Singapore Management University

Institutional Knowledge at Singapore Management University

COAR Asia OA Meeting 2021 COAR Asia OA Meeting 2021

Oct 26th, 1:00 PM

Cashing the cheque of open access movement: Emerging tools built on open access data

Aaron TAY
Singapore Management University

Follow this and additional works at: https://ink.library.smu.edu.sg/asiaoa2021

 Part of the Scholarly Communication Commons

TAY, Aaron. Cashing the cheque of open access movement: Emerging tools built on open access data. (2021). COAR Asia OA Meeting 2021. .
Available at: https://ink.library.smu.edu.sg/asiaoa2021/program/agenda/14

This Presentation is brought to you for free and open access by the SMU Libraries at Institutional Knowledge at Singapore Management University. It has been accepted for inclusion in COAR Asia OA Meeting 2021 by an authorized administrator of Institutional Knowledge at Singapore Management University. For more information, please email cherylds@smu.edu.sg.

Cashing the Cheque of Open Access Movement: Emerging Tools Built on Open Access Data

Aaron Tay (Lead, Data Services)

Singapore Management University Libraries

26 October 2021


Aarontay@gmail.com


@aarontay


https://musingsaboutlibrarianship.blogspot.com

What does the title of the talk mean?

"*finally cash the cheques written by the Open Access movement*."

-- OurResearch, July 2018

We're building the "AI-powered support tools" now. What kind of tools? Well, let's go back to the Hamlet example…today, publishers solve the context problem for readers of Shakespeare by adding notes to the text that define and explain difficult words and phrases. We're gonna do the same thing for 20 million scholarly articles. And that's just the start…we're also working on concept maps, automated plain-language translations (think automatic Simple Wikipedia), structured abstracts, topic guides, and more. Thanks to recent progress in AI, all this can be automated, so we can do it at scale. That's new. And it's big. -- OurResearch Blog, 2018

https://blog.ourresearch.org/oa-search-engine/

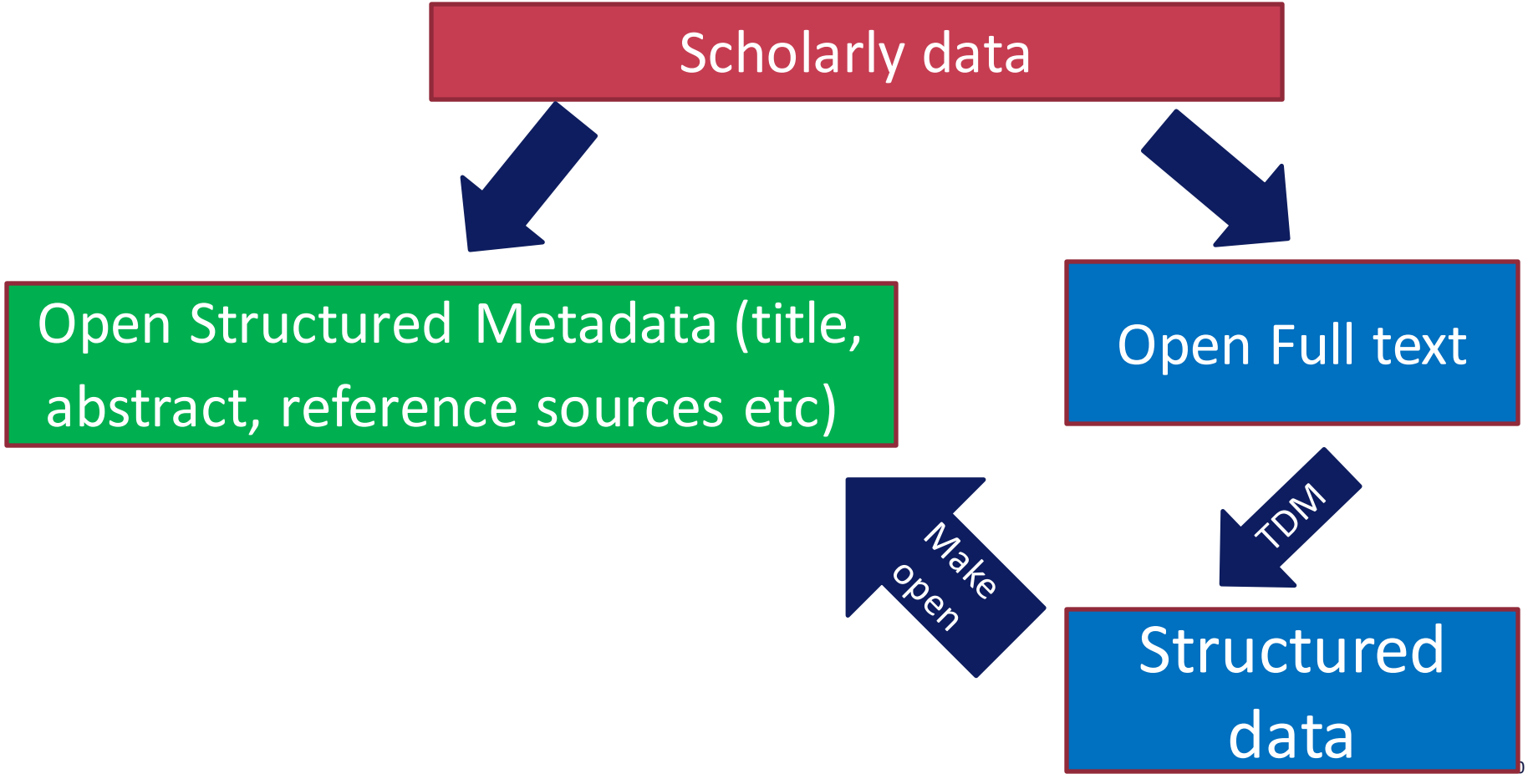
Imagine you live in a 100% OA world...

