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VIVO International Researcher Network

Katy Börner, CNS, IU, USA

VIVO Workshop, KNAW, Amsterdam, The Netherlands
January 18, 2013

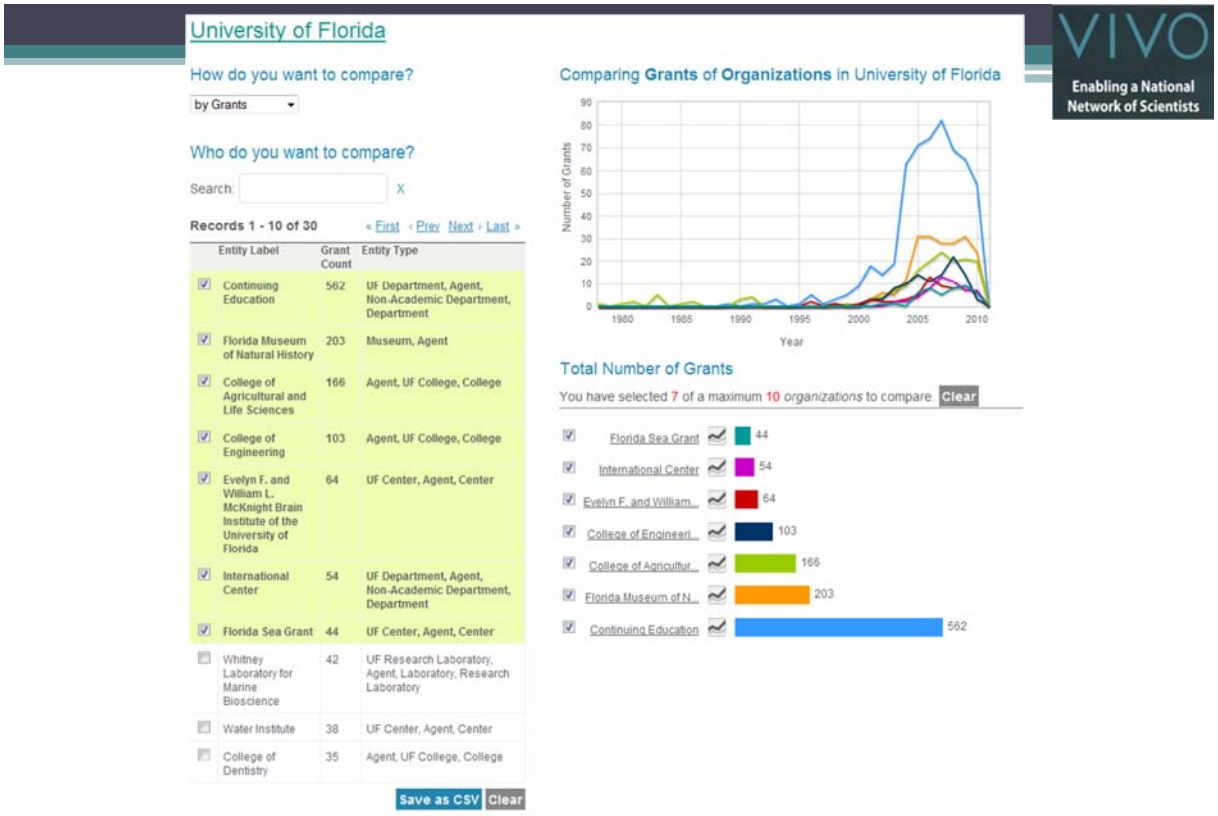
VIVO Team: Cornell University: Dean Krafft (Cornell PI), Manolo Bevia, Jim Blake, Nick Cappadona, Brian Caruso, Jon Corson-Rikert, Elly Cramer, Medha Devare, John Fereira, Brian Lowe, Stella Mitchell, Holly Mistlebauer, Anup Sawant, Christopher Westling, Rebecca Younes. **University of Florida:** Mike Conlon (VIVO and UF PI), Cecilia Botero, Kerry Britt, Erin Brooks, Amy Buhler, Ellie Bushhousen, Chris Case, Valrie Davis, Nita Ferree, Chris Haines, Rae Jesano, Margeaux Johnson, Sara Kreinest, Yang Li, Paula Markes, Sara Russell Gonzalez, Alexander Rockwell, Nancy Schaefer, Michele R. Tennant, George Hack, Chris Barnes, Narayan Raum, Brenda Stevens, Alicia Turner, Stephen Williams. **Indiana University**: Katy Borner (IU PI), William Barnett, Shanshan Chen, Ying Ding, Russell Duhon, Jon Dunn, Micah Linnemeier, Nianli Ma, Robert McDonald, Barbara Ann O'Leary, Mark Price, Yuyin Sun, Alan Walsh, Brian Wheeler, Angela Zoss. **Ponce School of Medicine:** Richard Noel (Ponce PI), Ricardo Espada, Damaris Torres. **The Scripps Research Institute:** Gerald Joyce (Scripps PI), Greg Dunlap, Catherine Dunn, Brant Kelley, Paula King, Angela Murrell, Barbara Noble, Cary Thomas, Michaeleen Trimarchi. **Washington University, St. Louis**: Rakesh Nagarajan (WUSTL PI), Kristi L. Holmes, Sunita B. Koul, Leslie D. McIntosh. **Weill Cornell Medical College:** Curtis Cole (Weill PI), Paul Albert, Victor Brodsky, Adam Cheriff, Oscar Cruz, Dan Dickinson, Chris Huang, Itay Klaz, Peter Michelini, Grace Migliorisi, John Ruffing, Jason Specland, Tru Tran, Jesse Turner, Vinay Varughese.

