

Taking Social Networks to the Next Level

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ABSTRACT

The success of social networking sites has led people to require the use of multiple accounts on different platforms which effectively increases the risks in managing them. Following and finding information about friends and family has become an issue too. Guided by these observations and by careful research of existing adaptive web technologies, the authors' team worked on the development of SNAP - an adaptive social network integrator which aimed to amalgamate various social networks (Facebook, Twitter, and Flickr) in one adaptive environment, which unobtrusively sorts the users' feed according to his/her preference. To achieve data transfer and authorisation, SNAP uses the newest version of the OAuth protocol. Adaptivity was achieved through statistical filtering. The initial field tests show that the system works, however there is definitely room for improvement in terms of Social Network Integration, and testers generally expressed an interest in the idea of using an adaptive social integrator such as SNAP. On top of this, the authors will be suggesting a number of improvements which will change the way society uses social networks forever.

Keywords: Adaptive Hypermedia Systems, Adaptive Systems, Social Network Integration, Social Network Portal, Social Networking

INTRODUCTION

More and more people use social networking sites (SNS) everyday to interact with their family and friends, and for various reasons a number of these people use more than one social network. People maintain a large number of contacts (friends) on their chosen social networks and as most social networks today offer many functionalities, such as status updates, media sharing (text, photo, audio, video), third party applications and games, the users may experi-

ence difficulties finding the content in which they are interested.

Another characteristics of SNS usage is that users are not a homogeneous mass but individuals with distinct preferences over which social network is the best for them. These preferences are not static either, and over the time they tend to change in favour of one network or another. Managing several accounts over different portals may become a burden for many users.

For this purpose the SNAP adaptive web portal was developed, allowing the amalgamation of several popular social networks in one integrated environment. SNAP monitors and

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learns the browsing behaviour of the users and adapts to it, giving prominence to their preferred social networks. This paper is an extension of Dingli *et al.* (2011) published at the IADIS Web Based Communities and Social Media Conference. It goes into further depth than the original paper whilst highlighting some new features which have been developed since the original publication.

The first part of this paper provides the reader with background about the topics discussed and explored in the paper. The topic of social networks in relation to adaptive systems will be covered and it ushers the methodology of the proposed web application. The methodology section explains how this web application brings together different key features of existing social networking websites and how such an integration proves itself to be successful. The proposed system was adequately evaluated and this is reported later in this paper together with areas of extended work which may be taken onboard by other third party projects.

LITERATURE REVIEW

Social Web

The World Wide Web (WWW) was proposed by Berners-Lee and Groff (1992) in their paper named “WWW.” The concept was that of a group of global internet users contributing to a global source but in a very limited manner when compared to the frequency of the content being queried. In this web, users were mostly consumers of information. In their paper ‘Teaching Web Development in the Web2.0 Era,’ Wang and Zahadat claimed that in around 2003 people started to use the web differently and shifted from the “read-only” environment (Wang & Zahadat, 2009).

We were all used to using the web as simple consumers by reading, filling in forms, messaging and using the internet from a fixed location. This shift introduced the concept of participating as well while using the web as end user and thus becoming co-producers (van Wamelen & de Kool, 2008). This gradually en-

abled us to publish content with more ease and putting the user at the centre of the web (Morato *et al.*, 2008) by making content dependent on the users thus being more dynamic (Hailpern *et al.*, 2009).

The field of Social Web or Social Computing has expanded after the wide scale integration of Web 2.0 and its enabling of users to contribute directly to web content (Margherita *et al.*, 2010). This is a new dimension which brought with it plenty of motivation in the creation of new applications but at the same time opened the doors for various issues. The social web entails online platforms or website which allow individual who have an account or profile to post content (Zhou *et al.*, 2010). This can be in the form of various products which were resultant of the web 2.0. The use of these products allows the sharing of information about personal activities and also about the expression of ideas of individuals.

Adaptive Systems

The function of an adaptive system is to offer personalized experience, analyzing the data from the user’s interaction with the system (Brusilovsky & Milan, 2007). It aims to improve the organization and presentation of websites (Perkowitz & Etzioni, 1997, as cited in Mican & Tomai, 2010) by adaptively selecting, prioritizing and manipulating links and content (Brusilovsky & Milan, 2007). The reasons which gave rise to the development of adaptive systems are varied, for instance, to give personalized recommendations (Balabanović, 1997), to personalize learning experience in tutoring systems (Baena *et al.*, 2000) or even to and even to adapt information for terminally-ill patients (Bental *et al.*, 2000). Furthermore, there are many approaches to adaptivity. In this review we are only aiming to present overlay user modelling, which is particularly pertinent to our work on SNAP.

The user model is at the heart of an adaptive system. The problem receives prominence in (Brusilovsky and Milan (2007) in a discussion about adaptive educational systems (AES), but

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