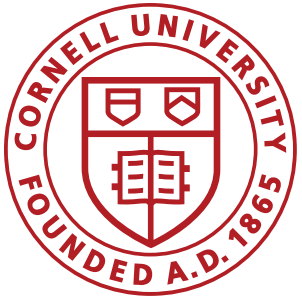


Visualizing Linked Open Data Using VIVO

10/4/2017

What is VIVO?

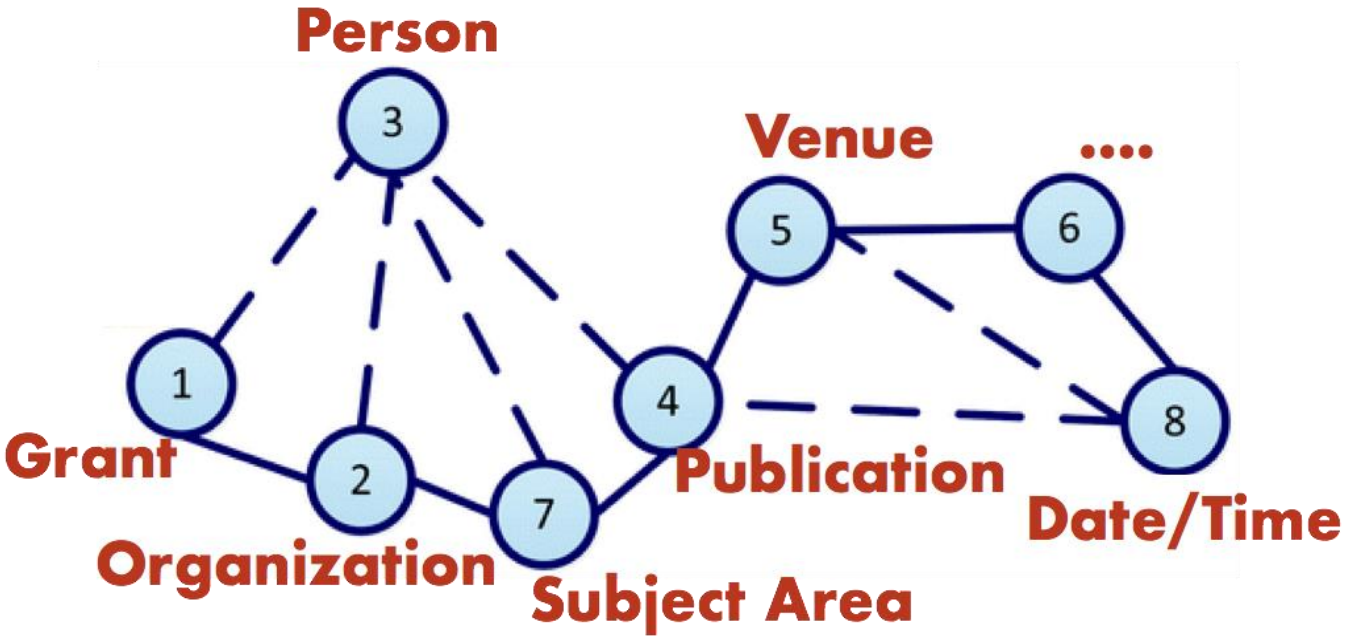
- A web resource for single point of access for information on scholarly activity at Cornell. [Jon Corson-Rikert et. al. (Sep. 2007)]

- A semantic web-based researcher and research discovery tool. [Duraspace & VIVO Sponsor Webinar (2012)]

- An open source tool for describing and linking researchers and research. [Dean B. Krafft and Jon Corson-Rikert (2012)]

