

EXPLORING IMPORTANCE OF TRUST IN SOCIO-TECHNICAL NETWORK

Background:

Existence of trust is a well addressed issue in context of socio-technical network e.g. online social network, collaboration network, peer-to-peer network etc. Trust has been defined from different perspectives in several research contexts. Trust can be assumed as peer's belief in another peer's capabilities, honesty and reliability. On the other hand, decision trust helps any individual to take decision depending on some person or thing. There exist two types of trust: 1) node trust: it is the quantitative measure how that individual is perceived by others in that community. 2) Link trust: it is the mutual trust among individual which is a quantitative measure of strength of their relationship.

Motivation:

With the advent of peer-to-peer network and online social network, there is huge growth of user generated contents which urges to define the trustworthiness of those contents. Measuring the validity of any news in social media or selection of peer over the network became a great challenge. Though the existence of trust in any socio-technical network is a well addressed issue and there exists preferential attachment in network evolution not only collaboration network but also in other socio-technical network, but no such work identifies the network growth which is influenced by the underlying trust dynamics in the network. We are trying to learn that trust dynamics behind the network growth as well as the governing factors of information diffusion over the network to control those malicious user generated contents.

Objective:

In our work, we have planned to explore the importance of trust in socio-technical network. In order to do so, we have initially observed the evolution dynamics under the influence of trust. These evolution patterns and underlying trust dynamics reveal importance of trust in growth of node as well as the whole network. On the other hand, link prediction is quite a well addressed issue in literature. It has been observed that the performance of the various link prediction algorithms based on local and global similarity of nodes. We have observed the assortative nature of network evolution under the influence of various trust factors. Thus, assortative and propogative nature of trust gives us future research direction to develop trust based link predict model.