



Mapa USD
 Biblioteka Uniwersytecka w Warszawie
 ul. Stawki 1/2
 00-613 Warszawa
 tel. 22 625 42 00
 www.buw.edu.pl

Wprowadzenie do tematu wizualizacji

korzyści

Przykłady map nauki



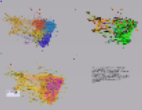
Co to jest mapa wiedzy?

Mapa wiedzy to wizualizacja relacji między obiektami (artykułami, książkami, patentami, itp.) w danej dziedzinie nauki.

Mapy wiedzy pomagają odkrywać nowe powiązania i kierunki badań.



Mapy wiedzy są używane w wielu dziedzinach nauki, w tym w biologii, chemii, fizyce i informatyce.



Mapy wiedzy mogą być tworzone na podstawie danych z bibliotek, baz danych i innych źródeł informacji.

Mapy wiedzy są często używane do analizy trendów i odkrywania nowych kierunków badań.

Chcesz zobaczyć więcej? www.gmurki.pl

demo podsumowanie

Mapy Wiedzy

Veslava Osińska

Instytut Informacji Naukowej i Bibliologii





Wprowadzenie do tematu wizualizacji

Podstawy mapy wiedzy

Mapy wiedzy

Mapy wiedzy

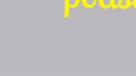
Mapy wiedzy

Mapy wiedzy

Mapy wiedzy

Mapy wiedzy

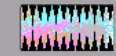
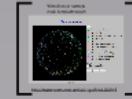
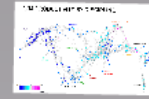
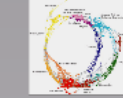
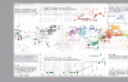
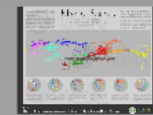
Mapy wiedzy



korzyści

demo
podsumowanie

Mapy UCSD
Mapy UCSD (University of California, San Diego) to zbiór map wiedzy, które przedstawiają strukturę i powiązania między różnymi dziedzinami nauki. Te mapy są tworzone na podstawie danych z biblioteki i innych źródeł informacji naukowej. Mapy UCSD są dostępne online i można je przeglądać w różnych formatach, w tym jako interaktywne mapy sieciowe. Mapy UCSD są używane do badania powiązań między różnymi dziedzinami nauki i do identyfikacji nowych obszarów badawczych.



Przykłady map nauki



Type

- [Cartographic \(37\)](#)
- [Concept \(52\)](#)
- [Domain \(65\)](#)

Exhibit Map

- [Yes \(96\)](#)
- [No \(58\)](#)

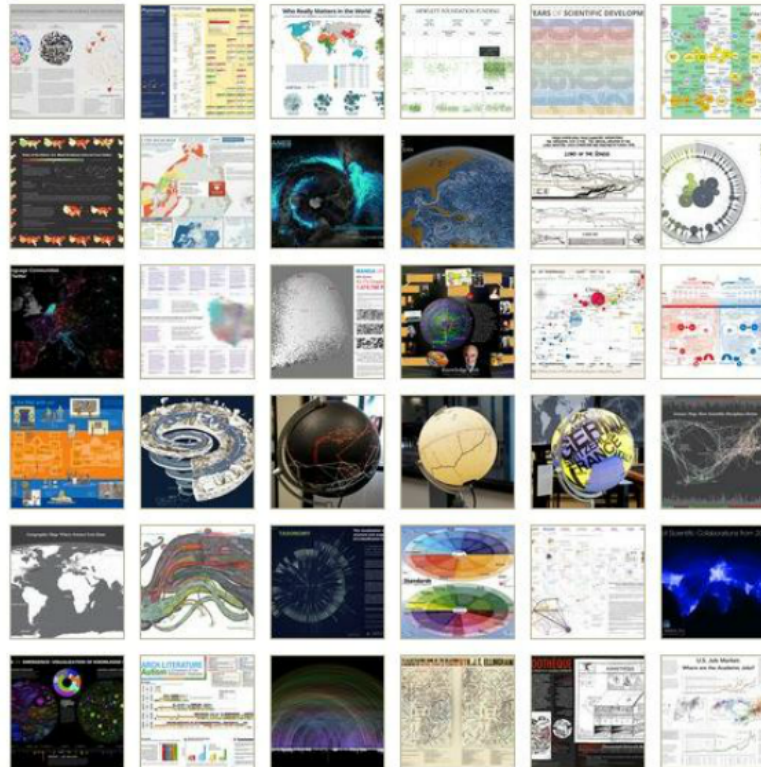
Year

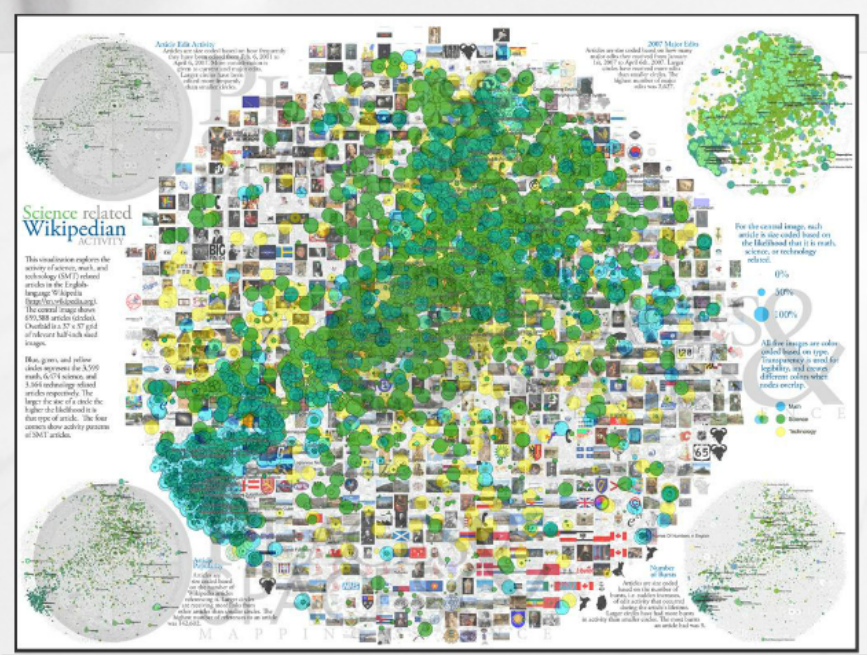
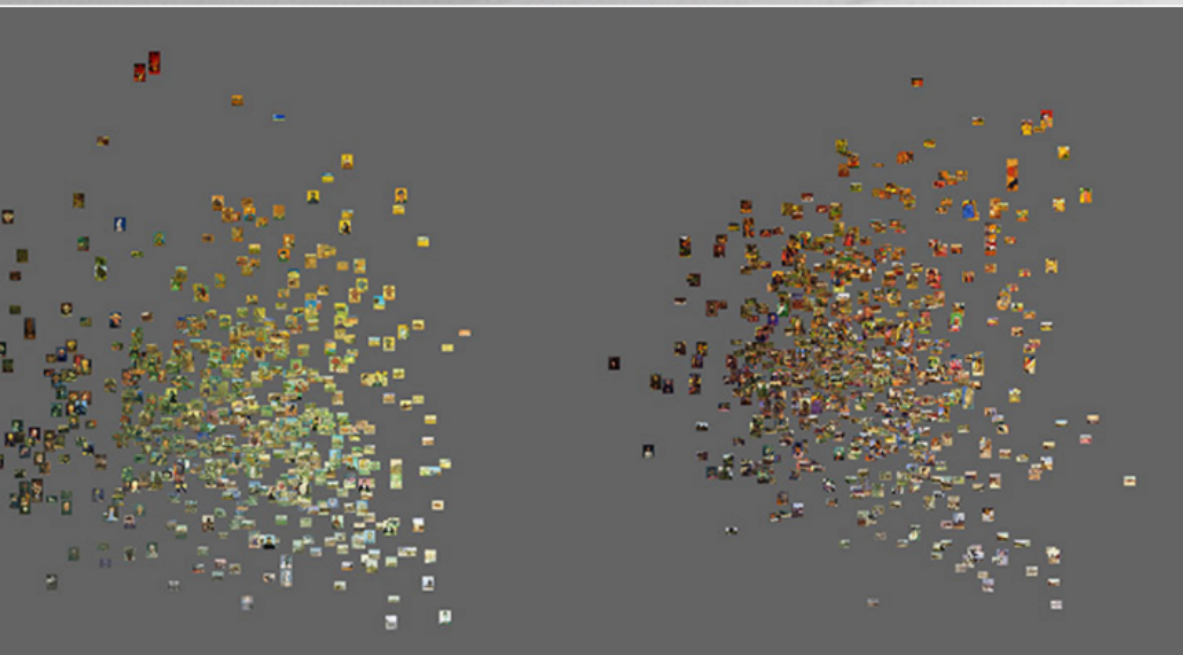
Creator

Browse Maps

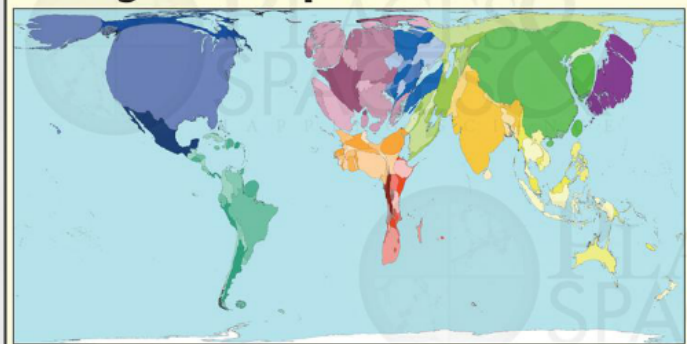
154 Maps

sorted by: [added](#); [then by...](#) [grouped as sorted](#)





Ecological Footprint



The ecological footprint is a measure of the area needed to support a population's lifestyle. This includes the consumption of food, fuel, wood, and fibres. Pollution, such as carbon dioxide emissions, is also counted as part of the footprint.

