

Visual Analytics

John Stasko

School of Interactive Computing

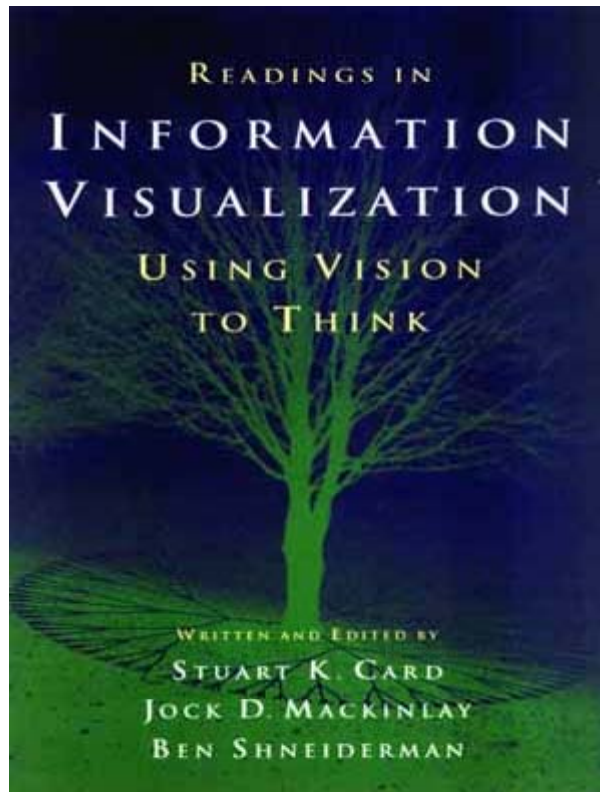
Georgia Institute of Technology

stasko@cc.gatech.edu



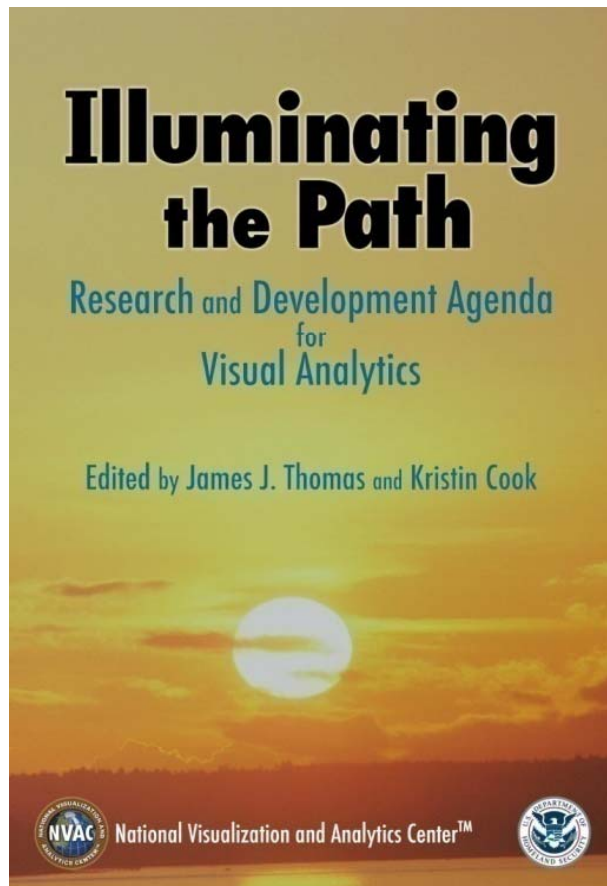
Data Analysis
Statistical
Algorithmic
Visual





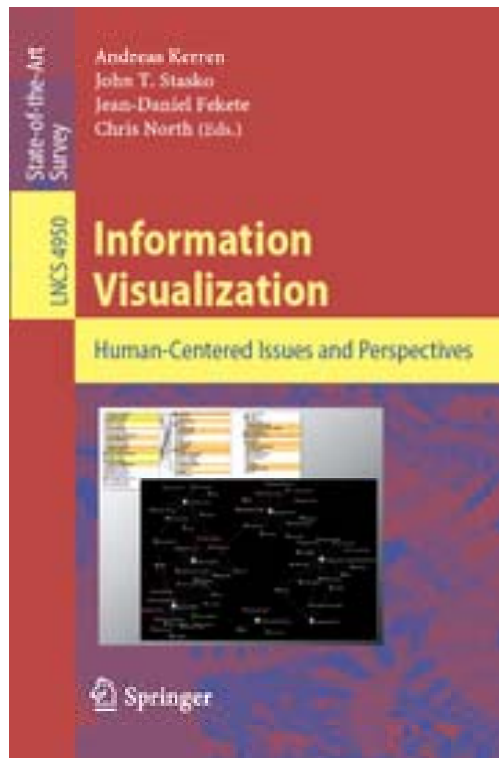
Visualization

“The use of Computer-supported, interactive visual representations of data to amplify cognition”



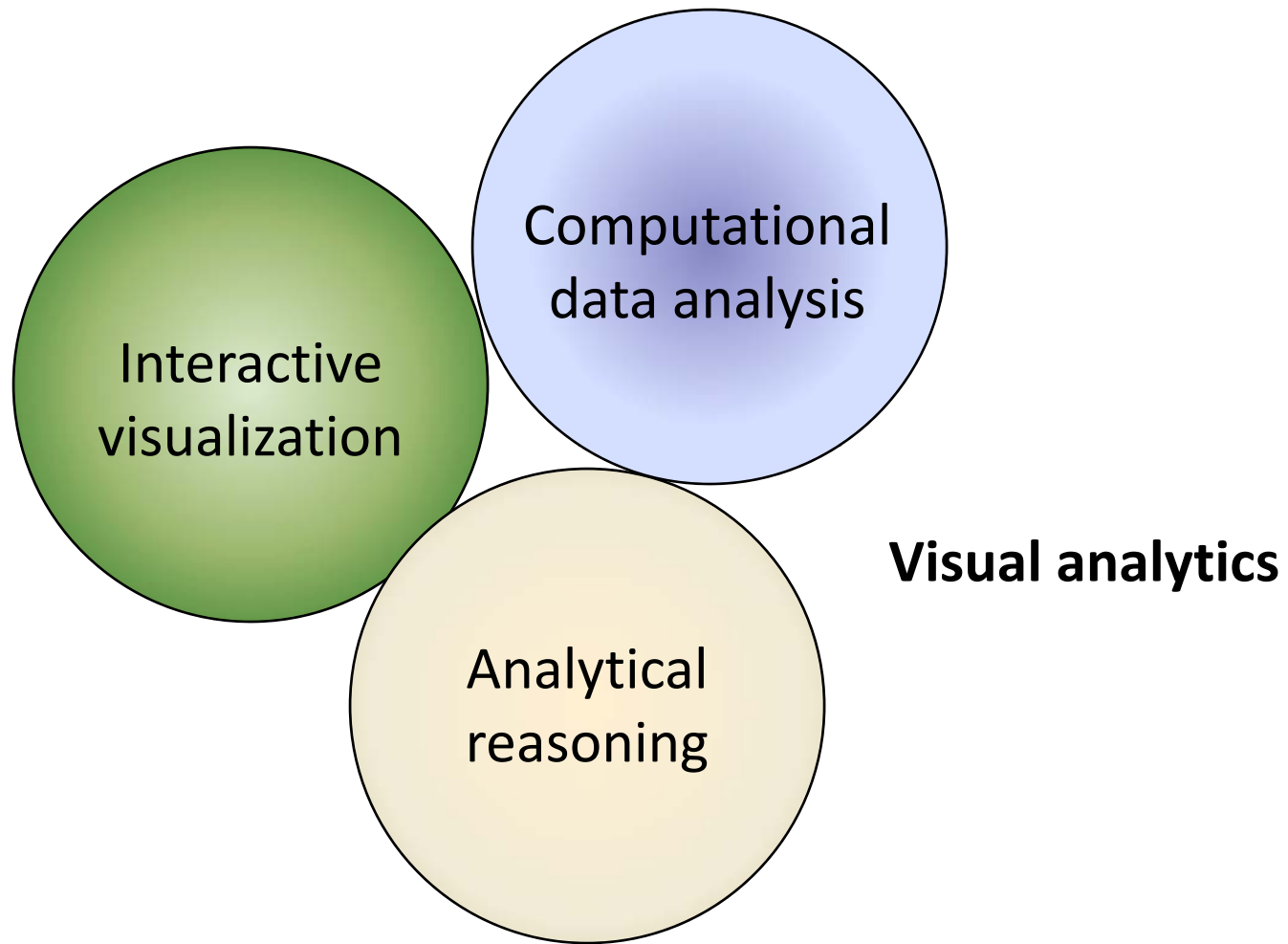
Visual analytics is the science of analytical reasoning facilitated by interactive visual interfaces

