Chapter 7
Big Data Deep Analytics for Geosocial Networks

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ABSTRACT
Geosocial network data provides the full information on current trends in human, their behaviors, their living style, the incidents and events, the disasters, current medical infection, and much more with respect to locations. Hence, the current geosocial media can work as a data asset for facilitating the national and the government itself by analyzing the geosocial data at real-time. However, there are millions of geosocial network users, who generates terabytes of heterogeneous data with a variety of information every day with high-speed, termed as Big Data. Analyzing such big amount of data and making real-time decisions is an inspiring task. Therefore, this book chapter discusses the exploration of geosocial networks. A system architecture is discussed and implemented in a real-time environment in order to process the abundant amount of various social network data to monitor the earth events, incidents, medical diseases, user trends and thoughts to make future real-time decisions as well as future planning.

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INTRODUCTION

Social media is drastically advancing their features day by day while altering themselves from social networks to geosocial networks. It enables people to create their contents publically related to any social events with the geographic location information. This results in the rise of the usage of geosocial media users by empowering them to be voice opinions, to reports events, transfer thoughts, show anger and love while connecting with each other. Such intercommunication from people to people was unconceivable in pre-Internet age. Now, the information shared by most of the social media becomes geosocial as: 1) with the posts from users with extensive contents, the geographical information are also attached. The geolocation information can either be explicitly entered (by checking-in) or implicitly added (by earth coordinates, like latitude, altitude), and 2) the users thoughts shared on social media reveals social knowledge and also strengthen the relationship and communication among communities.

The technology advancement enables the use of GPS system in smart phone, which marks the location data to be very easy to get. The location of any person, who comments on any status, posts on any social media wall, or unloading a picture regarding any event, is recorded. Thus, gathering such type of location data, from all social network users, produces warehouses of geosocial data. There is another way generating geosocial data by crowd-sourcing while providing self-developed application for various purposes or a cause, such as disease or infection control. By this way, the geosocial data is harvested by from volunteer or paid user, who are willing to provide information for that cause. For Example, In Haiyan typhoon at Philippine in 2013, virtually community of huge number of supporters, volunteers, IT professionals created online street maps for emergency reliefs (Hern, 2013). Such type of online information gathered by crowed-sourcing was given a new name as ‘volunteer geographic information’ (VGI) (Haklay, 2010). These days many platforms and softwares have been developed that are using crow-sourcing for geosocial data harvesting in order to promote businesses, promote any cause, or other commercial purposes. One of such software platform example is Ushahidi. It provides the reports by matching the specific keyword on the geosocial network at the given locations. That report is then used for social awareness and help in case of any emergency or disaster (Zook, Graham, 2010). There are also some other applications with limited functionalities like Hootsuite (“Hootsuite” n.d.) and 140kit (“140kit” n.d.)

Now these days, researchers are more concerned in geosocial networks by considering it as new data asset (Stefanids et al, 2012; Cheng et al, 2011). Crooks et al. (2012), in their work, used Twitter data to map the earthquake in United States using geolocated tweets. Among 21,362 geolocated tweets, the first tweet announcing about the earthquake appeared after 1 minute of the earthquake on Twitter (Crooks
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