

# THE DIGGING PROJECT: VISUALIZATION EXPERIENCE



# Visualization Experience



- The dashboard experience
- The query expansion experience
- The network analysis experience

# Dashboard Experience

- Pluggable interface built into the Solr browsing environment (DRAMs or Mimas)
- Using JavaScript and D3.js to enhance visual and interaction experience
- To visualize and interact with
  - ▣ the most frequent DDC concepts from search results
  - ▣ the most frequent keywords from search results

# Dashboard Experience

[Solr Admin](#)

## DRAMS

Find:

제출

재설정

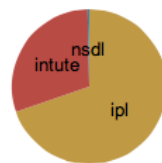
5811 results found in 20 ms Page 1 of 582

### Clusters

#### Dashboard

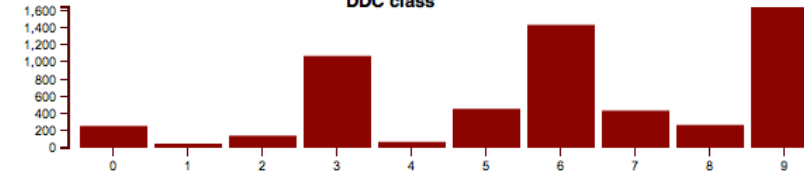
#### Other Topics

1. [intute:20214899](#)
2. [ipl:res:ipl-9037](#)
3. [ipl:res:ipl-5836](#)
4. [ipl:res:ipl-22177](#)
5. [intute:2022069](#)
6. [ipl:res:ipl-67437](#)
7. [ipl:res:ipl-76745](#)
8. [ipl:res:ipl-20151](#)
9. [intute:20253010](#)
10. [ipl:res:ipl-80930](#)



Count

#### DDC class



### Field Facets

#### subject

- [lighthouse](#) (453)
- [Entertainment & Leisure--Travel & Tourism--North America Travel & Tourism](#) (412)
- [Great Britain](#) (200)
- [history](#) (152)
- [History](#) (137)
- [United States](#) (129)
- [Atlantic Ocean](#) (110)
- [UK](#) (106)
- [Teaching Materials](#) (101)
- [Canada](#) (100)
- [geography](#) (97)
- [state facts](#) (80)
- [Animals](#) (77)
- [USA](#) (77)

#### [Nematode.net](#) [More Like This](#)

Id: [intute:20214899](#)

URL: [<http://nematode.net/>]

DDC: 572.8

Nematode.net is resource for investigating gene sequences from nematode genomes. ESTs have been generated from nematodes other than *Caenorhabditis elegans*, including key parasites of humans, animals and plants. Nematode.net currently provides NemaGene EST cluster consensus sequence, enhanced online BLAST search tools, functional classifications of cluster sequences and comprehensive information concerning the ongoing generation of nematode genome data. Made available on the Web by Washington University School of Medicine's Genome Sequencing Center (GSC), St Louis.

#### [How Stuff Works](#) [More Like This](#)

Id: [ipl:res:ipl-9037](#)

URL: [<http://www.howstuffworks.com/>]

DDC: 636

Explains simply, with excellent diagrams or pictures, how many common appliances, machines, and technologies work. Also covers health, animals, and the home. A small sample of topics covered includes: smoke detectors, remote controls, UPC bar codes, bread, digital clocks or watches, compasses, microwave ovens, fuel cells, hybrid cars, Boolean logic, lock picking, and more. Many have links to Web sites or related articles for further reading. Some of these articles might be useful for background for science projects.

# Dashboard Experience

[Solr Admin](#)

## DRAMs

Find:

788 results found in 18 ms Page 1 of 79

## Clusters

### Visualization

1. [ipl:res:lil-25023](#)
2. [intute:2031417](#)
3. [intute:2003520-155739g](#)
4. [intute:1001432902-4243](#)
5. [intute:20080114-22490580](#)
6. [ipl:res:ipl-79531](#)

### Education

1. [ipl:res:lil-25023](#)
2. [intute:2005128-121713](#)

### Other Topics

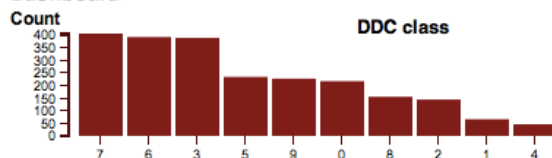
1. [intute:2003519-15322](#)
2. [intute:2028224](#)
3. [intute:20262041](#)

## Field Facets

### subject

- [British, tfsum=1](#) (17)
- [photography, tfsum=1](#) (14)
- [General Resources, tfsum=2](#) (12)
- [Visual Arts, Data Science](#)

### Dashboard



### Visualizing Molecules [More Like This](#)

Id: intute:1025524512-4066

URL: [http://science.widener.edu/svb/molecule/molecule.html]

DDC: [152.14, 572.33]

This page, maintained by Scott Van Bramer at Widener University, provides an introduction to molecular visualization. There are six main sections: molecular geometry; atoms and homonuclear diatomic molecules; binary compounds; ternary compounds; hydrocarbons; and miscellaneous. The introductory section provides a theoretical background to molecular geometry, and discusses several common geometries, while the other sections provide specific examples of molecules, including Lewis Dot structures, Hyperchem .jpg images and links to downloadable Protein Databank (.pdb) files.

