Chapter 1
Social Multimedia Mining:
Trends and Opportunities in Areas of Social and Communication Studies

Georgios Lappas
Technological Educational Institution of Western Macedonia, Greece

ABSTRACT

In recent years there is a vast and rapidly growing amount of multimedia content available online. Web 2.0 and online social networks have dramatically influenced the growing amount of multimedia content due to the fact that users become more active producers and distributors of such multimedia context. This work conceptualizes and introduces the concept of social multimedia mining as a new emerging research area that combines web mining research, multimedia research and social media research. New challenges in multimedia research, social network analysis research as well as trends and opportunities in research areas of social and communication studies and more specific in politics, public relations, public administration, marketing and advertising are discussed in this chapter.

INTRODUCTION

Web mining is the use of data mining techniques to extract information from web documents. Although data mining is a well established field, the application of data mining techniques on web data is not an easy convertible task as web data, unlikely the well described and organized data in various databases are usually semi-structured data (Lappas, 2008). With the rapid development of the internet, web mining has now become a very popular research area for many different disciplines.

In the age of Web 2.0 as users actively communicate, interact, and share content on the web, it become a very interesting research field the use of web mining techniques for online social network analysis. (Ting, 2008). Existing online social networks offer now a large variety of different types of multimedia data and metadata from textual to complex visual content, from tags to video content and from photos to sound content to name a few.

DOI: 10.4018/978-1-61350-513-7.ch001

On the one hand, the use of an evolving number of ubiquitous capture devices and on the other hand, the evolving number of social media sites as well as the increasing number of user involvement with those media, is leading to an unpredicted amount of web delivered multimedia content and applications. Social media such as wikis, blogs, forums, microblogs, vlogs, media sharing sites, virtual worlds, collaboration sites, and social networks offer a large variety of multimedia data. Moreover, the field of online social networks like Facebook, MySpace, Linkedin and the field of multimedia sharing content like YouTube, Flickr is already converging in various platforms, offering users' the opportunity to both sharing content and forming groups of social networks. As a result, multimedia content on the web can stimulate even more web mining researchers for mining interesting and usable information from this content. Mining such multimedia content from online social networks, also presents new challenges and existing opportunities for multimedia research (Boll, 2007; Naamarn, 2010), as well as research opportunities in a number of various disciplines as internet computing, social computing, marketing, business, pattern recognition, artificial intelligence, establishing that the research interest is interdisciplinary.

Herrera-Viedma and Pasi (2006) denote that due to the complexity of web research there is a requirement for the use of interdisciplinary approaches like statistics, databases, information retrieval, decision theory, artificial intelligence, cognitive social theory and behavioral science. Multimedia data increase the complexity of web research and such research around multimedia data on social media is a relatively new area. As a relatively new area, there is a lot of confusion when comparing research efforts from different point of views and therefore there is a need for surveys that record and aggregate efforts done by independent researchers, provide definitions and explain structures and taxonomies of the field from various points of view.

In this work, we will focus on emerging trends in mining multimedia data from social media in some research areas of communication studies (like political science, public relations, public administration, advertising and marketing research).

This work is organized as follows: definitions and new terms are introduced in the next section, a survey in the literature for existing applications of multimedia mining in online social networks in the above research areas of communication studies will collect, organize and present various different approaches, trends and existing opportunities.

This work is differentiated from other surveys and related work as it combines and conceptualizes theory from multimedia mining, web mining and social media, introducing the *social multimedia mining* concept described in next section. At the same time, this article provides social network mining research perspective, multimedia mining research perspective as well as social and communication science research perspectives so that to familiarize

A. Multimedia and online social network mining researchers to consider areas of interest in social and communication science as potential areas of research and applications;
B. Social and Communication science researchers to consider current trends in multimedia and online social network mining for empowering their web and online social network research activities.

SOCIAL MULTIMEDIA MINING

The web by itself may be considered as the largest existing multimedia application. The web provides an era where multimedia research agenda and multimedia applications are rapidly changing. New terms using the word multimedia appear in the literature revealing the emerging research interest in working with multimedia data from the web. Such new terms are related in the literature with: