



CONSERVATION BIOLOGY OVERVIEW



Conservation is the scientific study of the nature and of Earth's biodiversity with the aim of protecting species, their habitats, and ecosystems from excessive rates of extinction and the erosion of biotic interactions. It is an interdisciplinary subject drawing on natural and social sciences, and the practice of natural resource management. The conservation ethic is based on the findings of conservation biology.

Source: Wikipedia



Influential Articles



1960s 1970s 1980s 1990s 2000s 2010s 2020

- The Canonical Distribution of Commonness and ...
- An Equilibrium Theory of Insular Zoogeography
 - Turnover Rates in Insular Biogeography: ...
 - The Statistics and Biology of the ...

Related Topics

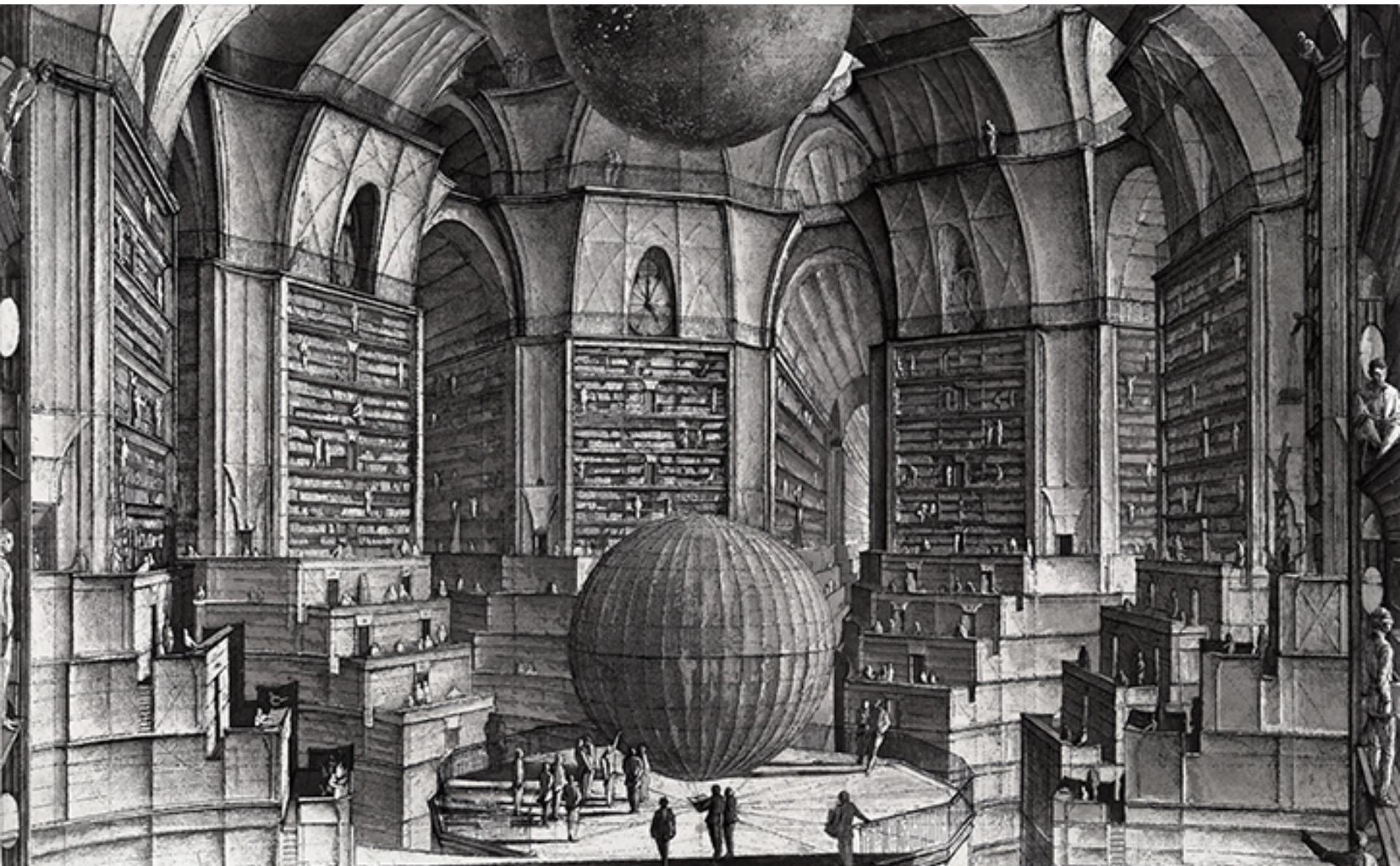


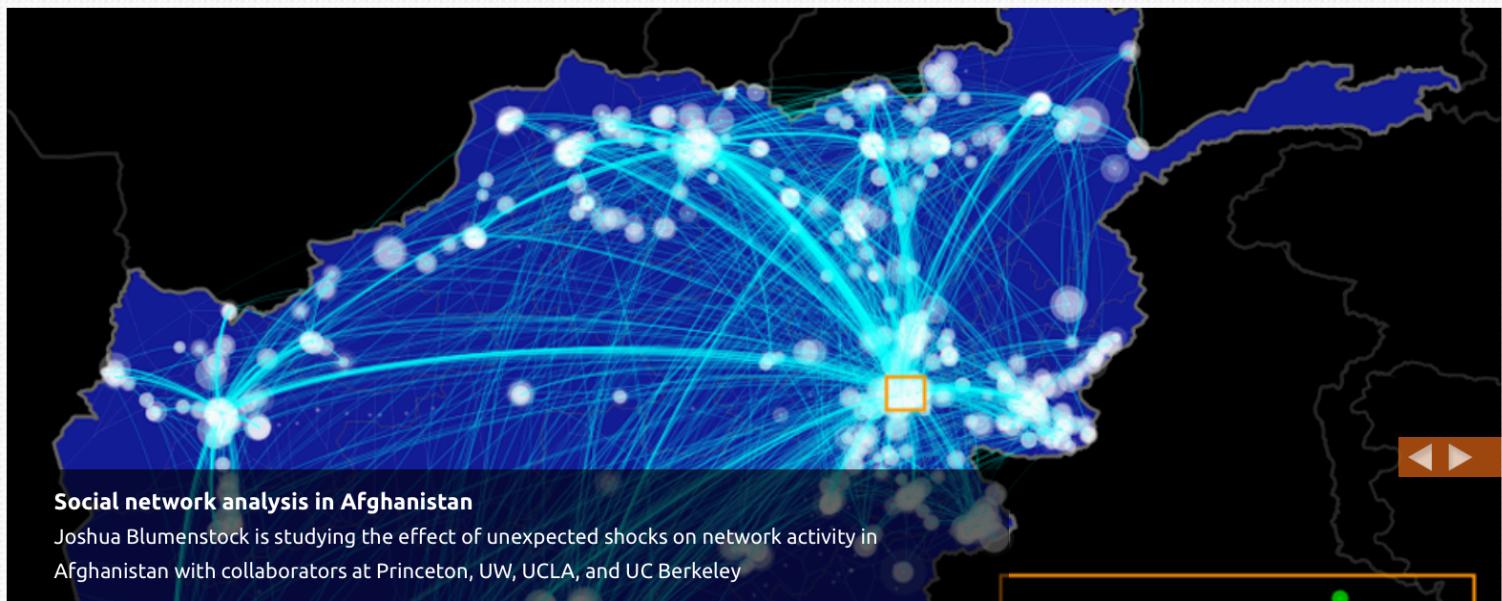
Species

Habitat conservation

Babel: Platform for Scholarly Recommendation

Ian Wesley-Smith & Jevin West, iSchool, University of Washington

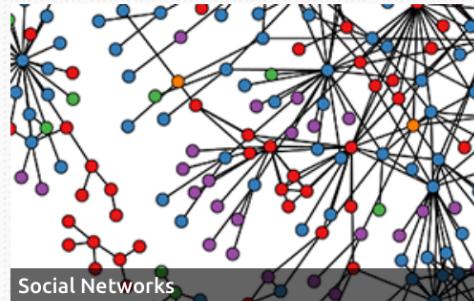




Research Focus Areas



Data for Development



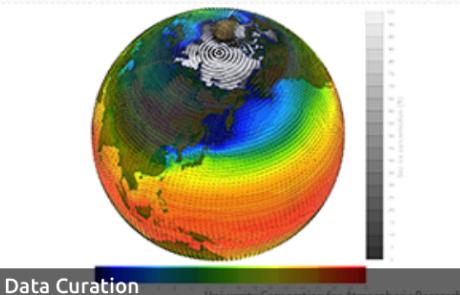
Social Networks



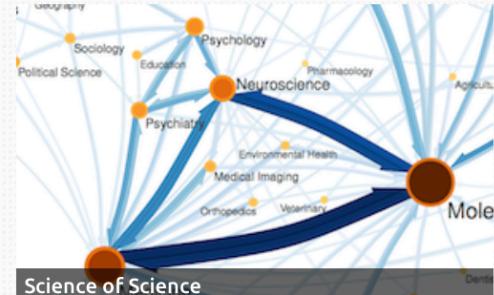
Data Visualization



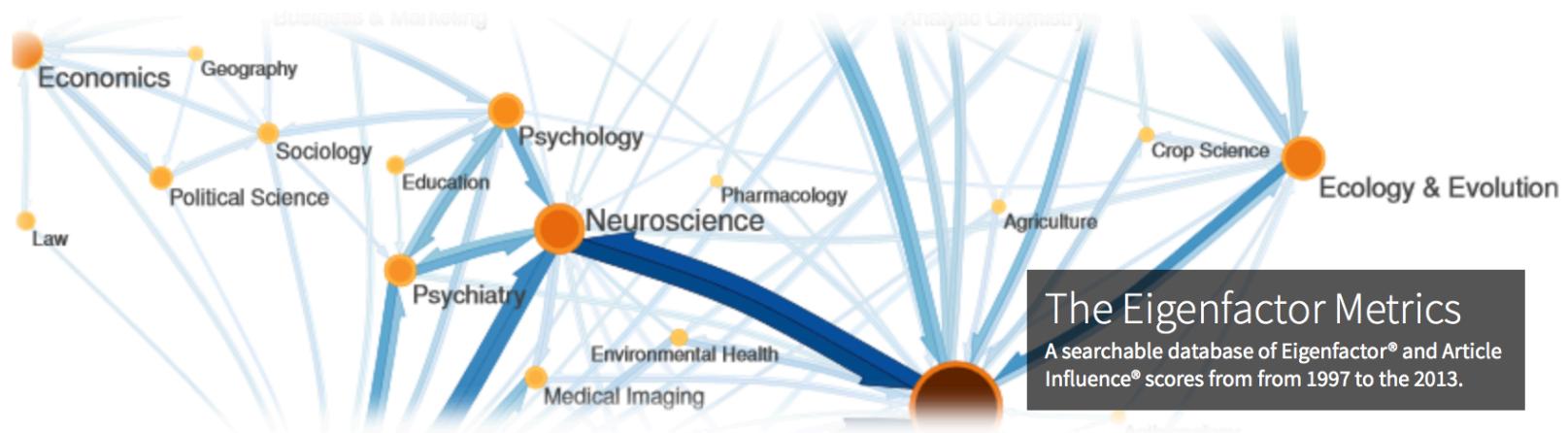
Computational Social Science



Data Curation

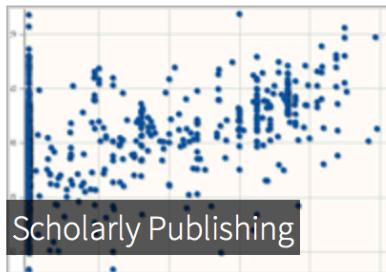


Science of Science



The Eigenfactor Metrics
A searchable database of Eigenfactor® and Article Influence® scores from 1997 to 2013.