<http://nvac.pnl.gov/>



Visual analytics combines automated analysis techniques with interactive visualizations for an effective understanding, reasoning, and decision-making on the basis of very large and complex data sets

Keim, Andrienko, Fekete, Görg, Kohlhammer, and Melançon

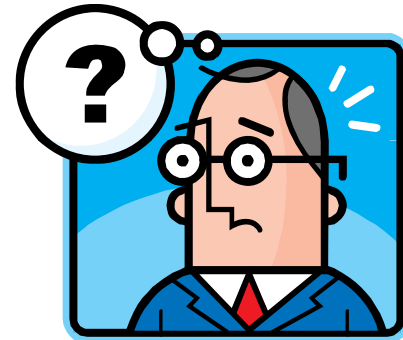


Visualization most useful in **exploratory data analysis**

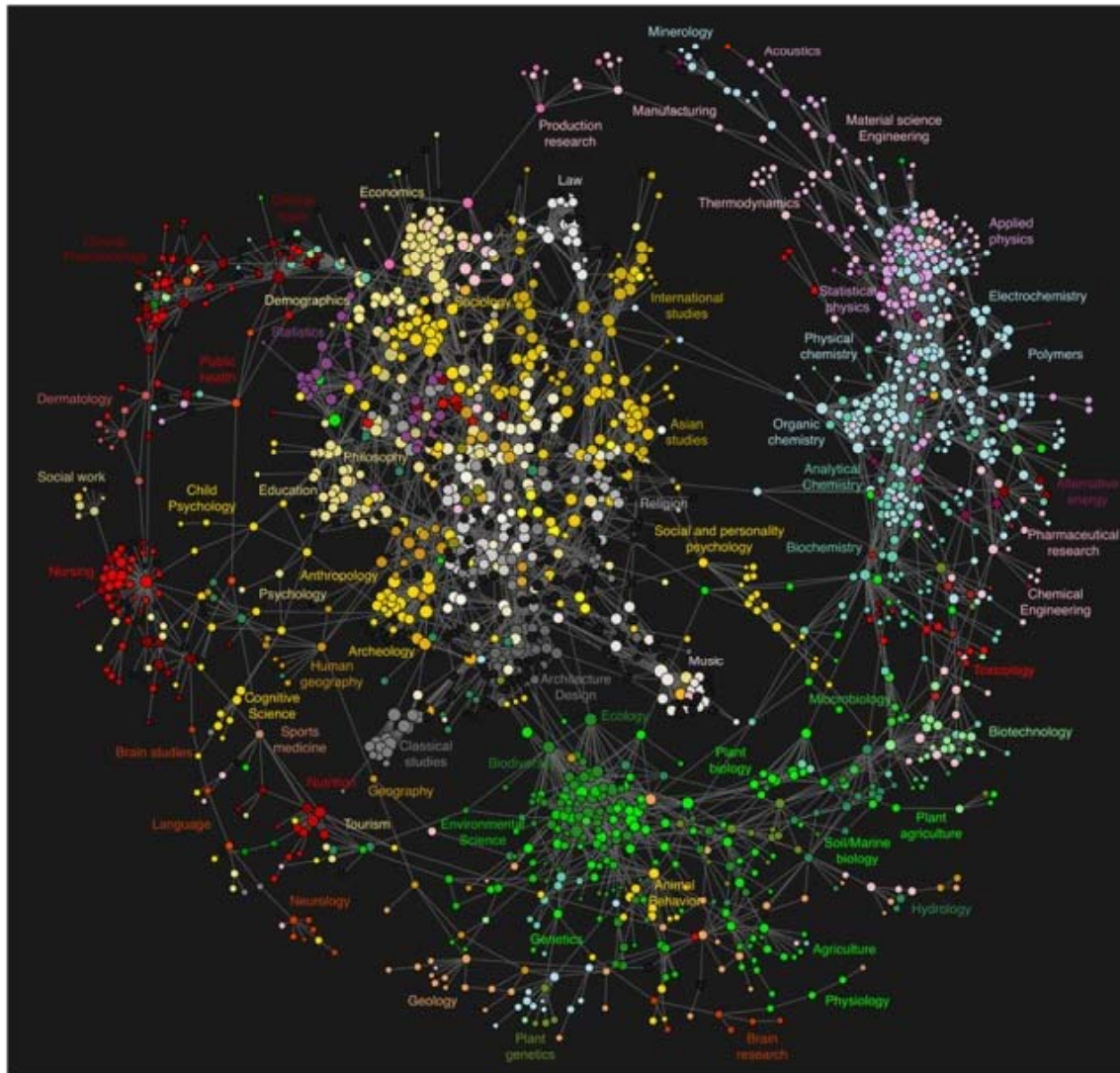
