



Research on the Analysis and Modeling of Social Network Structure

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Outline

Introduction

Social Network Structure

Modeling of Social Network Structure

Preliminary Conclusion

References



Introduction

- Background
- Definition
- Purpose



Social Network Structure

Paper 1

Information Network or Social Network? The Structure of the Twitter Follow Graph

2014

International Conference on World Wide Web

CCF A

Cite:124



Social Network Structure

The theme

- Problem Description
- Data and Methods
- Graph Characteristic
- Conclusion



Social Network Structure

Graph	Avg. Path Length	spid
Twitter		
Follow Graph	4.05	0.12
Mutual Graph	4.17	0.11
Mutual BR	3.78	0.13
Mutual JP	3.89	0.16
Mutual US	4.37	0.18
Other Networks		
Facebook	4.74	0.09
MSN	6.6	-

Figure: Summary of the average shortest path length distributions for the various graphs



Social Network Structure

Paper 2

Community-Affiliation Graph Model for Overlapping Network Community Detection

2012

International Conference on Data Mining

CCF B

Cite:136

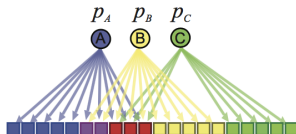


Social Network Structure

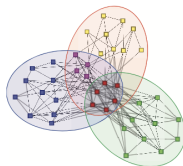
The theme

- Problem Description
- Networks With Ground-Truth Communities
- Empirical Observation
- Conclusion

Social Network Structure



(a) Community Affiliation Network



(b) Overlap

Figure: (a) Bipartite community affiliation (b) Network generated by AGM



Modeling of Social Network Structure

Paper 3

Evolution of Social-Attribute Networks: Measurements, Modeling, and Implications using Google+

2012

Internet Measurement Conference

CCF B

Cite:134



Modeling of Social Network Structure

The theme

- Problem Description
- Preliminaries and Dataset
- Social Structure of SAN
- Summary



Modeling of Social Network Structure

Paper 4

Communities, modules and large-scale structure in networks

2014

Nature Physics

Chinese Academy of Sciences 1 District

Cite:454



Modeling of Social Network Structure

The theme

- Problem Description
- Hierarchical Clustering and Optimization Methods
- Block Models
- Conclusion



Modeling of Social Network Structure

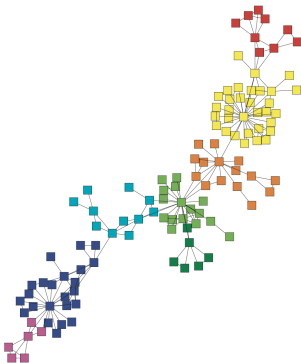


Figure: A network of collaborations among scientists at a research institute



Preliminary Conclusion

Preliminary Conclusion

- Social networking is a special complex network
- Multidisciplinary crossover and integration are the inevitable ways to solve the problem of structural analysis and modeling of complex social networks



References

- 1. Information Network or Social Network? The Structure of the Twitter Follow Graph
- 2. Community-Affiliation Graph Model for Overlapping Network Community Detection
- 3. Evolution of Social-Attribute Networks: Measurements, Modeling, and Implications using Google+
- 4. Communities, modules and large-scale structure in networks



Thank you!