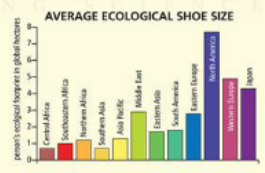
The United States, China and India have the largest ecological footprints. Without knowing population size we cannot understand what this means about individuals' ecological demands. Large populations live in China and India. In both territories resource use is below the world average. The per person footprint in the United States is almost five times the world average, and almost ten times what would be sustainable.

Territory size shows the proportion of the worldwide ecological footprint which is made there.

LARGEST AND SMALLEST ECOLOGICAL SHOE SIZES

Rank	Territory	Value	Rank	Territory	Value
1	United Arab Emirates	10.6	191	Nepal	0.61
2	United States	9.7	192	Democratic Republic of Congo	0.58
3	Greenland	7.7	193	Zambia	0.58
4	Bahamas	7.7	194	Congo	0.58
5	Canada	7.5	195	Malawi	0.57
6	Kuwait	7.4	196	Haiti	0.57
7	Australia	7.0	197	Cambodia	0.55
8	Finland	6.8	198	Bangladesh	0.47
9	Estonia	6.1	199	Somalia	0.23
10	New Zealand	6.1	200	Alghanistan	0.11

ecological footprint in global hectares per person, 2002*

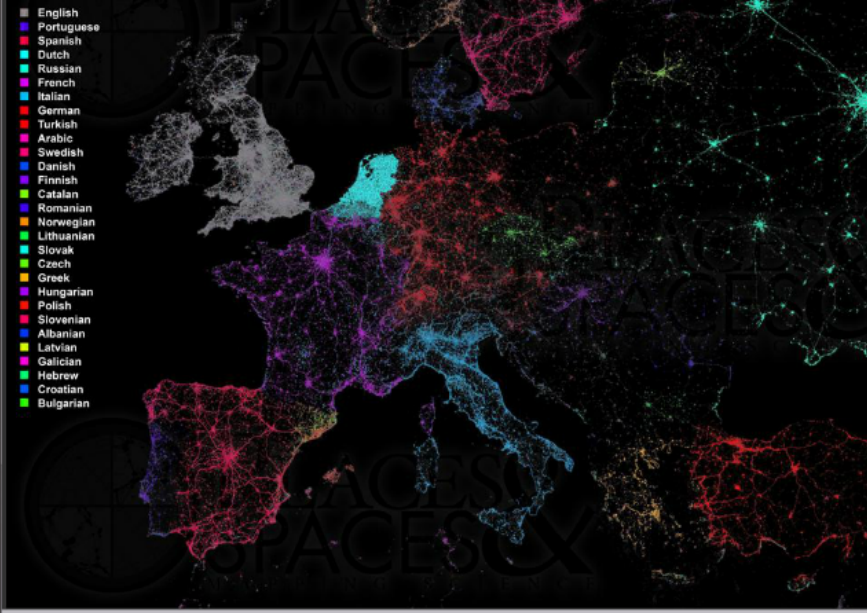


"People consume resources and ecological services from all over the world, so their footprint is the sum of these areas, wherever they may be on the planet."

The Living Planet Report, 2006

www.worldmapper.org © Copyright 2006 SAO Group (University of Sheffield) and Mark Newman (University of Michigan) Map 322

Language Communities of Twitter



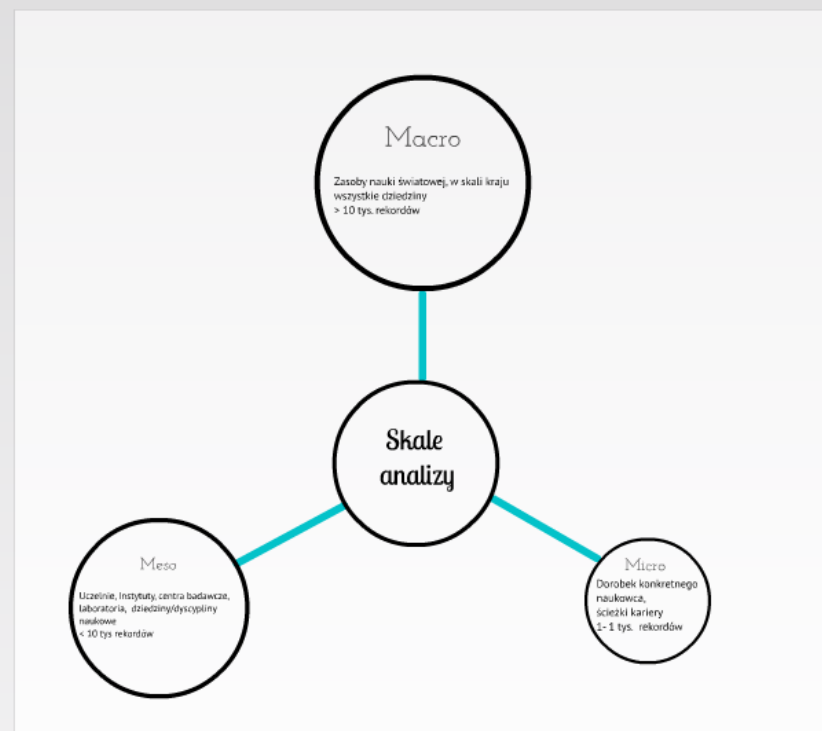
Mapy nauki

Dane: bibliometryczne (cytowania) , naukometryczne, webometryczne (altmetrics)

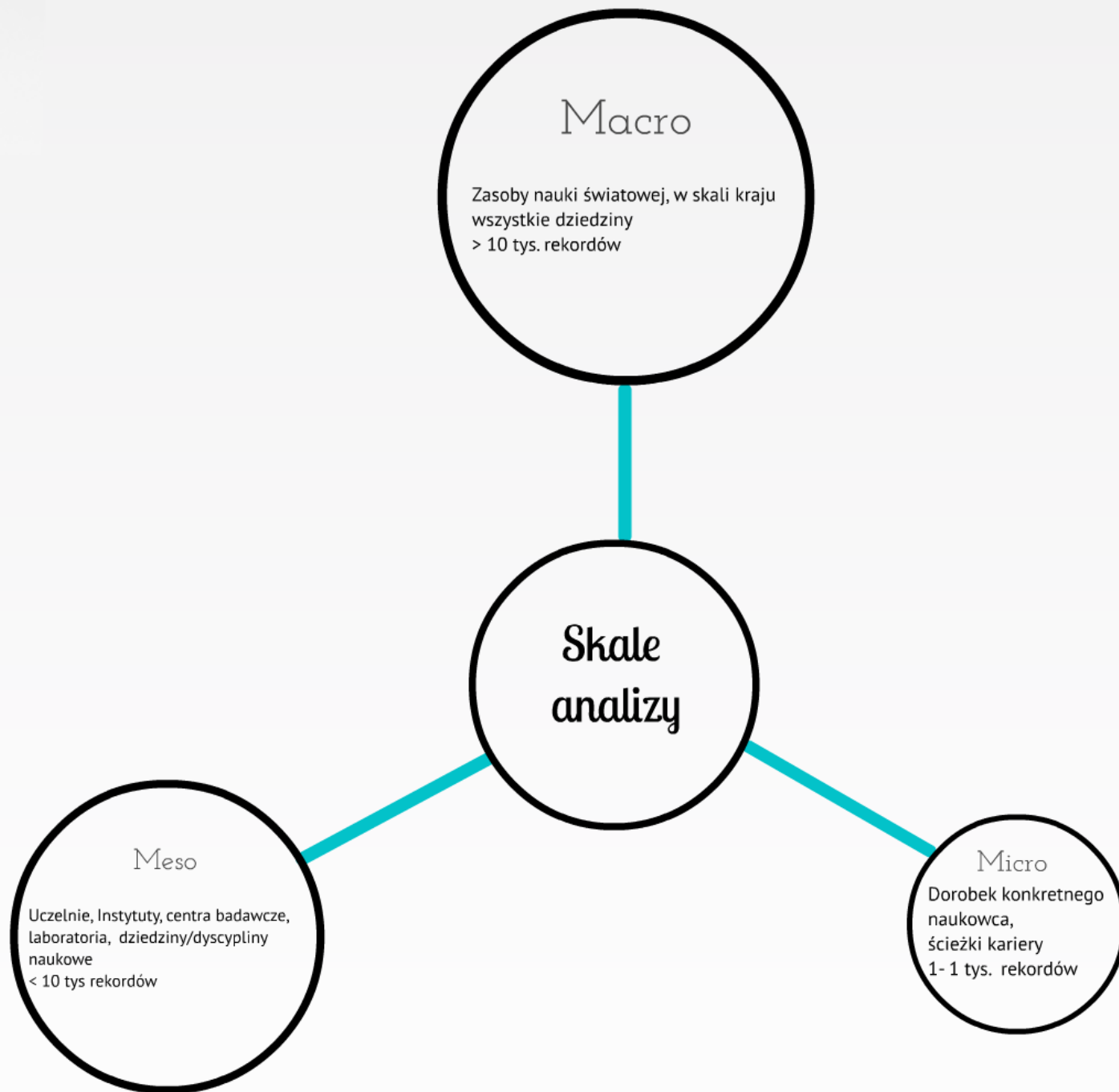
Bazy: WoS, Scopus, Google Scholar, Proquest, localne

