Online Trust and Reputation Systems
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ABSTRACT
As online commerce, social networks, and user-generated content become common, need for trust and reputation models become prime. This tutorial will give an overview of trust and reputation systems as studied by social network researchers. Other topics include: Reputation and its relationship to security and fraud; Feedback and other Manifestations and Implementations of trust and reputations; Models of reputation; platforms: P2P systems, Centralized systems; Auctions, Incentive systems; Collaborative filtering; Social Networking and Social reputation; Portability and Universality of Identity, trust, and reputation.

Categories and Subject Descriptors
I.2.11 [Artificial Intelligence]: Distributed Artificial Intelligence.

General Terms

Keywords
Identity; Trust; Fraud; Reputation; Electronic Commerce; Social Networks

Trust is well-studied among social network researchers. It is explicated through referrals and ratings. Resnick[] has marked out the characteristics of a reputation system. These include 1. actors in such a system have to be long lived to influence future reputation scores; 2. mechanism to capture current scores to influence future scores; 3. ratings about past interactions to guide current interactions. The characteristics apply well not only to eCommerce systems like clicks-and-mortar stores where an individual business is rated by its customers but also in peer-to-peer marketplaces and social network sites which include interactions, reviews, and guides.

Trust and reputation often identify other related entities like fraud and safety. Algorithms defined to compute reputation are closely attached to those designed to detect fraud or compute safety measures. Lack of trust leads means higher possibility of fraud or fraud committers try and take over reputed member’s trust to commit fraud. Mechanisms that restrict such takeover are of importance to build low fraud applications.

2. TUTORIAL OVERVIEW
This tutorial will cover several areas of online reputation systems. Some key topics include:
1. Concepts and definition of online trust and reputation.
2. Reputation and its relationship to security and fraud.
3. Feedback and other manifestations and Implementations of trust and reputations
4. Models of reputation
5. Platforms: P2P systems, Centralized systems
6. Auctions, Incentive systems
7. Collaborative filtering
8. Social Networking and Social reputation
9. Degrees of freedom; Circles of trust
10. Example Applications (Amazon, Epinions, eBay, Slashdot.org, Digg etc.)

3. TUTOR BIOGRAPHY
Neel Sundaresan is the Director and Head of eBay Research Labs. His current areas of research interest includes Social and Incentive Networks, Trust and Reputation Systems, Machine Learning as applied to Recommender systems, Classification, Ontology, and Search. Prior to joining eBay was a founder and CTO of a startup focused on multi-attribute fuzzy search and network CRM. Prior to this he was the head of the eMerging Internet Technologies group at the IBM Research Center. There he built the first XML-based Search Engine. He was one of the

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early leaders in building XML technologies including schema-aware compression algorithms, application component generators and pattern-match systems and compilers. He built the first RDF reference implementation as a W3C standard recommendation. He led research work in other areas like domain specific search engines, multi-modal interfaces and assistive technologies, semantic transcoding, web mining, query systems, and classification for semi-structured data. Prior to this he worked on C++ compiler and runtime systems for massively parallel machines and for shared memory systems and also on retargetable compilers, program translators and generators. He has over 40 research publications and several patents to his credit. He has been a frequent speaker at several national and international technology conferences. He has advised several PhD and masters dissertations. He has a degree in mathematics and a masters in computer science and engineering from the Indian Institute of Technology, Mumbai India and a PhD in computer science from Indiana University, Bloomington.

4. REFERENCES