VIVO Enabling a National Network of Scientists

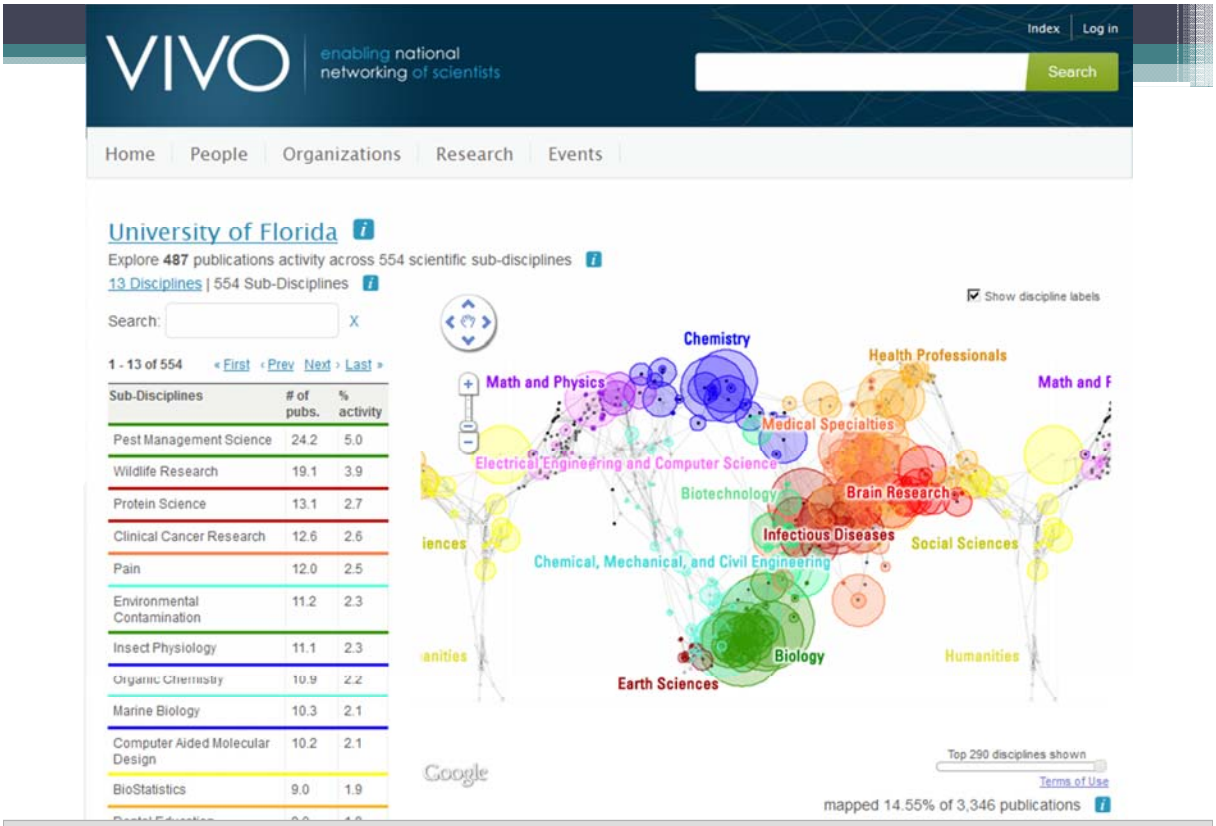
Type of Analysis vs. Level of Analysis

	Micro/Individual (1-100 records)	*Meso/Local (101–10,000 records)*	*Macro/Global (10,000 < records)*
Statistical Analysis/Profiling	Individual person and their expertise profiles	Larger labs, centers, universities, research domains, or states	All of NSF, all of USA, all of science.
Temporal Analysis (When)	Funding portfolio of one individual	Mapping topic bursts in 20-years of PNAS	113 Years of physics Research
Geospatial Analysis (Where)	Career trajectory of one individual	Mapping a state's intellectual landscape	PNAS publications
Topical Analysis (What)	Base knowledge from which one grant draws.	Knowledge flows in Chemistry research	VxOrd/Topic maps of NIH funding
Network Analysis (With Whom?)	NSF Co-PI network of one individual	Co-author network	NSF's core competency

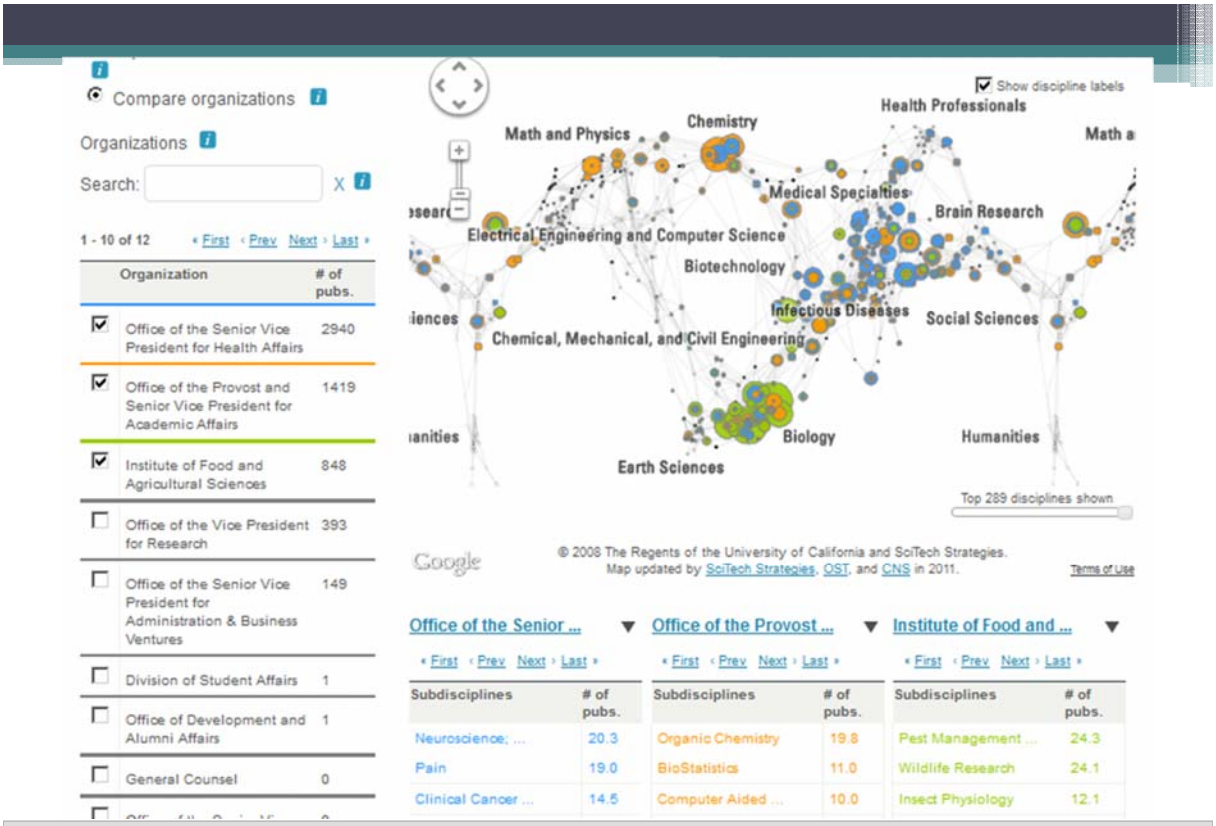
UF Clinical and Translational Science Institute
UNIVERSITY of FLORIDA



Temporal Analysis (When) Temporal visualizations of the number of papers/funding awarded at the institution, school, department, and people level



Topical Analysis (What) Science map overlays will show where a person, department, or university publishes most in the world of science. (in work)