Główne cele:

- struktura dziedzinowa (*science maps, knowledge domain maps*)
- dynamika rozwoju nauki (*scientography, longitudinal mapping*)



s)
g)

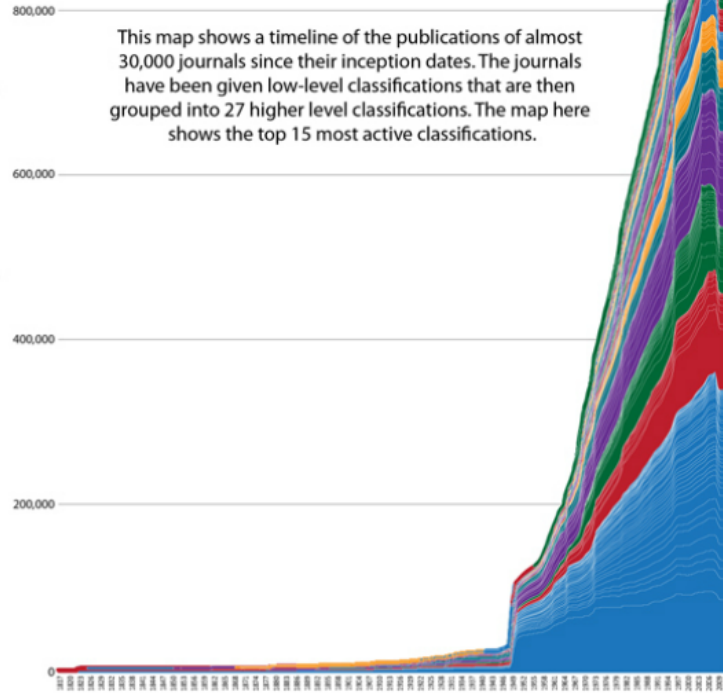


Genealogy of Science According to Scopus

Average Number of Cited Papers

This map shows a timeline of the publications of almost 30,000 journals since their inception dates. The journals have been given low-level classifications that are then grouped into 27 higher level classifications. The map here shows the top 15 most active classifications.

- Mathematics
- Environmental Science
- Agricultural and Biological Sciences
- Social Sciences
- Materials Science
- Computer Science
- Earth and Planetary Sciences
- Chemistry
- Biochemistry, Genetics and Molecular Biology
- Engineering
- Physics and Astronomy
- Medicine



on Autism A Comparison of Four Bibliographic Databases

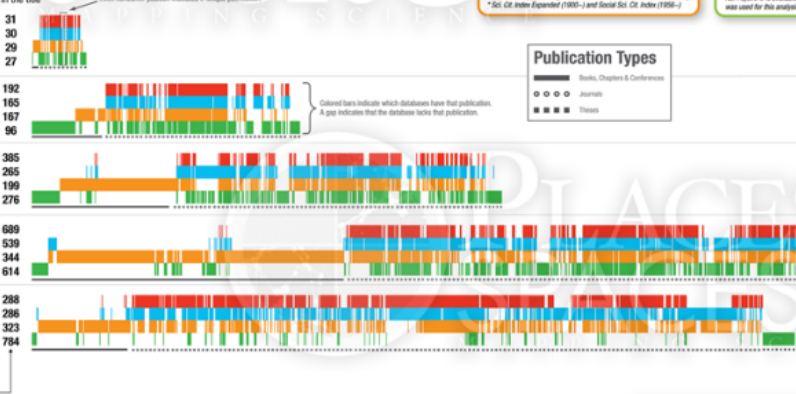
Web of Science® (WOS)
 Records: 10 million
 Scope: Wide variety of sciences and social sciences*, Journals, book reviews, meeting abstracts, etc.
 Products: Thomson Reuters
 Selected features: References and citation counts and In-Index, Integration with EndNote Web, ResearcherID, and search of scientific web sites. Priority searching, Author Finder and Cited Reference Searching.
 *Sci. Cit. Index Expanded (SCIE) and Social Sci. Cit. Index (SSCI)

PsycINFO (PSY)
 Records: 2.7 million
 Scope: Psychological literature, A. 1908 to present.
 Products: American Psychological Association
 Selected features: Mapping to the test names, methods, population.
 All PsycINFO is available through the user for the analysis.

1. Overlap in Database Coverage

Search results for "autism" or "autistic" in the title

Year	PM	SCD	WOS	PSY	Total
1969	39	40	41	43	70
1989	153	180	178	249	345
1999	220	340	406	329	605
2004	482	632	827	557	1171
2009	644	646	609	148	932



Publication Types

- Books, Chapters & Conferences
- Journals
- Theses

2. Differences in Journal Coverage

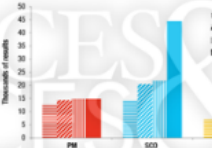
Portion of journals' autism publications in each database. *Journals > 1% of the total research publications

Journal	PM (%)	SCD (%)	WOS (%)	PSY (%)
Journal of autism & developmental disorders (1973-)	100	100	100	100
Journal of child psychology & psychiatry & allied disciplines (1963-)	100	100	100	100
Autism (1967-)	100	100	100	100
Focus on autism & other developmental disabilities (1996-)	100	100	100	100
Journal of the American Academy of Child & Adolescent Psychiatry (1987-)	100	100	100	100
Mental retardation & developmental disabilities research reviews (1986-2000-)	100	100	100	100
Developmental medicine & child neurology (1962-)	100	100	100	100
The American journal of psychiatry (1925-)	100	100	100	100
The American journal of medical genetics. Part B. Neurogenetic genetics (2003-)	100	100	100	100
European child & adolescent psychiatry (1992-)	100	100	100	100
Infants & young children (1982-)	100	100	100	100

The five databases were compared on their coverage of the 11 journals with the most publications in Part 1. Although each database had most of the publications in these journals, there were gaps. Databases may exclude some types of publications (e.g., editorial, letters) or may have indexed the journal in different years.

3. How Search Terms Are Processed

Word variants and "basic search"



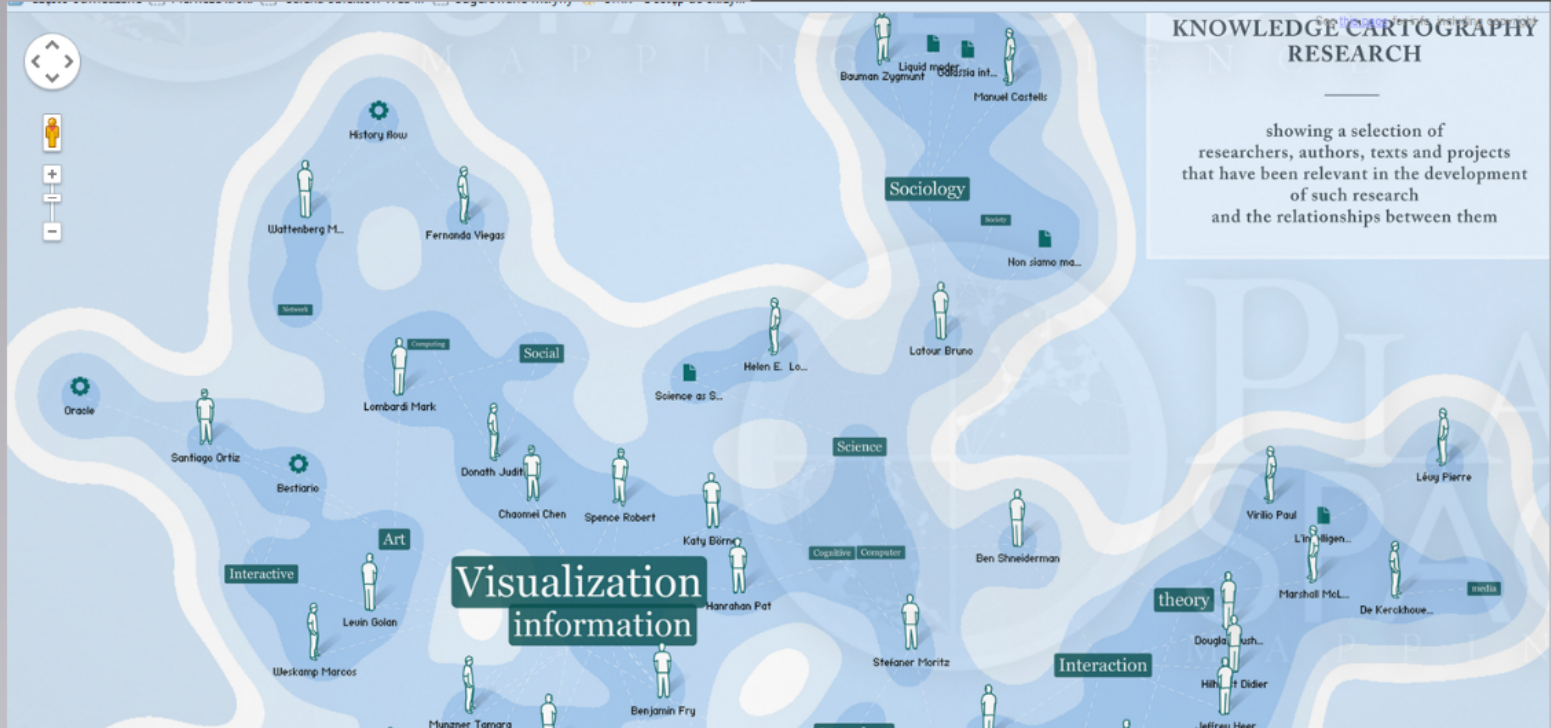
The basic, default search in each database was used for the terms autistic, autism, and autism OR autistic. The latter search was repeated in all searchable fields. Some databases search for word variants but others do not. The default search may not include all possible fields though not all fields may be relevant.

4. Conclusions

- No one database contains everything. Similar numbers of results from different databases are using multiple databases.
- Databases have different results because they include different types of publications.
- They also process a search differently by looking in different fields.
- Despite these differences, each database includes new and interesting publications.
- This comparison is merely a broad overview of the coverage of the databases. It cannot say which one is "best" for your research, but it can tell you which one is "best" for your needs.

VII.4

Finding Research Literature on Autism, by Rex Robison



This map of science was constructed by sorting more than 16,000 journals into disciplines. Disciplines, represented as circles, are sets of journals that cite a common literature; links (the lines between disciplines) are pairs of disciplines that share a common literature. A three-dimensional model was used to determine the position of each discipline on the surface of a sphere based on the linkages between disciplines. The model treats links like rubber bands attempting to bring two disciplines close to each other. Pairs of disciplines without links tend to end up on different sides of the map.

The spherical map, which is not shown here, was unrolled in a mercator projection (the same one used to show the continents of the earth on a two-dimensional map) to give the large map shown below. This projection allows inspection of the entire map of science at once. Note that the disciplines tend to string along the middle of the map - if this were a map of the earth it would be like a single coastline undulating along the equator. There are no disciplines at the top (north pole) or the bottom (south pole). Mercator projections also introduce distortions. We tend to forget that the left side is connected to the right side, and assume that the middle is most important. In this map, the social sciences (yellow) on the right connect with the computer sciences (pink) on the left in one continuous swath.

The six map projections shown at the bottom are images of what one would see if looking directly down at the south pole of the map, at six different rotations. When viewed this way, the map looks like a wheel with an inner ring and outer ring. This wheel of science corresponds very closely with the two-dimensional maps we have previously produced.

MAPS OF SCIENCE

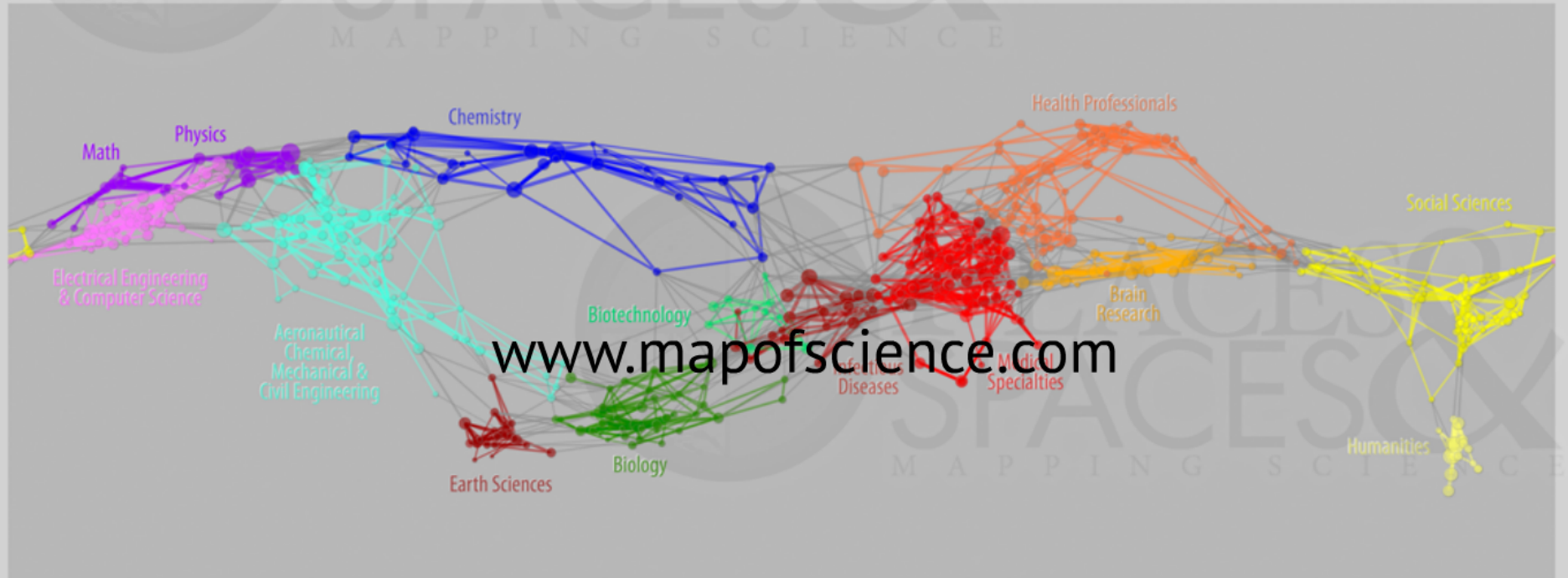
A visualization of 7.2 million scholarly documents
appearing in over 16,000 journals, proceedings or symposia
between Jan, 2001 and Dec, 2005

Forecasting Large Trends in Science

Calculations were performed using the large colored groupings of disciplines (fields) to determine if any of them were likely to cause large scale changes in the structure of science over time. Connectedness coefficients between fields were calculated for each individual year, 2001-2005. A simple regression analysis was conducted to see if there were significant changes in these connectedness coefficients from year-to-year.

If the structure of science shown below is moving toward stability, we would expect connectedness between neighboring fields to increase, and connectedness between distant fields to decrease. We found the opposite, suggesting that the underlying structure is unstable and likely to change dramatically over the next decade.

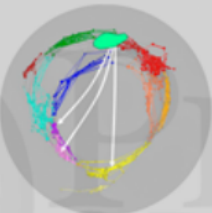
Six stories, representing how the structure is likely to change, are provided below. Maps with white arrows represent instances of distant fields that are likely to be pulled closer to each other in the future. Maps with dark arrows represent fields that are currently close-knit, that are likely to become more dispersed. We expect that future maps of science will show changes in structure corresponding to these observations. Medicine will disperse slightly, while the physical sciences will tighten and draw closer to the medical fields.



www.mapofscience.com



Electrical Engineering & Computer Science (EECS), indicated by the pink shape in the view above, is a field whose connectedness has been increasing much more quickly (15%) than expected. Connectedness has increased between EECS and all other fields from 2001-2005. The connections with the largest annual increases (>10%) are shown by white arrows. Over time, these stronger connections will distort the map, and may bring EECS into a more central position.



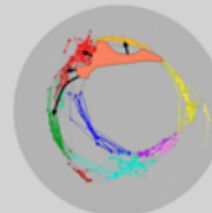
Biotechnology, indicated by the light green shape above, has the largest overall increase in connectedness with other fields (73%). It has relatively few connections with the EECS, Math & Physics, and Social Sciences fields, but these three connections had the largest fractional increase. The connection with EECS, which had the single largest growth rate (51% of any connection), reflects recent growth in the area of bioinformatics.



Infectious Diseases, indicated by the dark red shape above, has an overall decrease in connectedness (2%) with other fields. Decreases in connection strength between this field and the fields of Biology, Medical Specialties, Health Professionals and Brain Research (all > 3%) are shown as black arrows, and will drive a slow dispersion of the medical fields compared to the current structure.



Medical Specialties, indicated by the red shape above, has an overall decrease in connectedness (2%) with other fields. This is dominated by decreasing connection strength to the other medical fields and biology, as shown by the black arrows. The only connection increasing in strength is the one to EECS, which is not shown here, but was shown as a white arrow in the first story.



The **Health Professionals** field, indicated by the orange shape above, has the largest overall decrease in connectedness (4%) to other fields. As with the other medical fields, its connection strength with medicine and biology is decreasing in all cases, as shown by the black arrows. With the decreasing connection strengths throughout medicine, we expect the map structure in these areas to relax slightly over time.

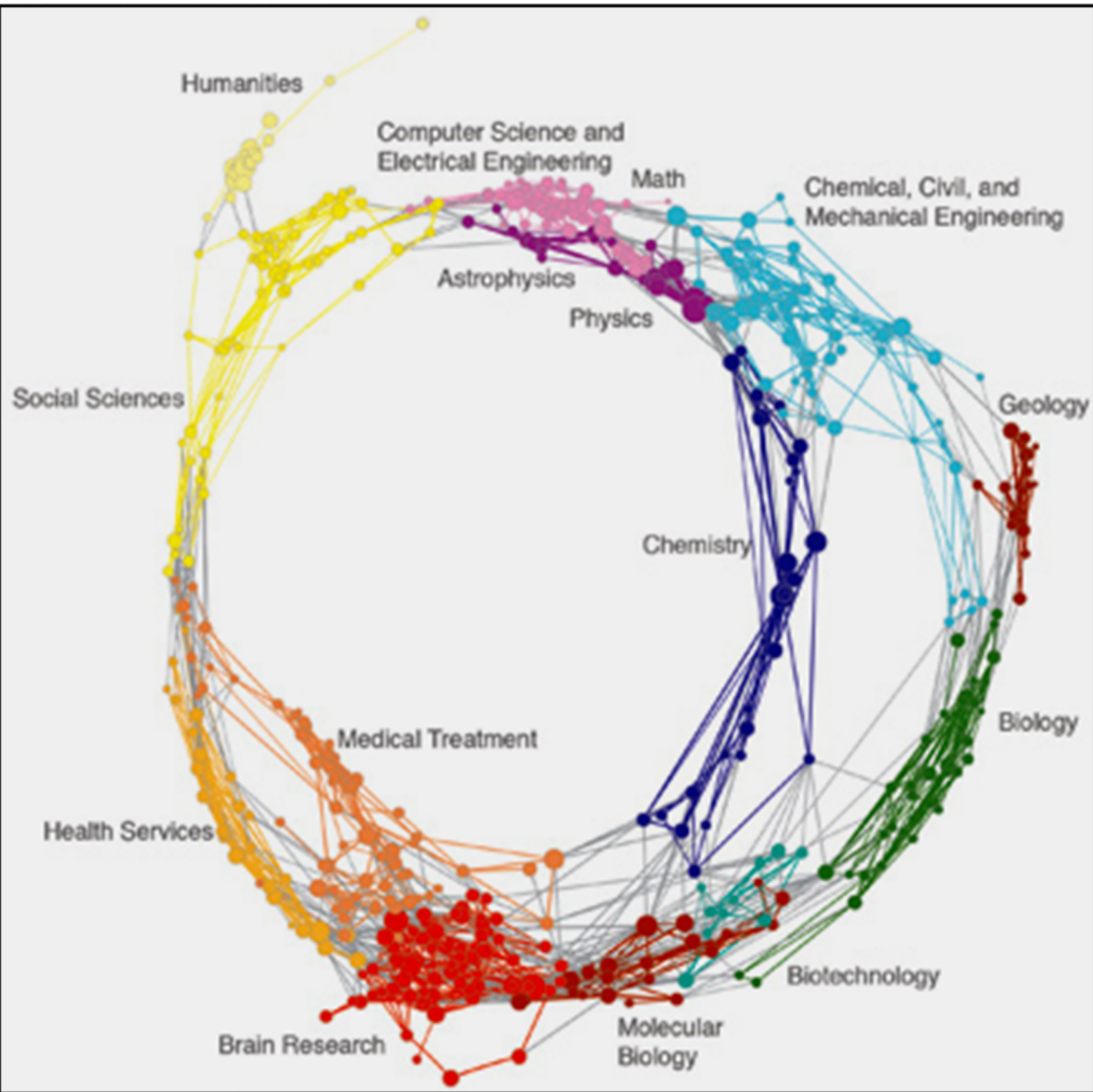


The **Social Sciences**, indicated by the yellow shape above, had an overall increase in connectedness (9%) with other fields. Although its greatest connectedness gains were with EECS and Biotechnology (see white arrows), it also had consistent connection increases with nearly all the other fields. In general the fields of EECS, Biotechnology, and the Social Sciences are becoming more connected, and are pulling on the physical sciences as well.

Source: University of California, San Diego Knowledge Mapping Laboratory. Color Images: © Regents of the University of California. The underlying data came from two sources: Thomson ISI and Scopus. Mapping methodology and descriptive text by Dick Klavans, President, SciTech Strategies, Inc., and Kevin Boyack, Sandia National Laboratories. Graphics & typography by Ethan Weller and Mike Pank.

Special acknowledgments to Katy Bonner, Art Ellis, W. Bradford Falck, Len Simon, and Henry Small.

© 2007 by Dick Klavans, all rights reserved.



Labor Statistics

From the start of the recession in December 2007 through the end of 2009, more than 8 million jobs were lost in the United States. In October 2009, the U.S. unemployment rate peaked at 10.1 percent (after adjustment for seasonal variations). In April 2010, unemployment was still at 9.9 percent. In May 2010, about 6.8 million individuals, or 46 percent of those unemployed, had been unemployed for at least 27 weeks. Each month, 100,000 people enter the U.S. labor market—including high school and college graduates. They join 15 million Americans looking for work.

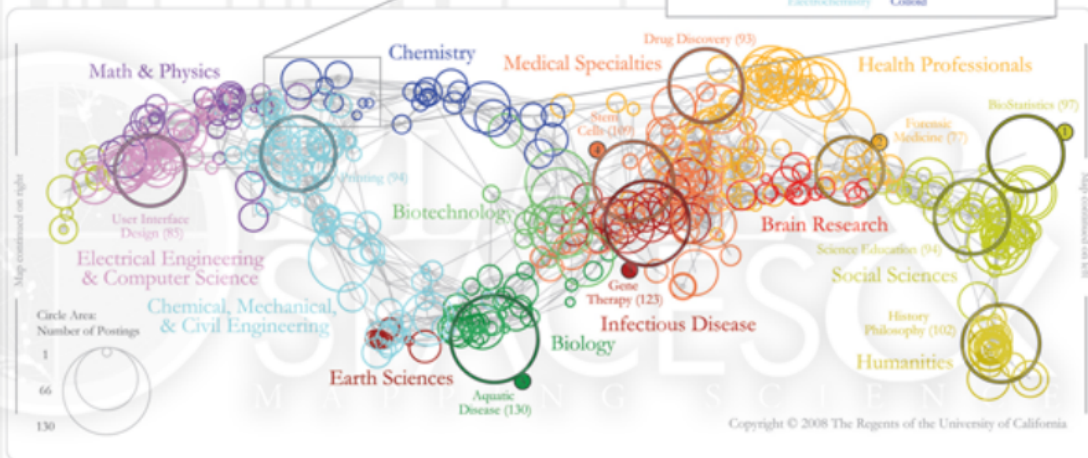
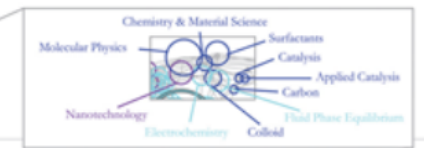
Unemployment rates are calculated and adjusted by the Bureau of Labor Statistics within the U.S. Department of Labor and reported in their monthly Economic News Release on the Employment Situation. Historical employment data, including unemployment rates with and without seasonal adjustment and divided by individual characteristics and employment sectors, are also available from the Bureau of Labor Statistics.

U.S. Job Market: Where are the Academic Jobs?



General Trends

The charts to the left show annual national economic indicators. These indicators serve as background data; they flow beneath and around more specific analyses of the job market. Business cycle data come from the National Bureau of Economic Research. Historical debt data come from the U.S. Department of Treasury. Unemployment rates come from the Bureau of Labor Statistics. GDP data come from the Bureau of Economic Analysis. Stock Price Index data come from the research of Dr. Robert Shiller at Yale University Department of Economics. Individual conversion factors (compiled from Bureau of Labor Statistics Consumer Price Indices by the Oregon State University Political Science Department) were applied where appropriate.



Sample Jobs

- 1 Bioinformatics Programming Support NIH NHGR (BioStatistics, Bethesda, MD)
- 2 Boston Site Lead Musculoskeletal Diseases (Forensic Medicine, Boston, MA)
- 3 Associate Scientist II Mouse NeuroGenomics (Gene Therapy, San Diego, CA)
- 4 Scientist Early Stage Cell Culture (Stem Cells, San Francisco, CA)
- 5 Post-doctoral Training in Mammalian Genetics (Aquatic Disease, Bar Harbor, ME)

Geospatial Map

Using U.S. city and state information, circles are placed over the location of the job postings and are sized in relation to the number of postings listed for that location. The top-10 cities with the highest number of postings are labeled, and the number of postings is given in parentheses.

Where are the Academic Jobs?

Over 3,500 jobs posted between July 2008 and February 2009 on Nature Jobs were collected and analyzed. The two maps above show the 1,037 job postings located in the U.S. and represent a directed study of the job market that sits on top of larger trends over time.