And you want to create a tool that can auto-suggest missing references based on text you have typed

Things you may need

- Article information (Title, Abstract, Year of Publication, subject headings)
- References/Citations
- Citation context/sentiment

Open Knowledge = Open metadata+full text



Microsoft Academic Graph – Extracting open metadata from full-text

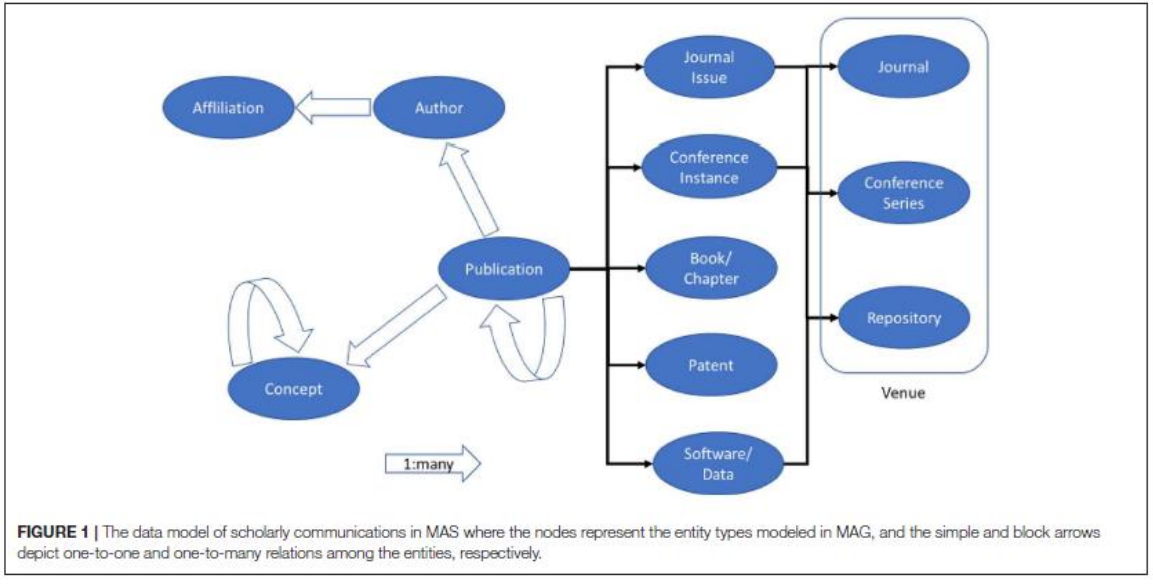
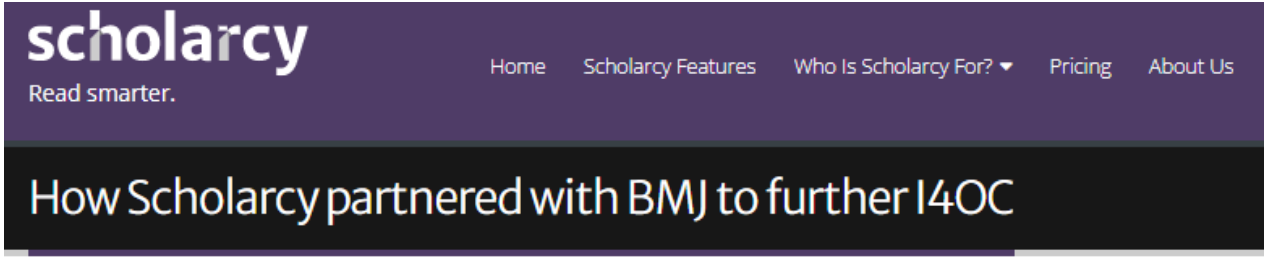


FIGURE 1 | The data model of scholarly communications in MAS where the nodes represent the entity types modeled in MAG, and the simple and block arrows depict one-to-one and one-to-many relations among the entities, respectively.

"These considerations precipitated the new focus of MAS from an academic search engine relying mainly on publisher feeds to a web-based approach that actively exploits the cutting edge cloud computing and AI technologies.....

https://www.semanticscholar.org/paper/Microsoft-Academic-Graph%3A-When-experts-are-not-Wang-Shen/ea9a516d5cb0b298f0df50e82b3e0400b72fcdff

BMJ employs Scholarcy to extract references from back files



"The BMJ has an archive extending to hundreds of thousands of articles (some dating back to the 1840s) that exist only in PDF format. At the end of 2018, BMJ wanted to mine these PDFs for references and automatically structure them in CrossRef XML format, to make them widely available to the research community as part of the Initiative for Open Citations (I4OC)."

https://www.scholarcy.com/unlocking-100-years-of-scientific-papers-how-scholarcy-partnered-v
bmj-to-further-i4oc/

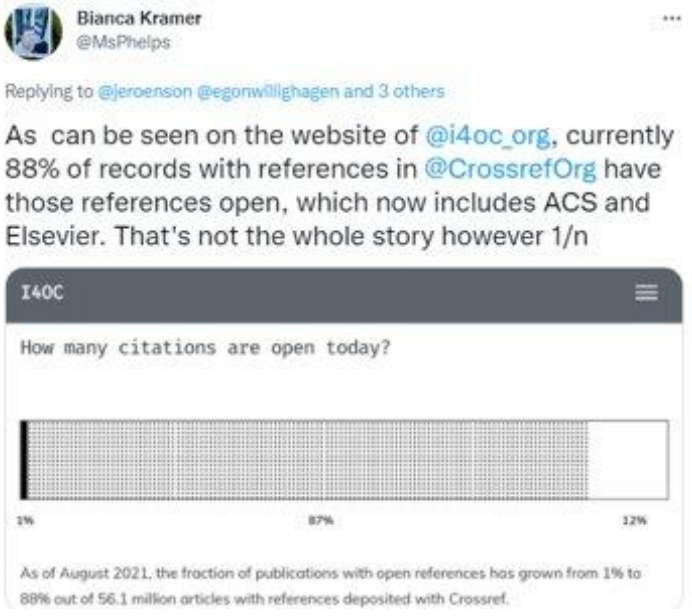
Open Citation source/corpus*

Crossref/I4OC (The Initiative for Open Citations)
Microsoft Academic Graph*
The Semantic Scholar Open Research Corpus (S2ORC)
OpenCitations Corpus (OCC)
Lens.org
NIH-OCC
Wikidata
FatCat /Refcat

I4OC (Initiative for Open Citations) – success – >1+ billion citations

All major publishers* participating including

* Elsevier
* Springer-Nature
* WIley
* Sage
* Taylor & Francis



WHAT CAN YOU DO IN A WORLD WHERE ALL THIS SCHOLARLY INFO AND FULL TEXT IS OPEN AND AVAILABLE?