### Visual Complexity [More Like This](#)

Id: ipl:res:lil-21175

URL: [http://www.visualcomplexity.com]

DDC: [384, 621.3, 307, 004.6, 005.71, 335.4, 302.2, 155.94, 320.532, 651.7]

This site collects hundreds of visualizations of complex networks. "The project's main goal is to leverage a critical understanding of different visualization methods, across

# Query Expansion Experience

- Identify terms (or classification categories) most related to the user's query
- Visualize the term relationships based on search results or collections
- Let user pick-and-choose (visually) the related terms to update the query or iteratively build another query.



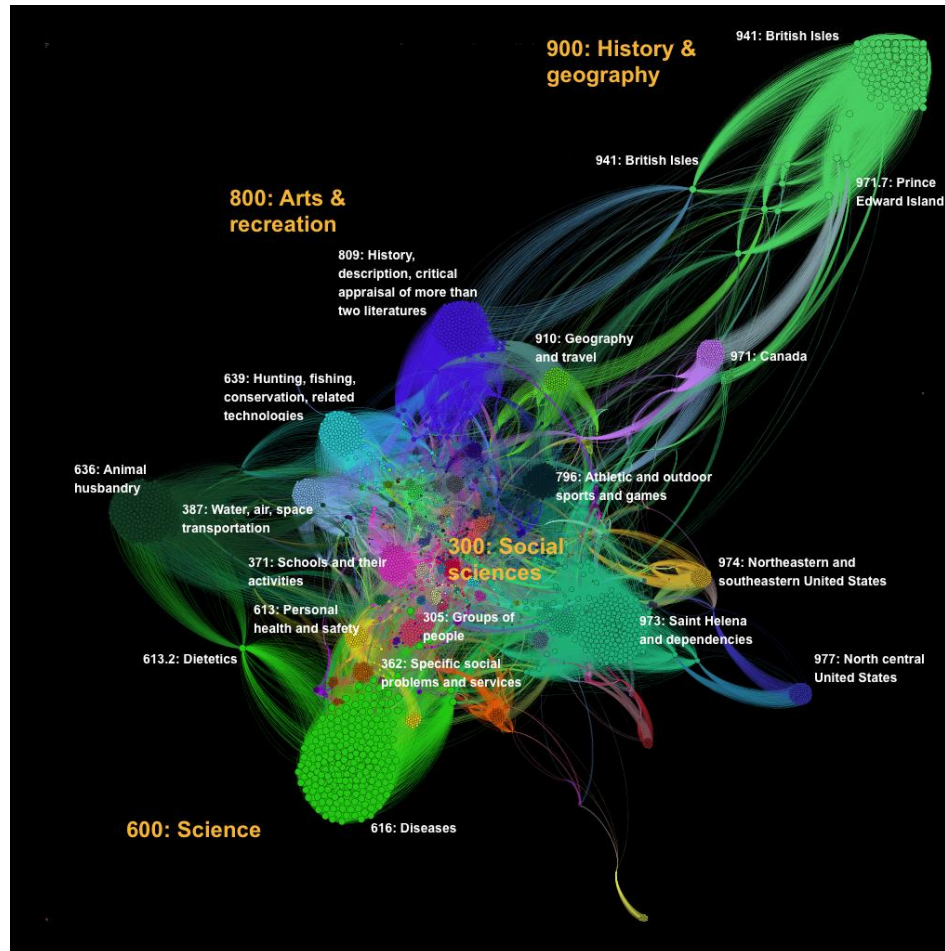
# Network Analysis Experience

- Build a DDC concept-to-concept graph
  - ▣ Two nodes (concepts) are connected if their similarity score exceeds a certain threshold
  - ▣ Experimentally decide the threshold to produce the best graphs
  - ▣ By comparing a range of thresholds with clustering quality metrics and network analysis metrics
- Similarity scores: calculated from the DDC codes retrieved from DISTIL



# Network Analysis – Global Views

- Visualize the collections as a whole



# Network Analysis – Interactive Views

- Exported Gephi generated graphs into JavaScript based interactive/web-based sigma.js (sigma.js.org)
- Let users interact with the graph through the browser:
  - ▣ Overview → Show the distribution of all concepts and their structural/content-based clusters
  - ▣ Details → Selectively show the node labels
  - ▣ More details → By mouse over, show more detailed information of the nodes

# Network Analysis – Interactive Views