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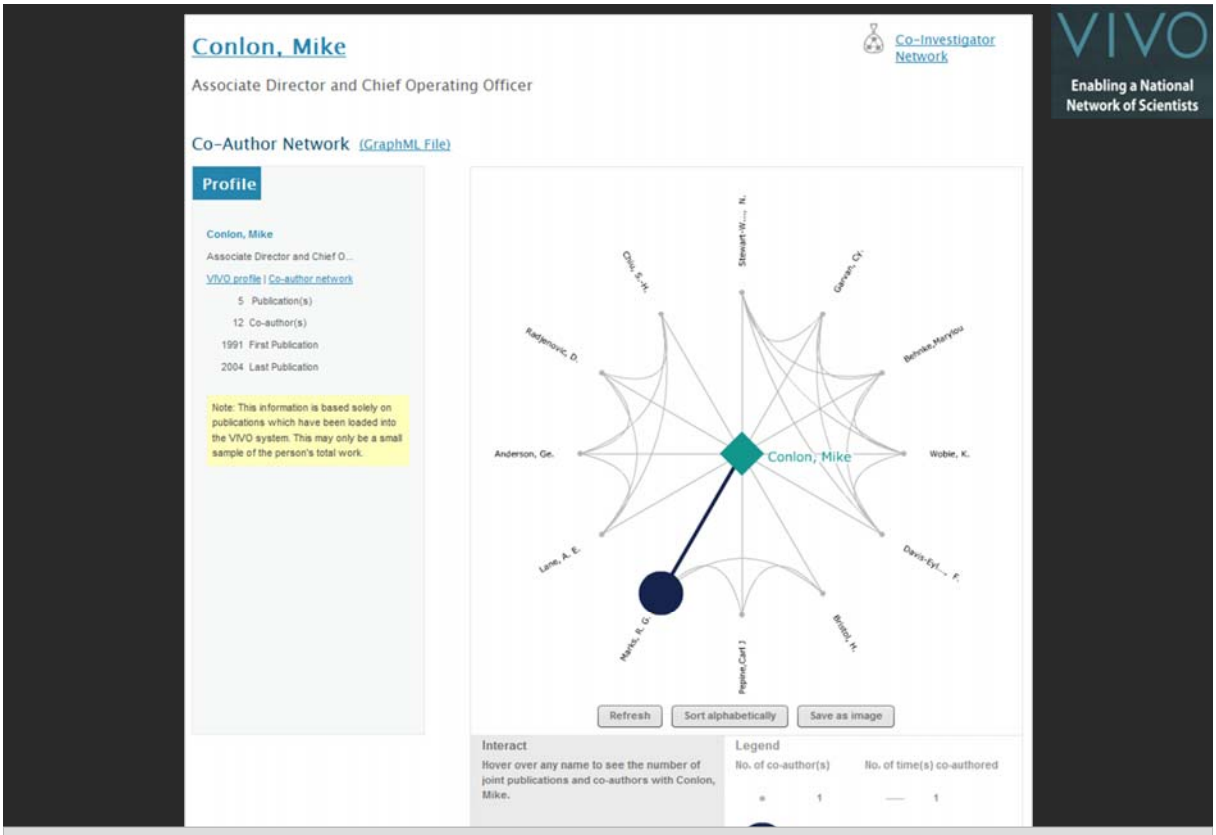
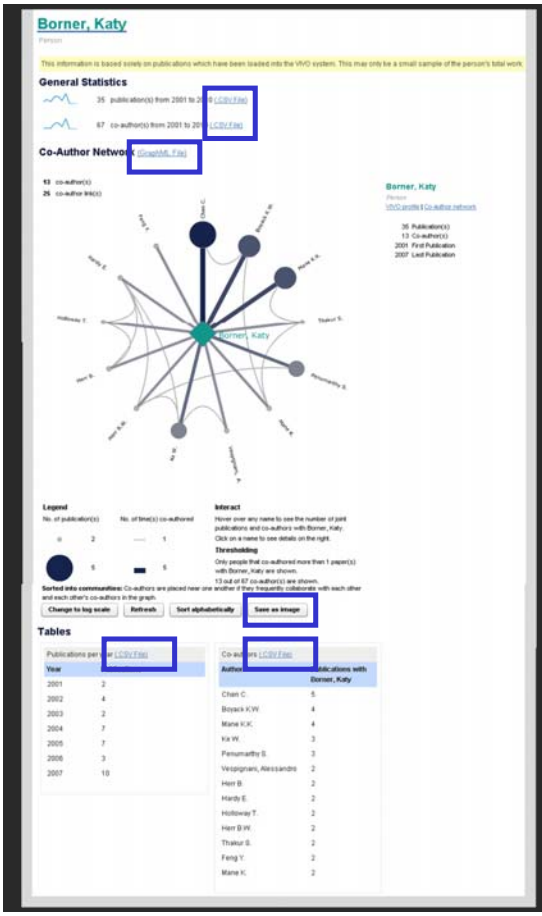


Network Analysis (With Whom?) Who is co-authoring, co-investigating, co-inventing with whom? What teams are most productive in what projects?

VIVO
Enabling a National Network of Scientists

VIVO On-The-Go

Overview, Interactivity, Details on Demand come to commonly used devices and environments



Using Data from VIVO

General Statistics

- 36 publication(s) from 2001 to 2010 (.CSV File)
- 80 co-author(s) from 2001 to 2010 (.CSV File)

Co-Author Network

(GraphML File)

Save as Image (.PNG file)

Tables

- Publications per year (.CSV File)
- Co-authors (.CSV File)

http://vivo.iu.edu/vis/author-network/person25557

36 publication(s) from 2001 to 2010 (.CSV File)

Year	Publications
2001	2
2002	4
2003	2
2004	7
2005	7
2006	3
2007	10
2010	1

80 co-author(s) from 2001 to 2010 (.CSV File)

Year	Count	Co-Author(s)
2001	1	Chen C.
2002	3	Chen C.; McMahon T.; Feng Y.
2003	2	Chen C.; Boyack K.W.
2004	17	Sengupta A.; Penumarthy S.; Thakur S.; Sooriamurthi R.; Maru J.T.; Shiffrin R.M.; Mane K.; Moor K.A.;