- Title/author/abstract/subject
- References (relationships!)
- Affiliations
- Funding info
- Altmetrics
- Open access status
- Others? - Open peer review data etc

Some sources of Open Scholarly Metadata

Crossref, Datacite, ORCID, ROR, NIH

Some sources of Open Scholarly Metadata (II)

CORE, BASE, Wikidata, OpenCitations, EuroPMC, Lens.org, Unpaywall, Internet Archive(Fatcat)

Innovations in Scholarly Communication – Workflow tools - categorization

Q : How would the ready availability of open structured Scholarly metadata and full text strengthen innovation in research flow tools? Which existing tools become even better in a world of OA?

Discovery

- New Discovery citation indexes (e.g. Lens.org)
- Bibliometric/Science mapping tools & Literature mapping tools
- Systematic review tools
- Knowledge extraction & Summarizer tools

New Scholarly search citation indexes (Cross Displinary)

Dimensions

Semantic Scholar

LENS.ORG

meta

scinapse

NAVER 학술정보

Scilit

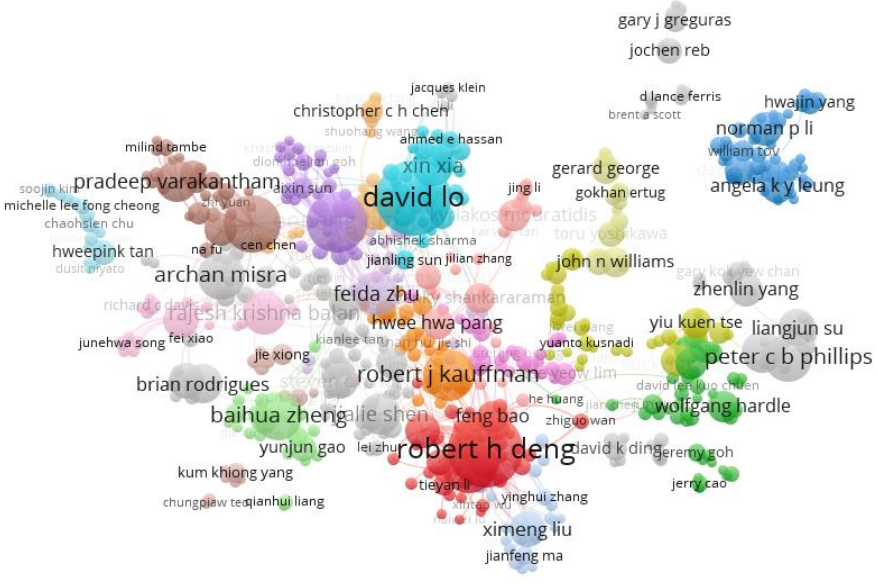
See coverage of new citation indexes

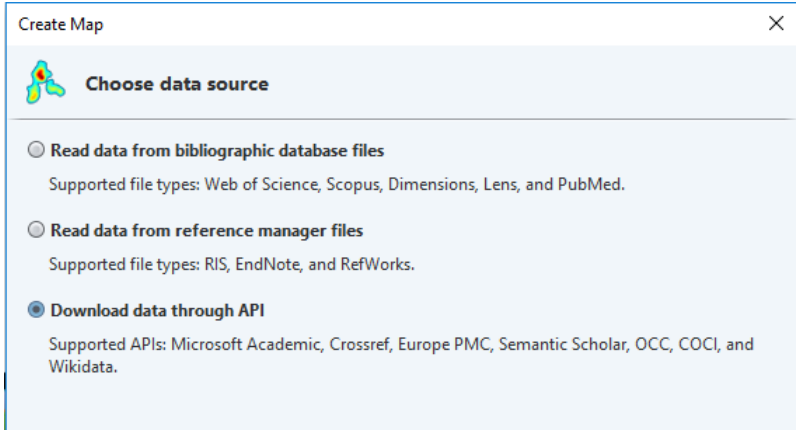
New Scholarly search citation indexes

Science mapping tools (for bibliometrics researchers)

VOSviewer, Citespace, Bibliometrix , CitNetExplorer, Sci2, HistCite, Hazing Publish or Perish

Science mapping tools can now accept data from more inclusive sources e.g. MAG, COCI,





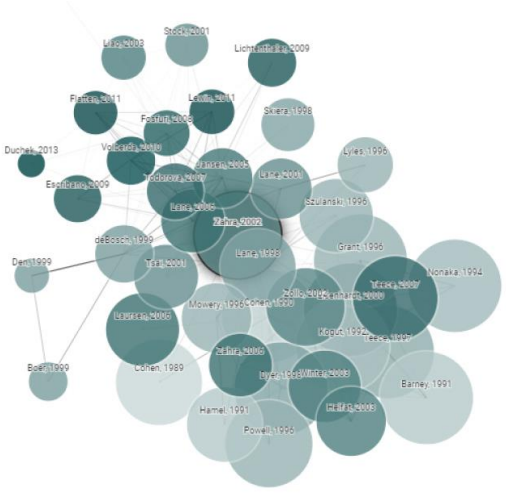
Vosviewer (co-authorship network using-MAG)

