

Chapter 16

Applications of Domain– Specific Predictive Analytics Applied to Big Data

Ravi Kumar Poluru

VIT University, India

Bharath Bhushan

Sree Vidyanikethan Engineering College, India

Basha Syed Muzamil

VIT University, India

Praveen Kumar Rayani

NIT Durgapur, India

Praveen Kumar Reddy

VIT University, India

ABSTRACT

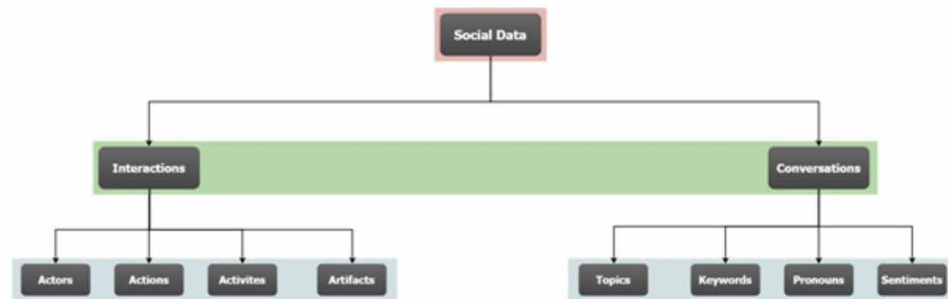
Performing prediction on every domain belonging to industry/firm is measured as effective management. This prediction helps the firm effectively manage human power and other resources, which leads to good productivity. In this chapter, the authors discuss applications where predictive analytics are applied. The applications are as follows: evaluation of customer lifetime value used in retail industry, customer churn management in the telecommunication sector, credit scoring in banking, sentiment analysis on product reviews to understand the customer opinion, clinical decision support systems, news analytics, and social media analytics. They conclude the application areas of predictive analytics will drive the research community towards developing novel methods for handling big data.

INTRODUCTION

From past few years, Internet and mobile communications are growing fast. Big data analytics is adopting techniques such as neural networks, machine learning algorithms, and deep learning algorithms to mine the desirable information for ICT applications.

DOI: 10.4018/978-1-5225-4999-4.ch016

Figure 1. Conceptual model of social data



To achieve the purpose of data analytics, there are several major steps:

1. Based on the selection of data set(s), pre-processing of the data for effective or easy computation;
2. Processing of data or data mining, likely adopting techniques from statistical inference and artificial intelligence; and
3. Post-processing to appropriately interpret results of data analytics as knowledge.

To analyze data Machine learning and artificial intelligence techniques are useful, typically via regression and/or classification. With advances in supervised and unsupervised learning, inferring the structure of knowledge, such as inferring Bayesian network structure from data, is one of the most useful information technologies Chen (2015).

Past few years online platforms are increased, and people publish their opinions in social networks, forums, blogs, etc, Tsytsarau and Palpanas (2016). The social set analysis consists of a generative framework for the philosophies of computational social science, the theory of social data, conceptual and formal models of social data, and an analytical framework for combining big social data sets with organizational and societal data sets. Large-scale sentiment analysis can be used, to learn about customer's attitude to a product or its features, to monitor sentiments across various demographic groups, or to reveal people's reaction to some event. Social networks are in a general sense versatile interchanges advances that transform Internet-based correspondences into an intelligent discourse stage. The hierarchical and societal reception and utilization of online networking are producing huge volumes of unstructured information that is named Big Social Data Vatrappu (2016). These problems demand to the scalable and robust analysis of big social data to generate the desired output.

The opinion can be either an absolute statement, e.g., "car is blue and white", or an evaluative statement, e.g., "this car looks nice". Sentiments can be assigned a polarity score, ranging from pleasantness (positive) to unpleasantness (negative) Tsytsarau and Palpanas (2016). The issue of amassing assorted opinions (and identifying their logical inconsistency) has been contemplated with regards to various research regions, from item audit mining to data recovery. Notwithstanding, the data contained in normal assessments might be deficient. For instance, if two inverse conclusion esteems are summed up, the outcome may have an unbiased extremity. The information about either conclusion (sentiment) is then lost. Then again, illustrative articulations of inverse sentiments are just catching the importance of logical inconsistency, yet not its level. Along these lines, this issue basically requires a reliable definition and new strategies to manage.

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