Co-author network (GraphML File)

```
<?xml version="1.0" encoding="UTF-8"?>
<graphml xmlns="http://graphml.graphdrawing.org/xmlns"
 xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
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<key id="num_unknown_publication" for="node" attr.name="num_unknown_publication" attr.type="int" />
<key id="num_latest_publication" for="node" attr.name="num_latest_publication" attr.type="int" />
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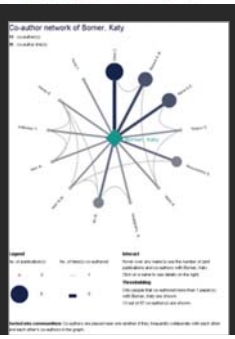
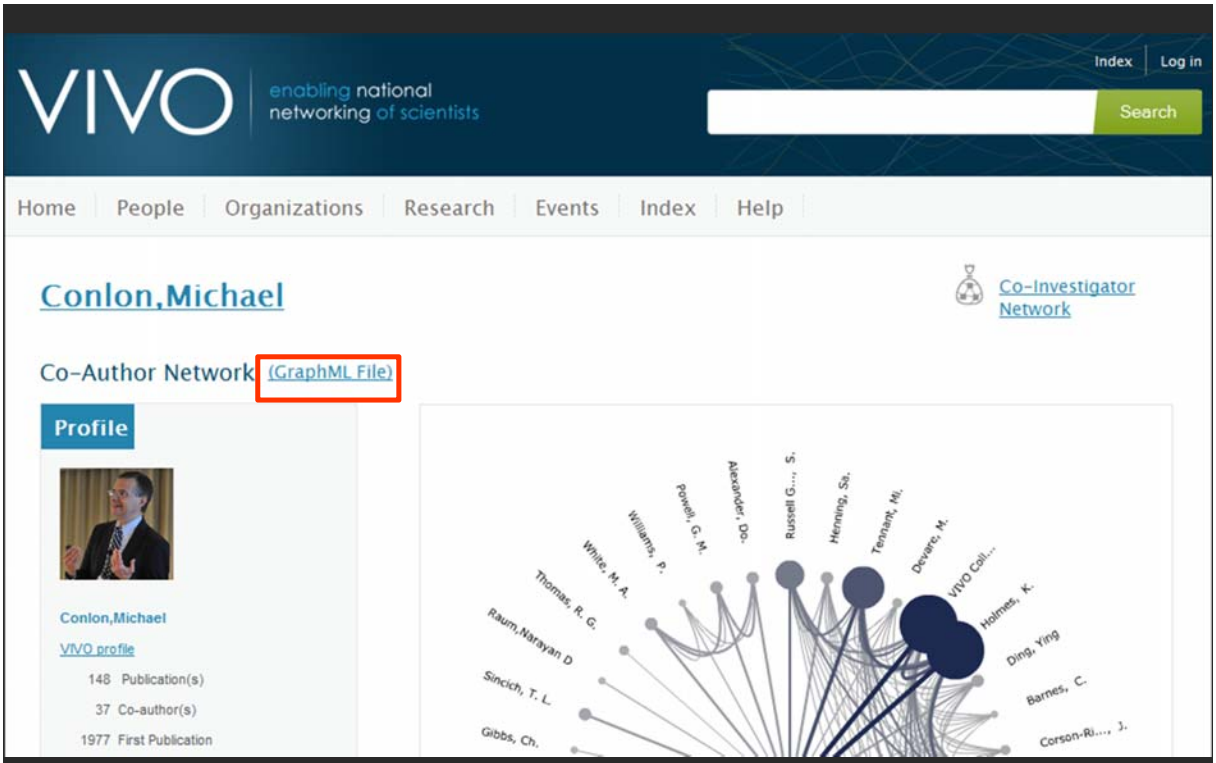
Save as Image (.PNG file)



Publications per year (.CSV File), see top file.

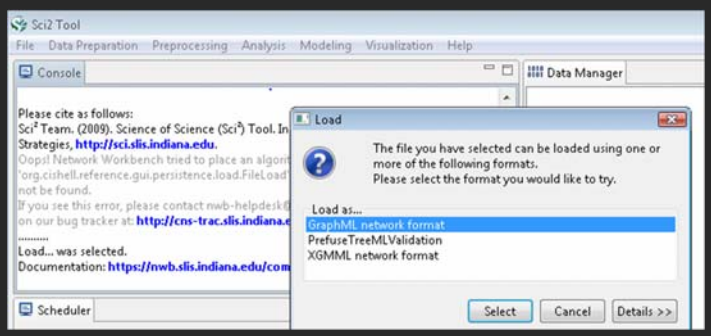
Co-authors (.CSV File)

Co-Author	Count
Andrienko G.	1
Andrienko N.	1
Ben-Miled Z.	1
Blackwell A.	1
Boyack K.W.	4
Bozicevic M.	1
Brodbeck D.	1
Burkhard R.A.	1
Chen C.	5



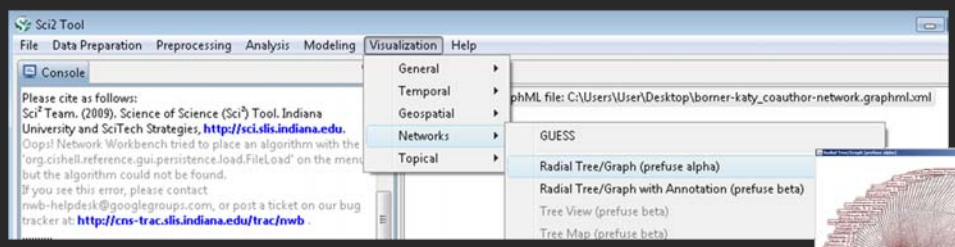
https://vivo.ufl.edu/vis/author-network/n25562

Run Sci2 Tool and Load Co-Author Network (GraphML File)



Network Analysis Toolkit
Nodes: 81
Edges: 390

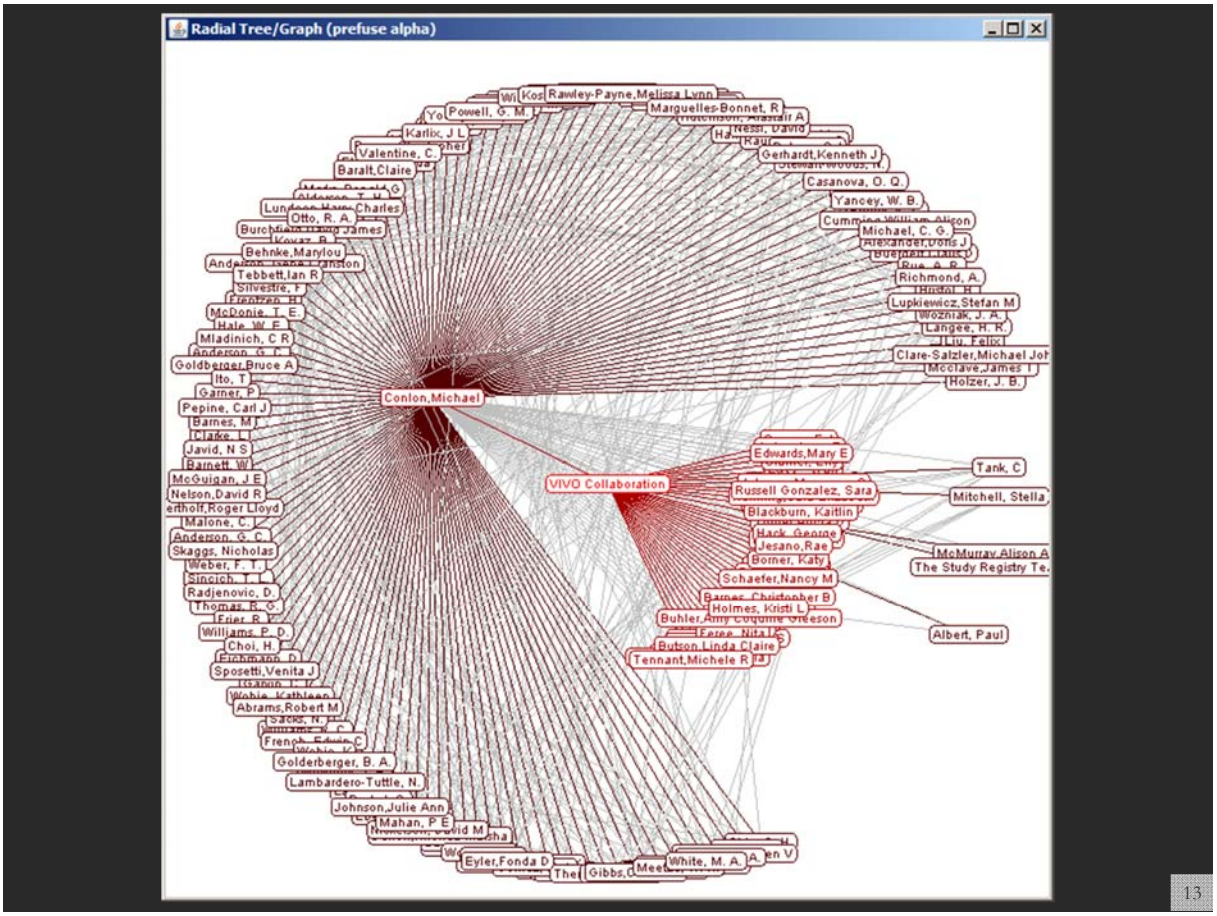
Visualize the file using Radial Graph layout.



Click on node to focus on it.

Hover over a node to highlight its co-authors.

Code and tutorials are linked from http://sci2.wiki.cns.edu

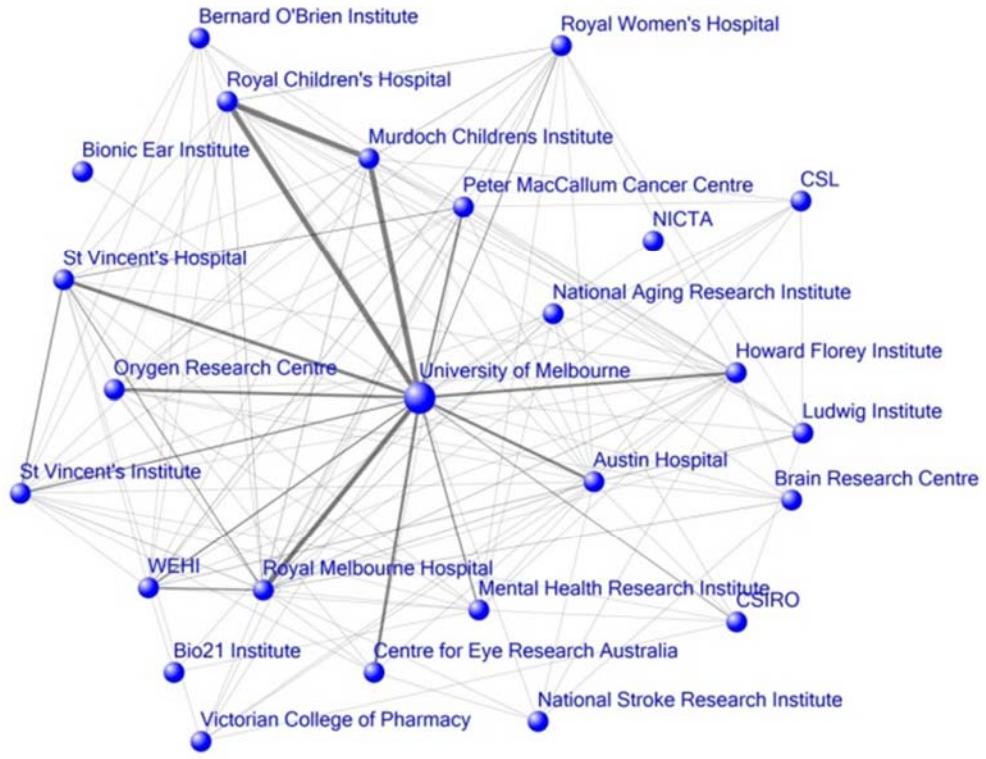


13

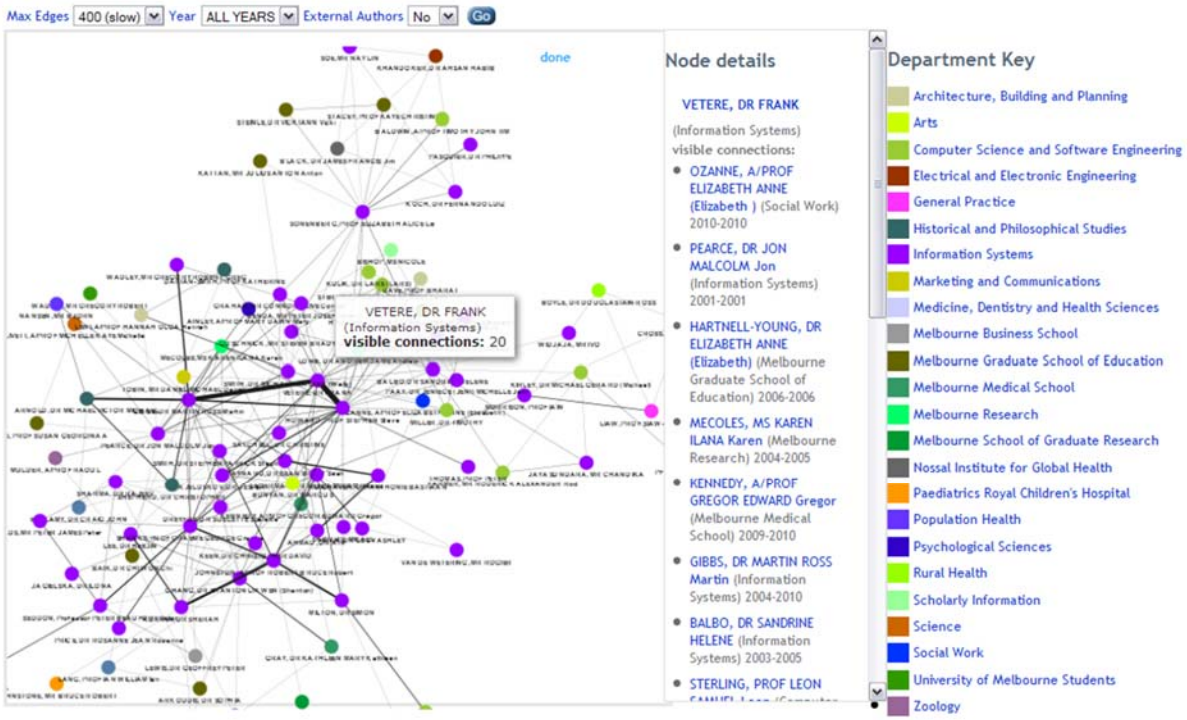
http://nrn.cns.iu.edu