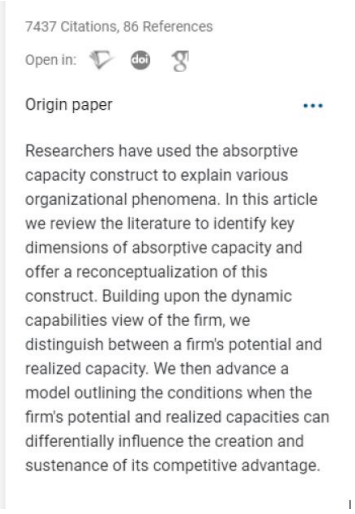
Some options in Vosviewer

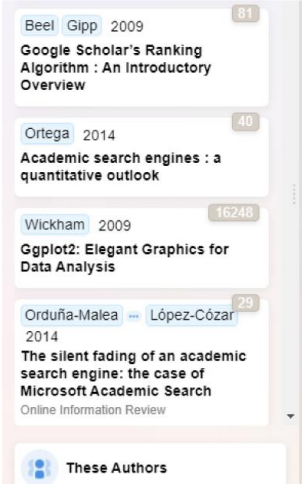
Citation based Literature mapping services (for researchers)

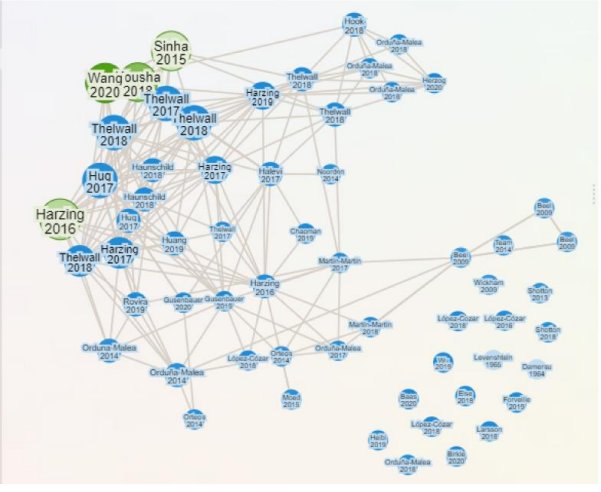
[See list of emerging tools]

New innovative tools by startups, hobbyist etc









[ConnectedPapers]

[Research Rabbit]

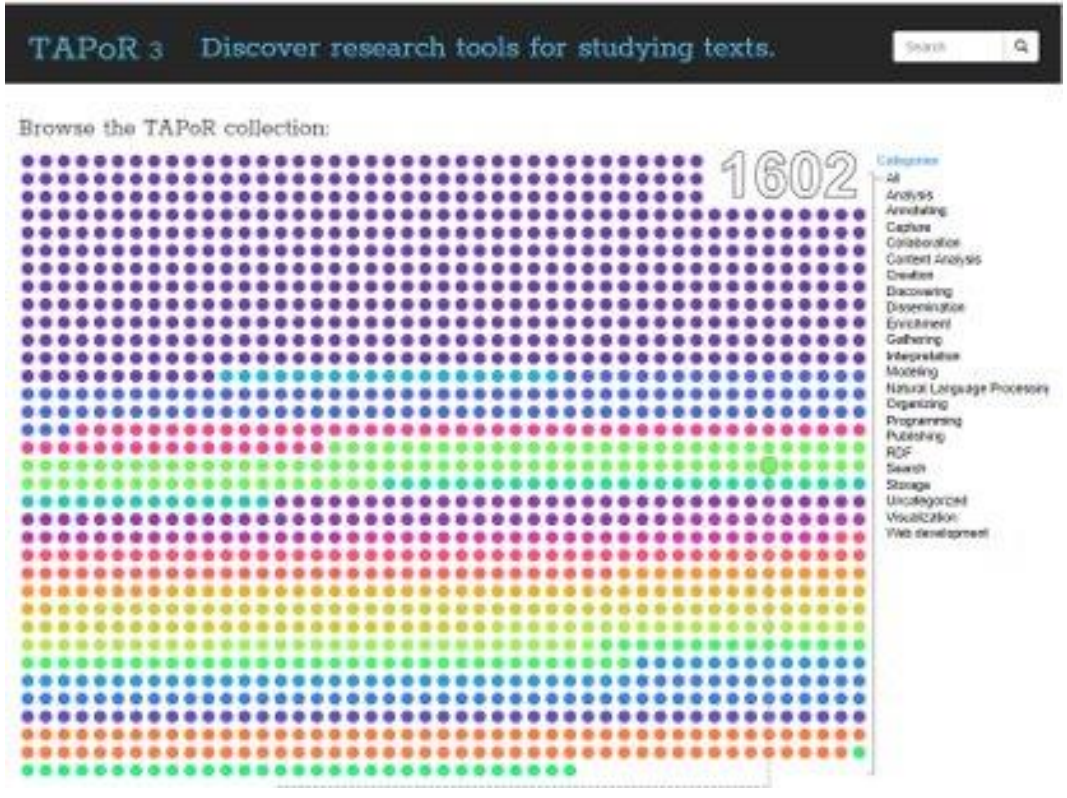
Can Easy-To-Use Text Mining Applications Help With Information Retrieval Tasks? (CADTH, 2018)

- term and phrase selection
- search development for vague topics
- concept identification
- relevance ranking to assist with search refinement
- Filter development
- Autoscreening

CADTH Text Mining Opportunities: White Paper

Some text tool

- Voyant
- AntConc
- TerMine
- ProAnt
- Many more



TAPoR3

Going beyond - Citation sentiment/context

Citation Statements (sometimes known as citances) are the sentences surrounding a citation or reference within a publication.

For example, the following is a citation statement from *Neighborhood Change and Crime in the Modern Metropolis* Kirk and Laub (2010) to *Crack, Cocaine and Heroin: Drug Eras in Williamsburg, Brooklyn, 1960-2000* Curtis (2003)

> Yet, this accessibility contributed to gentrification in the 1980s. As **Curtis (2003)** observes, residents displaced from Manhattan in the mid-1980s because of rising rents flocked to nearby Williamsburg. Many boarded-up buildings and abandoned industrial areas, some of which were used as "shooting galleries" and drug stashes, were transformed into lofts and condos for gentrifiers.

https://help.scite.ai/en-us/article/how-does-citation-statement-search-work-13tnvx7/

Going beyond - Citation sentiment/context

Scite (Details)

- Mentioning cite
- Supporting cite
- Constrasting cite

Semantic Scholar (Details)

- Cites Background
- Cites Methods
- Cites Results
- influential cites

Web of Science (beta New!)

