Chapter 6
The Use of Social Media for Urban Planning: Virtual Urban Landscapes Created Using Twitter Data

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ABSTRACT

User data created in the digital context has increasingly been of interest to analysis and spatial analysis in particular. Large scale computer user management systems such as digital ticketing and social networking are creating vast amount of data. Such data systems can contain information generated by potentially millions of individuals. This kind of data has been termed big data. The analysis of big data can in its spatial but also in a temporal and social nature be of much interest for analysis in the context of cities and urban areas. This chapter discusses this potential along with a selection of sample work and an in-depth case study. Hereby the focus is mainly on the use and employment of insight gained from social media data, especially the Twitter platform, in regards to cities and urban environments. The first part of the chapter discusses a range of examples that make use of big data and the mapping of digital social network data. The second part discusses the way the data is collected and processed. An important section is dedicated to the aspects of ethical considerations. A summary and an outlook are discussed at the end.

INTRODUCTION

The social networking industry has seen a massive push towards location data in many areas over the past three years. This ranges from software and application to products, mapping and visualisation but also to technology and platforms. The development of devices and the usage of this feature go hand in hand, fuelling one another. An important aspect is the push towards free and open data. Only if the data is accessible, can the mapping and visualising communicate its complexity, in

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turn shaping the desire of a large user group to share their information and location details with fellow users. The push towards open data has mainly been part of the public debate with calls to open up government databases, but also calls for access to data held by private companies such as the providers of Facebook, Twitter or Google Latitude. Most of these companies now provide developer access to social networking data on various levels.

BACKGROUND

Some of the data is accessible via an API. This service is intended for third party services and application, accessing the main data stream to provide an extended service of the core functionality. For example a software app such as TweetDeck (TweetDeck was developed by Iain Dodsworth, starting in 2008. The software runs across platforms on the computer and on the mobile device and lets user manage a range of different social networking accounts such as Foursquare, Facebook and Twitter) or HootSuite (HootSuite was launched in 2008) provides client based user access to different social networks from the same app utilising API access to different services.

Most of these analysis and visualisation projects using Digital Social Networks data as a data source are developed in a loose research context with very different interests, backgrounds, and sometimes with an undefined context. One of the early book publications to pick up on this trend was Data Flow (Klanten, 2008) published by Gestalten, featuring a handful of projects concerned with Digital Social Networks data.

Whilst focusing specifically on location-based visuals of Digital Social Network data, it is interesting to note how the different Digital Social Networks are used globally. There are dramatic differences between Internet access across the globe and this is reflected in the use of Digital Social Networks. The Global Web Index (n. d.), a project by Trendstream (a marketing company providing research data) maps the activities across the world by country, provides a global view. The Global Web Index is one of the biggest Digital Social Network studies updated three times a year providing very detailed data. Such an overview provides, for example, the global view of Digital Social Networks of 2011. It shows the global distribution of use of Digital Social Networks including the popular platforms.

One of the source platforms that implemented the location information early on, as well as API access, is the photo sharing platform Flickr. It is a popular platform allowing users to tag their photographs with a location. Flickr allows access via the API to the stored data, and researchers have started to look at locations of photographs.

Crandall et al. (2009) undertook research at Cornell University into automated image recognition and the detection of landmarks. The project (for details, see urbanTick, 2009) looked into image recognition at a large scale, using images from online photo sharing platforms such as Flickr and Picasa and trying to automatically detect the location where the photograph was taken. As a by-product of the research project Mapping the World's Photos a place map was created (see figure 1 for illustration). In this particular context around 35 million images were used, collected from Flickr via the public API. The main hypothesis of the project is that geospatial information provides an important source of structure that can be directly integrated with visual and textual-tag content for organising global-scale photo collections.

By using the time stamp and the geolocation, where available, the movement of the photographer can be traced. Similar to a rough GPS track, the different locations where a photo is taken can be mapped as a sequence in space and time. Crandall et al. (2009) plotted this information, and the result was a series of urban tourist movement maps. In their paper they published two city maps, one of Manhattan, New York and one for the San Francisco Bay area. For London the team published