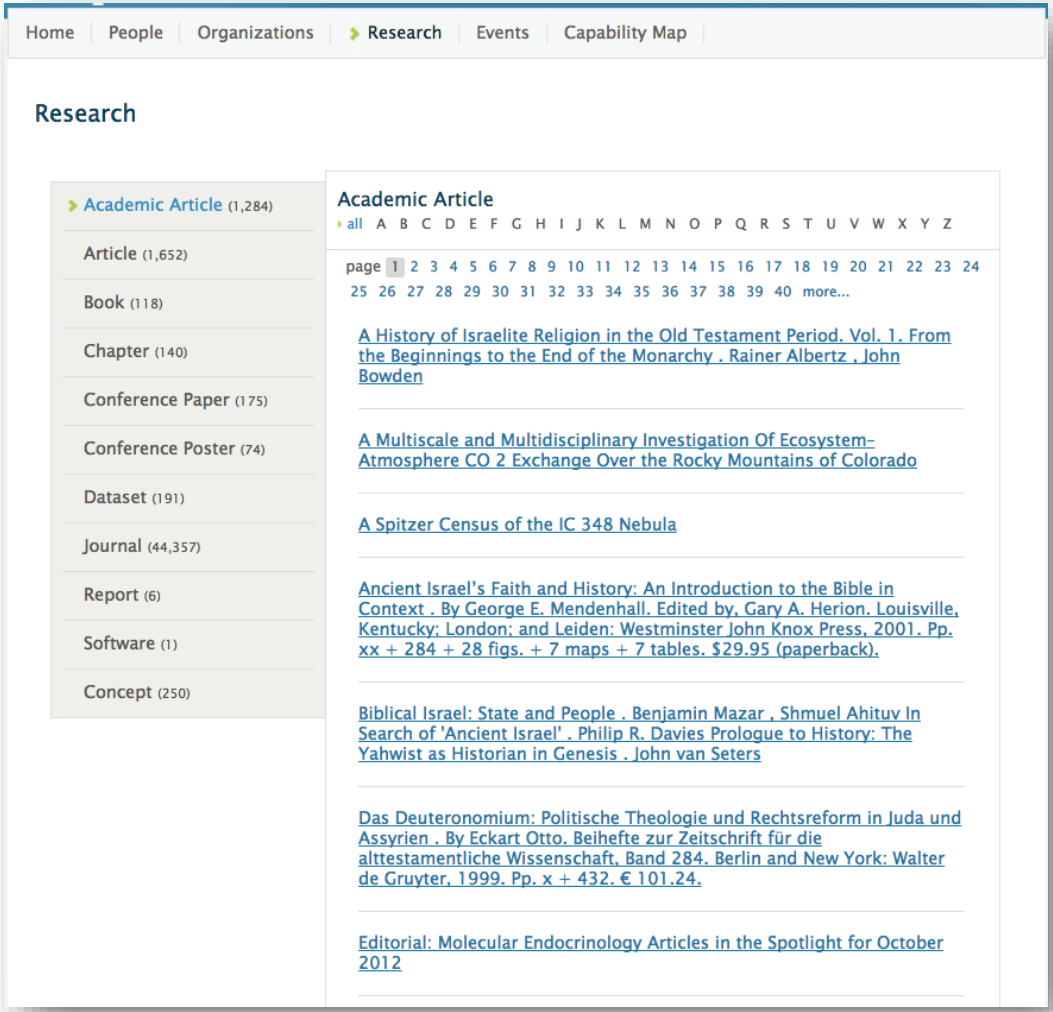
- VIVO creates a connected, integrated record of the scholarly work of your institution, ready for reporting, visualization, and analysis. [VIVO: website (2017)]

VIVO – Creates an Institutional Knowledge Graph



Representation

- How does a person use long lists views that are available in out of the box VIVO?
- Is anyone going to browse through dozens of pages?