Don't know what you're looking for

Don't have a priori questions

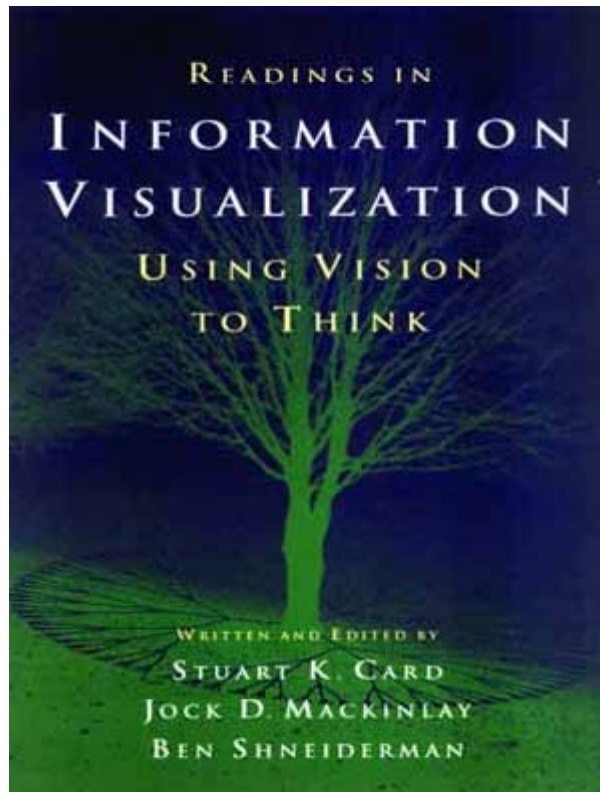
Want to know what questions to ask



Maps of Science

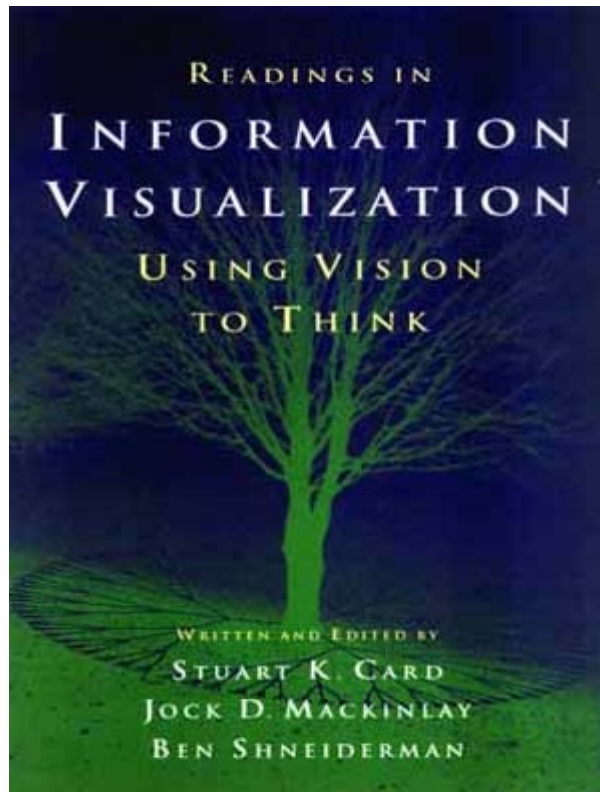


http://www.lanl.gov/news/index.php/fuseaction/home.story/story_id/15960



Visualization

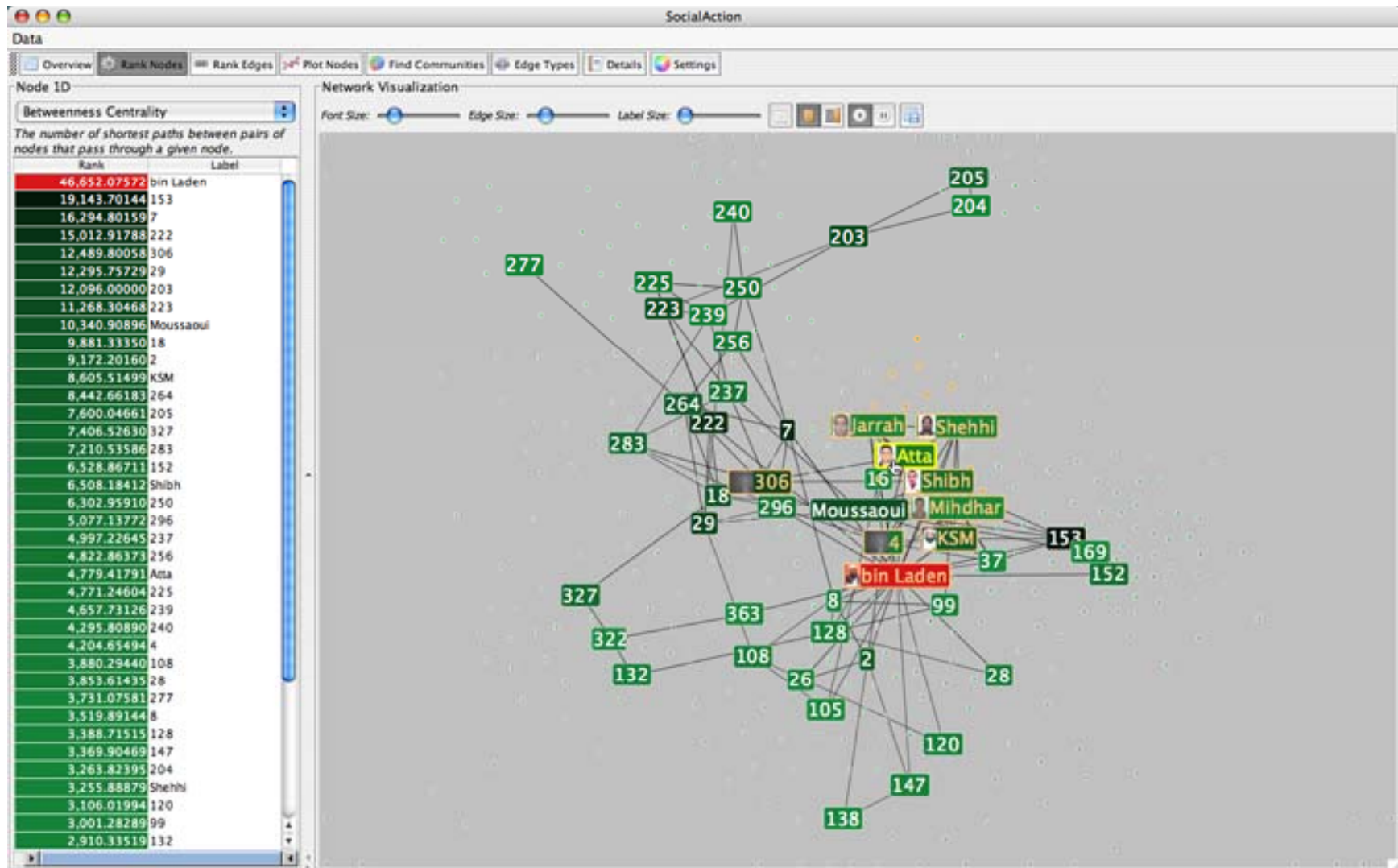
“The use of Computer-supported, interactive visual representations of data to amplify cognition”



