# TRUM 2013: The Role and Importance of Trust in User Modelling

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**Abstract.**. The 3rd international workshop on Trust, Reputation and User Modelling (TRUM 22013) was held with the International Conference on User Modeling Adaptation and Personalization (UMAP 2013). The purpose of the workshop is : (a) to bring researchers together from the communities of trust, reputation and user modeling, and online communities where trust plays an important role, (b) to provide a forum for cutting-age research possibly not yet well evaluated, and (c) to initiate and facilitate discussions on the new trends in trust, reputation and user modeling, and to move the trends forward. In this preface, we briefly introduce the workshop, present the summary of the papers presented in the workshop and ackwledged people who have helped for the success of the workshop.

**Keywords:** Trust, Reputation, User Modeliing

## 1 Introduction

The third Trust, Reputation and User Modeling (TRUM) workshop follows two successful previous workshops: TRUM'11 was held with UMAP 2011 at Girona, Spain and TRUM'12 - with UMAP 2012 at Montreal, Canada.

The workshops address an emerging area of overlap between user modeling and the area of trust and reputation modeling. This overlap has three aspects, illustrated in Fig. 1. First, decentralised and ubiquitous user modeling has sought inspiration from research in multi-agent systems over the last 10 years, resulting in a series of workshops on this topic at the User Modelling (UM) conference in 2005, 2007 and UMAP (User Modelling, Adaptation and Personalization) 2009. The current trend towards software applications using the cloud to store and process information that can be downloaded on social networks and mobile devices platforms brings new importance to the area of decentralised user modeling. Frameworks for dynamic and purpose based sharing of user model fragments among applicaions need to take into account the trust among these applications. The trust of one agent in another can be viewed as

a simple user/agent model. Researchers in the area of trust and reputation mechanisms have studied for many years techniques allowing autonomous agents and peers to share, aggregate and make decisions based on these simple user models. User modeling researchers can gain useful insights from this area.

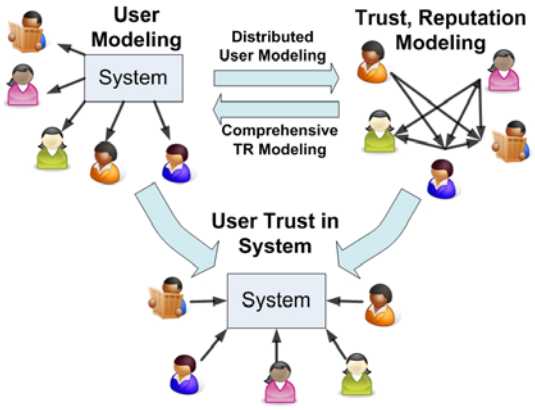


**Fig. 1.** Overalp of Trust, Reputation and User Modelling

Second, the area of trust and reputation modeling has experienced rapid growth in the past 7 years. Recently, two important trends have emerged in this area. One is the computational modeling of agents' cognition, such as subjectivity and disposition, to achieve more accurate trust and reputation modeling. The other is the modeling of agents' trust using a stereotype approach to deal with the problem of lack of experience. Both of these trends are closely related to studies in user modeling. The evidential success of these new trends inspires and encourages researchers in the trust community to make use of the rich literature in user modeling to develop more comprehensive trust and reputation modeling approaches.

A third important way in which research in user modeling overlaps with trust is the user's trust in adaptive / personalised applications. In effect, it is a symmetrical area to that of user modeling: while user modeling suggests that the system models the user, here the user models the system. It relates to issues of user's understanding of the application and of the privacy and integrity of the user model data, both of which are actively studied in the user modeling community. Facilitating the user's understanding and trust in the system's functioning and the way it manages the user's data is very important, since it determines the user's acceptance of the application's recommendations or persuasion, the user's satisfaction with the application's functionality, and ultimately, its success.

While the papers presented in the first two TRUM workshops focused on formal models of users trust in systems / service providers, this workshop looks at trust in a more holistic way, that is manifested in online social networks. It involves three kinds of trust, as shown in Fig. 2 (trust triangle): (a) trust between members of the network, (b) trust between a member and the provided online service, and (c) the trust between a member and the service provider. This focus brings yet another intersection between

trust research and user modeling, with respect to recommendation systems. Whereas recommendation systems typically rely on users' profiles or preferences, new types of recommendation algorithms are being designed based on trust behavior, thus further enhancing personalisation.

