

Abstract

The accurate determination of user interest in terms of geographic information is essential to numerous mobile applications, such as recommender systems and mobile advertising. User interest is greatly influenced by the usage context and varies across individuals; therefore, a user interest model should incorporate these individual needs and propensities. In this paper, we present an approach to model user interest in a contextualized and personalized manner based on location-based social networks. Multinomial logistic regression is employed to quantify the relationship between user interest and usage context at both the aggregate and individual levels. The proposed approach is tested in a real-world application using Foursquare check-ins issued between February and June 2014 in the three major cities of Chicago, Los Angeles and New York. Results demonstrate the capability of the contextualization process for capturing contextual influences on user interest, and that such influences can be observed at a fine-grained scale at the individual level through the personalization process. The proposed approach therefore enables contextualized and personalized estimation of user interest, thereby contributing useful information to follow-up mobile applications.