

Chapter 88

Augmenting User Interaction Experience Through Embedded Multimodal Media Agents in Social Networks

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ABSTRACT

The current chapter proposes media agent and multi-agent models aiming at improving mediated communication and information exchange in social networking. Great progress has been conducted during the last decades in Information and Communication Technologies, which is also reflected in social media. The proposed models exploit the latest media technologies for the augmentation of user-interaction and contribution experience in multiple levels. Features of the suggested agent and multi-agent approaches are discussed and elaborated through the prism of social computing, social media analytics and intelligence, resulting to a sophisticated communication mediator between users and social groups. In addition, enhanced user engagement and collaboration are considered in terms of rich media experience and augmented reality, semantic interaction services, intelligent content processing and management automation over interoperable multiplatform environments. Social media cooperation and integration is envisioned towards the realization of Web 3.0 and beyond, as the main chapter contribution.

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INTRODUCTION

Over the past years social media networking became a part of everyday life for a great number of users, being generally accepted that it played, and is still playing, a very unique and important role in the growth of new media and modern global communication services. In general, Social Networking Sites (SNSs), in a broader use of the term incorporating social media and general social networking environments, are defined as Web services that give the ability to construct a public profile, to identify a list of other users with whom a connection is shared and finally the ability to view and track individual connections as well as those made by others (Nadkarni & Hofmann, 2012). In this context, social media platforms promise to create, contribute, share and exchange timely information. Social tagging, feedback and generally commenting are a common habit favoring personalized adaptation services or even hypermedia authoring and non-linear digital storytelling concepts. Most of these services are considered to be part of the so-called Web 2.0 paradigm, while their further exploitation along with future pervasive and ubiquitous computing services are new trends that are expected to change the landscape during the transition to Web 3.0 (Dimoulas, Veglis & Kalliris, 2014b, 2015; Dimoulas, Kalliris, Chatzara, Tsipas, & Papanikolaou, 2014a; Veglis, Dimoulas & Kalliris, 2016). In this journey, enhanced human-machine interaction (HMI) experience is pursued through virtual and augmented reality (AR) interaction environments (Feldon & Kafai, 2008; Zhou, Dun & Billinghurst, 2008), but also semantic understanding and conceptualization modules, that attempt to trail natural, human-like, communication alternatives. Among others, avatars and artificial characters, in general, are proposed as promising solutions to the above pursuance (Avdelidis et al., 2002; Kalliris et al., 2002; Bélisle & Bodur, 2010).

In traditional broadcast media the main advantage is that journalists, newscasters, actors and generally performers are able to communicate with the audience in a direct, immediate, user-friendly and sometimes entertaining way. In order to balance this advantage in new media, multimedia enabled Internet applications were firstly employed using VRML, Java and other programming tools. This kind of “rich media” that are popular today, utilize various techniques to enhance a recipient’s experience and can be incorporated in a variety of communication applications, such as email, newsletters, demos and other audio-visual interactive environments. Incorporation of artificial characters and simpler humanoid graphics were attempted in various social media platforms and related users profiles (Ochs, Pelachaud & Sadek, 2008). A common example that can be listed in this category is the use of emoticons that refer to specific emotional state and/or semantic response (Derks, Bos, & Von Grumbkow, 2008; Huang, Yen & Zhang, 2008). Animated digital characters (both 2D and 3D) have been also reported in desktop and web applications but also in Facebook and other SNSs (Avdelidis et al., 2002; Kalliris et al., 2002; Von der Pütten, Krämer, Gratch & Kang, 2010).

On the other hand, there is a variety of social media focusing on different content aspects as their key communication concept and philosophy, so that not all of them favor avatar-based multimedia interaction. For instance, twitter is intended for short text messaging services, while Soundcloud focuses exclusive on audio content contribution and sharing, along with its textual semantic meta-data. Similarly, Instagram and Flickr, but also YouTube and Vimeo, facilitate imaging –based communication by means of experience sharing through pictures and videos (Dimoulas et al., 2014b). In addition, there are social media and their mobile-application front ends that have been seriously accommodated and adapted as to confront limited interfacing capabilities of mobile terminals (Dimoulas et al., 2014b; Veglis et al., 2016). Thereafter, there is a need of various differentiated digital actuators that could adapt to the demands and particularities of different content types (i.e. text, audio, visual), media channels, terminals capabilities

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