Social Computing

S&T Campaign: Information Sciences
System Intelligence and Intelligent Systems

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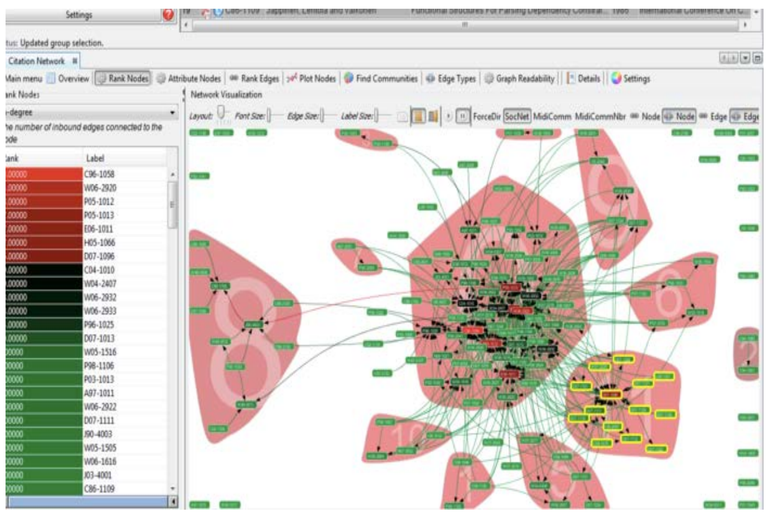
Research Objectives

- Explore computational analytic principles applied to socially-created data to extract meaningful information.
- Determine what predictions can be made over heterogeneous social media data on areas as diverse as economics, politics, crowd behavior and other areas.
- Identify big data technologies that are capable of processing mutilingual multimodal data arising from massively networked, mobile, and cloud computing resources.



Where is the Meaning in Large Networks of Networked Information?

Dunne, C., Shneiderman, B., Gove, R., Klavans, J. & Dorr, B. (2012), *"Rapid understanding of scientific paper collections: integrating statistics, text analytics, and visualization"*, JASIST: Journal of the American Society for Information Science and Technology.

Challenges – Building New Collaborations and Applications

- **Challenge One**: Extending analysis of socially created information using computational technologies.
- **Challenge Two**: Extracting patterns and make predictions using computational methodologies.
- **Challenge Three:** Applying computing and information science principles to the solution of problems in application domains that lie outside the scope of the traditional computing discipline.
- **Challenge Four:** Coordinating and collaborating with interdisciplinary social and computer scientists.
- **Challenge Five:** Harnessing crowd computing for distributed problem solving.

ARL Facilities and Capabilities Available to Support Collaborative Research

- Compelling requirements to drive research within ARL context
- Research on complex, multi-genre networks, i.e. networks that combine several distinct genres:
  - physical resources
  - communication networks
  - information networks
  - social and cognitive networks
- Social Analytics Expertise
- Machine Learning
- Natural Language Processing and Dialogue Management
- Multilingual Computing

Mobile Computing Data Impacts Decisions at Many Levels

Capabilities Sought in Collaboration

- Expertise in a computing techniques applied to social data and collective intelligence
- Natural Language Processing for information extraction, linking, visualization and summarization
- Multimodal and multilingual computing
- Expertise in computing driven by interdisciplinary social science teams
- Innovative applications for situational awareness
- Trust and credibility for intelligence applications