mTrust: Discerning Multi-Faceted Trust in a Connected World

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Motivation

- Trust, a social concept, has many facets
- People may place trust differently on different people
- A Multi-Faceted Trust example from Epinions

Methodology

- Representation
  - From Adjacency Matrix to Tensor
- Trust Strength Inference
  - Correlation between Rating Similarity and Trust
  - Rating Prediction
    \[
    \hat{R}(u, i) = \alpha \left( \sum_{k} PF(i, k) \mu(k) + B(u, k) \right) + (1 - \alpha) \sum_{k=1}^{K} \sum_{v \in N(u, i)} PF(i, k) A(v, u, k) R(v, i)
    \]

Findings from mTrust

- Heterogeneous Trust Links
  - Pairs of Reciprocal Links
  - Transitive Trust Relationships
  - Co-Citation Trust Relationships

Applying mTrust

- Improving Rating Prediction
- Enabling Facet-Sensitive Ranking
- Making Status Theory Applicable to Reciprocal Links

Future Work

- Applying mTrust to other domains, such as the Twitter network
- Studying the evolution of multi-faceted trust

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