OERs, Emerging Technologies and AI in Education: The Case Study of Wikidata.

Artificial Intelligence and Frontier Technologies for OER
Mobile Learning Week, UNESCO, 2019

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Nice to meet you!

Tel Aviv University

- **EdTech Innovation Strategist**, NY/American Medical Program, Sackler School of Medicine
- **Lecturer:** for-credit courses focused on Wikipedia and Wikidata
- **PhD Candidate**, School of Education
- **OER & Emerging Technologies Coordinator**, UNESCO Chair on Technology, Internationalization and Education, School of Education

Free Knowledge Advocate and Openness Expert

- **Chairperson**, Wikipedia & Education User Group.
- **Chairperson**, WikiProject Medicine Foundation.
- **Chairperson**, The Hebrew Literature Digitization Society, supports Project Ben-Yehuda (similar to Project Gutenberg)

and -- **a mom.**

DRINK ME
½

Quick show of hands – How many:

Educators?
Librarians?
Policy makers?
Managers of EDU institutions?
OER advocates?
Tech dev?
Researchers?
Industry?

What's on Today's Menu?

1 – **Appetizer**: Intro & Context

2 – **Main Course**: Wikidata & Education

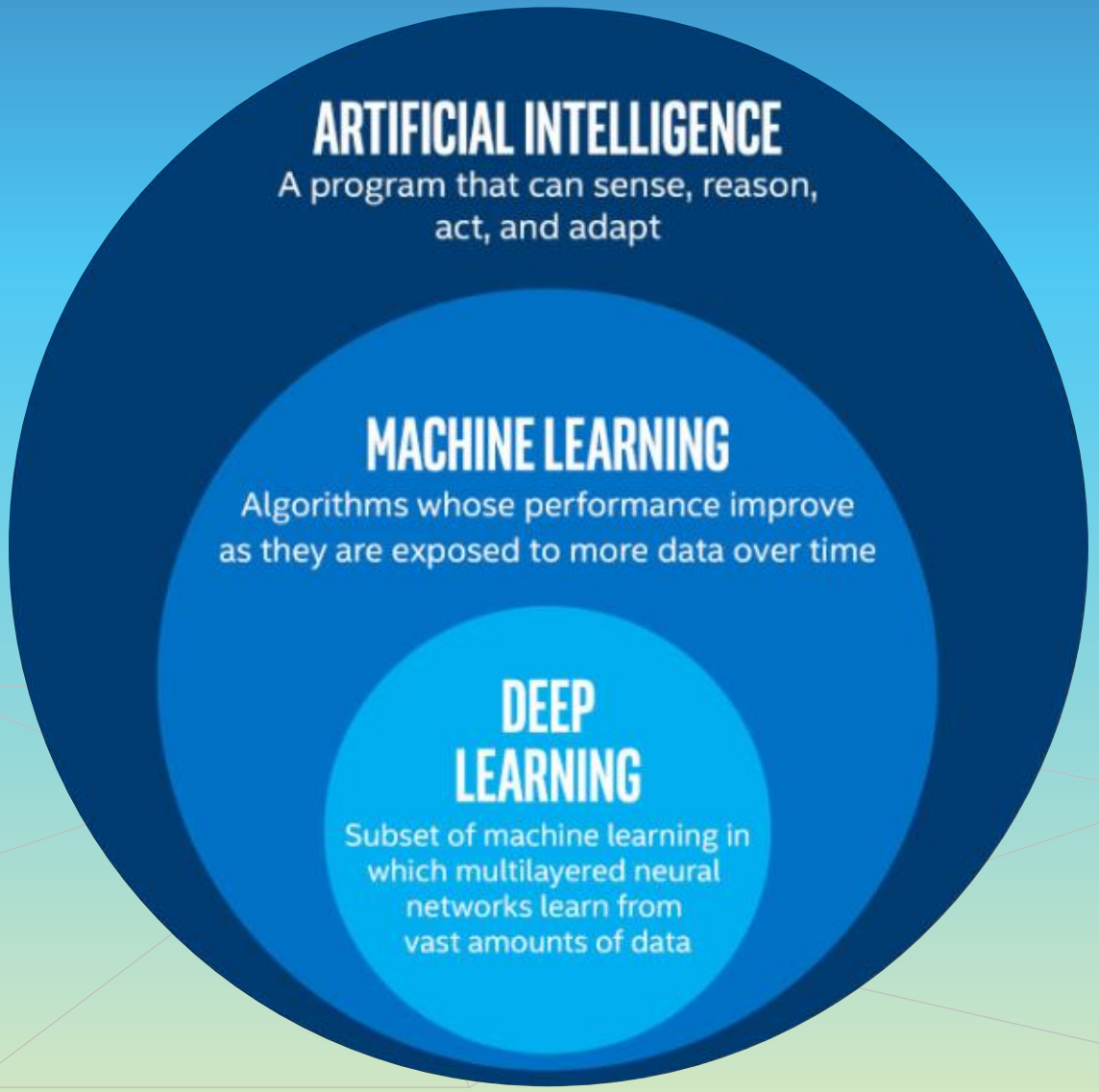
3 – **Dessert**: Wikidata, Education & AI: Potentials, Challenges & Food for thought.

