With special thanks to the members at the Cyberinfrastructure for Network Science Center and the VIVO team.
**VIVO: A Semantic Approach to Creating a National Network of Researchers** ([http://vivoweb.org](http://vivoweb.org))

- Semantic web application and ontology editor originally developed at Cornell U.
- Integrates research and scholarship info from systems of record across institution(s).
- Facilitates research discovery and cross-disciplinary collaboration.

Soon:
- Simplify reporting tasks, e.g., generate biosketch, department report.

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**Development**

**Enabling National Networking of Scientists**

**Project Members and Teams**

Implementation
VIVO Users and Needs

- **Faculty/Researchers**
  - Customize profile created via feeds; find potential collaborators, “people like me”; discovery via high search rankings; info on activity of colleagues...

- **Students**
  - Create profiles; easily find mentors + collaborators; locate facilities, events, funding opportunities...

- **Administrators**
  - Quickly find cross-disciplinary expertise (research area; geography); centralize public data from diverse sources; easily repurpose information for consumers; improve faculty collaboration within or across departments and institutions...

- **Funding, donor, legislative agencies**
  - Discover projects, grants, expertise (e.g. for review panels; targets for funding)...

- **General public**
  - Find expertise, learn about research in a region/institution...
VIVO Data Providers & Users

- Eagle-i (“enabling resource discovery” U24 award)
- Federal agencies – NIH (NIH RePORTER), NSF, USDA, ...
- Search Providers – Google, Bing, Yahoo, ...
- Professional Societies – AAAS, ...
- Publishers/vendors – PubMed, Elsevier, Collexis, ISI...
- Semantic Web community – DERI, ...
- Consortia of schools – SURA, CTSA...
- Producers, consumers of semantic web-compliant data
Institutional Architecture

- Three sources of VIVO information
  - User data
  - Institutional data
  - Provider data
- Two formats for output
  - Web Pages for users
  - Resource Description Framework for applications

Data Representation using RDF Triples
Detailed relationships for a researcher at Cornell U. Open source code (BSD) and ontology available at http://vivoweb.org.
VIVO & Linked Open Data
2010 National VIVO Conference August 12&13, NYC
http://conferences.dce.ufl.edu/vivo

VIVO makes high coverage, high quality data from systems of record
• available online
• for free, and
• in machine readable format.

VIVO ontology is aligned with many existing Web 2.0 and scholarly ontologies to ease interoperability.

http://www4.wiwiss.fu-berlin.de/bizer/pub/lod-datasets_2009-07-14_colored.png

VIVO Release 1 v. 1.1: Individual Level Co-Author Visualization

http://vivo.ufl.edu/display/n2556
VIVO Release 1 v. 1.1: Individual Level Co-Author Visualization
Download Data

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://vivoweb.org/ontology#core%2FPerson72
36 publications from 2001 to 2010 (CSV File)

80 co-authors from 2001 to 2010 (CSV File)

Co-author network (GraphML File)

Save as Image (PNG file)

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

Co-authors (CSV File)

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://sci.slis.indiana.edu/Sci2
VIVO Institution Level Visualizations

Institution level visualization will be available from the VIVO Index page and comprise statistics such as:
- publications/funding/courses,
- # of linkages, e.g., co-author,
- paper-citation, paper-author, etc.,
- # downloads over time are plotted.

Geospatial and science map overlays as well as network layouts with well defined base maps, e.g., two lists of nodes in a bimodal network will be written into a PDF file for viewing and printing.

Temporal animation of growth corresponds to multiple pages (one per year) with identical reference system.
Science Map – shows where a person, department, or university publishes most in the world of science. (generated using dummy data)
VIVO National Level Visualizations

VIVO National Level Search

VIVO FACULTY SEARCH DEMO
Using Apache Solr for federated search

Search Faculty Across Institutions

http://milesworthington.com/vivosearch

This site demonstrates the distributed search capabilities of Apache Solr, using Drupal 6 as a front end. Distributed search and search part of Solr itself, so this is also possible with other platforms.
Science is global. World view of VIVO activity.
Web site visits are aggregated at the country level.

Shown are the
- Number of people profiles in the 7 different VIVO installation sites plus CAS and U Melbourne.
- Email contacts by data and service providers as well as institutions interested to adopt VIVO.
- The number of visitors on http://vivoweb.org
Circles are area size coded using a logarithmic scale.
VIVO 1.0 source code was publicly released on April 14, 2010
87 downloads by June 11, 2010.
The more institutions adopt VIVO, the more high quality data will be available to understand, navigate, manage, utilize, and communicate progress in science and technology.

Computational Scientometrics
Cyberinfrastructures

- Scholarly Database: 23 million scholarly records
  [http://sdb.slis.indiana.edu](http://sdb.slis.indiana.edu)

- VIVO Research Networking
  [http://vivoweb.org](http://vivoweb.org)

- Information Visualization Cyberinfrastructure
  [http://iv.slis.indiana.edu](http://iv.slis.indiana.edu)

- Network Workbench Tool & Community Wiki
  [http://nwb.slis.indiana.edu](http://nwb.slis.indiana.edu)

- Science of Science (Sci²) Tool and CI Portal
  [http://sci.slis.indiana.edu](http://sci.slis.indiana.edu)

- Epidemics Cyberinfrastructure
  [http://epic.slis.indiana.edu](http://epic.slis.indiana.edu)
Computational Scientometrics

References


All papers, maps, cyberinfrastructures, talks, press are linked from http://cns.slis.indiana.edu