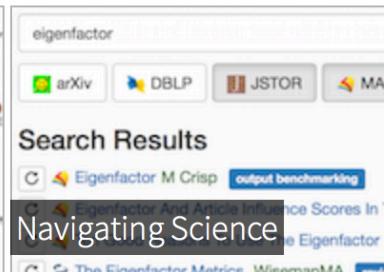
RESEARCH AREAS



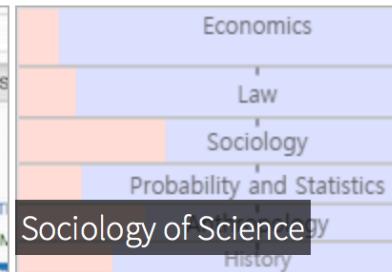
Scholarly Publishing



Mapping Science



Search Results
Eigenfactor M Crisp output benchmarking
Eigenfactor And Article Influence Scores In T...
The Eigenfactor Metrics - WisemanMA



Economics
Law
Sociology
Probability and Statistics
Sociology of Science
History

NEWS

23

Nov. JEVIN WEST ON MEGAJOURNALS IN THE *CHRONICLE OF HIGHER EDUCATION*
Jevin West discusses the rise of the megajournal and our open access cost effectiveness tool in the *Chronicle of Higher Education*.

23

Nov. EIGENFACTOR TEAM PLACES SECOND IN MICROSOFT RESEARCH'S WSDM CUP
The WSDM Cup Challenge asked teams to use 30GB of data from the Microsoft Academic Graph to rank the importance of individual articles. Using a mix of the article-level Eigenfactor algorithm and machine learning,

oren etzioni



Ian Wesley-Smith

- Get Related DBLP Statistical Methods For Analyzing Speedup Learning Experiments O Etzioni satisfaction programs
- Get Related JSTOR Face And Computer-Mediated Communities Amitai Etzioni, Oren Etzioni 1998 resources sustained
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A large, thick stack of white paper or documents is positioned on the left side of the frame, creating a sense of depth and volume. The stack is held together by a dark, textured binding material, likely leather or cloth, which is visible along the right edge. The top edge of the stack is slightly irregular, suggesting a hand-bound volume or a stack of loose papers.

Information
Overload

Recommendation vs Search

The screenshot shows a search interface with a query "american \"information consumption\"". The results page displays three entries:

- Explicating opinion leadership: Nonpolitical dispositions, information consumption, and civic participation**
DV Shah, DA Scheufele - Political Communication, 2006 - Taylor & Francis
... Explicating Opinion Leadership: Nonpolitical Dispositions, **Information Consumption**, and Civic Participation. View full textDownload full text Full access. DOI: 10.1080/10584600500476932
Dhavan V. Shah a & Dietram A. Scheufele b pages 1-22. ... of **American** democracy. ...
Cited by 94 Related articles All 10 versions Cite Save
- Information consumption by Reissner-Nordström black holes**
A Strominger, SP Trivedi - Physical Review D, 1993 - APS
... 0556-2821/93/48(12)/5778(6)/\$06. 00 5778 1993 The **American** Physical Society Page
2. 48 INFORMATION CONSUMPTION BY REISSNER-NORDSTROM... 5779 theory
is described by $S = d \theta - g e^{-R+2e^{-\lambda(VP)}} + 2 - 2Q e^{-\lambda} = 1 2^{\lambda}$...
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S Whittaker - Annual review of information science and ..., 2011 - Wiley Online Library
... Personal information management: From **information consumption** to curation. Steve Whittaker.
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Synonymity

Serendipity

Scholar

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Abstract Several discrete strategies have been suggested to prevent or reduce microbial resistance to antimicrobials, including optimal use of the agents (also known as good stewardship); control, removal, or restriction of antimicrobials; use of antimicrobials in ...

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Recommendations

Results for:

-    Ecological Theory Suggests That **Antimicrobial** Cycling Will Not Reduce Antimicrobial Resistance In Hospitals - 2003

Expert

-    The Relationship Between The Volume Of **Antimicrobial** Consumption In Human Communities And The Frequency Of Re
-    Evaluating Treatment Protocols To Prevent **Antibiotic** Resistance - 1996
-    The Epidemiology Of **Antibiotic** Resistance In Hospitals: Paradoxes And Prescriptions - 1999
-    The Transmission Dynamics Of **Antibiotic**-Resistant Bacteria: The Relationship Between Resistance In Commensal Orga
-    Persistent Colonization And The Spread Of **Antibiotic** Resistance In Nosocomial Pathogens: Resistance Is A Regional Pr

Classic

-    The Crisis In **Antibiotic** Resistance - 1991
-    Epidemiology Of Drug Resistance: Implications For A Post-Antimicrobial Era - 1991
-    Drug-Resistant **Salmonella** In The United States: An Epidemiologic Perspective - 1985
-    The Relationship Between The Volume Of **Antimicrobial** Consumption In Human Communities And The Frequency Of Re
-    Evaluating Treatment Protocols To Prevent **Antibiotic** Resistance - 1996



user-item interactions

items

Netflix Competition (2006)¹

- 100m ratings
- 480k users
- 17k movies

1: <http://www.netflixprize.com/community/viewtopic.php?id=68>

Difficulties:

Publisher Data

Full Text

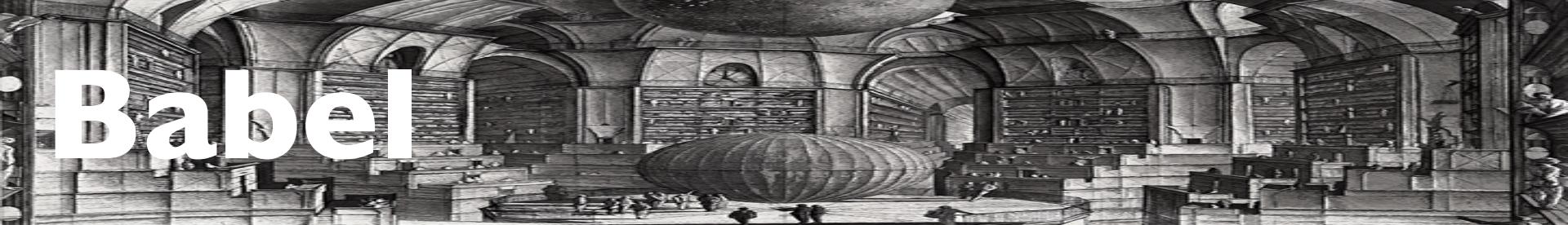
Usage Data

Evaluation

Judges (bias, poor coverage, expensive, stale)

Citation prediction (distribution, context, stale)

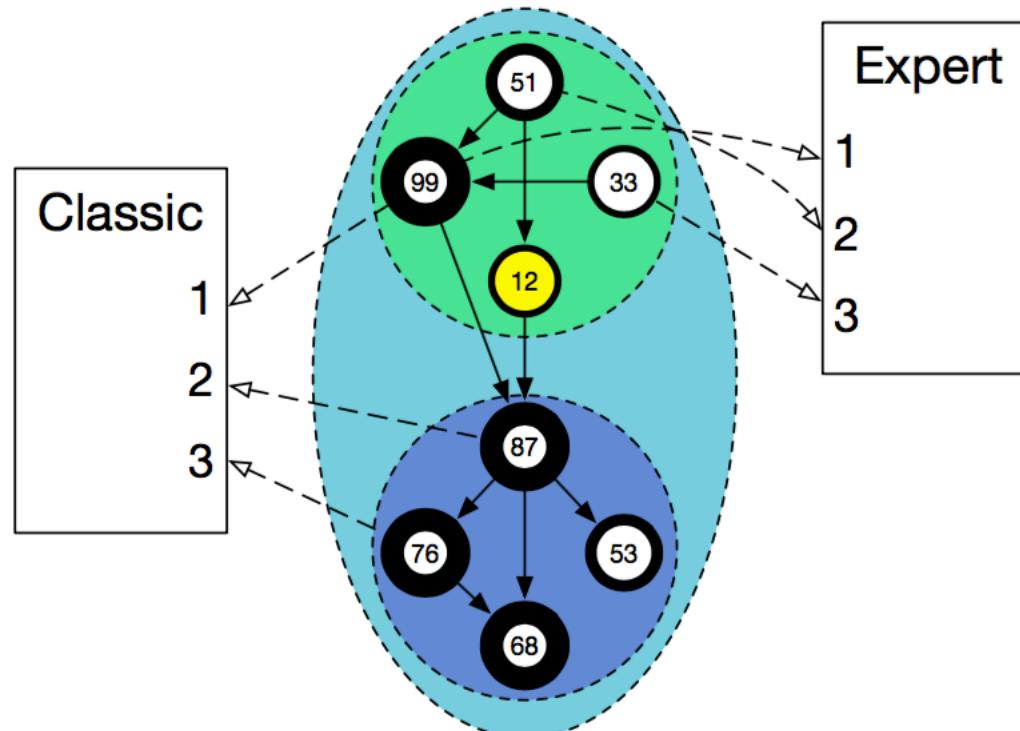
Babel



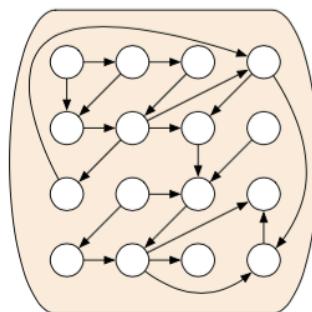
- Facilitate research and implementation of recommendations
- Bibliographic data at scale
- Freely available and open source
- Evaluation of recommendations
- Audience: publishers, researchers, developers
- API Standardization & Endpoint Discovery

babel.eigenfactor.org

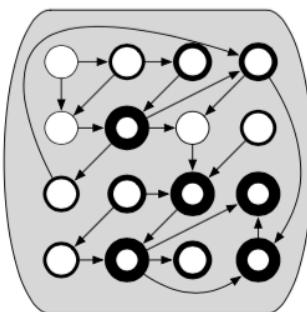
Recommend



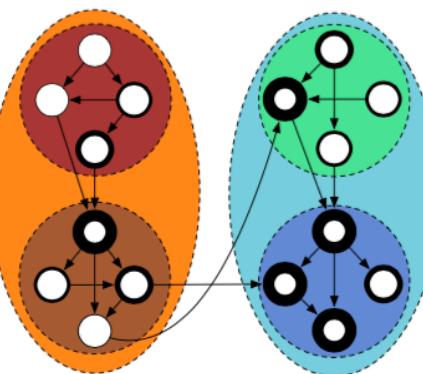
Assemble



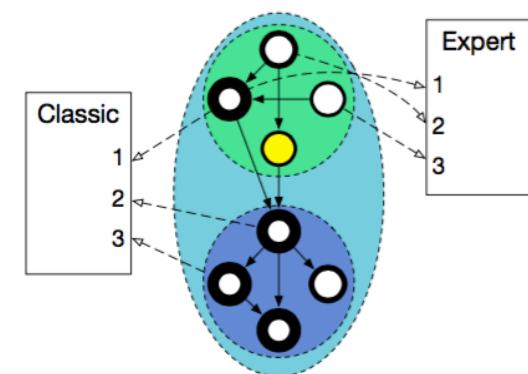
Rank



Cluster



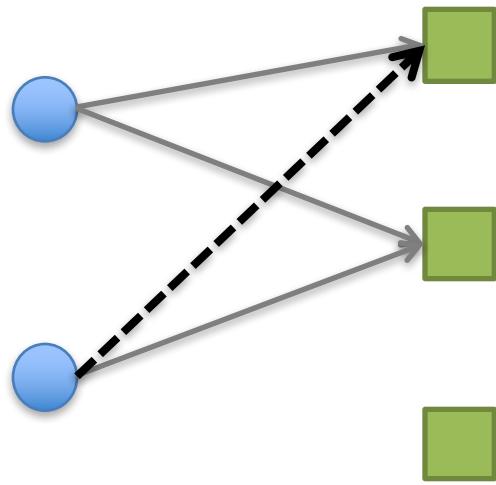
Recommend



West, Wesley-Smith, Bergstrom (2016) A recommendation system based on hierarchical clustering of an article-level citation network. *IEEE Transactions on Big Data* (in press)