Not covered – How to add or extract data from WD.

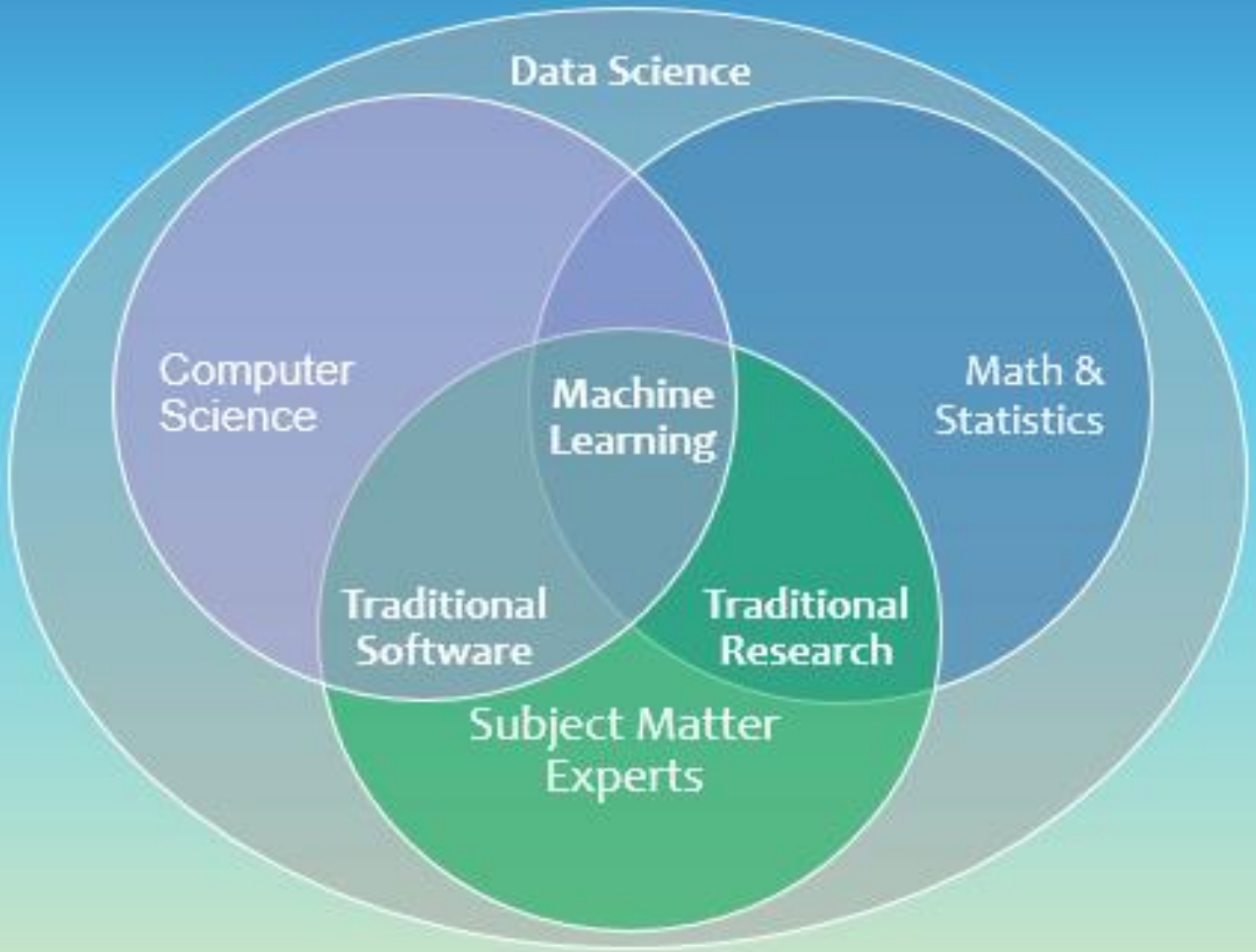
Part 1:

Intro & Context

AI - Artificial Intelligence



Data Science



But there is no Data Science without Data.

And that is why **Wikidata** is an **essential part of this ecosystem.**

But first thing's first –

What's **Wikidata**, anyway?

Wikidata is a knowledge base

A database of
structured, linked data
multilingual
read by humans & machines
open to all under a free license

It is Wikipedia's youngest sister project

Launched 2012-2013

Part of the Wikimedia Movement ecosystem

“Imagine a world in which every single human being can freely share in the sum of all knowledge”.

Strategic direction for 2030

- **Knowledge as service**
- **Knowledge equity**

Wikimedia Foundation, CC-BY-SA 3.0

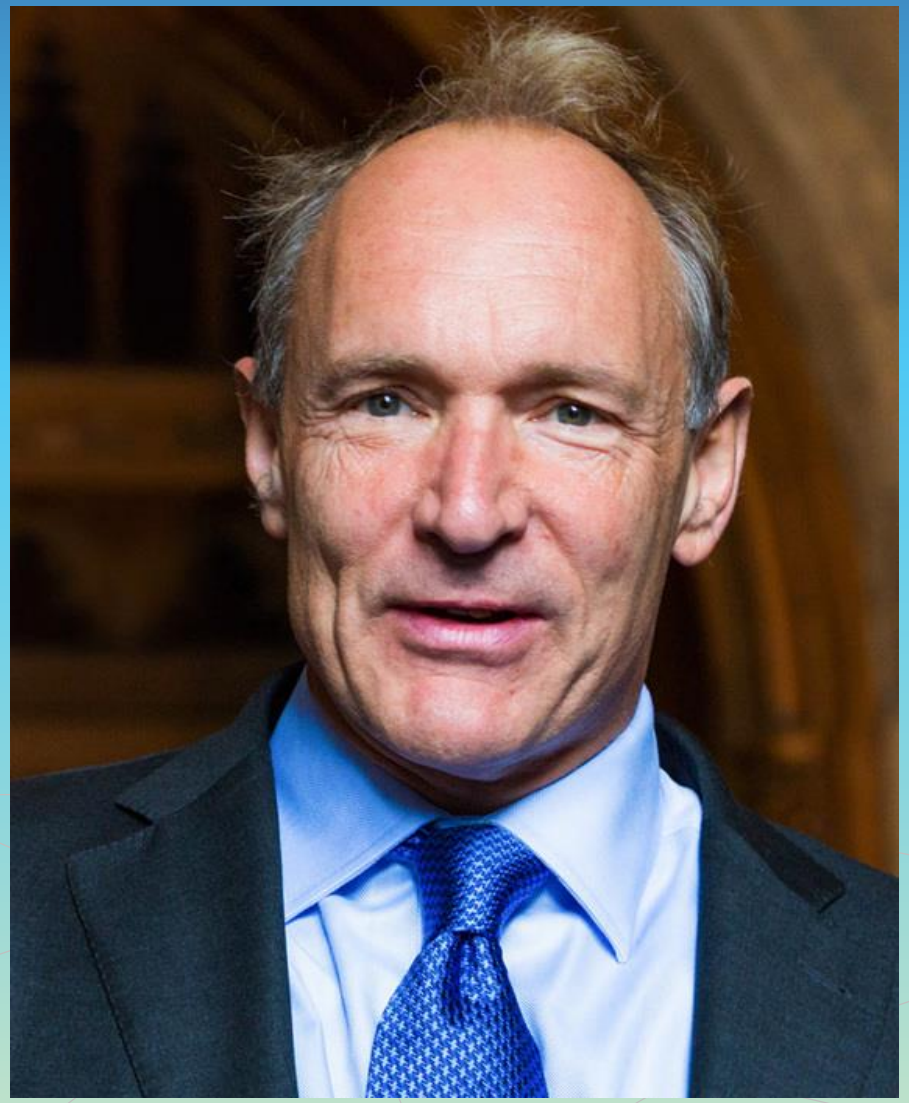
3 main challenges

- Dated data; lacking triggers; repetitive work
- Inflexible ways of lateral queries of knowledge (Categories and their limitations)
- No central “hub” for metadata from all GLAMs

It's the biggest semantic web platform humanity created

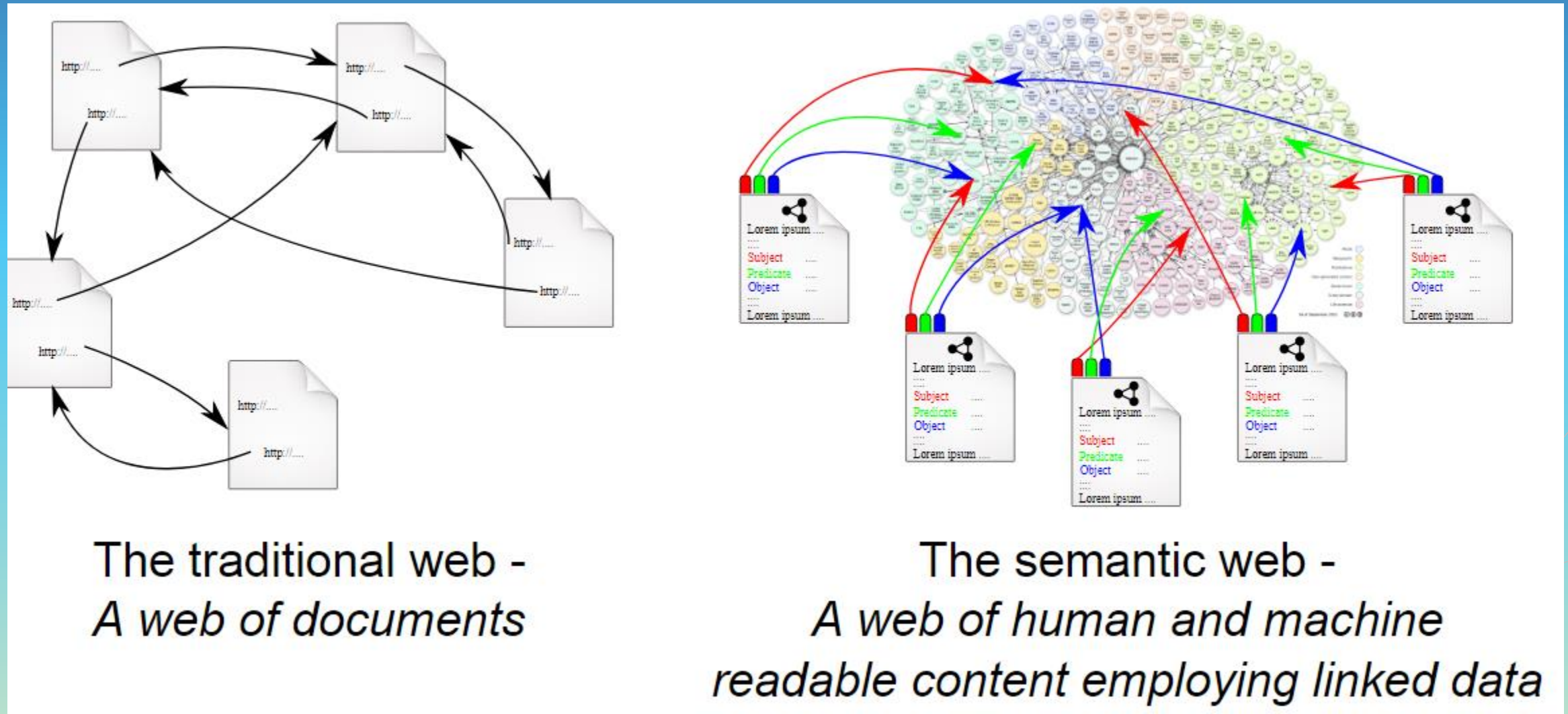
over 50 million items described
over 20,000 users
institutions contributing their data
AI assisting in checking contribution quality

A Man with A Vision



Paul Clarke, CC-BY-SA 4.0

From Web 1.0 to Web 3.0



Arbeck, CC-BY-SA 4.0

And because Wikidata is under a free license:

It is the biggest OER humanity created

Educators have been using Wikis as learning platforms for years.

In fact, research shows Wikipedia is the most effective out of Web 2.0 tools in gaining skills

2 main goals

1 - Improved **knowledge consumption**

2 - **Knowledge creation** as a way to teach various literacies, capacities & skills for life-long learning

References and Resource evaluation
Collaborative skills
Critical thinking
Wikipedia in the classroom
copyrights
Merge various sources
Academic writing and neutrality

What do students say?

* Active & engaged learning
* Positive learning experience
* Work that matters - giving back
* Improved skills
* Improved awareness –
  - Gender gap, copyrights, neutrality
  - Verifiability, convergence of sources
  - Simplicity, collaborative skills, feedback

Wikidata adds **Data Literacy** to skills gained

but more importantly --

It **changes interaction between humans and knowledge.**

Sounds **interesting**,
but this is all very **theoretical**.

So –
How about some examples?

Part 2:

Wikidata & Education

or

Wikidata as a learning platform

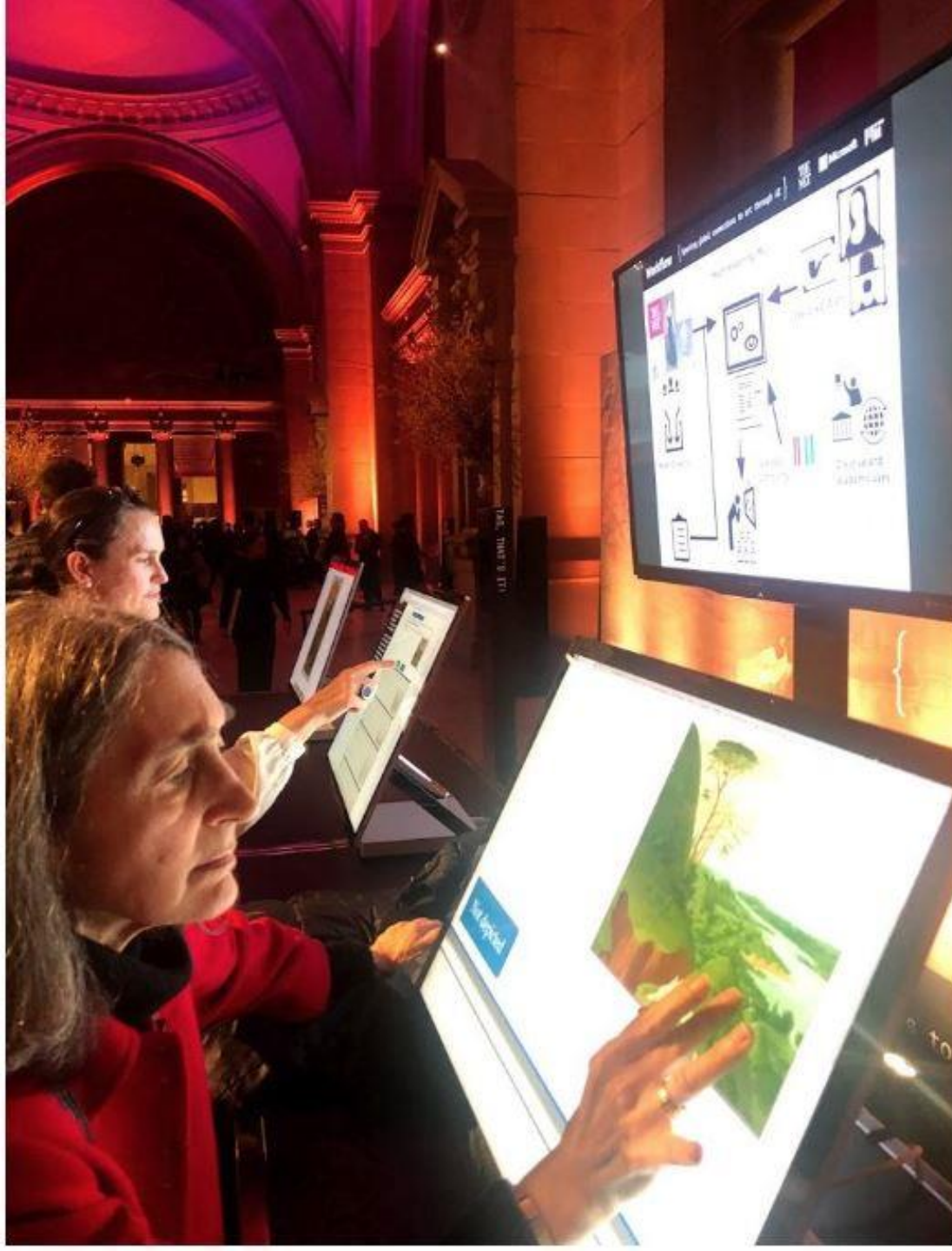
A brave volunteer to play a short game with me..?

Let's play!

Congrats!

You've just made your first **WD edits**

Improve the data we have about works of art at the Met!



Fuzheado, CC-BY-SA 4.0

The Met

Suggested reading:

"Combining AI and Human Judgment to Build Knowledge about Art on a Global Scale"

- Met Magazine, 2019

Sum of all Paintings

https://www.wikidata.org/wiki/Wikidata:WikiProject_sum_of_all_paintings

Example of a curated list from the Israel Museum

Stats:

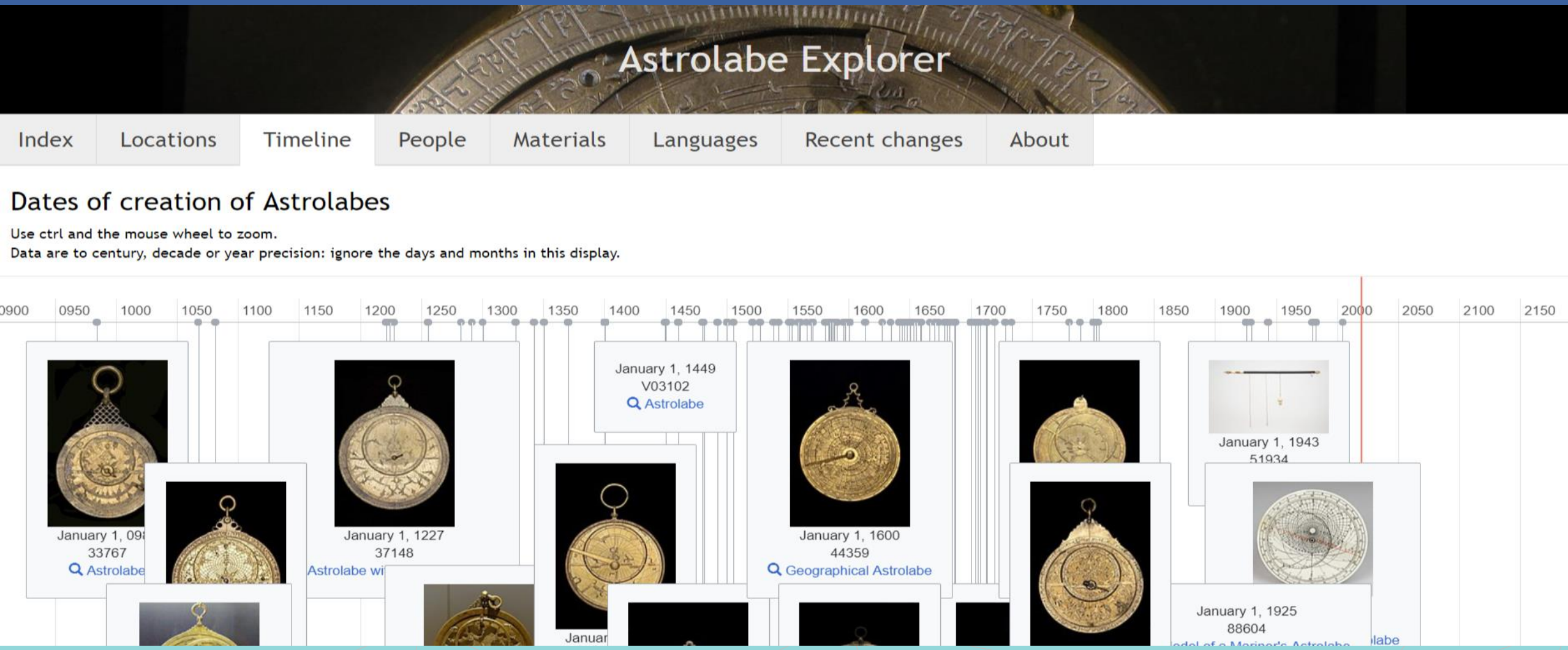
- 355.000 paintings (Query)
- 36.000 creators (Query)
- 4.300 of them female (Query)
- 3.600 collections (Query)
- from 85 different countries (Query)

Cleveland Museum of Art

Released 30,000 images under CC-0

New OERs!

Explore the collection via Wikimedia



The Astrolabe Explorer

Telling the story of your collection

Women Physicists

http://tinyurl.com/yxswh5t2

WikiWomen & Women-in-Red

Missing articles can be created by clicking on a red link

https://en.wikipedia.org/wiki/Wikipedia:WikiProject_Women_in_Red/Missing_articles_by_occupation/Art_historians

Wikipedia:WikiProject Women in Red/Missing articles by occupation/Art historians

From Wikipedia, the free encyclopedia
< Wikipedia:WikiProject Women in Red | Missing articles by occupation

This table of missing women biographies was generated using Wikidata for Wikipedia:WikiProject Women/Women in Red. See Template:Women in Red for other lists by focus area or by country.

This list is automatically generated from data in Wikidata and is periodically updated by Listeriabot. Automatically update the list now | SPARQL | Find images
Edits made within the list area will be removed on the next update!

#	name	image	description	country of citizenship	date of birth	date of death	place of birth	place of death	item
148	Angélina Smirnova		Soviet art historian and teacher	Soviet Union Russia	1932-02-04		Saint Petersburg		Q4424823
173	Наталья Николаевна Розанова			Soviet Union Russia	1936-04-29				Q21644214
512	Викторина Евгеньевна Петросянц			Soviet Union Russia United States of America	1968-11-11		Moscow		Q19908865

UNESCO Buildings

http://tinyurl.com/y38neqzl

Hospitals

http://tinyurl.com/yb7sd2qk

Disaster Management, Brazil

Emperor Pedro II stands in front of his burning palace—and the site of the National Museum of Brazil..
Felipe Milanez, CC-BY-SA 4.0

“Data Archaeology”

#	Item	*Label*	*Description*	of	collection	part of	image
1	Ring bracelets Q56810425	en Ring bracelets pt Pulseiras de argola pt-br Pulseiras de argola	en object in the Polícia da Corte Collection at the National Museum (Rio de Janeiro) pt objeto da Coleção Polícia da Corte do Museu Nacional (Rio de Janeiro) pt-br objeto da Coleção Polícia da Corte do Museu Nacional (Rio de Janeiro) fr objet dans la Collection Polícia da Corte du Museu Nacional (Brésil)	item of collection or exhibition bracelet	Coleção Polícia da Corte	Africans in Brazil	Argolas de metal (pulseiras) MN 01.jpg
2	Xangô figure Q56810426	en Xangô figure pt Representação de Xangô pt-br Representação de Xangô	en object in the Polícia da Corte Collection at the National Museum (Rio de Janeiro) pt objeto da Coleção Polícia da Corte do Museu Nacional (Rio de Janeiro) pt-br objeto da Coleção Polícia da Corte do Museu Nacional (Rio de Janeiro) fr objet dans la Collection Polícia da Corte du Museu Nacional (Brésil)	item of collection or exhibition oshe	Coleção Polícia da Corte	Africans in Brazil	Representação de Xangô MN 03.jpg
3	Arrow Q56810427	en Arrow pt Flecha pt-br Flecha	en object in the Polícia da Corte Collection at the National Museum (Rio de Janeiro) pt objeto da Coleção Polícia da Corte do Museu Nacional (Rio de Janeiro) pt-br objeto da Coleção Polícia da Corte do Museu Nacional (Rio de Janeiro)	item of collection or exhibition Ofá	Coleção Polícia da Corte	Africans in Brazil	Flecha de Oxossi MN 03.jpg

[The Afro-Brazilian Room]

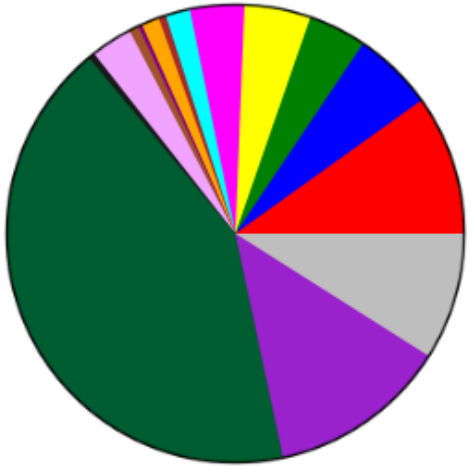
More from Brazil: Mbabel!

Missing articles generation based on Wikidata

https://pt.wikipedia.org/wiki/Wikip%C3%A9dia:Mbabel/Templates

WikiCite

- Seeks to ingest source metadata into Wikidata.
- One of pilot collections - all citations in PubMed, about 20M academic articles.
- About 40% of items in Wikidata are citations to papers in WikiCite project.



human: 4,378,742 (9.9%)
taxon: 2,509,963 (5.7%)
administrative territorial entity: 1,812,457 (4.1%)
architectural structure: 2,119,774 (4.8%)
occurrence: 1,651,237 (3.7%)
chemical compound: 759,000 (1.7%)
film: 268,609 (0.6%)
thoroughfare: 522,260 (1.2%)
astronomical body: 155,105 (0.3%)
Wikimedia list article: 299,810 (0.7%)
Wikimedia disambiguation page: 1,280,367 (2.9%)
Wikinews article: 211,930 (0.5%)
scholarly article: 18,771,018 (42.4%)
other P31/P279: 5,602,972 (12.6%)
no P31/P279: 3,973,469 (9.0%)

Module:Statistical data/by project/classes, 2018-07-16

Scholia

Generates academic profiles
(like a Google Scholar or Elsevier SciVal profile)
based on WikiCite and other data.

