Chapter 5


Miriam J. Metzger
University of California, Santa Barbara, USA

Christo Wilson
University of California, Santa Barbara, USA

Rebekah A. Pure
University of California, Santa Barbara, USA

Ben Y. Zhao
University of California, Santa Barbara, USA

ABSTRACT

A deep understanding of user social interaction in social network sites (SNSs) can provide important insights into questions of human social and relational behavior, as well as shape the design of new social platforms and applications. Recent studies have shown that a majority of user interactions on SNSs are latent interactions—passive actions such as profile browsing that cannot be observed directly by traditional research methods. This chapter presents a new technique to capture natural latent social interaction in Renren, the most popular SNS in China. As such, it offers a better understanding of both visible (e.g., comments and wall posts) and latent (e.g., passive profile browsing) user social interactions in SNSs than has been possible to date. We show that latent interactions are much more prevalent and frequent than visible interactions, are somewhat nonreciprocal in nature, and that visits by non-friends make up a significant portion of profile views. Our results augment earlier findings on such concepts as lurking and interpersonal electronic surveillance, and in some cases, shed new light on these phenomena.
INTRODUCTION

Popular social network sites (SNSs) like Facebook and Twitter are changing the way people communicate and interact with each other, affecting how users manage both their own identity and their relationships with others. Today’s social networks already count close to one billion members worldwide. Facebook, the most popular SNS, has more than 500 million active users (Sorkin, 2010), and has surpassed Google as the most visited site on the Internet (Yarow, 2010). Increasingly, Facebook and Twitter are replacing email and search engines as users’ primary interfaces to the Internet (Gannes, 2010; Kirkpatrick, 2009). This trend is likely to continue, as networks like Facebook seek to personalize the web experience by giving sites access to information about their visitors and their friends, through new platforms such as OpenGraph (http://opengraphprotocol.org). A deep understanding of user interactions in social networks can provide important insights into questions of human social and relational behavior, as well as shape the design of social platforms and applications. For example, gauging the level of reciprocity in social interactions on SNSs can shed light on the factors that motivate social interactions. In addition, understanding how interactions are distributed between linked friends can assist in understanding information dissemination in social networks, thus identifying “popular” or “influential” users within the network (Chen, Wang, & Yang, 2009; Gruhl, Guha, Liben-Nowell, & Tomkins, 2004; Kempe, Kleinberg, & Tardos, 2003), as well as how information flows (Cha, Mislove, Adams, & Gummadi, 2008; Galuba, Aberer, Chakraborty, Despotovic, & Kellerer, 2010; Yoneki & Crowcroft, 2009). Moreover, lessons from studying how users interact through these communication tools can guide the design of new, more engaging mechanisms for social interaction and relationship management.

Initial studies of SNSs (Ahn, Han, Kwak, Moon, & Jeong, 2007; Mislove, Marcon, Gummadi, Druschel, & Bhattacharjee, 2007; Wilson, Boe, Sala, Puttaswamy, & Zhao, 2009) focused on topological characteristics of the social graph, which reveal patterns of explicit digital relationships (i.e., ‘friend’ links) between users, and have been used to approximate real-world social relationships that exist between users. However, researchers in psychology and sociology have cast doubt on the practice of inferring meaningful relationships from friend linkages alone, given how easy it is to link to others in the network whom one does not know at all or whom one barely knows (e.g., Bilge, Strufe, Balzarotti, & Kirda, 2009; Boyd, 2006; Sophos, 2007). To better capture the true nature of social relationships between SNS users, recent work has shifted to measuring observable social interactions (e.g., wall posts and photo comments) between users in these networks (Chun, Kwak, Eom, Ahn, Moon, & Jeong, 2008; Leskovec & Horvitz, 2008; Viswanath, Mislove, Cha, & Gummadi, 2009; Wilson et al., 2009). By constructing and then analyzing the visible interaction graph to examine who actually interacts with whom across different friend links in SNSs, these studies can better distinguish close-knit, active social relationships from weak or dormant relationships, and thus derive a more accurate representation of true social relationships between social network users. All of these studies take advantage of the fact that SNSs represent powerful environments to observe social relationships at a scale never before possible by making such interactions visible, traceable, and machine-parsable, and thus easy for researchers to capture and study. While this offers exciting promise for developing new and better models of human socio-relational behavior, some recent studies (Benevenuto, Rodrigues, Cha, & Almeida, 2009; Schneider, Feldmann, Krishnamurthy, & Willinger, 2009) are revealing that many user interactions on SNSs consist of latent social interactions, which involve passive actions such as profile browsing (i.e., looking at