A-B Testing

Usage-based

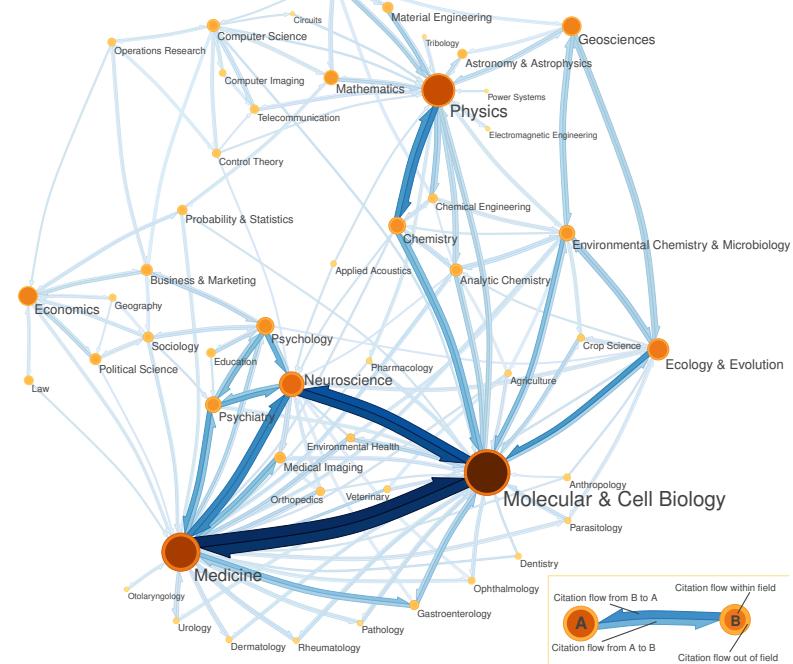


People

Papers

Utilizes download paper of similar readers

Citation-based



Utilizes hierarchical structure of citation graph and the relative position of papers

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Babel Home About API

Eigenfactor

Search



Search Results

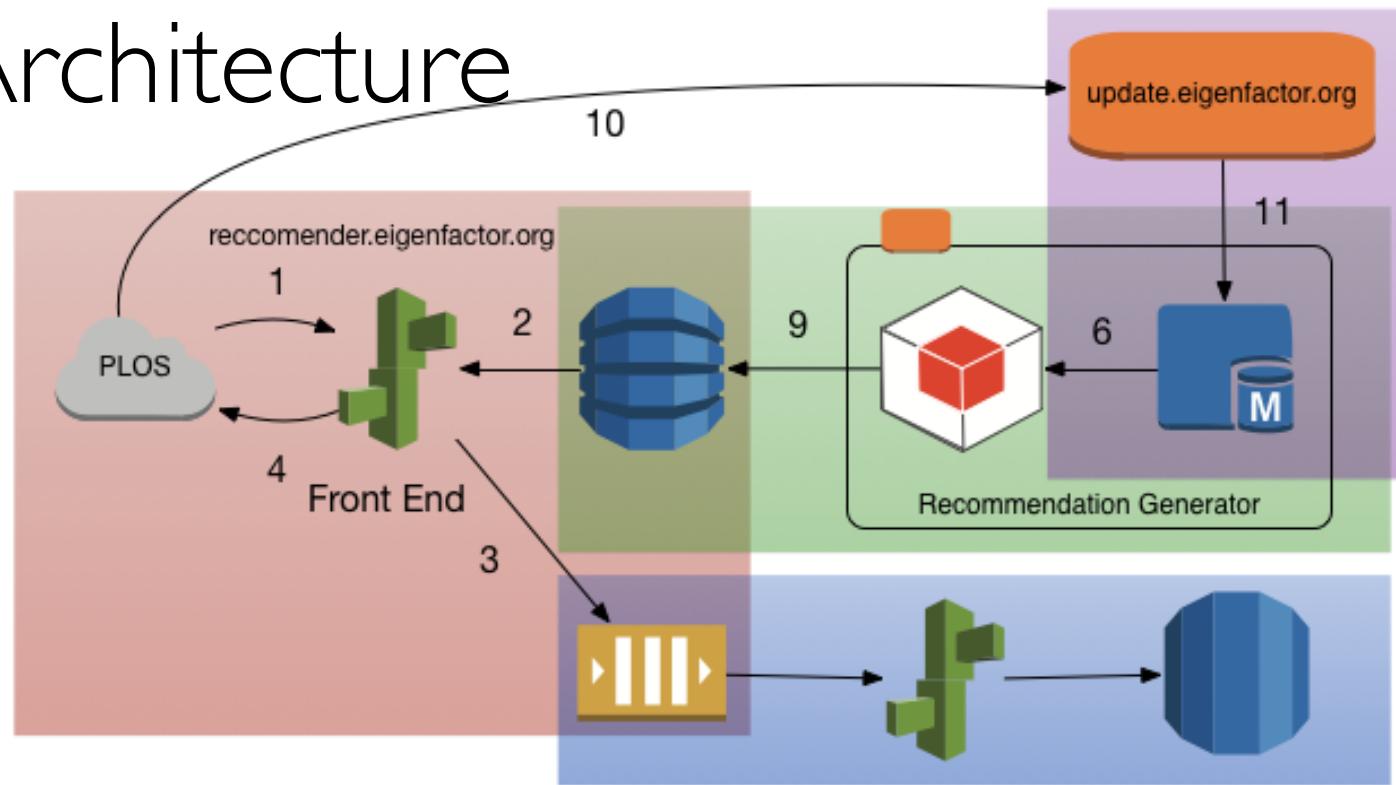
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Babel Architecture