Example:
https://tools.wmflabs.org/scholia/author/Q7183255

ScienceSource

Bring facts out of academic articles

move them into Wikidata

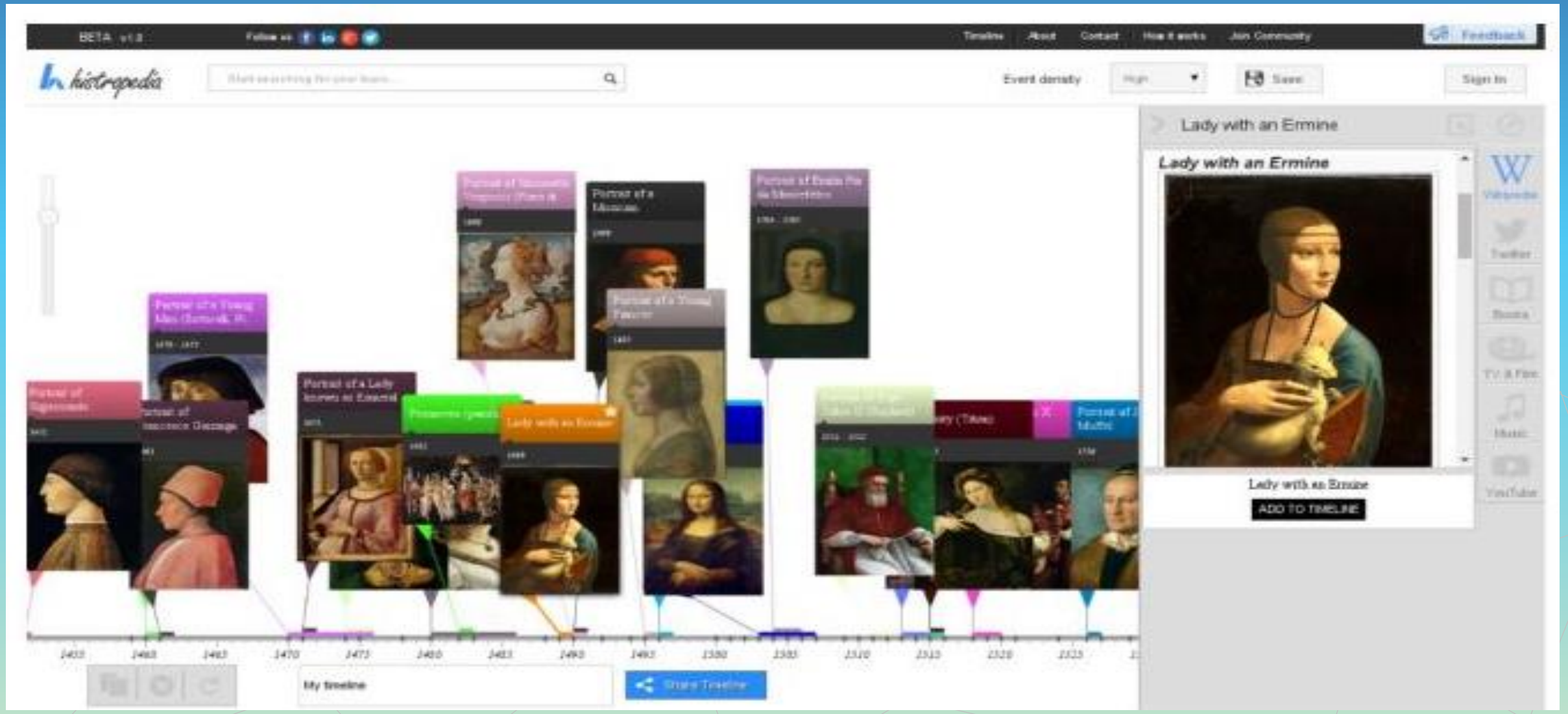
especially in medicine.

https://meta.wikimedia.org/wiki/Grants:Project/ContentMine/ScienceSource

The beauty of openness:

External parties use Wikidata as a base for their Apps

Histropedia



http://histropedia.com/

Crotos

Crotos est un moteur de recherche et d'affichage d'œuvres d'art s'appuyant sur **Wikidata** et **Wikimedia Commons**

- **93 823 œuvres**, dont 50 694 avec **image HD**
- Liens vers **Wikipédia**, **sites de référence** – **multilingue** – **libre** – **Lab**

Cosmos | Callisto | **Au hasard** | Ordre chronologique | Suggestions : Atrocités allemandes en 1914, Louis XII

