Community Discovery in Dynamic Rich-context Social Networks

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Motivation and Context
Contemporary social media culture
Grass-root network Social movement Decision making

Data characteristics
- Voluminous
- Dynamic
- Context-rich

New challenges
- Lack of well-defined attributes
- Limitation in network analysis
- Scalability requirement

What is a community?
A cluster of people with sustained relationship among them

Summary
Goal
Large scale community discovery in the context of everyday social media use

Current work
Mutual awareness
Transitive awareness
Multi-relational analysis
Community evolution

Contribution
Leveraging interdisciplinary observations into developing new mining framework

Community Evolution
Extracting sustained evolving communities

Results
Clustering accuracy on synthetic evolving networks
Community evolution in blog networks
Scalability
Time-dependent ranking in DBLP
Social media artifact organization
User study using Flickr group data

Multi-relational Communities
Tracking communities from rich context

Objective function
minimize $\alpha D(W \parallel XX^T) + (1 - \alpha) D(Y \parallel XA)$

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