VIVO: Under-developed for reporting and analysis

- Out of the box,
  - Limited analysis & visualizations.
  - Data can only be downloaded/shared in RDF format.
    - RDF to JSON transformation ?
  - Limited data reuse: Cannot push data to other sites.
    - An API ? VIVO has one but is limited.
  - Should not need to go to the VIVO site to use data

User Interface

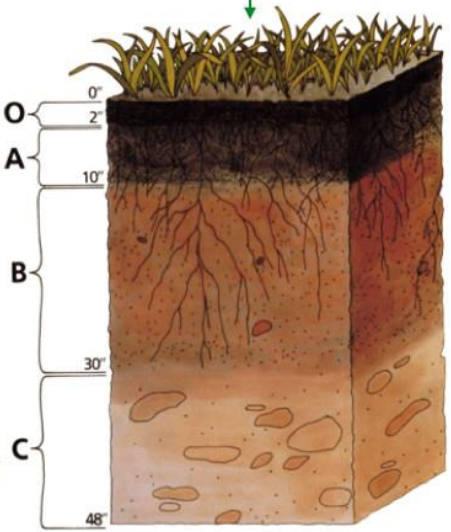
Visualizations

data generation

Data Distribution API

VIVO Framework

Data Ingest



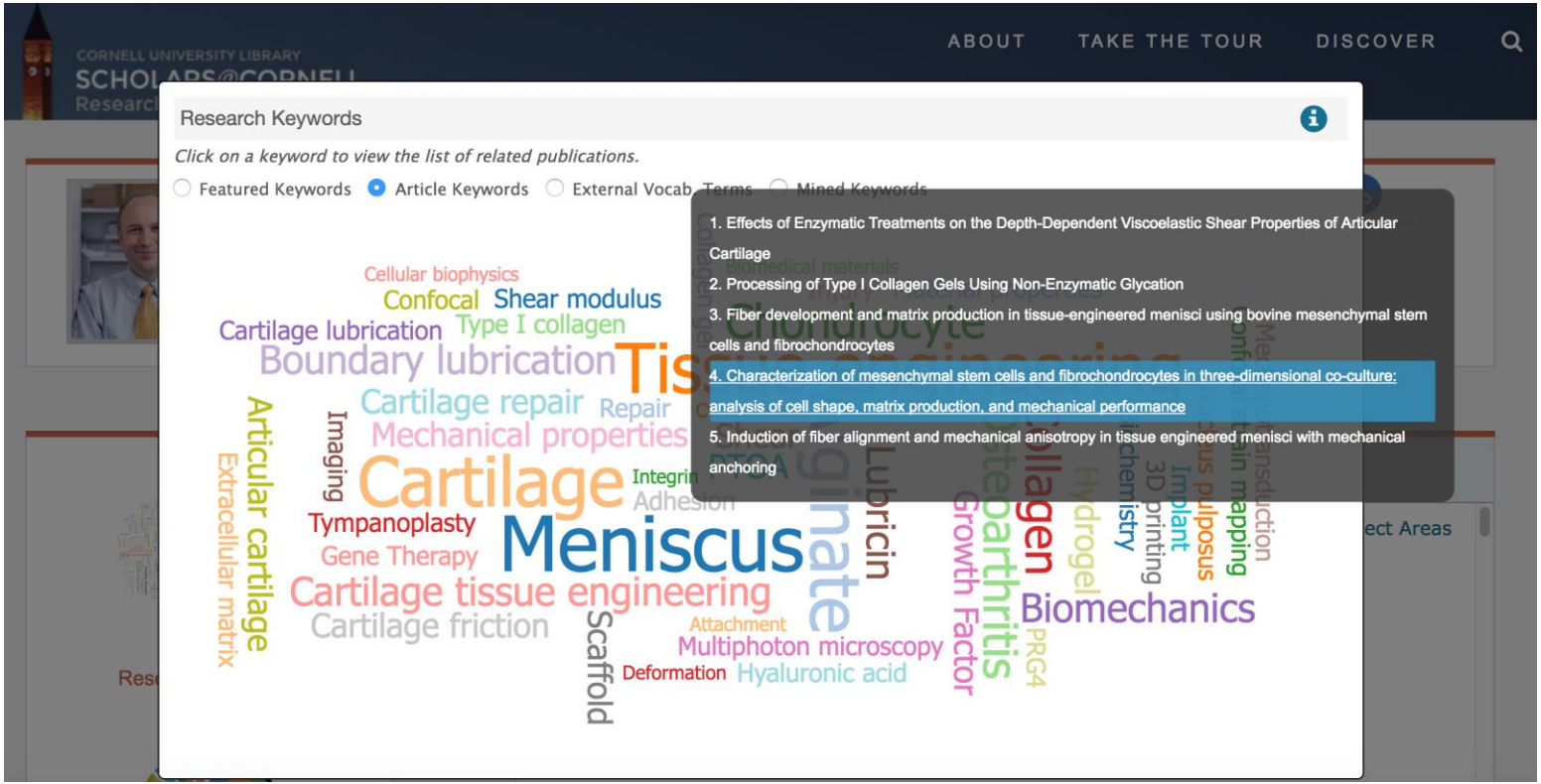
Scholars@Cornell

FRESH START

You have all seen one of these

Research Keywords

of a faculty



Scholars VIVO keyword cloud is interactive

- Demo: https://scholars.cornell.edu/homeWordcloudVisualization
- Screencast

QuickTime Player File Edit View Window Help 100% Wed 8:04 AM John Fereira
LOD_in_Agriculture.pdf | Keyword Cloud Visualization | John
Secure https://scholars.cornell.edu/homeWordcloudVisualization#
Apps Solr Admin English Exif AgriVIVO Searchlight GC30 Mingo (Tradi... http://great-vivo.li... Other Bookmarks

Browse research keywords

Select: Faculty Member

Select: Academic Unit

Reset

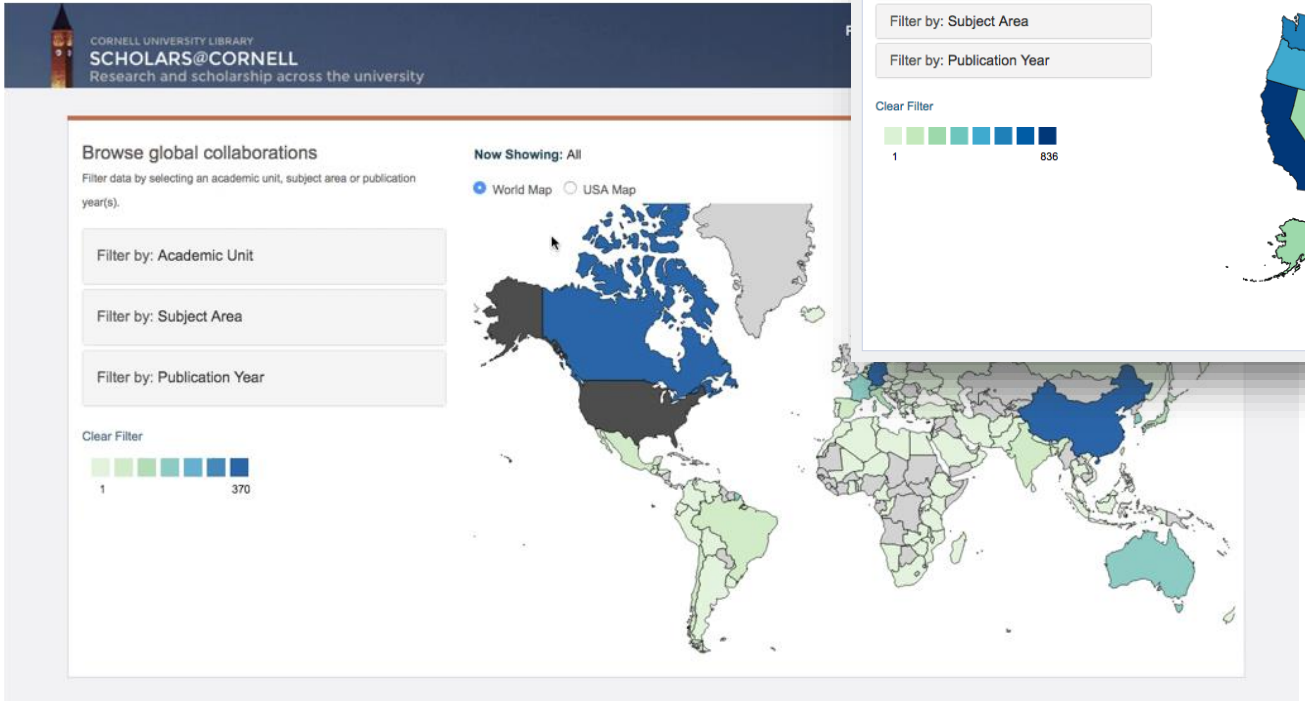
Click on a keyword to view the list of faculty who have publications associated with the keyword.