Visualization

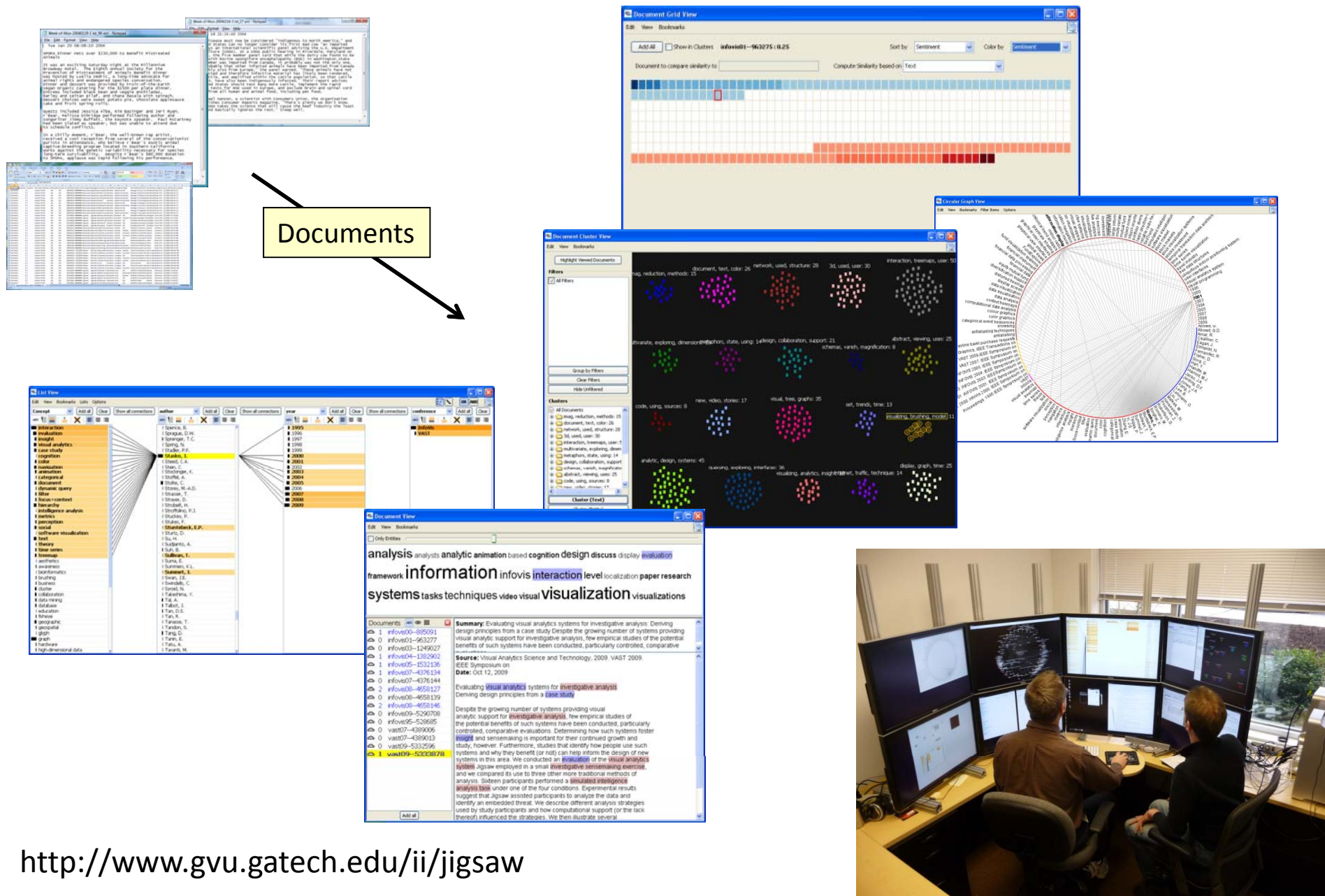
“The use of Computer-supported, **interactive** visual representations of data to amplify cognition”