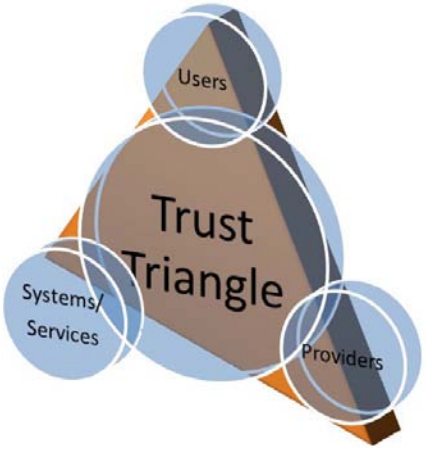


**Fig. 2.** Trust Triangle

To discuss the challenges related to this new holistic view and the potential solutions, the 3rd TRUM workshop was held with UMAP 2013 in Rome, Italy, with the following specific objectives:

- To bring researchers together from the communities of trust, reputation and user modeling, and online communities where trust plays an important role;
- To provide a forum for cutting-age research possibly not yet well evaluated;
- To initiate and facilitate discussions on the new trends in trust, reputation and user modeling, and to move the trends forward.

## 2 Organisation

The workshop was structured as a half a day event with a keynote speaker and four research paper presentations.

The keynote was given by Professor Alfred Kosba (University of California, Irvine, USA), on "Personalizing Privacy". It presented the results of recent studies on people's disclosure of personal data in smartphone and web shopping scenarios, showing a wide variety in individual privacy concerns across users. Further, providing adaptive, personalized privacy depending on the user individual privacy concerns. Ensuring a practical way to tailor the level of privacy according to the user's individual concerns and preferences is a novel and promising way of ensuring user trust in adaptive systems. This is particularly important for ensuring a better user experience and acceptance of recommender systems.

The research papers were as follows. The first paper, entitled "A User-Centric Study Of Reputation Metrics in Online Communities" by Hammer *et al*., discusses

experimental work investigating whether users' trust in a reputation system is indeed positively affected by the system having more credible reputation values and more robustness against manipulation. The paper reports findings of an experiment carried out to investigate user perceptions of two reputation metrics, eBay and Neighbour-Trust Metric. The results could be of value to reputation metrics designers in making the system more user friendly. This is an important aspect of reputation systems as trusting reputation system is an essential to the successful and wide adaptation and deployment of reputation systems in ecommerce and online communities where users have to interact with unknown persons.

The second paper , entitled “Users’ motives shape trust in personalized applications: the importance of need satisfaction for perceived trustworthiness and risk” by Baer *et al*., looks at different user goals (in particular, "do-goals" and "be-goals"), and their respective effect on trust. The authors used two specific services (Facebook and Dropbox) to represent the different user goals and needs and conducted an experiment to examine whether the perceived trust and risks were also different.

The third paper explores the question of what constitutes trust in social networks and how people would characterise their conclusions of trust in these networks (e.g. according to which factors). It is entitled “Trust evaluation on Facebook using multiple contexts” and written by Švec and Samek. In the paper, the authors ask respondents (Facebook users) some questions in an effort to determine whether the authors' own proposal for trust modeling would coincide well with the views of the users. Graphs are presented which attempt to quantify the extent to which the authors' proposed model diverges from the users' opinions. Another interesting aspect of the paper is its exploration of literature that has likely not been discussed to a significant extent within artificial intelligence circles of trust modeling: theories from sociology. Its clarification of Marsh's original model is also insightful.

Finally, Bista *et al.* present a study of people's trusting behavior and expectation towards others within and out of a specific online community for welfare recipient in Australia. The paper is entitled “Know Your Members’ Trust”. The authors adapted a standard set of questions defined to capture trust attitude, trust experience and behavior, and trust expectation. Their results show that the members have overall positive expectation from the community, although they do not seem to have a trusting behavior towards strangers. There is a gap between members’ attitude and behavior about trust and their expectation from others. It is the authors’ hope that interactions within the community will help reduce this gap, leading to an increase in the social trust between members and towards governments.

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