

Trust in Social Computing

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ABSTRACT

The rapid development of social media exacerbates the information overload and credibility problems. Trust, providing information about with whom we can trust to share information and from whom we can accept information, plays an important role in helping users collect relevant and reliable information in social media. Trust has become a research topic of increasing importance and of practical significance. In this tutorial, we illustrate properties and representation models of trust, elucidate trust measurements with representative algorithms, and demonstrate real-world applications where trust is explicitly used. As a new dimension of the trust study, we discuss the concept of distrust and its roles in trust measurements and applications.

Categories and Subject Descriptors

H3.3 [Information Storage and Retrieval]: Information Search and Retrieval—*Information filtering*

Keywords

Trust, Social Media, Social Computing, Data Mining, Trust Modeling, Trust Measurements, Trust Applications, Distrust

1. INTRODUCTION

Social media greatly enables people to participate in online activities and shatters the barrier for online users to create and share information in any place at any time. However, the explosion of user-generated content poses novel challenges for online users to find relevant information, or, in other words, exacerbates the information overload problem. On the other hand, the quality of user-generated content can vary dramatically from excellence to abuse or spam, resulting in a problem of information credibility. The study and understanding of trust can lead to an effective approach to addressing both information overload and credibility problems.

Trust refers to a relationship between a trustor (the subject that trusts a target entity) and a trustee (the entity that is trusted) [2, 1]. In the context of social media, trust provides evidence about with whom we can trust to share information and from whom we can accept information without additional verification. With trust, we make the mental shortcut by directly seeking information from trustees or trusted entities, which serves a two-fold purpose: without being overwhelmed by excessive information (i.e., mitigated information overload) and with credible information due to the trust placed on the information provider (i.e., increased information credibility). Therefore, trust is crucial in helping social media users collect relevant and reliable information, and trust in social media is a research topic of increasing importance and of practical significance [3, 4, 5].

This tutorial takes a computational perspective to offer an overview of characteristics and elements of trust and illuminate a wide range of computational tasks of trust. It introduces basic concepts, deliberates challenges and opportunities, reviews state-of-the-art algorithms, and elaborates effective evaluation methods in the trust study. In particular, we illustrate properties and representation models of trust, elucidate trust measurements with representative algorithms, and demonstrate real-world applications where trust is explicitly used. As a new dimension of the trust study, we discuss the concept of distrust and its roles in trust measurements and applications. Finally we will summarize the tutorial with discussions on open issues and challenges about trust in social media. Updated Information can be found at the tutorial webpage <http://www.public.asu.edu/~jtang20/tTrust.htm>.

2. REFERENCES

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