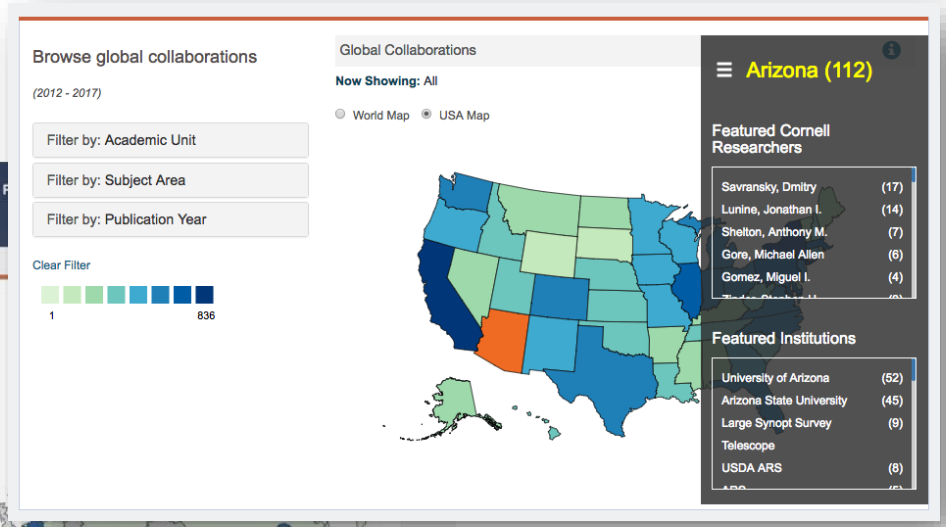
University-wide research keywords

TrouProd-02-26-2016.txt Coffee-01-27-2017.txt Show All

Global Collaborations

of the Academic Units





Global Collaborations

- https://scholars.cornell.edu/homeWorldmapVisualization
- Screencast

QuickTime Player File Edit View Window Help
100% Wed 8:20 AM John Fereira
LOD_in_Agriculture.pdf
Worldmap Visualization
John
Secure https://scholars.cornell.edu/homeWorldmapVisualization
Apps Solr Admin English Exif AgriVIVO Searchlight GC30 Mingo (Tradi... http://great-vivo.li... Other Bookmarks

Browse global collaborations

(2012 - 2017)

