Chapter 14

New Directions in Social Question Answering

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ABSTRACT

Social Question Answering (SQA) services are emerging as a valuable information resource that is rich not only in the expertise of the user community but also their interactions and insights. The next generation SQA services are challenged in many fronts, including but not limited to: massive, heterogeneous, and streaming collections, diverse and challenging users, and the need to be sensitive to context and ambiguity. However, scholarly inquiries have yet to dovetail into a composite research stream where techniques gleaned from various research domains could be used for harnessing the information richness in SQA services to address these challenges. This chapter first explores the SQA domain by understanding the service and its modules, and then investigating previous studies that were conducted in this domain. This chapter then compares SQA services with traditional question answering systems to identify possible research challenges. Finally, new directions in SQA are proposed.

INTRODUCTION

A computer which can calculate the question to the ultimate answer, a computer of such infinite and subtle complexity that organic life itself shall form part of its operational matrix (Adams, 1979). Although Adams’s vision of the Earth being transformed into a supercomputer powered by human intelligence was fictional, today’s social computing applications have transformed web towards achieving his vision. Social computing is defined as computational facilitation of social studies and human social dynamics as well as the design and use of ICT technologies that consider social context (Wang et al., 2007). Over the past decade, the Web has been transformed from a repository of largely static content to an interactive information space (Kirsch et al., 2006) where
users are able to participate freely in co-creating and sharing various kinds of content (such as text, image, audio and video). This is facilitated by a set of social computing applications such as blogs, social networking services, wikis, vlogs, and social question answering (SQA) services (Iskander et al., 2007).

In particular, a SQA service is defined as a tool for users to respond to other users’ questions (Liu et al., 2008b). In recent years, SQA services like Yahoo! Answers, Naver, and AnswerBag have become very popular, attracting a large number of users who seek and contribute answers to a variety of questions on diverse subjects (Wang et al., 2009). While Yahoo! Answers offered by Yahoo! was launched in 2005, Naver is a South Korean search portal that added its SQA service in 2005. Further, AnswerBag, a collaborative online database of FAQs was founded in 2003. Social computing applications such as wikis and blogs provide comments and opinions but may not solicit responses. However, responses from users contributing answers to questions form the backbone of a successful SQA service. These services are dedicated platforms for user-oriented QA and result in building up a community where users share and interactively give ratings and comments to questions and answers. Hence, SQA services are emerging as a valuable information resource that is rich not only in the expertise of a user community but also in the community’s interactions and insights. Therefore, the emergence of SQA services raises new research challenges for information systems researchers.

In a typical SQA service, a user can ask a question by posting on the service for other users to contribute answers. These questions are termed open questions. A user who asks a question is referred as an asker, even though the same user is likely to play other roles in a SQA service. Other roles played by the user are as an answerer or a voter. A user who answers a question is termed an answerer while a user who rates an answer is termed a voter. Once a question is posted on a SQA service, the asker needs to wait until other users contribute their answers to the posted question. After receiving answers to the question asked, the asker selects the best answer and ends the cycle of that question by moving it to the resolved questions section. Users’ activities are graded on a point scale system, specific to the SQA service, for identifying top contributors.

SQA services are derived from a branch of Information Retrieval (IR) known as question answering (QA). The goal of QA is to build intelligent systems that can provide succinct answers to questions constructed in a natural language. This approach helps in understanding users’ information needs in the form of a question and delivers exactly the required information in the form of an answer (Demner-Fushman, 2006). The development of automatic approaches to QA takes place primarily in the framework of large-scale evaluations, such as QA track at the Text Retrieval Conference (TREC) (Voorhees, 2003). However, QA systems that participate in these evaluations work largely on restricted domains and on closed corpora such as encyclopedia or news articles (Brill et al., 2002). Moreover, these systems focus on fact-based direct questions commonly known as factoid questions, for example: “Who was the US President in 1999?” These questions are involved in finding an exact short string, often representing an entity, such as named entities (person, organization, location), temporal expressions, or numerical expressions. Examples of popular TREC systems are Quanda (Breck et al., 1999), Falcon (Harabagiu et al., 2000), and AskMSR (Brill et al., 2002). Unlike these systems, START (Katz and Levin, 1988), Mulder (Kwok et al., 2001), and AnswerBus (Zheng, 2002) are examples of open-domain QA systems that are scaled to the Web. These systems use the redundancy of information on the Web to answer factoid questions.

A search of the literature suggested that there exist only a limited number of studies that have attempted to consider research gaps in SQA by
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