Geospatial Analysis (Where?) Where are what NRN instances and what data holdings do they have?

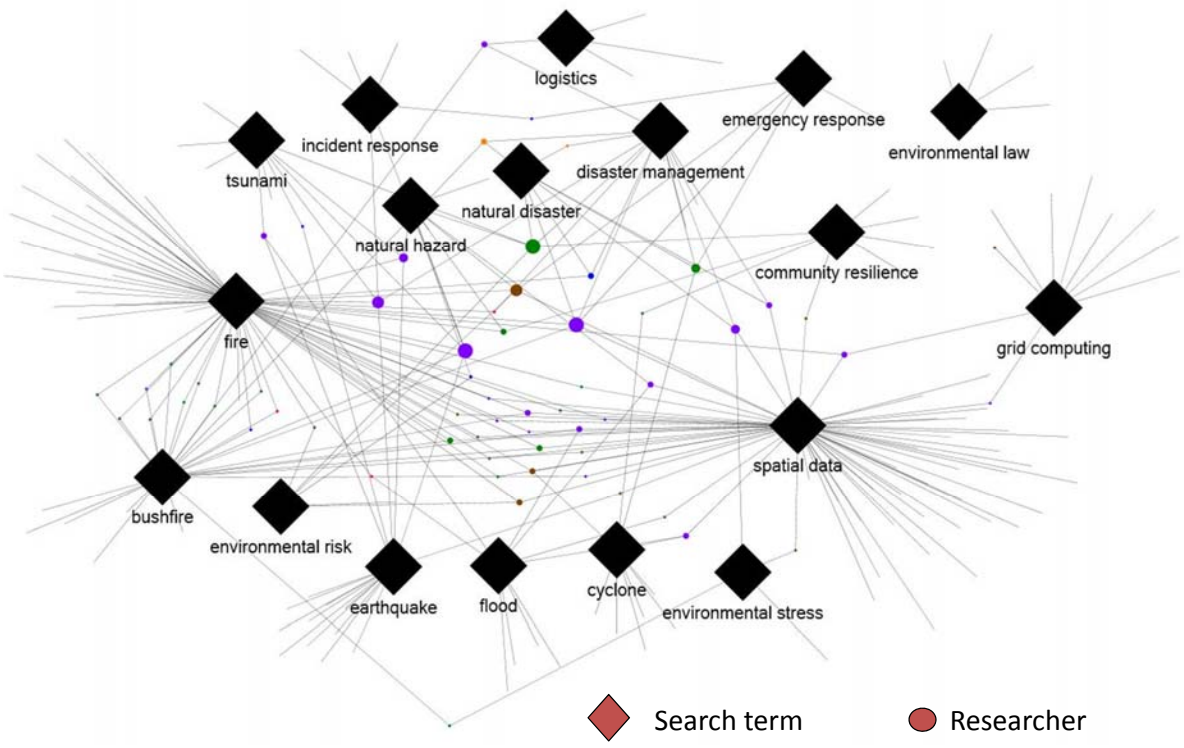
14



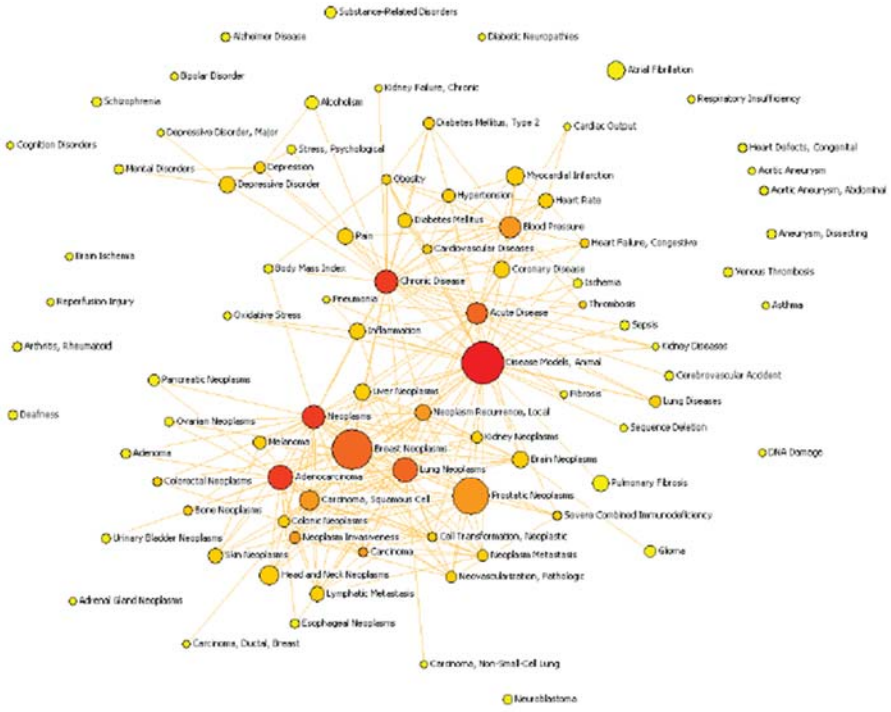
2008 collaboration patterns for medical institutions located close to Melbourne University
Source: Web of Science co authorship information. Compiled by Simon Porter



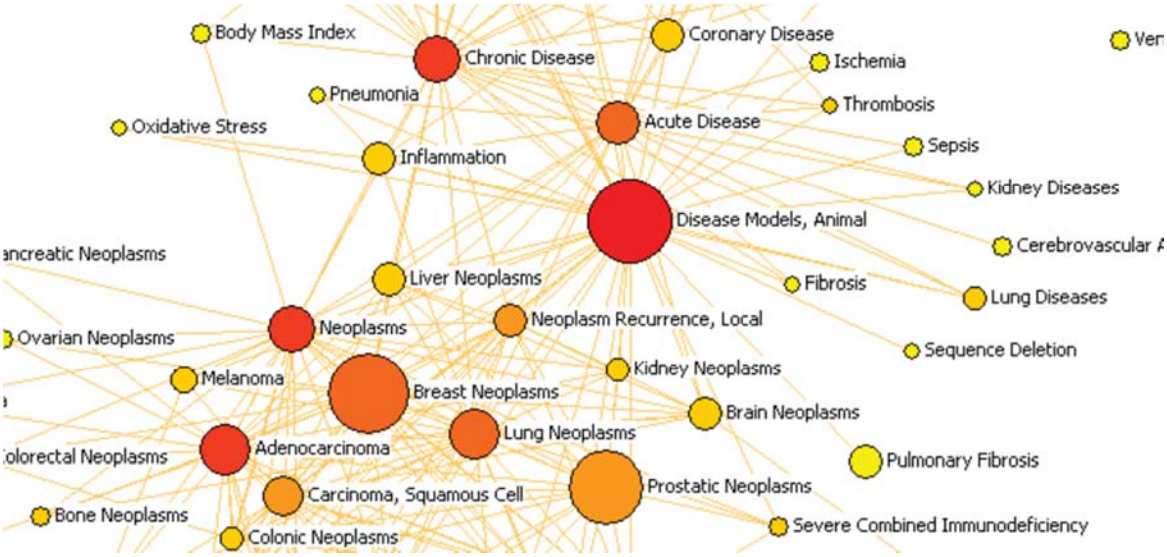
Co-authorship network for the department of Information Systems
Source: Melbourne Research Windows. Contact Simon Porter simon.porter@unimelb.edu.au



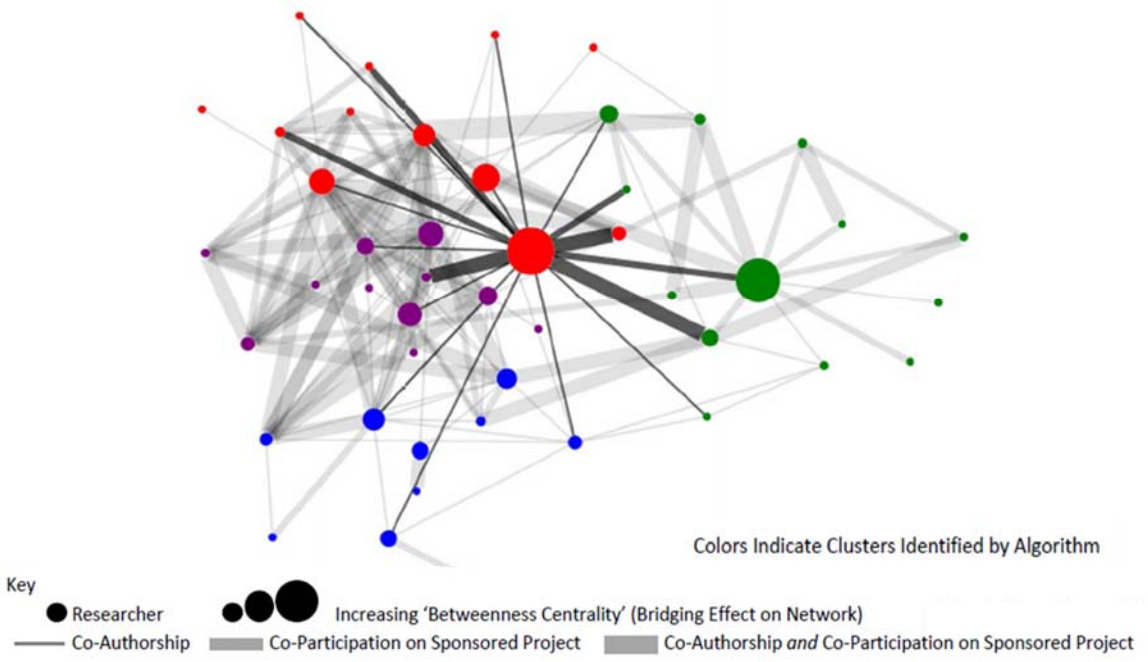
Bimodal network of search terms and researchers extracted from research profile search results to show the **University's capability in Disaster Management** to the Government
Contact: simon.porter@unimelb.edu.au



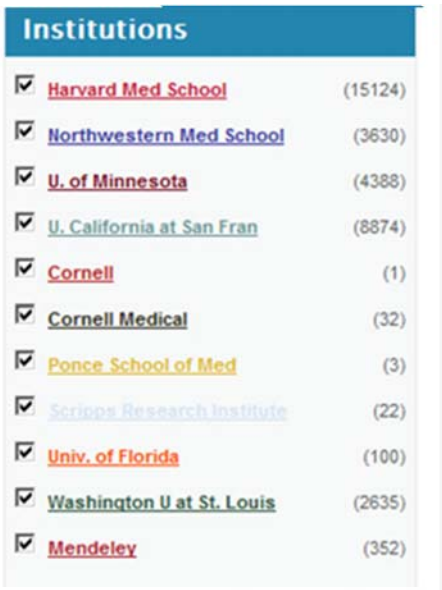
Top MeSH Disease Concepts Appearing in PubMed Publications by the University of Michigan Medical School. Links connect concepts where 100+ authors published about both concepts within the span of their careers.
Contact: Jeffrey Horon, J.Horon@elsevier.com

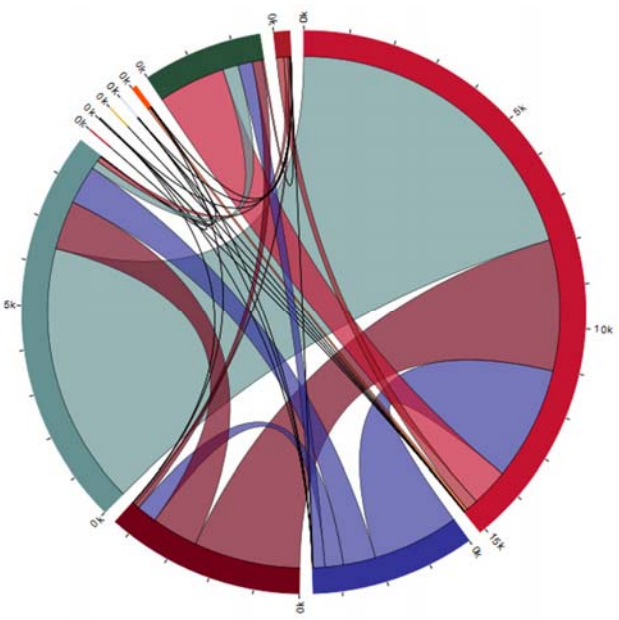


Top MeSH Disease Concepts Appearing in PubMed Publications by the University of Michigan Medical School. Links connect concepts where 100+ authors published about both concepts within the span of their careers.
