasets, i.e., Amazon and Yelp have demonstrated the effectiveness of our approach for the prediction of early reviewers.

**Advantages**

* The system determining the Complete Review Time Span.
* Fast technique to Review Spammer Detection and Removal.

**SYSTEM REQUIREMENTS**

➢ **H/W System Configuration:-**

➢ Processor - Pentium –IV

➢ RAM - 4 GB (min)

➢ Hard Disk - 20 GB

➢ Key Board - Standard Windows Keyboard

➢ Mouse - Two or Three Button Mouse

➢ Monitor - SVGA

**Software Requirements:**

* Operating System - Windows XP
* Coding Language - Java/J2EE(JSP,Servlet)
* Front End - J2EE
* Back End - MySQL