User Stance Prediction via Online Behavior Mining

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ABSTRACT

Nowadays social media, such as Twitter and all kinds of online forums, becomes a platform where people can express their opinions implicitly or explicitly. For example, in Twitter, people follow people they trust, and retweet the tweets they agree. In online forums, such as PoliticalForum.com, people explicitly express their opinions and interact with each other using text. Our goal is to understand people's stance on some (political) issue according to their online behaviors that can be captured in social media, including links they have issued and content they have generated, which is essential for national security and policy making.

Existing attempts in this direction, however, oversimplified the problem in several aspects. First, they usually treat the user stance prediction problem as a binary classification problem, e.g., left or right, or positive or negative, while the extent of people's attitude is very critical. Second, most of the existing work depends heavily on labels, which is unacceptable for large-scale social media data and impossible to label when user stance is modeled as a numerical number. Third, most of the methods do not attempt to understand the rationality behind their online behaviors.

In contrast, (1) our proposed methods can predict user stance in terms of numerical values; (2) our methods are unsupervised methods and no labels are required for the analysis; and (3) the models are carefully designed with the consideration of human rationality of their choices. In particular, two specific user stance prediction problems will be included in this keynote: (1) political ideology detection for ordinary twitter users via their heterogeneous types of links; and (2) user stance prediction in news commenting system. These methodologies may benefit more applications ranging across a wide spectrum of domains.

CCS Concepts/ACM Classifiers

• **Information systems~Information systems applications**

• **Information systems~World Wide Web**

Keywords

User stance prediction; online behavior mining; social computing; social media.

Keynote Speaker's Bio:

Yizhou Sun is an assistant professor at department of computer science of University of California, Los Angeles. Prior to that, she was an assistant professor in the College of Computer and Information Science of Northeastern University. She received her Ph.D. in Computer Science from the University of Illinois at Urbana-Champaign in 2012. Her principal research interest is in mining information and social networks, and more generally in data mining, machine learning, and network science, with a focus on modeling novel problems and proposing scalable algorithms for large-scale, real-world applications. She is a pioneer researcher in mining heterogeneous information networks. Yizhou has over 70 publications in books, journals, and major conferences. Tutorials on mining heterogeneous information networks and its applications have been given in several premier conferences, including EDBT 2009, SIGMOD 2010, KDD 2010, ICDE 2012, VLDB 2012, ASONAM 2012, ACL 2015, and the upcoming WWW 2017. She received 2012 ACM SIGKDD Best Student Paper Award, 2013 ACM SIGKDD Doctoral Dissertation Award, 2013 Yahoo ACE (Academic Career Enhancement) Award, 2015 NSF CAREER Award, and 2016 CS@ILLINOIS Distinguished Alumni Educator Award.

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