Recommendation Request

1. Request for recommendation for paper
2. Front-end looks up DOI on a DynamoDB
3. Front-end logs recommendations
4. Front-end returns recommendations

Feedback

1. PLOS sends feedback to the front end
3. The front end logs the feedback in SQS

Analytics

TBD

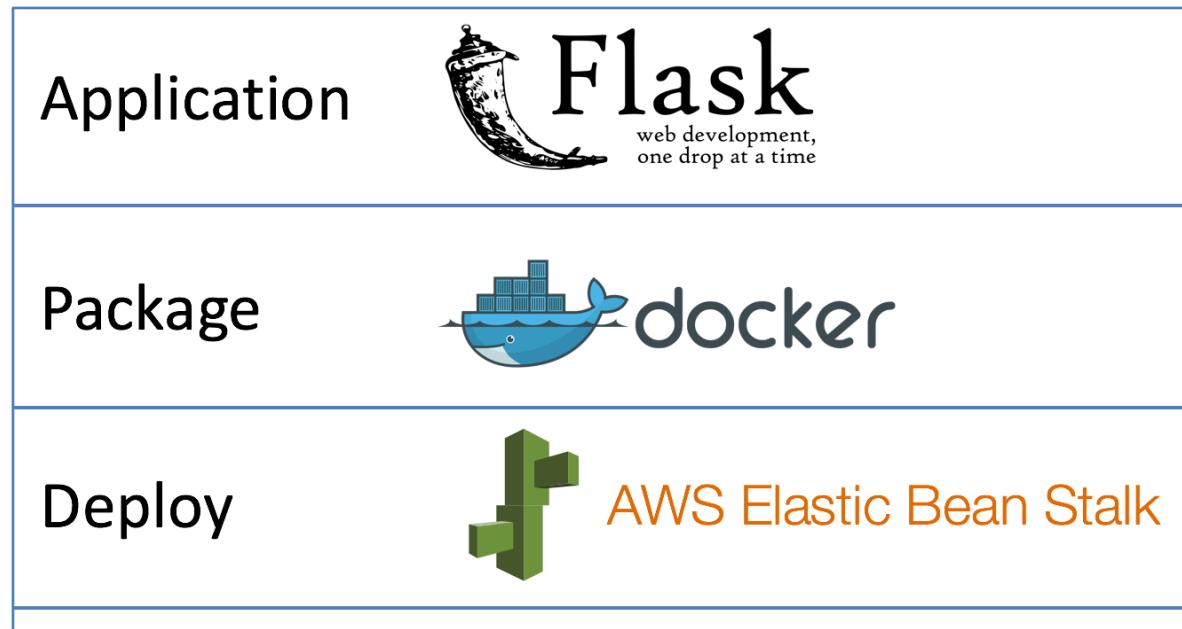
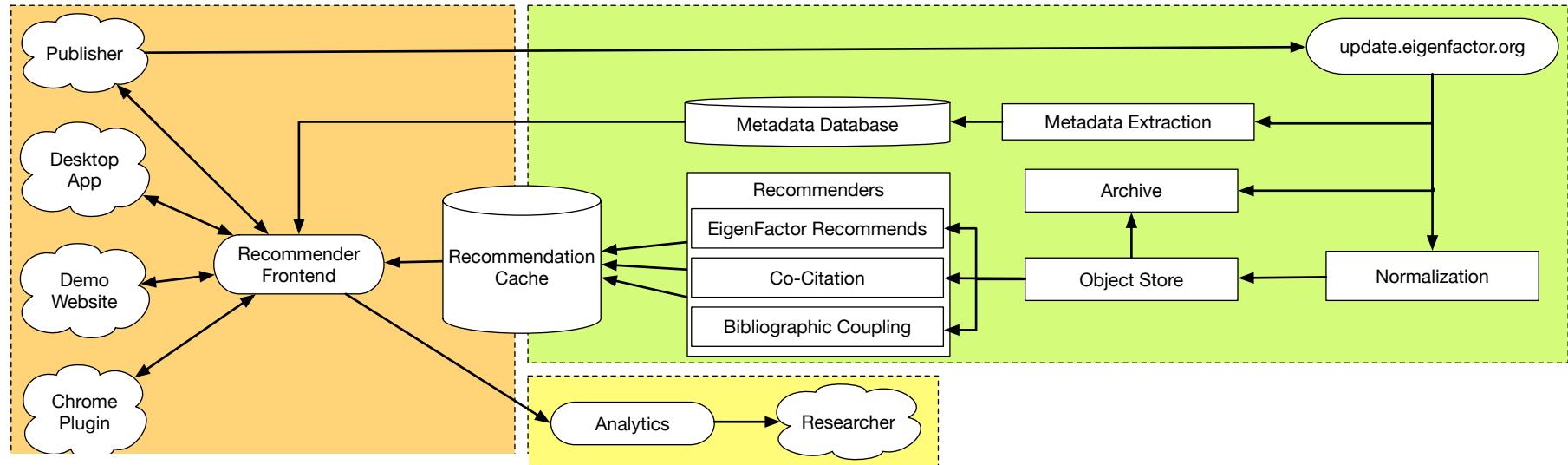
Recommendation Generation

5. Cron job starts recommender
6. Application reads citation network from DB
7. Application writes recommendations to CSV
8. CSV file is backed up to S3 for offline analysis
9. Transformer takes CSV file and pushes to DynamoDB

Citation DB Updates

10. PLOS calls a private API, providing new DOIs and citations in those documents
11. Application pushes changes to SQL DB

