

VU Research Portal

Analysis and Validation of Models for Trust Dynamics

Jaffry, S.W.

2011

document version

Publisher's PDF, also known as Version of record

[Link to publication in VU Research Portal](#)

citation for published version (APA)

Jaffry, S. W. (2011). *Analysis and Validation of Models for Trust Dynamics*.

General rights

Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

- Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
- You may not further distribute the material or use it for any profit-making activity or commercial gain
- You may freely distribute the URL identifying the publication in the public portal ?

Take down policy

If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.

E-mail address:

vuresearchportal.ub@vu.nl

ABSTRACT

Technological advancements in the last century have opened numerous venues and great challenges. The use of machines and devices in everyday human life has assigned them a new societal role. Envisioning the machine to act as an educator, helper, supporter, mediator, negotiator, moderator, doctor, and a daily companion is the debate of the day. Emergence of such a techno-human society has brought many challenges to technologists and social scientists. A main question that still stands is whether such a societal setup will be stable. One of the crucial factors for such a setup to be successful is the humans' levels of trust in machines. To make such artefacts more human-aware with respect to their trust, dynamical models of trust should be designed, verified, validated and embedded into them. These models will enable the machine to estimate human trust and adapt accordingly. In existing literature there are several computational models of trust which silently assume a rational basis of trust. This performance oriented, system-theoretic view of trust is not the true representation of human behaviour. As reported in many recent studies humans usually do not behave rationally under the influence of personal perception, feeling and biases. This notion of trust is called human-based trust in this dissertation. Both system-theoretic and human-based trust models have their own domain of applications in the current socio-technological world. In these days interactions in the socio-technological world can be classified into three types, namely, human-human, human-machine and machine-machine. System-theoretic trust has a wide application for cases when two autonomous machines communicate or interact with each other. These machines do not have human aspects. Hence, the performance-oriented view of utility, past experiences and institutions enforcements can provide them enough to trust on each other or not. Different from a machine-machine view of interaction, human-based trust has an application in both human-machine and human-human interactions. Hence, understanding of human trust dynamics in these perspectives is necessary for progress and effective utilization of current socio-technological advancements. This dissertation deals with modelling of human-based trust and validation of these models, which is an essential component for human-human and human-machine interaction posed under the challenges of the postmodern human society.