- Background
- Basis
- Compare
- Discuss

Others joining – Web of Science

Enriched Cited References classified by use

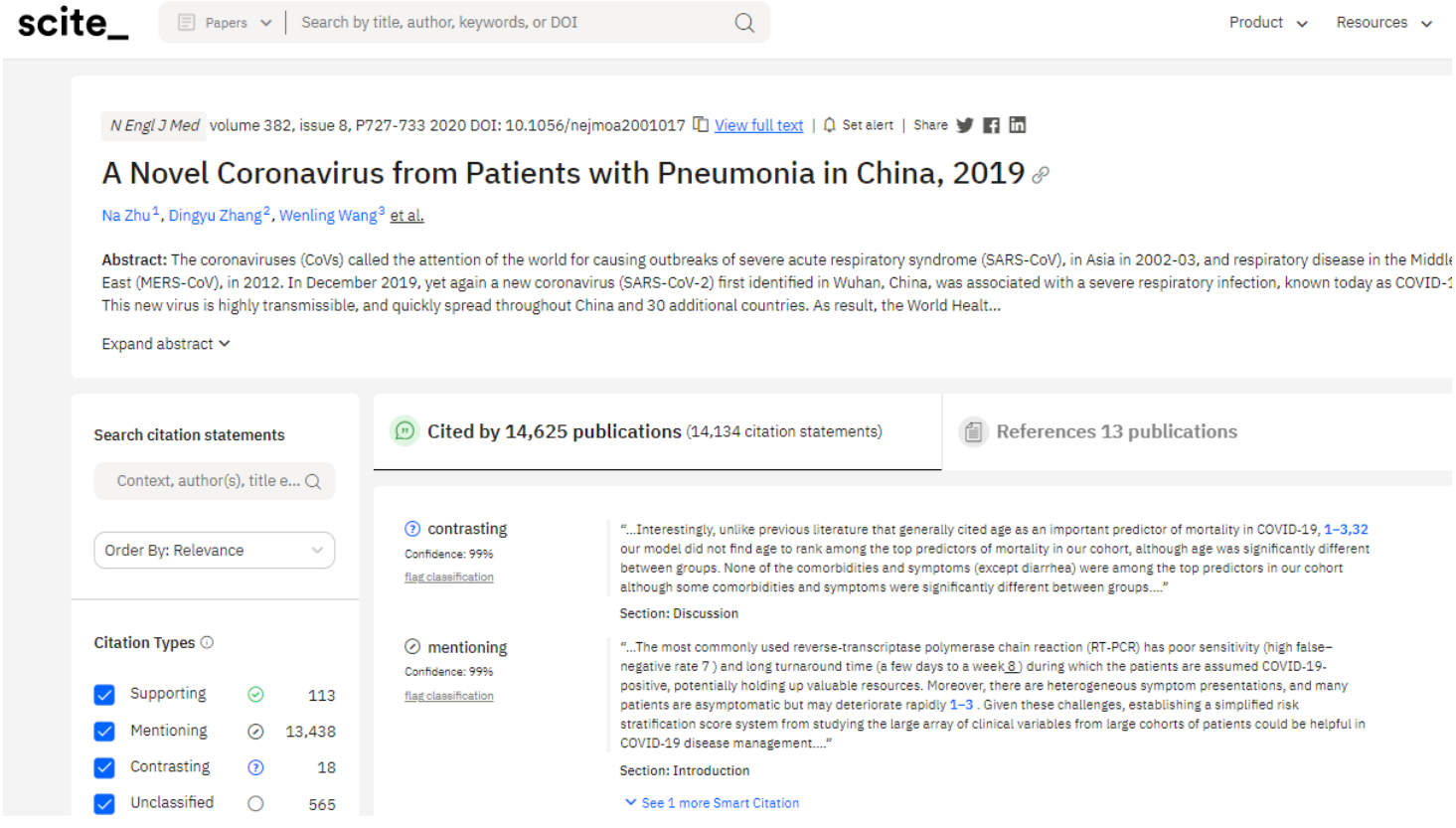
Enriched cited references receives an exciting new enhancement—a classification of each in-text mention to indicate why the author may have cited the reference in each instance. Classifications are assigned by evaluating the author's exact words in the sentence containing the mention as well as the sentence before and after. The mentions are classified as follows:

- **Background**—previously published research that orients the current study within a scholarly area.
- **Basis**—references that report the data sets, methods, concepts and ideas that the author is using for her work directly or on which the author bases her work.
- **Compare**—references that the current study's results can be compared to; the author could be extending on a prior concept or method or confirming past findings or refuting past findings.
- **Discuss**—references mentioned because the current study is going into a more detailed discussion.

These classifications have been added to the existing enriched cited references visualization to help you find references that suit your needs but may appear outside the "expected" section. For example, if you wanted to look at references that are classified as "basis" but are not cited in the Materials and Methods section, you could review the references that appear along the "basis" classification line.