Socha svatého Jana Nepomuckého

Kermesse de village
Joost Cornelisz. Droochsloot - musée des beaux-arts de Gand

Thor lutte avec les géants
Mårten Eskil Winge - Nationalmuseum

Okänd kvinna
anonyme - Nationalmuseum

Two Boys blowing Bubbles
Caspar Netscher - National Gallery

Koriolan u wrót Rzymu
Franz Anton Maulbertsch - musée national de Varsovie

Statue Of Queen Victoria

Le Casino

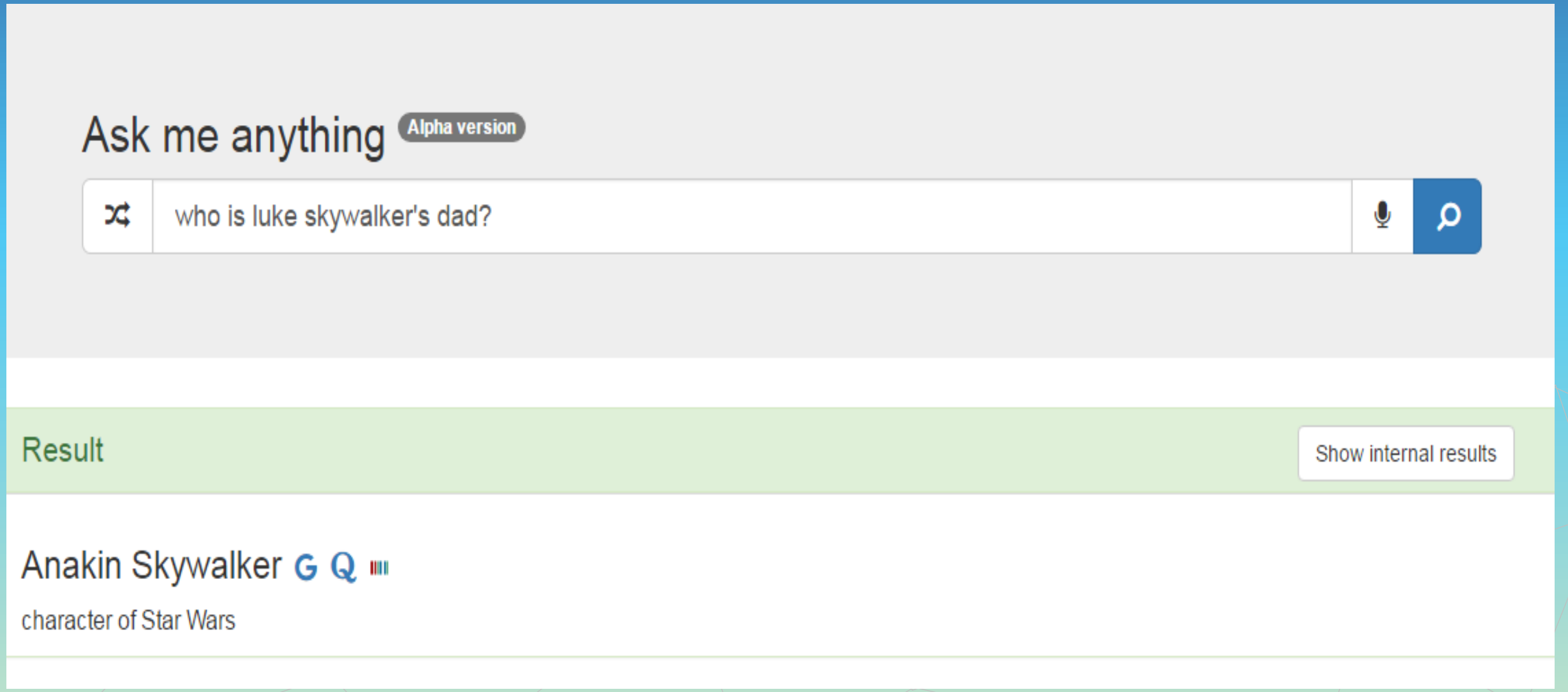
Scene in a Coffee Shop

Portrait of a girl

Tintern Abbey, Monmouthshire

http://zone47.com/crotos/

Ask Platypus



Ask Platypus

But also --

Siri
Alexa
and other AI-based agents

Part 3:

Wikidata, Education & AI:
Potentials, Challenges & Food for Thought.

Potential & Benefits

- Help connect separate databases with different metadata
- Queries!
- Visualization!
- Help “curate” work – follow completeness, find and correct gaps
- Base for other applications – like histropedia, crotos, genewiki, scholia, playtipus
- Base for AI- siri, alexa etc

Challenges

- **Data reliability, verifiability, data manipulations**
- **Data completeness** – mind the gap!
- **Data modelling** → query results might not include it all

Requires skills and critical thinking!

Suggested reading: "**INSIDE THE ALEXA-FRIENDLY WORLD OF WIKIDATA**"
- WIRED, 2019

Wikidata is a tool.

could be used for both good and evil.

It is our obligation (and privilege) to teach the next generation how to interact with data in an informed way and understand the implications of its interaction with AI.

And we're just beginning!

Very few educators around the world are experimenting with implementing WD into the academic curriculum.

I'm one of them – opened the 1st for-credit academic course featuring Wikidata and it is the focus on my PhD.

I invite each and every one of you to explore its potential in your institutions and academic settings.

The Wikimedia Movement is here to help.
Come meet us in our table!

The future is up to us.

Let's built it properly.

Thank you for participating!

Shani Evenstein Sigalov

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