Social Action: Social Network Analysis

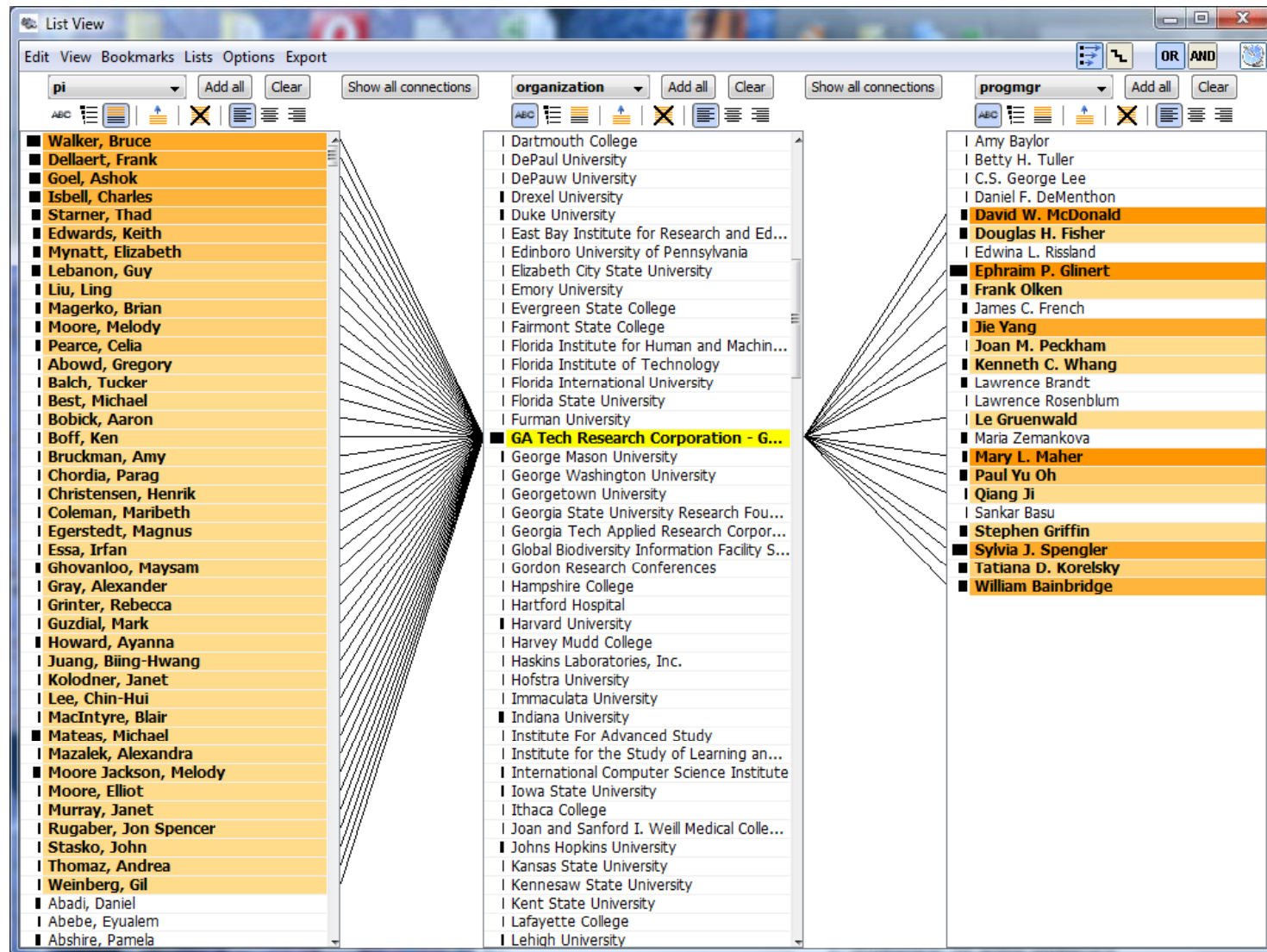


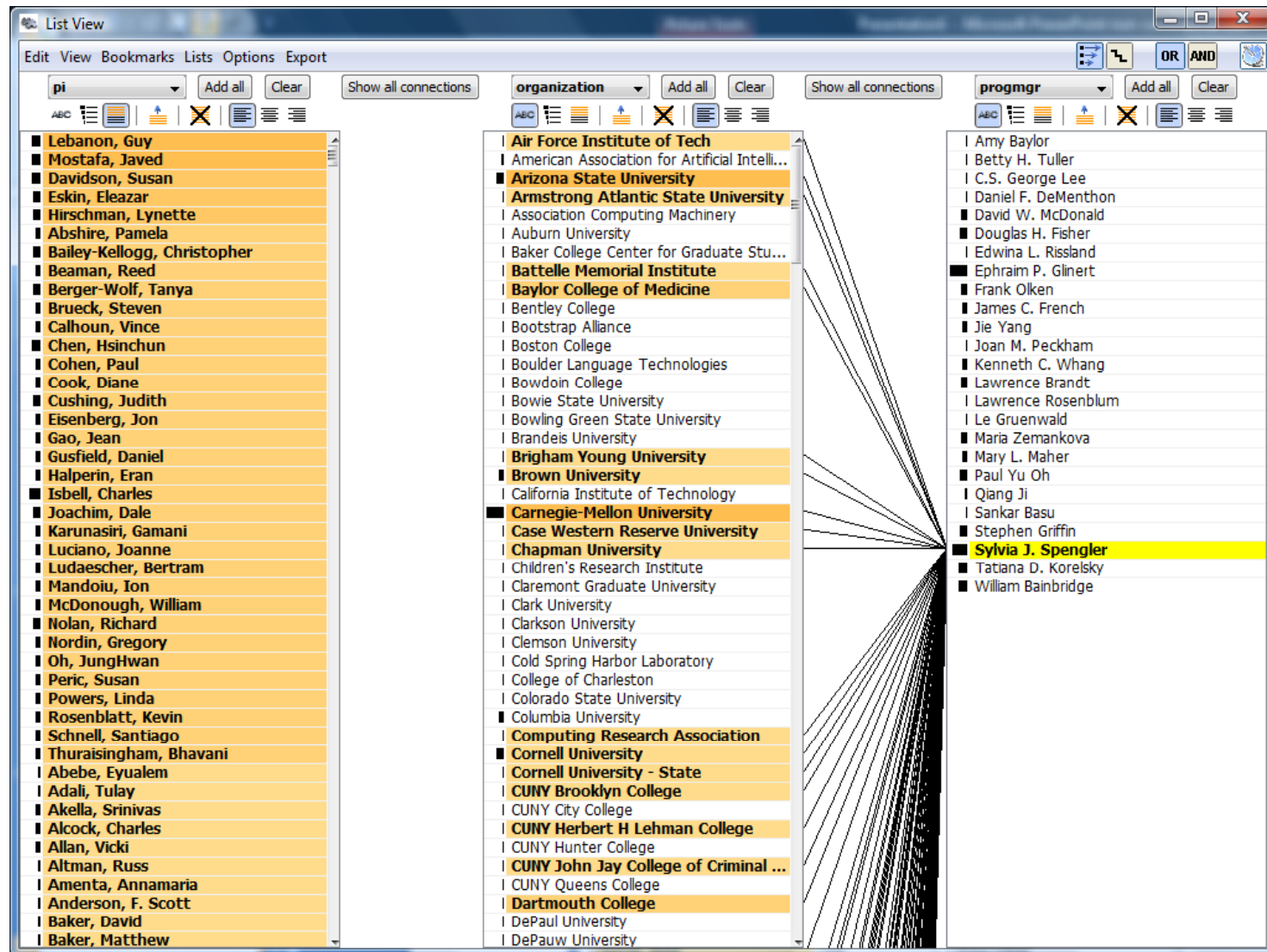
Perer & Shneiderman

Jigsaw: Visual Analytics for Document Investigations



<http://www.gvu.gatech.edu/ii/jigsaw>





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Clarkson, Gavin
Contractor, Noshir
Croft, W. Bruce
Dellaert, Frank
Finholt, Thomas
Freire, Juliana
Goel, Ashok
Gumbreiere, Francois
Isbell, Charles
Murphy, Robin
Tanner, Herbert
Zickler, Todd
Blake, M. Brian
Burleson, Winslow
Callan, Jamie
Cassell, Justine
Chen, Hsinchun
Davidson, Susan
Epstein, Susan
Fischer, Gerhard
Fox, Edward
Greenwald, Amy
Halpern, Joseph
Han, Jiawei
Hebert, Martial
Hirschberg, Julia
Hwa, Rebecca
Joachims, Thorsten
Kerne, Andruud
Lavie, Alon
Lebanon, Guy
Madden, Samuel
Makedon, Filla
Mankoff, Jennifer

Pennsylvania State Univ University...

Syracuse University
University of Michigan Ann Arbor
Air Force Institute of Tech
American Association for Artificial Intelli...
Arizona State University
Armstrong Atlantic State University
Association Computing Machinery
Auburn University
Baker College Center for Graduate Stu...
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Boulder Language Technologies
Bowdoin College
Bowie State University
Bowling Green State University
Brandeis University
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Brown University
California Institute of Technology
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Case Western Reserve University
Chapman University
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Clark University
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0 0844618

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Summary:

Establishing the I-Conference: Intellectual Bases and Value of Interdisciplinary Research This award will support the first I-Conference for Information Schools ("i-schools") whose focus is on the interdisciplinary and multidisciplinary research and education related to information and Communication Technologies (ICTs).

Source:

Date: Sep 15, 2005

Establishing the I-Conference: Intellectual Bases and Value of Interdisciplinary Research

This award will support the first I-Conference for Information Schools ("i-schools") whose focus is on the interdisciplinary and multidisciplinary research and education related to information and Communication Technologies (ICTs). This conference will bring together faculty, students, and deans to articulate the challenges of i-schools, which include identity formation, curriculum development, academic life, and appropriate research agendas. One outcome will be increased visibility of i-schools and their vision to the larger academic community. Another will be to pull together a coherent community of scientist and educators who care about the study of ICTs and who will develop the next generation of scientists and educators.

Affiliated entities:

amount: 35000

award-instr: Standard Grant

director: CSE

division: IIS

fieldofapplication: 0104000 Information Systems

Keyword: education vision

organization: Pennsylvania State Univ University Park

pi: Sawyer, Steven

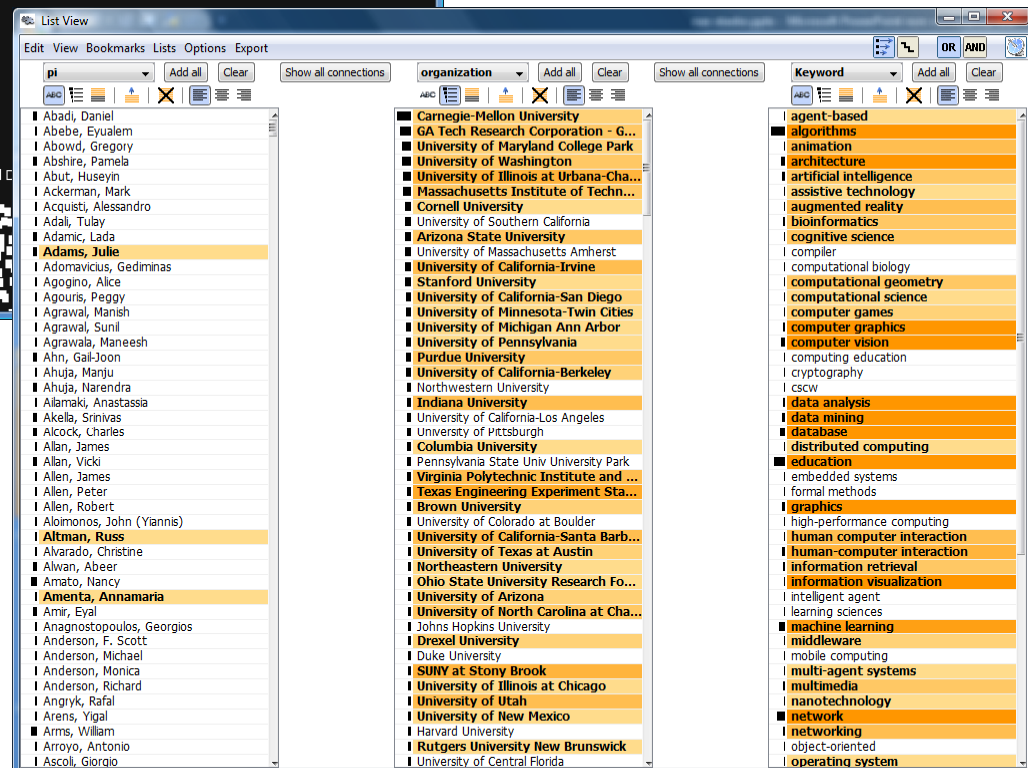
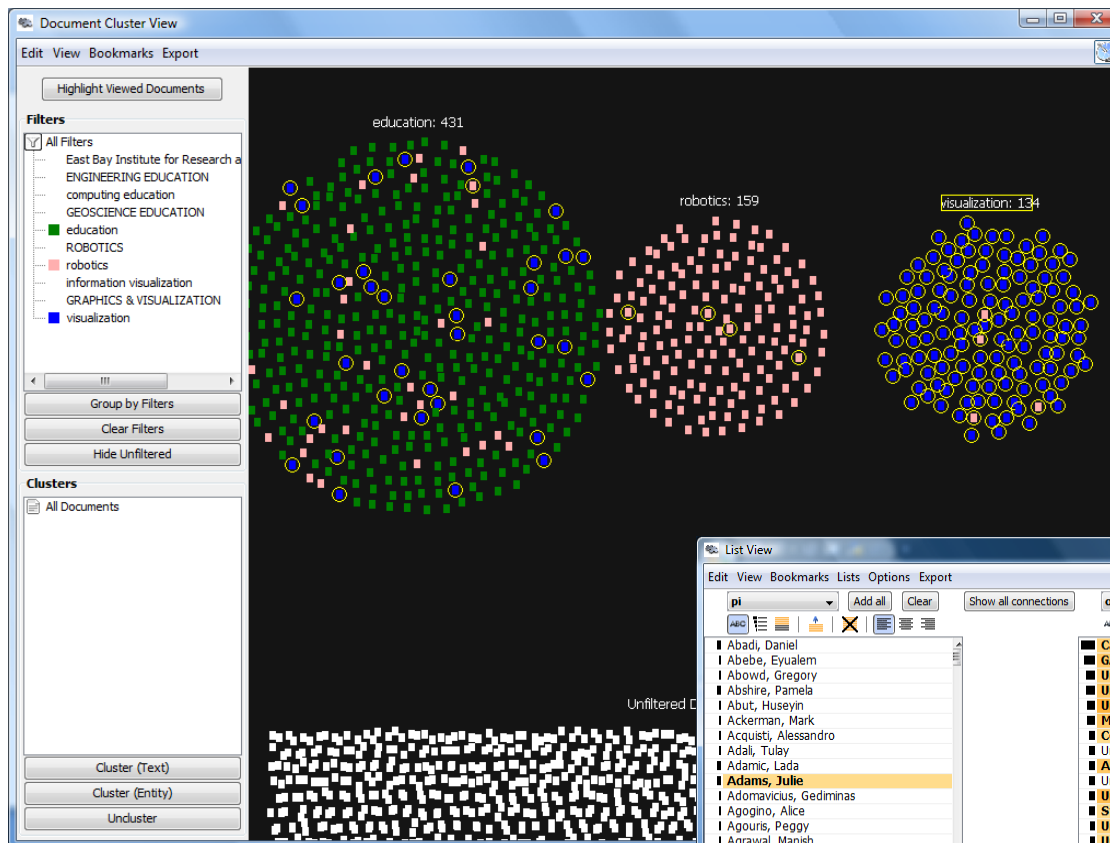
progmgr: William Bainbridge

program: DIGITAL SOCIETY&TECHNOLOGIES

programmelementcode: 6850

programreferencecode: 7484 9215 HPCC

state: PA





Ploceus: Network Visualization from Tabular Data

Zhicheng Liu (PhD student)

(a) GRANT

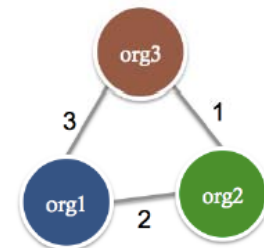
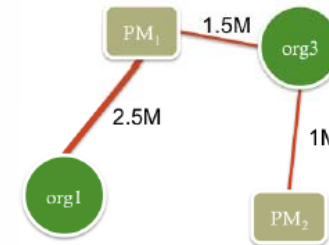
GID	Title	Program	Program Manager	Amount
1	Data Mining of Digital Behavior	Statistics	Sylvia Spengler	2241750
2	Real-time Capture, Management and Reconstruction of Spatio-Temporal Events	Information Technology Research	Maria Zemankova	430000
3	Statistical Data Mining of Time-Dependent Data with Applications in Geoscience and Biology	ITR for National Priorities	Sylvia Spengler	566644