New WoS July 22 Release Notes

Scite.ai - Open Scholarly metadata + OA full text + Publisher full-text

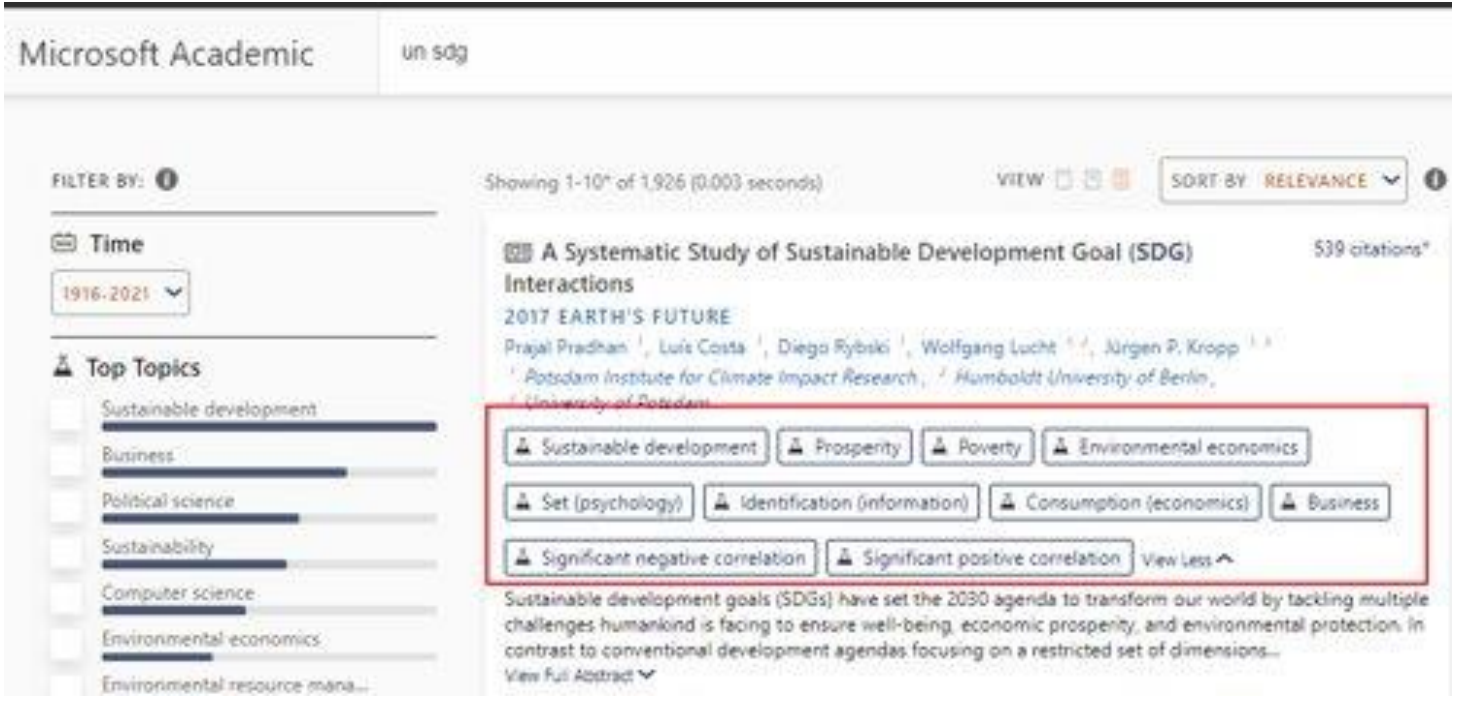


KNOWLEDGE EXTRACTION & SUMMARIZATION

Knowledge extraction - Annotations in EuroPMC (SciLite)

[New WoS July 22 Release Notes]

Knowledge extraction from fulltext - Microsoft Academic - Field of study

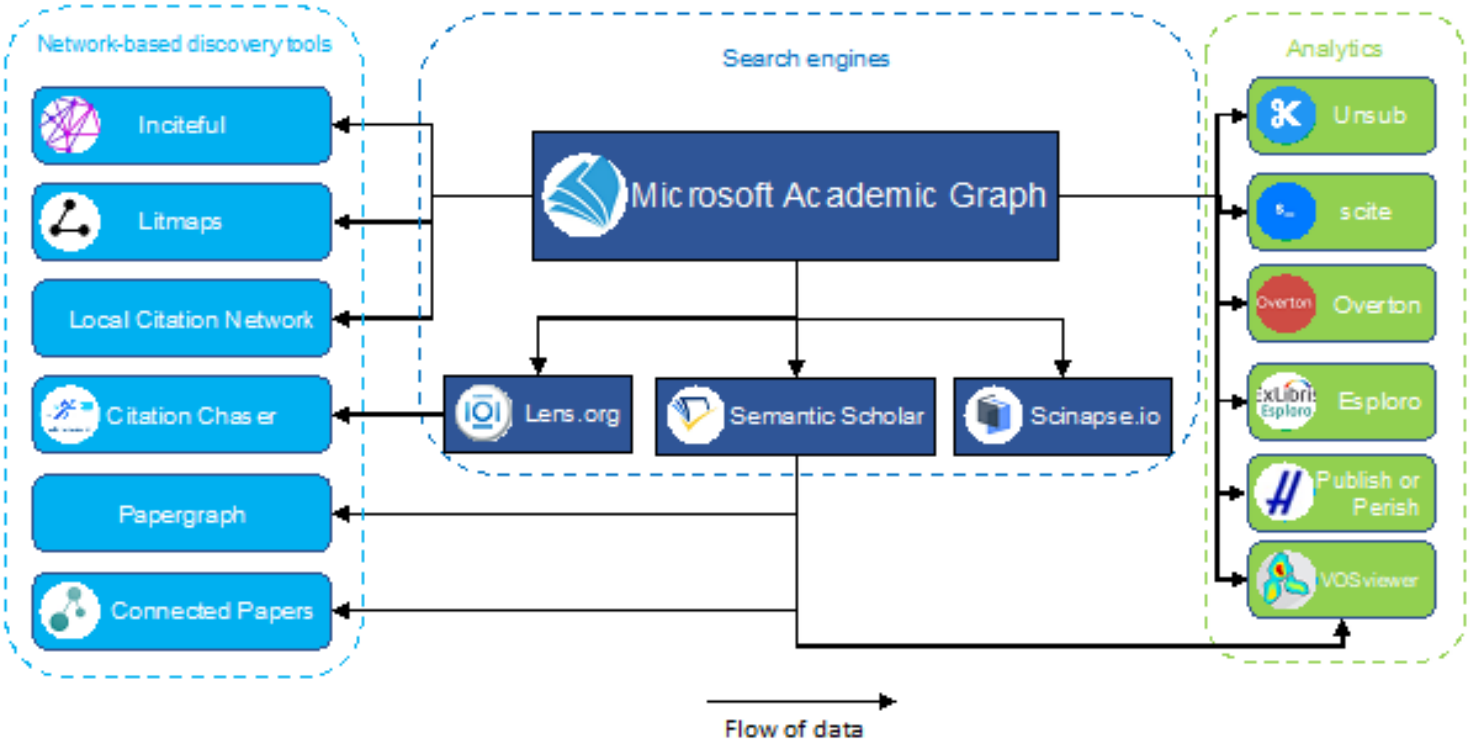


https://europepmc.org/annotations

We can't duplicate this until most full-text is Open Access!