Filter by: Academic Unit

Filter by: Subject Area

Filter by: Publication Year

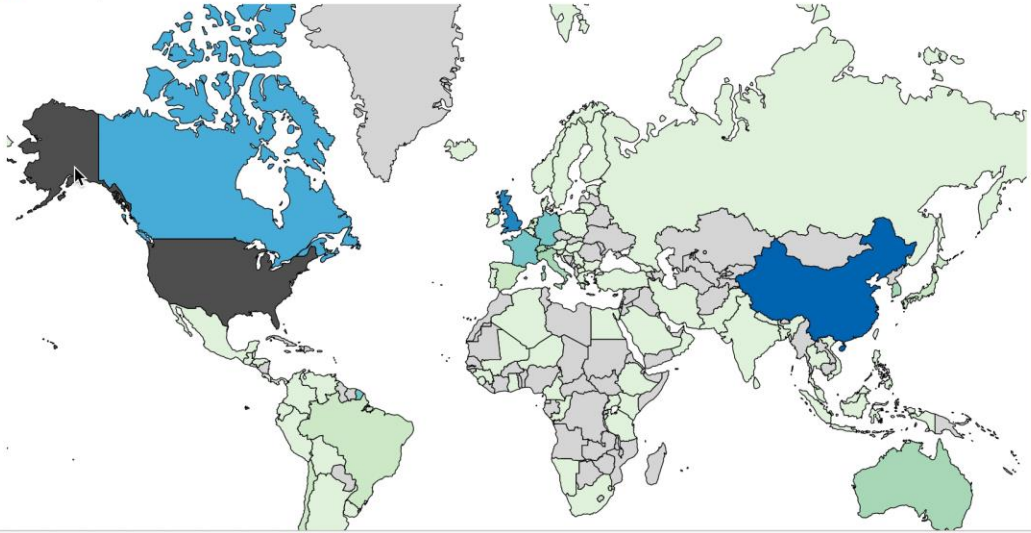
Clear Filter

1 372

Global Collaborations

Now Showing: All

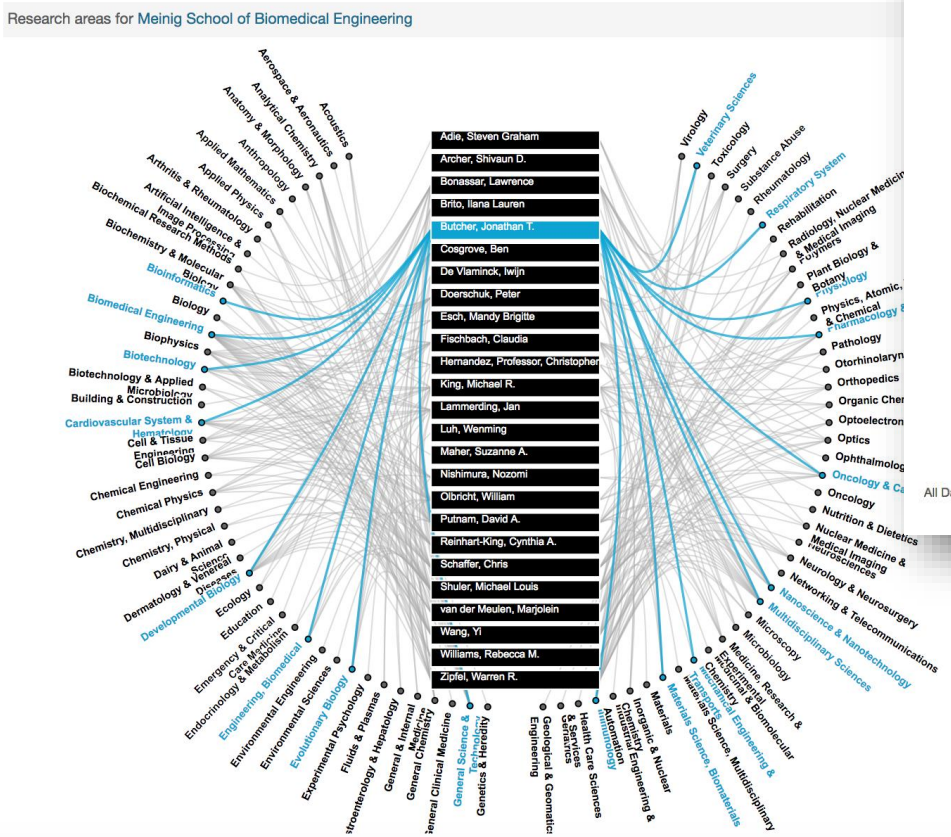
World Map USA Map

