



Science Stories

Multimedia Biographies of Scientists

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Collaboration

Our Collaboration

- We began **collaborating** on ScienceStories.io in October, 2017 while we were both at Yale

- Department of Computer Science
- Yale University Library
- Manuscripts and Archives
- Yale Peabody Museum
- Yale Center for British Art

Project Motivation



When Will the Gender Gap in Science Disappear?

A new study estimates that it will take 16 years for women and men to publish papers in equal numbers. For physics, it will take 258.

ED YONG | APR 19, 2018 | SCIENCE

Figure 1: Link to article in The Atlantic from April 19, 2018

“In physics, the gender gap might take 258 years to fully close.”

Gender Gap in Wikidata

Global Gender Gap

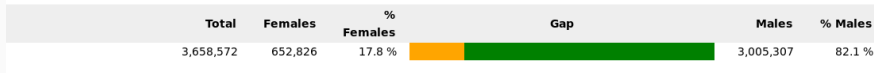


Figure 2: Source:

<https://denelezh.dicare.org/gender-gap.php>

To Honor the 50/150 Anniversary of Women at Yale



Figure 3: Snippet of Timeline of Ivy League Undergraduate Coeducation



Figure 4: “(left to right):—Miss Yvette Fay Francis and Miss Doris Louise Wethers, both of New York City, are students at the Yale University School of Medicine.” Yale events and activities photographs, 1852-2003 (inclusive). Manuscripts & Archives, Yale University.

Open Technologies and Cultural Heritage

Wikidata

- Inspectable, free-software infrastructure [3]
- First public read-write GUI for the semantic web [1, 2]
- Content license is CC0
- Machine-actionable linked open data
- FAIR data



How we use Wikidata in ScienceStories.io

- Create new items for scientists
- Add statements to the items with references back to the source of information
- Write SPARQL queries to pull data from the item for the person as well as from related items to display in the stories
- collaboration platform
- inspiration for new elements

Pathways back to our collections

sibling

Charlotte Eliza Bush ... [edit](#)

▾ 1 reference

[+ add value](#)

occupation

zoologist ... [edit](#)

▾ 1 reference

[copy](#)

stated in	Alumnæ, Graduate school, Yale University, 1894-1920.
page(s)	61

[+ add reference](#)

marine biologist ... [edit](#)

▾ 1 reference

[copy](#)

stated in	The Biographical Dictionary of Women in Science
volume	1
page(s)	214

[+ add reference](#)

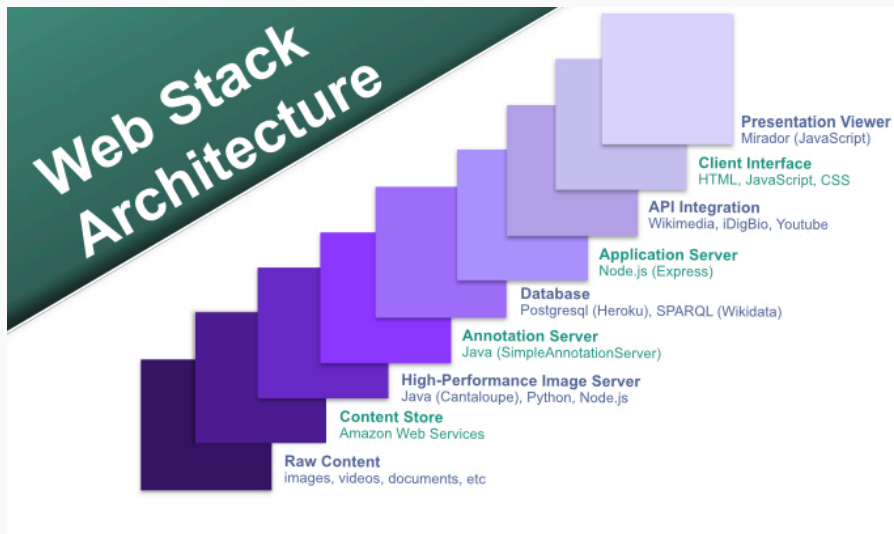
[+ add value](#)

Figure 5: Sourcing claims to print reference materials

- Open API specifications
- Enables interoperability of digital assets across institutions
- Widely-adopted by cultural heritage institutions



Demo



Wikidata Query Service

- Please show me portraits of people that include cats
- Try this query!

Using SPARQL to make a map

- Map of the locations of all paintings by Johannes Vermeer with an image

- Works on the Women's + Gender History Digital Humanities list

- List of poems by Emily Dickinson

- Bar chart of paintings produced per year by Piet Mondrian

Using SPARQL to make a network graph

- Characters in the Marvel Universe

Using SPARQL to create image grids

- Women authors born between 1800-1900 who have a TroveID and an image

- Find QIDs for items: search box
- Find PIDs for properties: Propbrowse Tool or Summary Table for Properties
- Find additional tools: Tool Labs

- A WikiProject is a group of contributors who want to work together as a team to improve Wikidata.
- Cultural WikiProjects
- Often provide an overview and relevant properties or data models

- LoC now using WD authority data
- ARL white paper on Wikidata
- OCLC's Creating Library Linked Data with Wikibase
- Monthly collection of articles, tools, etc related to cultural heritage

Data Models

Members of National Academies of Science with academic degree PhD

```
SELECT ?item ?itemLabel ?id WHERE
{
?item wdt:P5380 ?id .
?item wdt:P512 wd:Q752297.
}
```

Members of National Academies of Science, educated at state- ment, academic degree as a qualifier

```
SELECT ?item ?id
WHERE
{
?item wdt:P5380 ?id .
?item p:P69 [
ps:P69 ?inst ;
pq:P512 wd:Q752297 ].
}
```

Building Consensus

- Frequency of usage of the 2 patterns?
- Propose a schema
- Discuss on talk page of schema

A Shared Data Model for Academic Degrees is Desirable


- People who would like to reuse Wikidata data could become frustrated by needing to identify multiple related modeling patterns.

Thank you!

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-  S. Burgstaller-Muehlbacher, A. Waagmeester, E. Mitraha, J. Turner, T. Putman, J. Leong, C. Naik, P. Pavlidis, L. Schriml, B. M. Good, et al.

Wikidata as a semantic framework for the gene wiki initiative.

Database, 2016:baw015, 2016.

-  B. M. Good, S. Burgstaller-Muehlbacher, E. Mitraha, T. Putman, A. I. Su, and A. Waagmeester.

Opportunities and challenges presented by wikidata in the context of biocuration.

In ICBO/BioCreative, 2016.



D. Vrandečić.

Wikidata: A new platform for collaborative data collection.

In Proceedings of the 21st international conference companion on World Wide Web, pages 1063–1064. ACM, 2012.