This visualization revealed that animal disease models were central to disease research at U-M whiich encouraged additional thought and attention to animal husbandry, animal expenses, and core/shared services overall.
Contact: Jeffrey Horon, J.Horon@elsevier.com



P30 Member Collaborations – Sponsored Project Co-Participation and Co-Authorship Network. Used in **successful! P30** funding application. Shows the PI's relationships with various P30 members, conveying that the PI was not only the formal center of the group but also the informal center and the person who exhibited the highest betweenness centrality. *Contact: Jeffrey Horon, J.Horon@elsevier.com*





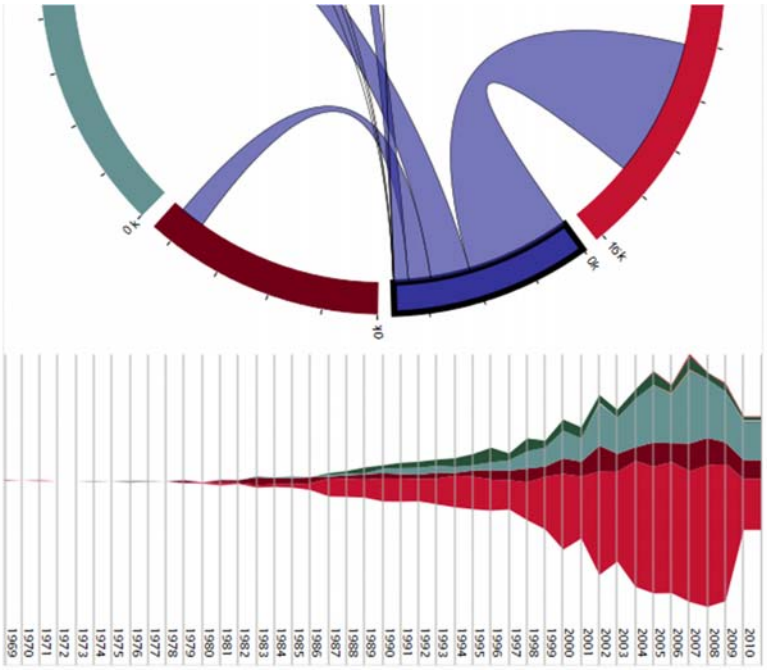
Inter-Institutional Collaboration Explorer

This visualization shows information about "collaborative publications" found at 2 or more Researcher Networking websites.

The idea that institutions don't work together and that biomedical research is conducted in silos is not true. Researchers, even when separated by great distances, are in fact willing to work together, and this visualization demonstrates that they often do.

Contact: Nick Benik (nbenik@gmail.com), Harvard Medical School, Boston, MA.

URL: http://xcite.hackerceo.org/VIVOviz



Inter-Institutional Collaboration Explorer