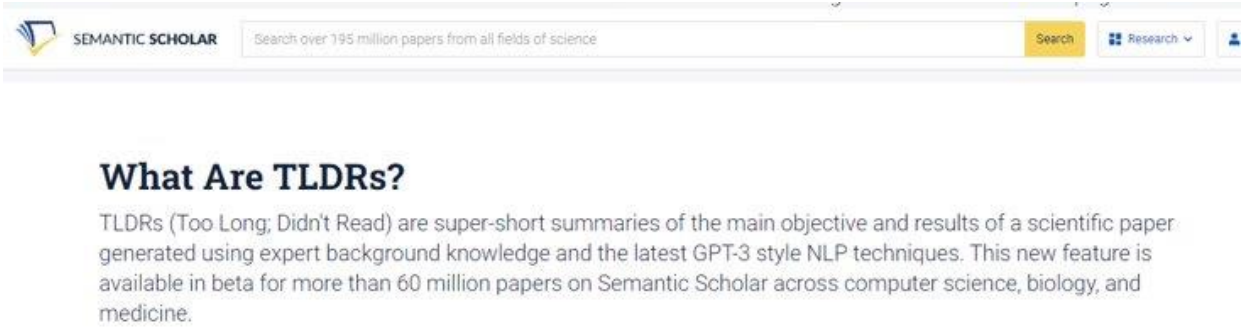
https://academic.microsoft.com/topics/topicGraphExplorer/552854447

Loss of Microsoft Academic Graph



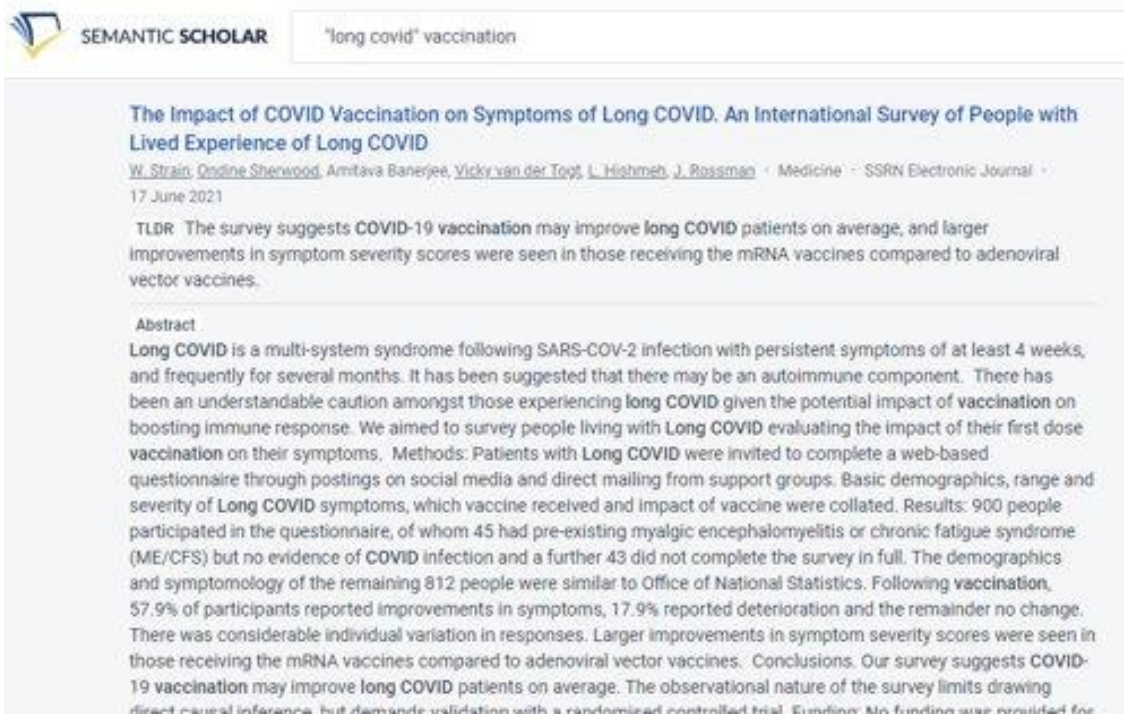
https://blogs.lse.ac.uk/impactofsocialsciences/2021/05/27/goodbye-microsoft-academic-hello-open-research-infrastructure/