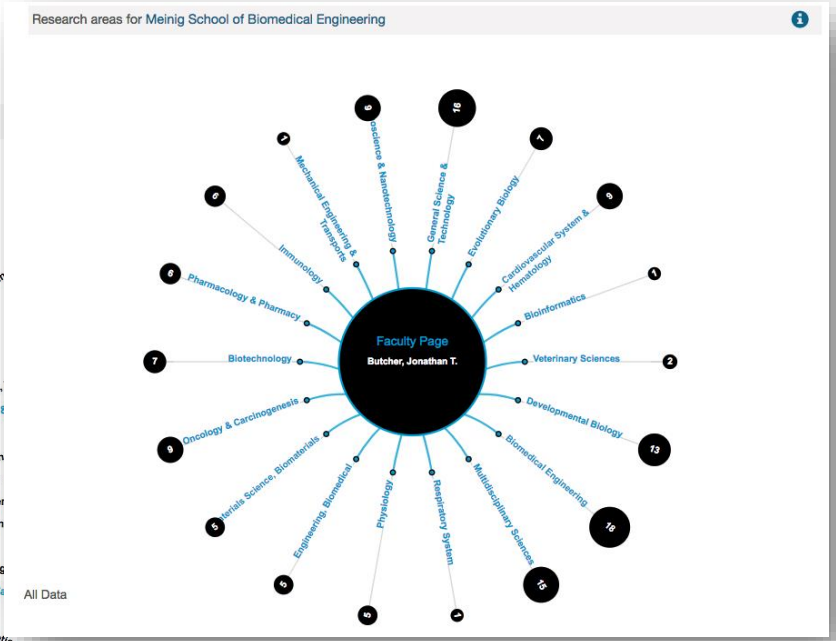


TrouProd-02-26-2016.txt Coffee-01-27-2017.txt Show All

Research Interests

of a department





Research Interests

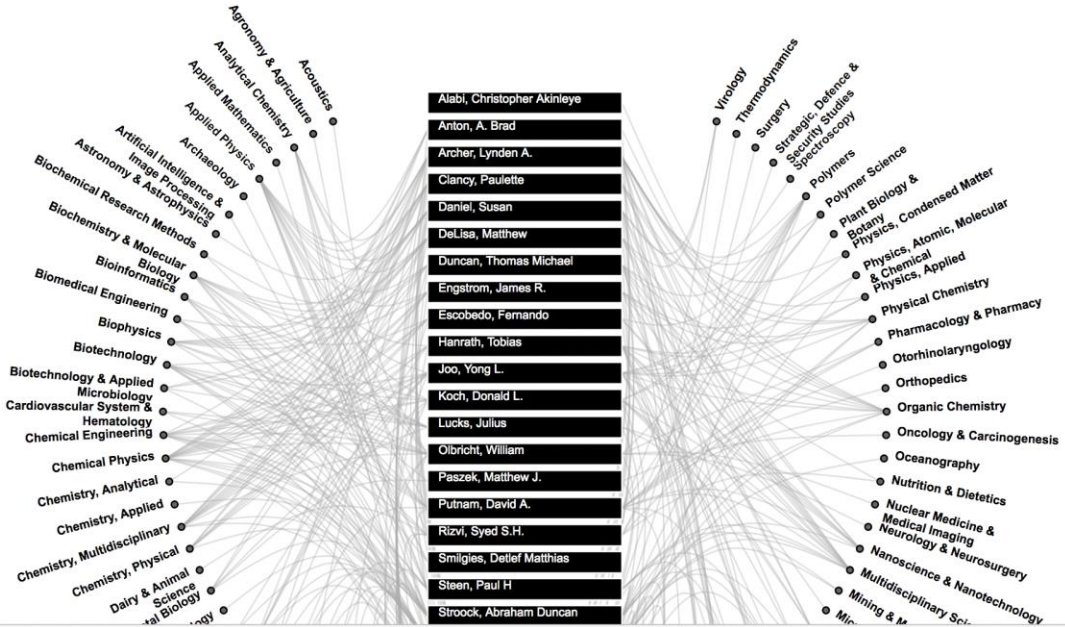
- https://scholars.cornell.edu/orgSAVisualization
- Screencast