Babel Architecture





Open API

File ▾ Preferences ▾ Generate Server ▾ Generate Client ▾ Help ▾ ✓ Processed with no error

```
268     ...
269     | '/recommendation/{publisher}/{paper_id}':
270     |   get:
271     |     description: Generates recommendations for `paper_id`
272     |     operationId: application.get_recommendation
273     |     parameters:
274     |       - $ref: '#/parameters/paper_id'
275     |       - $ref: '#/parameters/publisher'
276     |       - $ref: '#/parameters/client_id'
277     |       - default: 5
278     |       description: Maximum number of recommendations to return
279     |       in: query
280     |       maximum: 10
281     |       minimum: 1
282     |       name: limit
283     |       required: false
284     |       type: integer
285     |       - description: Algorithm to generate recommendations with. If not provided a
286     |         random algorithm will be used.
287     |       enum:
288     |         - ef_expert
289     |         - ef_classic
290     |       in: query
291     |       name: algorithm
292     |       required: false
293     |       type: string
294     |     produces:
295     |       - application/json
296     |     responses:
297     |       '200':
298     |         description: Successful response
299     |         schema:
300     |           $ref: '#/definitions/Recommendations'
301     /search:
302     get:
303     description: Searches metadata for known papers, authors or labels'
304     operationId: application.search
305     parameters:
306     - description: Search query
307     in: query
308     name: q
309     required: true
310     type: string
311     - collectionFormat: multi
312     description: Publishers to restrict search to.
313     in: query
```

/recommendation/{publisher}/{paper_id}

GET /recommendation/{publisher}/{paper_id}

Description

Generates recommendations for `paper_id`

Parameters

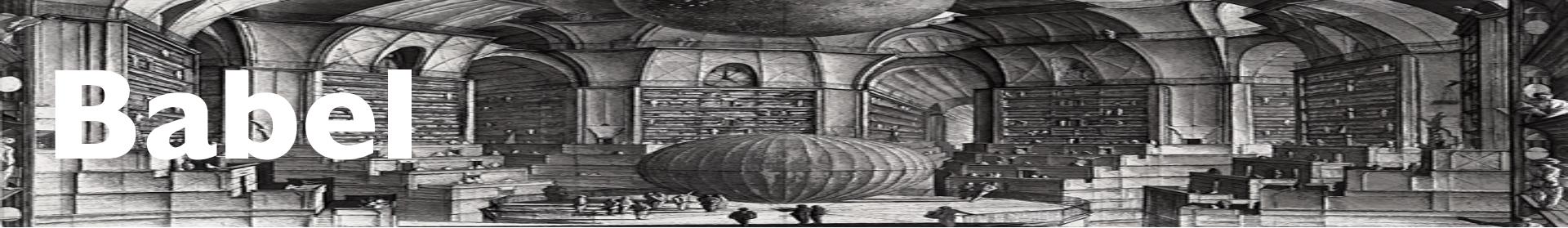
Name	Located in	Description	Required	Schema
paper_id	path	Publisher assigned identifier of a paper	Yes	⇒ string
publisher	path	Publisher to perform this operation on	Yes	⇒ string
client_id	query	Identifier provided by the platform to clients to track client usage.	No	⇒ string
limit	query	Maximum number of recommendations to return	No	⇒ integer
algorithm	query	Algorithm to generate recommendations with. If not provided a random algorithm will be used.	No	⇒ string

Responses

Code	Description	Schema
200	Successful response	▼ Recommendations { ⇒ results: ⇒ [] ⇒ transaction_id: ⇒ string }

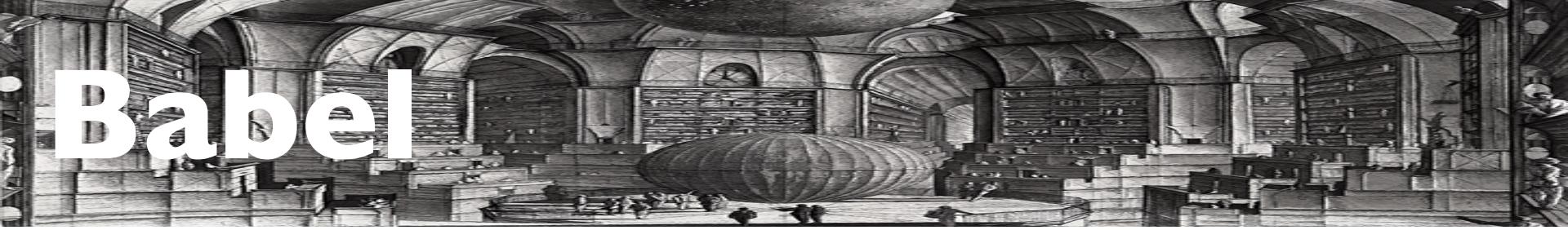
Try this operation

Babel



- Common REST API for scholarly article recommendation research
- OpenAPI¹ Specification -
<http://babel.eigenfactor.org/api.html>
- Recommendations, Metadata, Title Search, Feedback
- Reference Endpoint Implementation
- Endpoint Discovery
 - Allows tools to find the right endpoint for a given query

Babel



- Promote creation of better tools for scholarly authoring
- Allows 3rd parties to easily integrate with publishers, researchers
 - Examples: Zotero Plugin, Google Scholar Browser Plugin
- Easily test out new recommendations from other groups
 - Just change your end point!
- Publishers can host their own endpoints, meet their reliability requirements



CONSERVATION BIOLOGY OVERVIEW



Conservation is the scientific study of the nature and of Earth's **biodiversity** with the aim of protecting species, their habitats, and **ecosystems** from excessive rates of extinction and the **erosion** of biotic interactions. It is an interdisciplinary subject drawing on natural and social sciences, and the practice of natural resource management. The conservation ethic is based on the findings of conservation biology.

Source: Wikipedia



Influential Articles



1960s 1970s 1980s 1990s 2000s 2010s 2020

- The Canonical Distribution of Commonness and ...
- An Equilibrium Theory of Insular Zoogeography
 - Turnover Rates in Insular Biogeography: ...
 - The Statistics and Biology of the ...