Topic Map

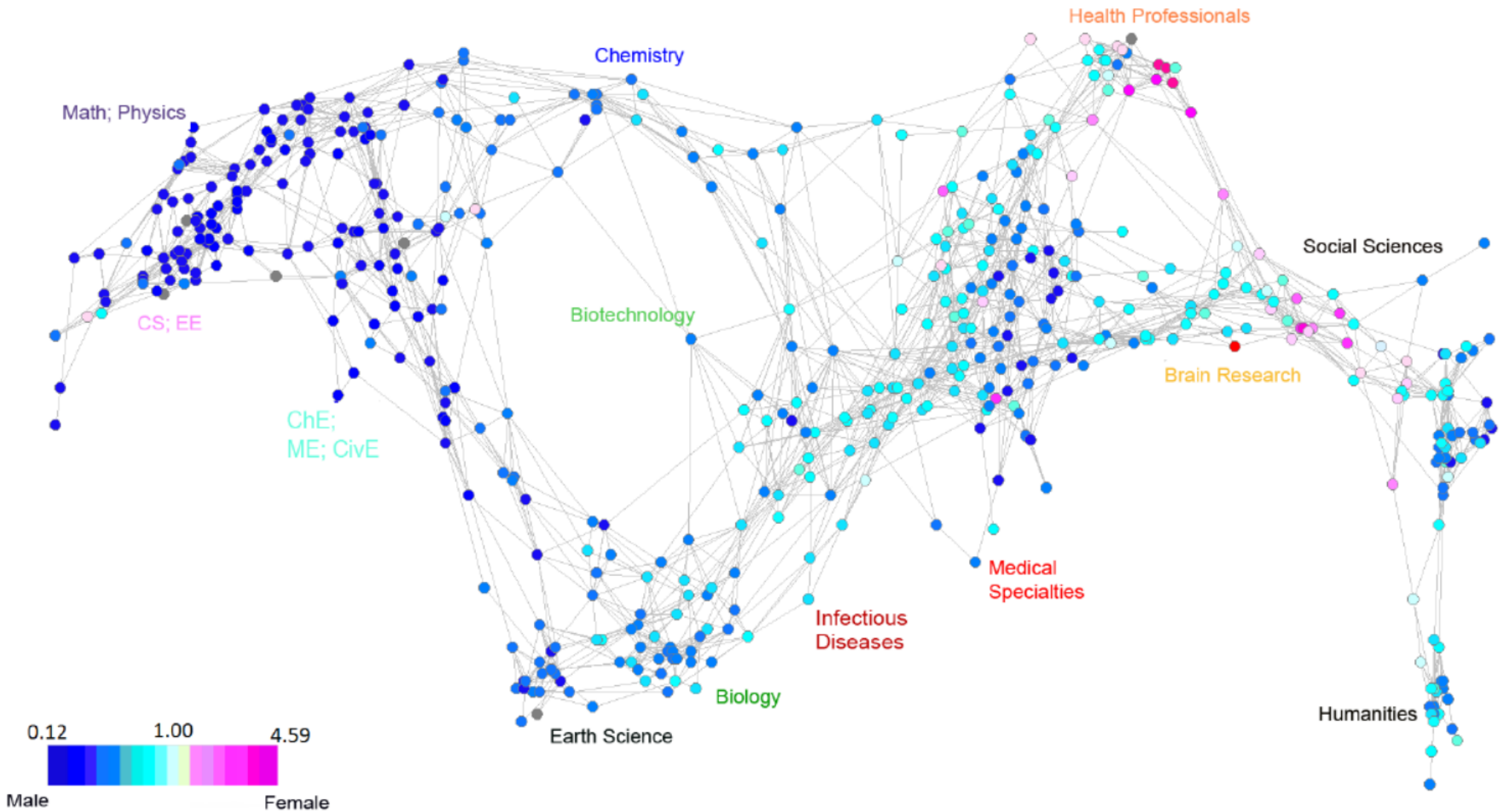
How many and what jobs are available in which scientific area? The UCSD Map of Science used here was created by analyzing 7.2 million papers published in over 16,000 separate journals, proceedings, and series from Thomson Scientific and Scopus over the five year period from 2001 to 2005.

Using a hierarchical, multi-step clustering procedure, journals were grouped into 554 clusters based on common word usage and shared references (bibliographic coupling). In the map, each cluster is represented by a node, and links denote strong bibliographic coupling relations. The 554 clusters are further grouped into 13 color coded scientific disciplines.

The 1,037 jobs were overlaid based on word matches in their description and keywords associated with each of the 554 nodes. Like in the geospatial map, circle area sizes correspond to the number of jobs posted.