QuickTime Player File Edit View Window Help 100% Wed 8:24 AM John Fereira
LOD_in_Agriculture.pdf Subject Area Visualization John
Secure https://scholars.cornell.edu/orgSAVisualization#
Apps Solr Admin English Exif AgriVIVO Searchlight GC30 Mingo (Tradi... http://great-vivo.li... Other Bookmarks

Browse research interests

Select: Academic Unit

Research areas for Smith School of Chemical and Biomolecular Engineering



TrouProd-02-26-2016.txt Coffee-01-27-2017.txt Show All

Under the hood

- Visualizations are created using d3.js
- A javascript layer for managing all visualizations
- Data Distributor (the API)
- Coming soon: raw data form visualizations will be downloadable

Data Distributor

- Several distributor types (static and real time data)
- Data served is managed by the site admin
- Static data is periodically refreshed using scripts/tools
- Accessible via a URL as a “named” distributor

https://scholars.cornell.edu/api/dataRequest/departmentList

RDF for ”static” File distributor

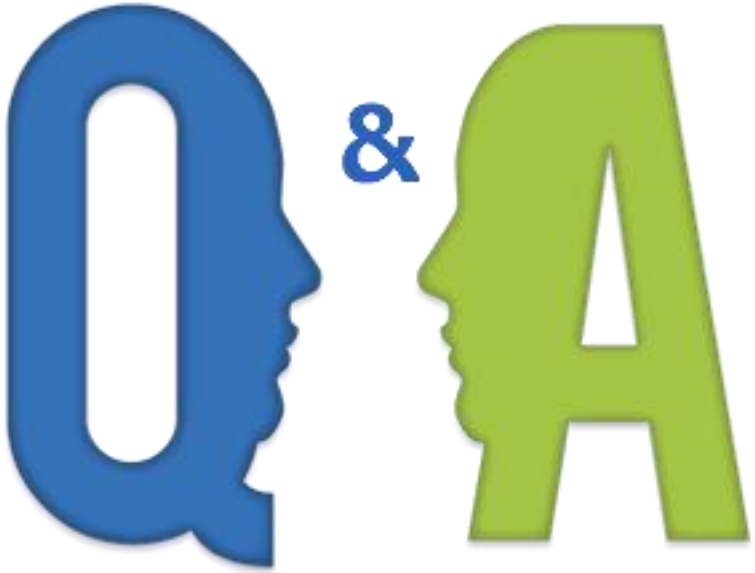
```
:data_distributor_topoc_json :actionName "topoc" .
:data_distributor_topoc_json
    a   <java:edu.cornell.library.scholars.webapp.controller.api.distribute.DataDistributor> ,
        <java:edu.cornell.library.scholars.webapp.controller.api.distribute.FileDistributor> ;
    :path "visualizationData/countries.topo.json" ;
    :contentType "application/json" .
```

RDF for real time distributor

```
:department_list_distributor
    a   <java:edu.cornell.library.scholars.webapp.controller.api.distribute.DataDistributor> ,
        <java:edu.cornell.library.scholars.webapp.controller.api.distribute.SparqlSelectData
Distributor> ;
    :actionName "departmentList" ;
    :query """
        PREFIX rdfs: <http://www.w3.org/2000/01/rdf-schema#>
        PREFIX vivo: <http://vivoweb.org/ontology/core#>
        SELECT ?uri ?label
        WHERE {
          ?uri a vivo:AcademicDepartment ;
               rdfs:label ?label .
        }
        ORDER BY ?label
    """ .
```

Going forward

- ”Productizing” Data Distributor
- Bundle supporting javascript
  - Supports visualizations generated in VIVO viewed in external sites
- Explore other visualizations
- Document, Document, Document



John Fereira
Programmer/Analyst/Systems Architect
Cornell University Library
jaf30@cornell.edu