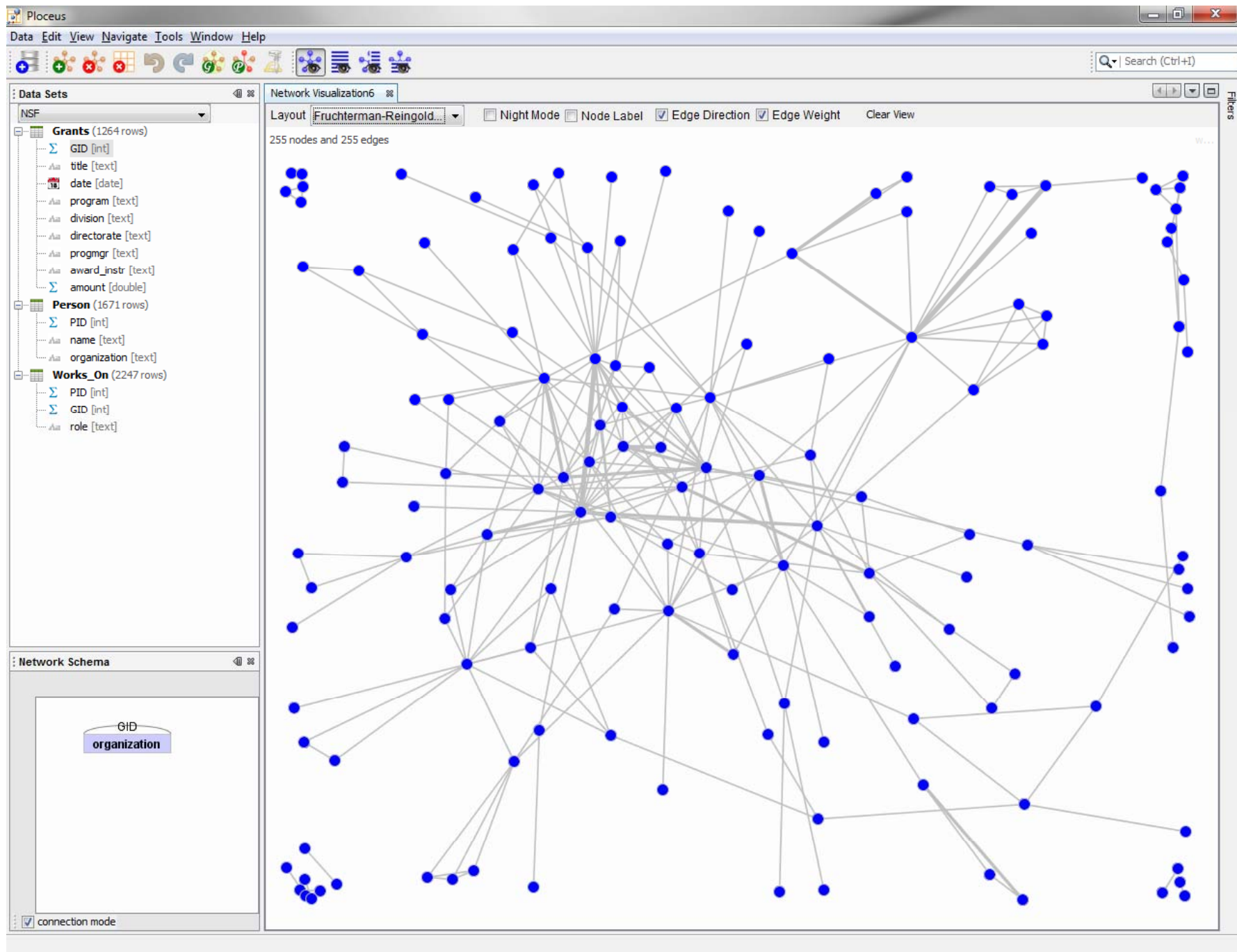
(b) PERSON

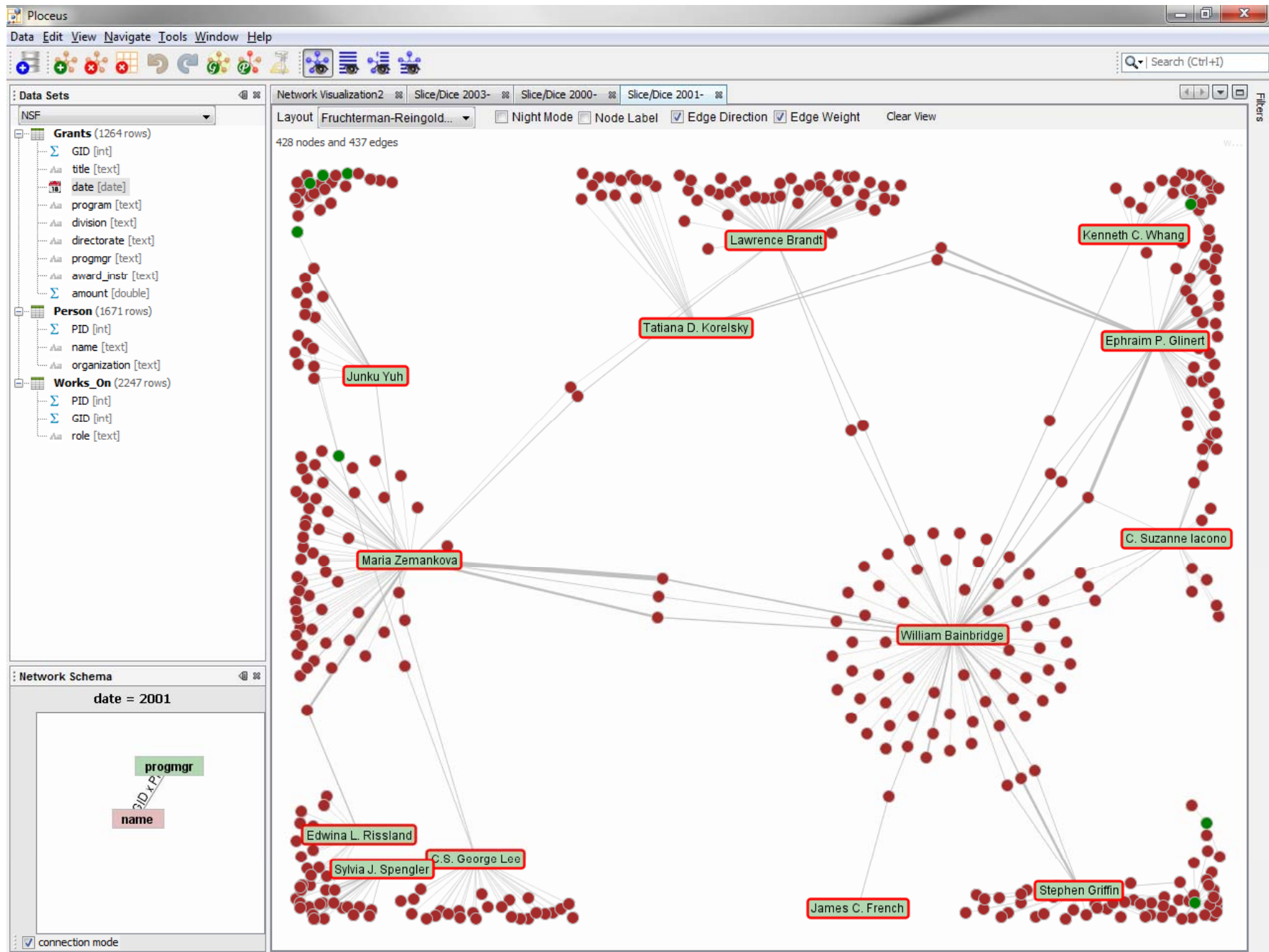
PID	Name	Org
1	Padhraic Smyth	University of California Irvine
2	Sharad Mehrotra	University of California Irvine