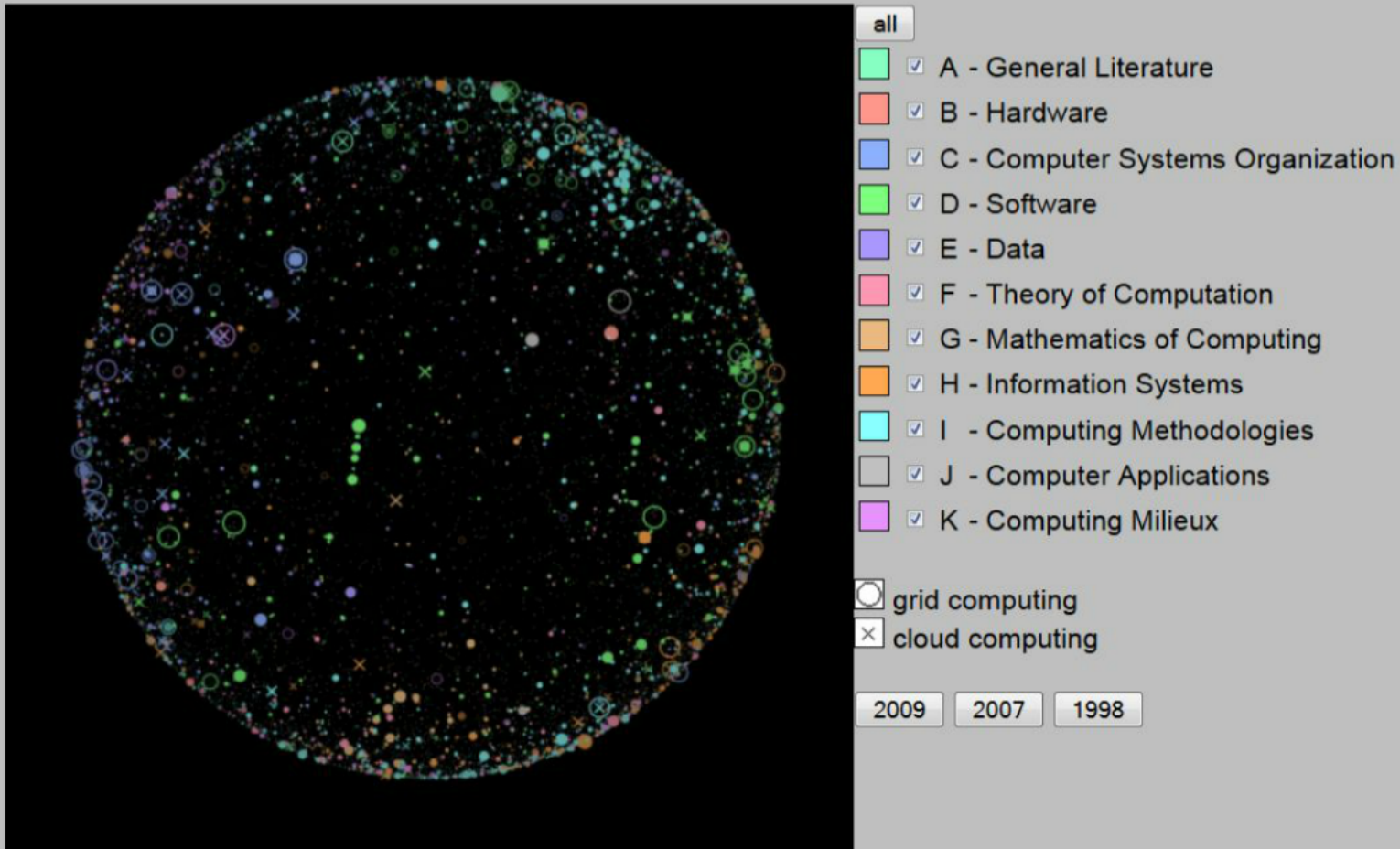


F/M PRODUCTIVITY BY DISCIPLINE



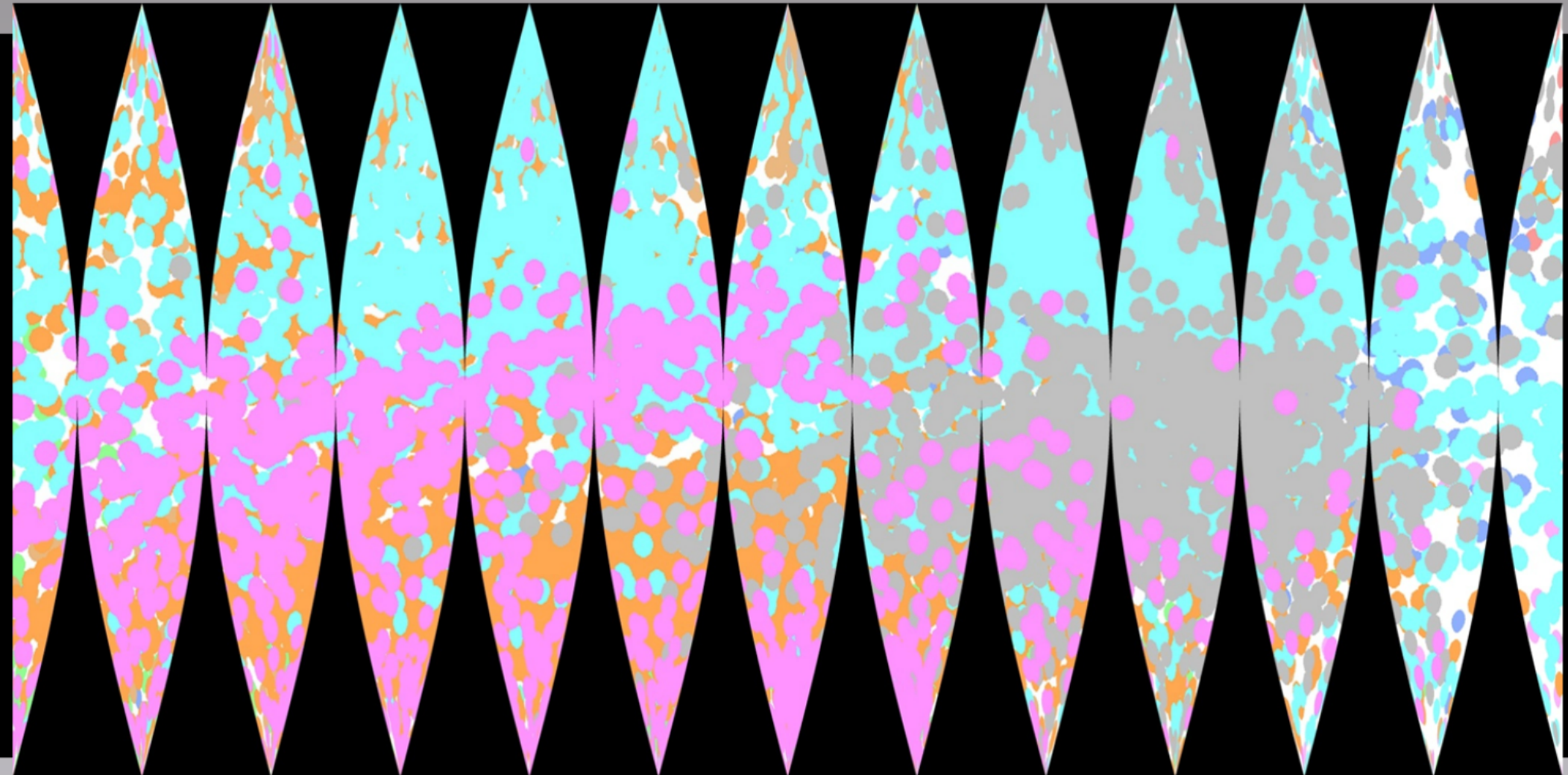
Wizualizacja rozwoju nauk komputerowych

CS changes visualizer



© 2012 UMK

<http://www-users.mat.umk.pl/~garfi/vis2009v3>



Keywords

Ograniczenia

- Niewystarczająca precyzja
- Niewygoda w nawigacji

The screenshot displays a user profile page with two main sections: 'FEATURED PUBLICATIONS' and 'ABOUT'. The 'FEATURED PUBLICATIONS' section lists three articles with their respective view, download, and citation counts. The 'ABOUT' section contains a bio and current project information. Below the 'ABOUT' section is an 'EDIT SKILLS' interface with a search bar and a list of skill tags.

FEATURED PUBLICATIONS

Chapter: Information Retrieval across Information Visualization
V Osinska, P Bala, M Gawarkiewicz
52 Views, 25 Downloads, 0 Citations
Source

Article: Nonlinear approach in classification visualization and evaluation
Veslava Osinska, Piotr Bala
33 Views, 9 Downloads, 0 Citations
Source

Article: Visual Analysis of Classification Scheme
Veslava Osinska
28 Views, 0 Downloads, 0 Citations

ABOUT

I'm an assistant professor in the Institute of Information Science and Book Studies at Nicolas Copernicus University (NCU) in Torun. My background is physics, PhD received in information science at NCU. My research concerns information visualization, social network analysis, science/knowledge mapping.
Currently i work on project: Analyzing the dynamics of information and knowledge landscapes - KNOWeSCAPE (COST ACTION TD 1210).

EDIT SKILLS

Add your skills

Visualization x Web Mining x Text Mining x
Knowledge Representation x Digital Libraries x
Sentiment Analysis x SNA x
Information Visualization x Social Media x
Social Network Analysis x Natural Language Processing x
Information Retrieval x Web Intelligence x
Visual Sociology x Data Mining and Knowledge Discovery x
Knowledge domain mapping x

Cancel Save

Zadania map nauki

- ujawnienie społecznej struktury dyscypliny/nauki
- wspomaganie IR
- Automatyczna klasyfikacja/klasteryzacja danych
- Badanie rozwoju dziedzin nauki i ew. prognozowanie
- Określenie polityki finansowania

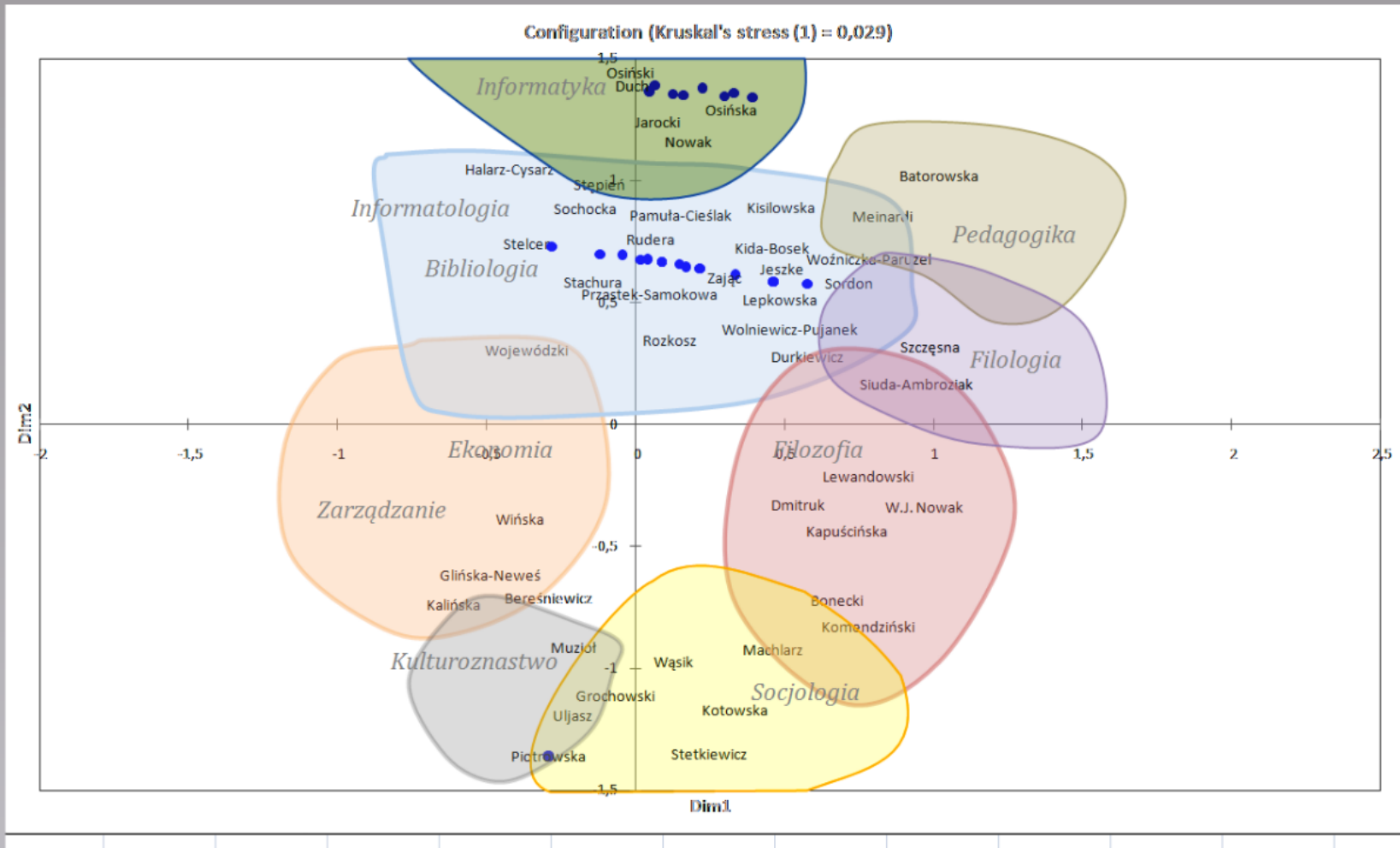
Adresaci

- *Science Maps for Science Policy Makers*
- *Science Maps for Economic Decision Makers*
- *Visualization techniques for policy decisions*
- *Data representation for visual analytics*
- *Public policies focuses on international collaboration*
- *Science modelling dynamics for science of science*

Micro aspekt

- Naukowcy jako menadżerowie i planiści własnej kariery.
- Walka o widoczność z wykorzystaniem wyników analiz
- Współpraca międzynarodowa
- Współpraca interdyscyplinarna

Homo Communicativus



Social Network Analysis (SNA)