Related Topics



Species

Habitat conservation

<http://labs.jstor.org/sustainability/topic/Biodiversity>

Browser Plugins



Eigenfactor - Google Scholar

https://scholar.google.com/scholar?q=Eigenfactor&btnG=&hl=en&as_sdt=0%2C48

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P Yu, H Van de Sompel - Science, 1965 - eigenfactor.org
... Our aim at eigenfactor.org is develop ways of extracting this information. ... **Eigenfactor** algorithm modifies the basic eigenvector centrality algorithm to overcome these problems and to better handle certain peculiarities of journal citation data. ...
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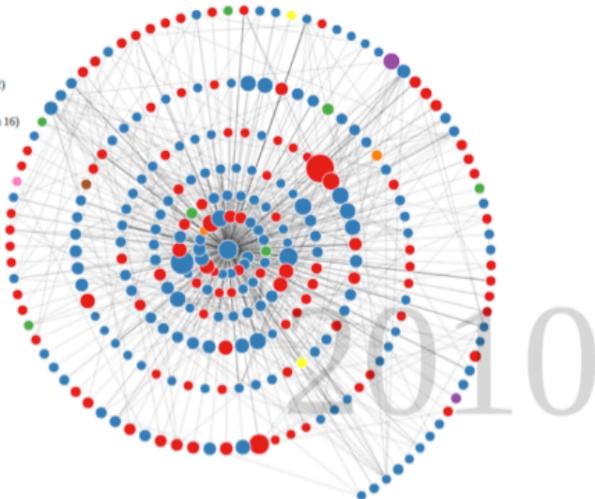
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Jason Portenoy

- Papers in category "Medicine" (domain 6)
- Papers in category "Biology" (domain 4)
- Papers in category "Chemistry" (domain 5)
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- Papers in category "Material Science" (domain 12)
- Papers in category "Physics" (domain 19)
- Papers in category "Agriculture Science" (domain 16)
- Papers in category "Social Science" (domain 22)



A denser network means that the papers that cite the central author also tend to cite each other.



A more sparse network indicates fewer citations between papers shown in the network. This could be a result of the central scholar having impact across a wider set of academic communities.

- Papers in category "Biology" (domain 4)
- Papers in category "Medicine" (domain 6)
- Papers in category "Chemistry" (domain 5)
- Papers in category "Social Science" (domain 22)

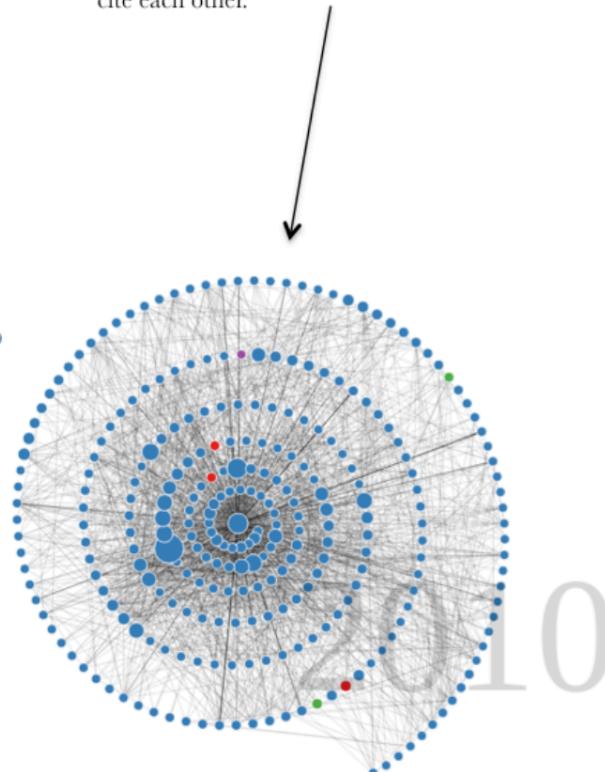


Figure-Centric Search Engine

 viziometrics.org

VizioMetrix About **Search** Crowdsourcing

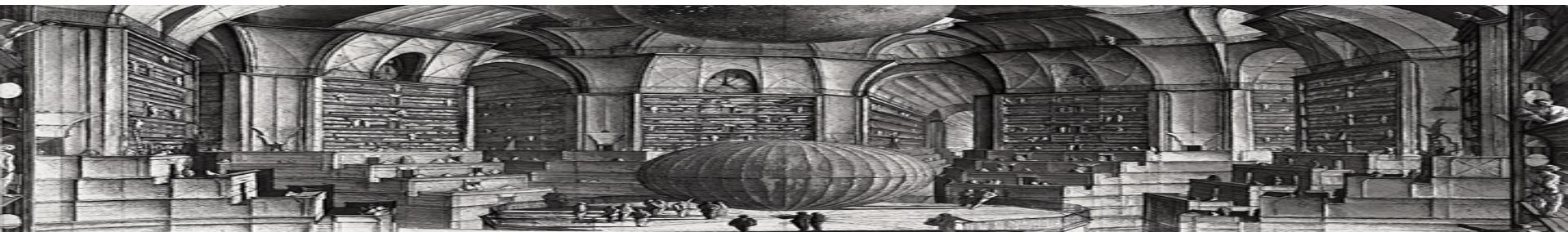
Impact blood lymph

Composite Equation Diagram Photo Plot Table



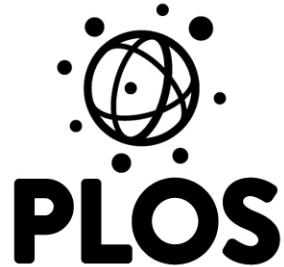
A project of the eScience Institute at the University of Washington

Explore the recommendations
babel.eigenfactor.org



jevinw@uw.edu

Thank You



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Ian Wesley-Smith, Information School, University of Washington

Ralph Dandrea, ITX Corp

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Martin Rosvall, Department of Physics, Umea University

Carl Bergstrom, Department of Biology, University of Washington

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