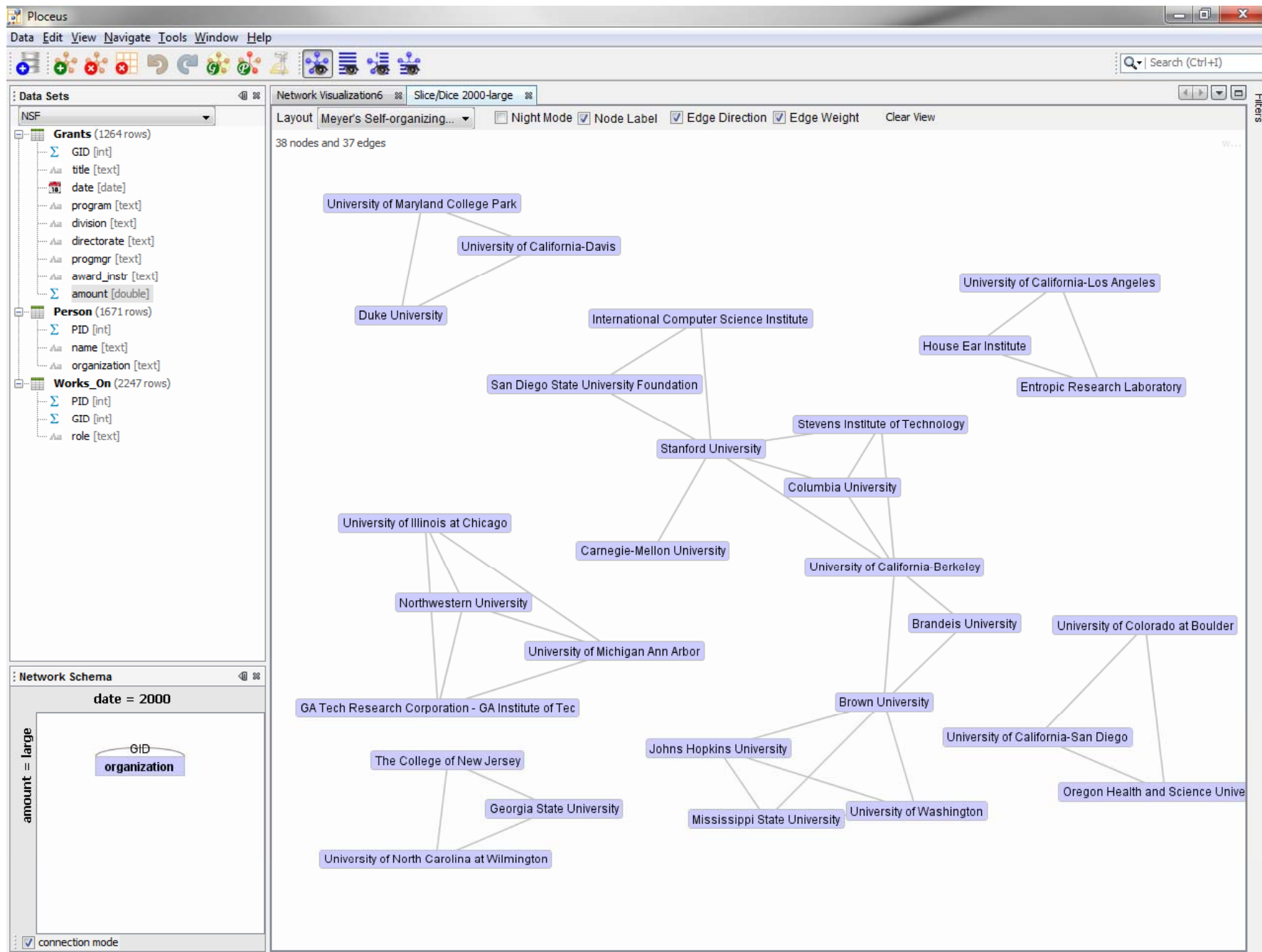
(c) WorkOn

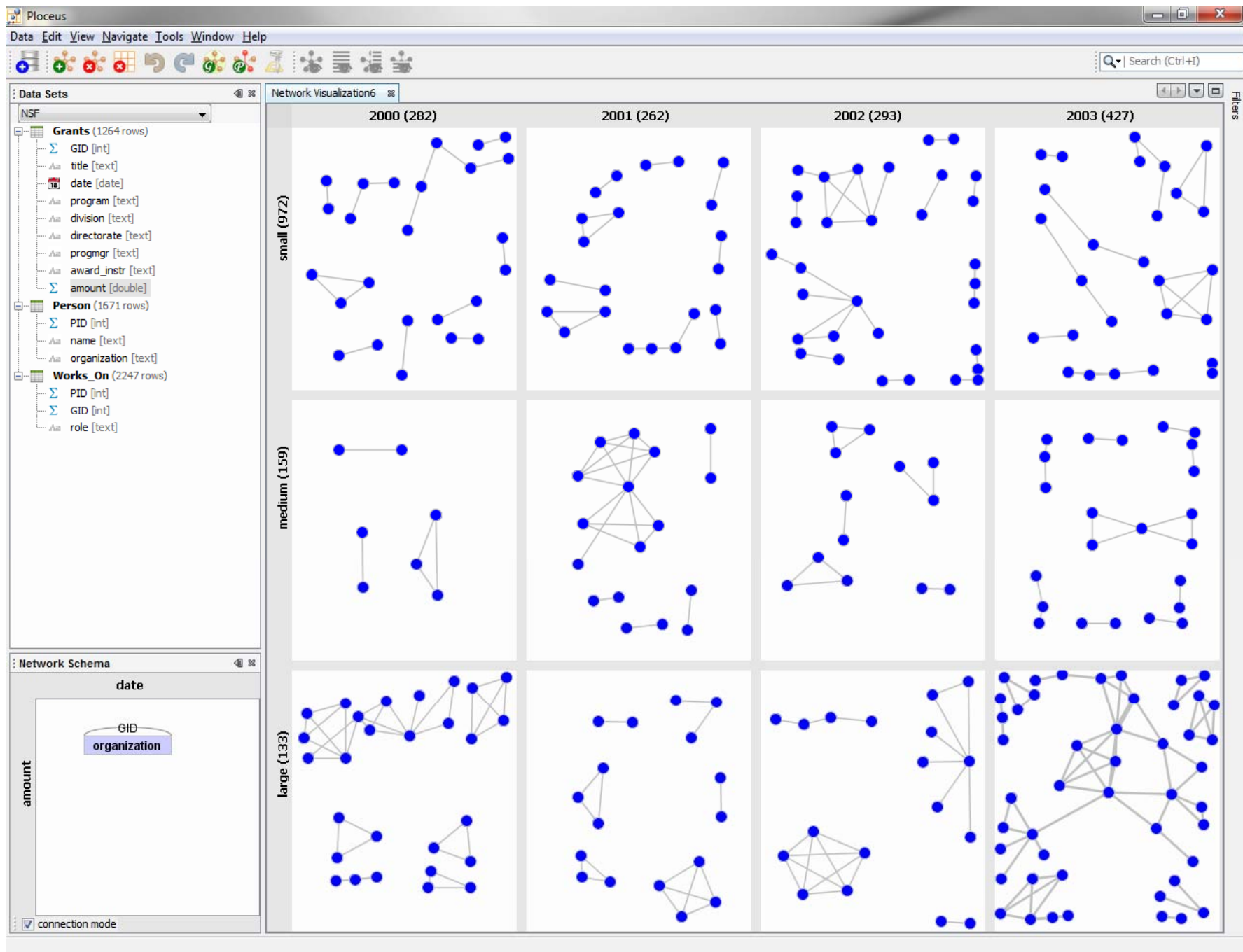
Person	Grant	Role
1	1	PI
2	1	CoPI
1	3	PI













Take Aways

Multiple methods of data analysis

Visual analytics

Combining automated computational analysis
with interactive visualization

Particularly useful for exploratory data analysis