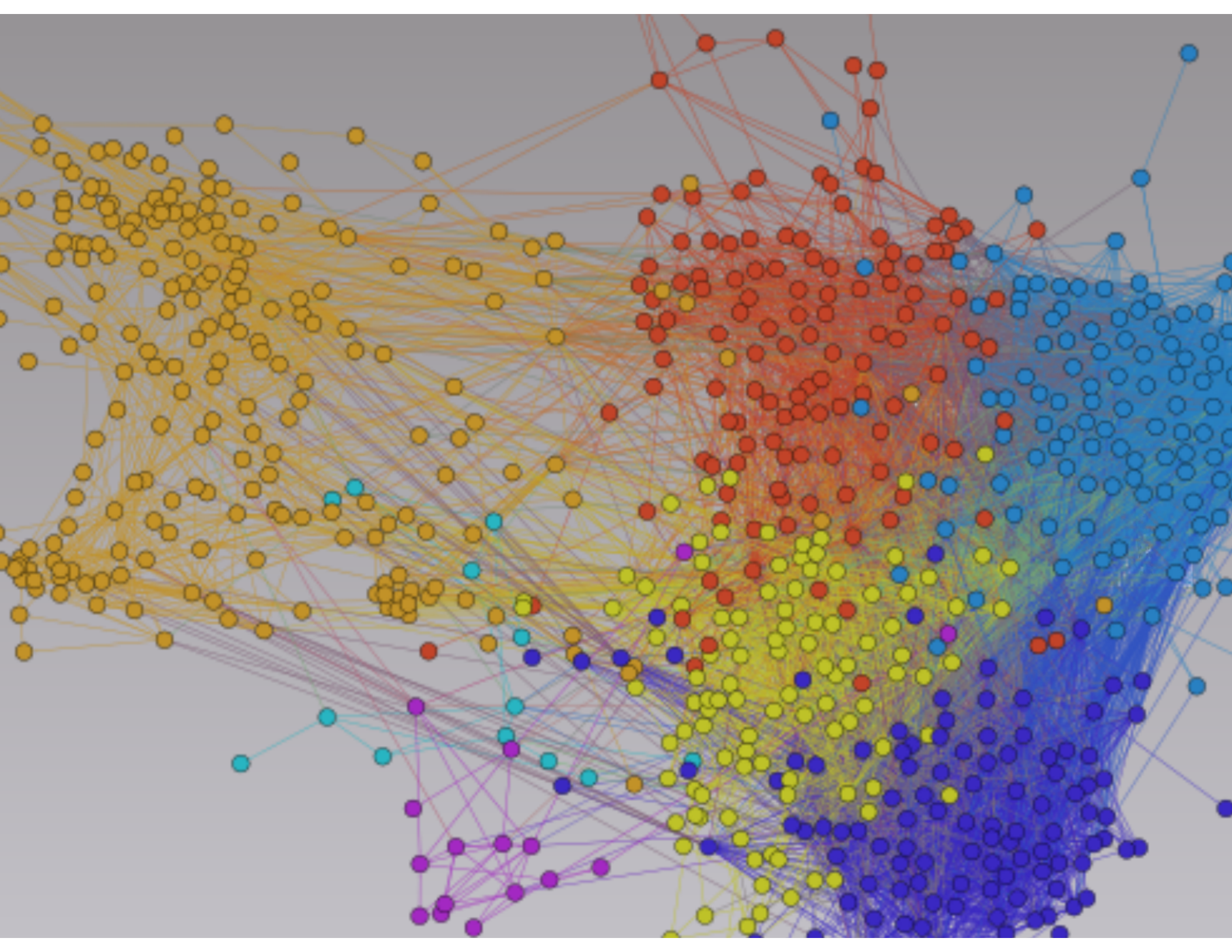
Zespół metod do badania struktur tworzonych przez ludzi w różnych społecznościach, organizacjach.

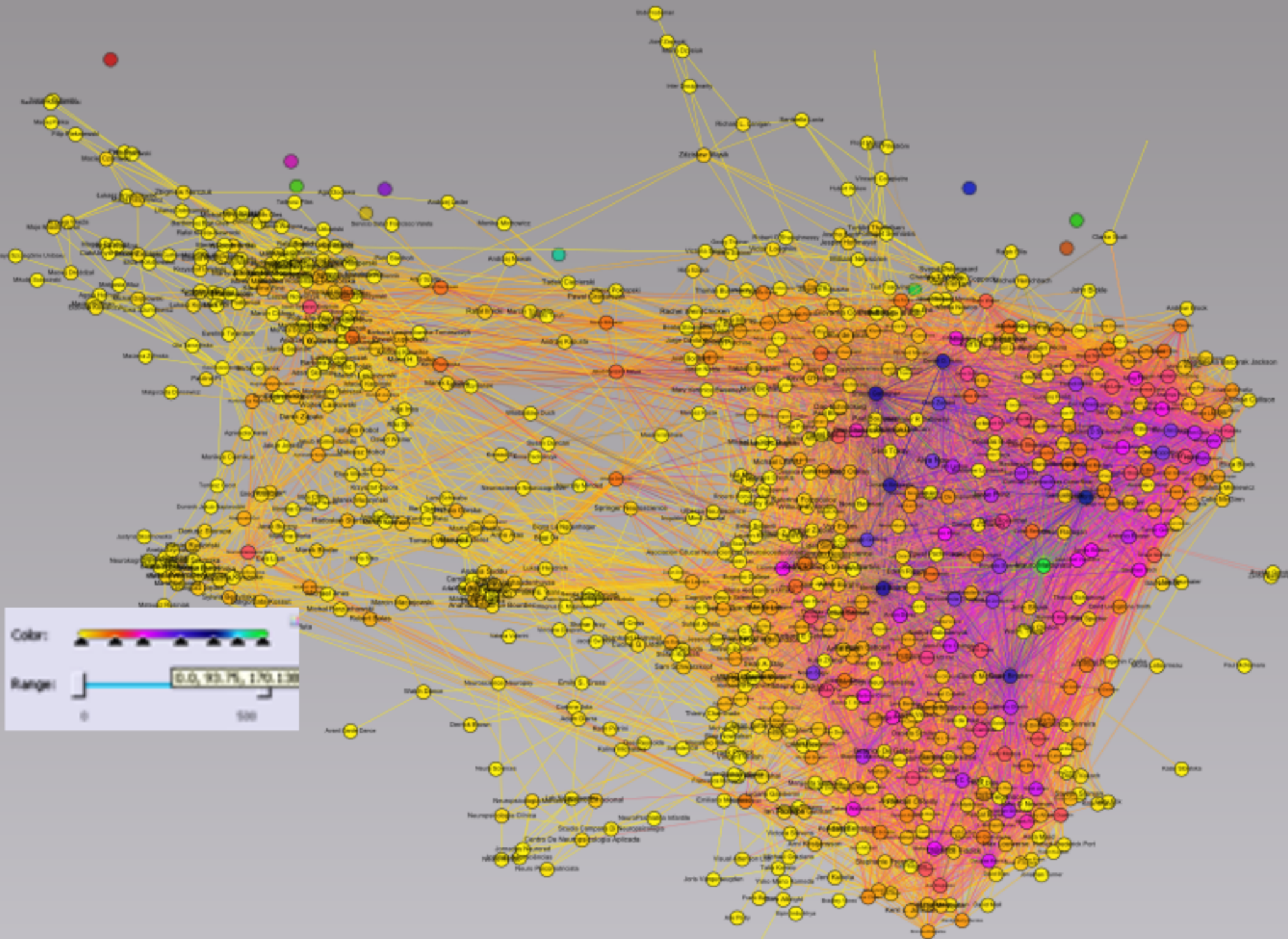
Teoria grafów, nauki o sieciach

Zastosowania:

- Zarządzanie: analiza i poprawa kanałów komunikacji wewnątrz organizacji
- Policja: badanie struktur siatek przestępczych i terrorystycznych
- Internet: modelowanie sieci znajomych na portalach społecznościowych
- Telekomunikacja: badanie przepustowości sieci

Nauki o sieciach nauką XXI wieku (masowość danych, popularność SNA w naukach społecznych)





"Po pierwsze, pozwoliło to mi na rozpoznanie własnego miejsca w **strukturze** pewnej budowanej przeze mnie **wspólnoty, społeczności**, a także **miejsce moje** i tej **wspólnoty** w szerszym kontekście sieci **więzi naukowych**.
Po drugie, umożliwiło planowanie poszerzania swoich więzi w **celach teoretycznych, projektowych**, ale również ze względu na poczucie **tożsamości i przynależności** do określonej **społeczności**."

An interdisciplinary network

Enabling [collaboration](#) and discovery among [scientists](#) across all disciplines.

[Find out how your institution can participate](#)



The network of scientists will facilitate scholarly discovery. Institutions will participate in the network by installing VIVO, or by providing semantic web-compliant data to the network.



Cornell Un
people: 67
publication

International Researcher Network 



2013 VIVO Conference 
August 14-16
Hilton St. Louis at the Ballpark

[VIVO conference materials:](#)

[2010](#) | [2011](#) | [2012](#) | [2013](#)

In the Press

January 15, 2014

[Research Data Management: Practical Strategies for Information Professionals](#)

Source: *Research Data Management: Practical Strategies for Information Professionals*

November 24, 2013

[Big Data](#)

Source: *Journal of Electronic Resources in Medical Libraries*

Events

[Open Data in Education Seminar](#)

Mar 10 - Mar 10, 2014
Saint Petersburg, Russia, CO

[2014 VIVO Implementation Fest Hackathon](#)

Mar 18 - Mar 18, 2014
Durham, NC

[VIVO Implementation Fest](#)

Mar 19 - Mar 20, 2014
Durham, NC

Blog

FEB 19 [Call for Workshop Proposals - 2014 VIVO Conference](#)

We invite all interested parties to submit workshop proposals for the Fifth Annual VIVO Conference, to be held August 6-8 in Austin, TX. Workshops will be taught on August 6 and each will be 3.5 hours long. We strongly

Wnioski

- Wizualizacja jako środek bibliometryczny
- Dwa profile w mapowaniu: struktura społeczna i struktura dziedzinowa
- VIVO -odpowiedzią na brak zcentralizowanej polskiej bazy danych naukowej i równowagi w widoczności naukowców z różnych dziedzin.



Dziękuję za uwagę

wieo@umk.pl