The outer solid colored arcs represent the 11 institutions. The size of the arc is proportional to the number of collaborative publications found on the site. The inner colored bands represent the number of collaborative publications found between the two institutions that each band connects. Clicking an institution's arc will hide any bands not connected to that institution and will display a timeline of when that institution's collaborative publications were written.

VIVO: A Semantic Approach to Scholarly Networking and Discovery

Katy Börner[1], Michael Conlon[2], Jon Corson-Rikert[3], and Ying Ding[1]
Indiana University[1], University of Florida[2], and Cornell University[3]

Series: *Synthesis Lectures on the Semantic Web: Theory and Technology*
Series Editors: James Hendler, *Rensselaer Polytechnic Institute*
Ying Ding, *Indiana University*

The world of scholarship is changing rapidly. Increasing demands on scholars, the growing size and complexity of questions and problems to be addressed, and advances in sophistication of data collection, analysis, and presentation require new approaches to scholarship. A ubiquitous, open information infrastructure for scholarship, consisting of linked open data, open-source software tools, and a community committed to sustainability are emerging to meet the needs of scholars today.

This book provides an introduction to VIVO, http://vivoweb.org/, a tool for representing information about research and researchers—their scholarly works, research interests, and organizational relationships. VIVO provides an expressive ontology, tools for managing the ontology, and a platform for using the ontology to create and manage linked open data for scholarship and discovery. Begun as a project at Cornell and further developed by an NIH funded consortium, VIVO is now being established as an open-source project with community participation from around the world. By the end of 2012, over twenty countries and fifty organizations will provide information in VIVO format on more than one million researchers and research staff, including publications, research resources, events, funding, courses taught, and other scholarly activity.

The rapid growth of VIVO and of VIVO-compatible data sources speaks to the fundamental need to transform scholarship for the twenty-first century.

http://www.morganclaypool.com/toc/wbe.1/1/1

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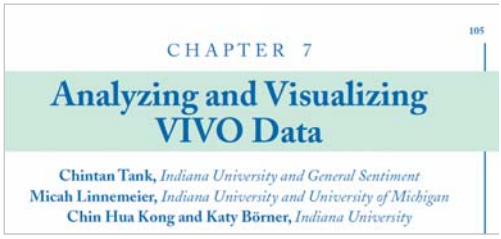

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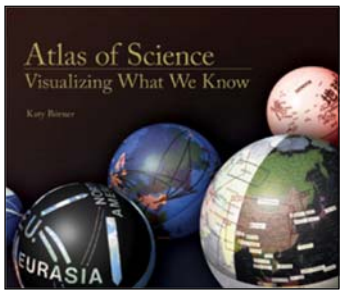

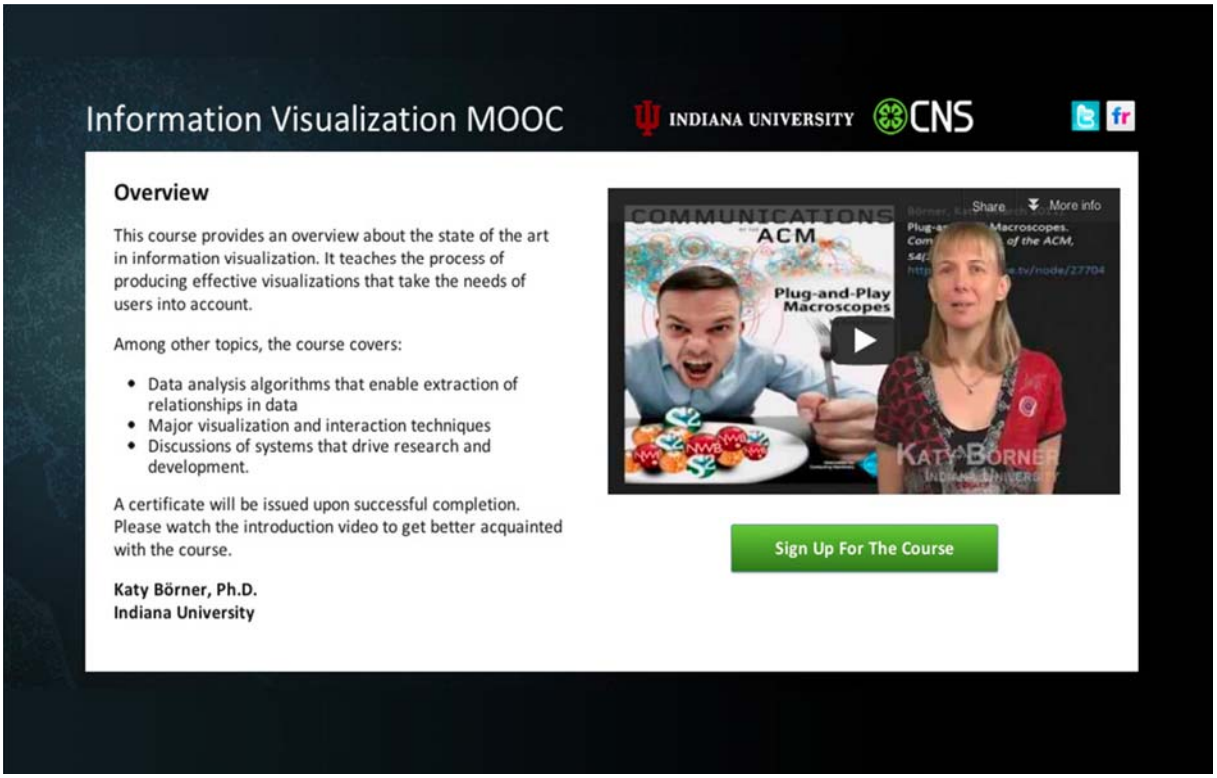

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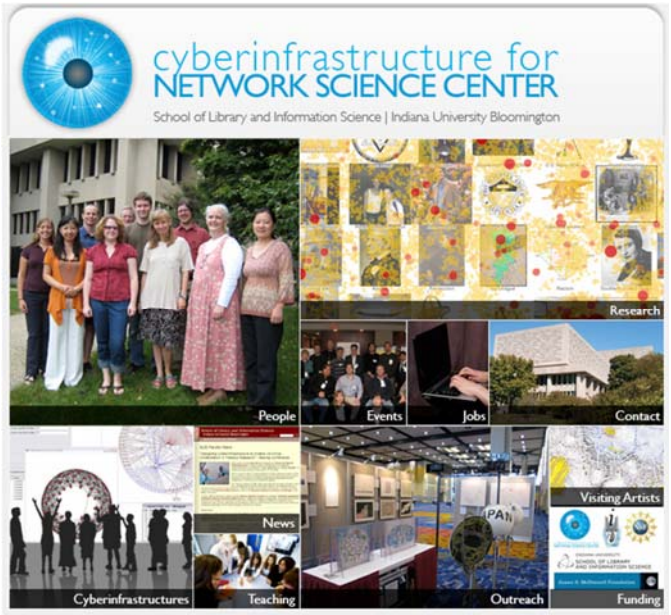

All papers, maps, tools, talks, press are linked from http://cns.iu.edu

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Mapping Science Exhibit Facebook: http://www.facebook.com/mappingscience