Citation sentiments/context



https://academic.microsoft.com/topics/topicGraphExplorer/552854447

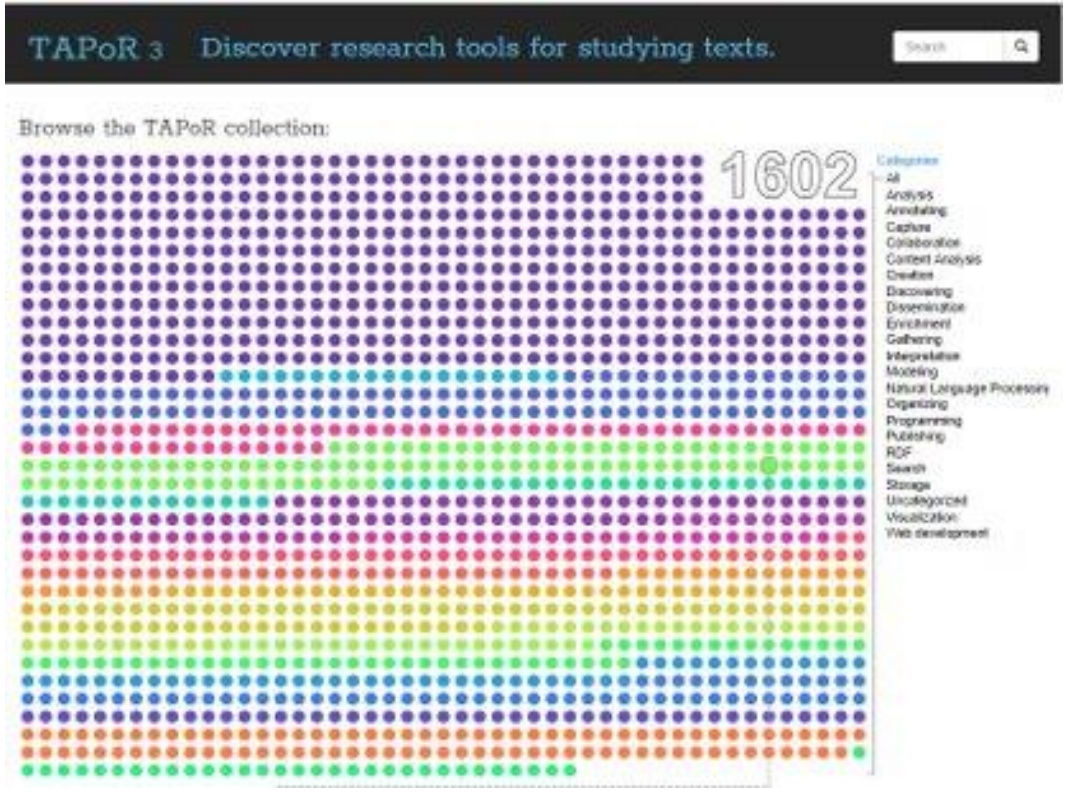
Citation sentiments/context



https://academic.microsoft.com/topics/topicGraphExplorer/552854447

Some text tool

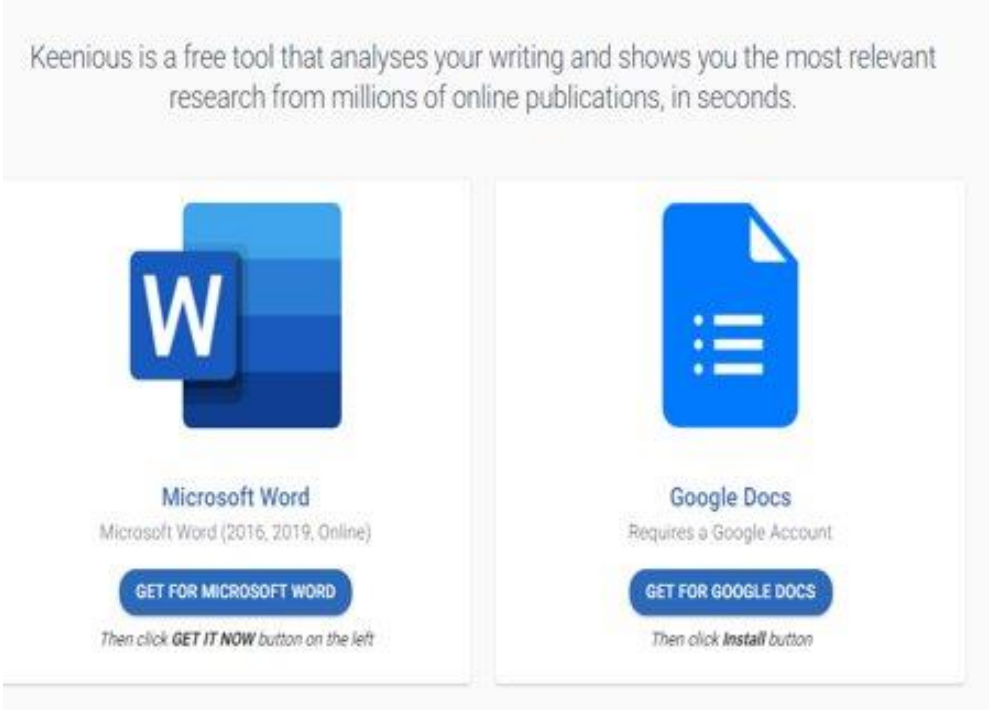
- Voyant
- AntConc
- TerMine
- ProAnt
- Many more



TAPoR3

Writing

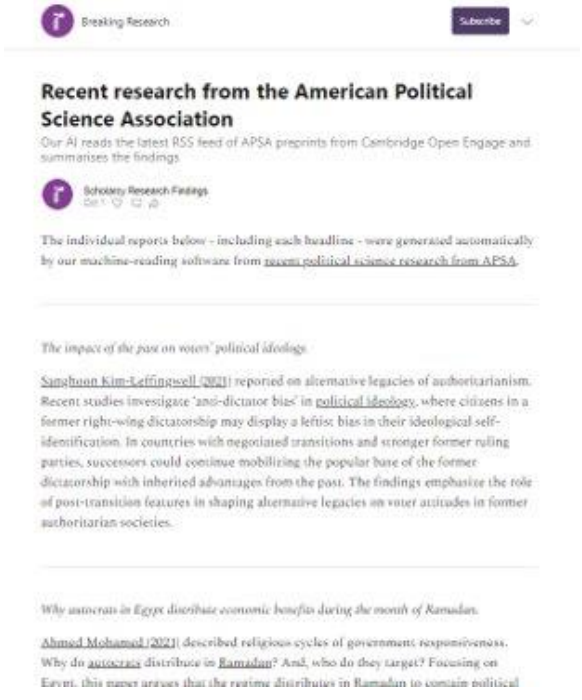
Suggest citations based on text



[Keenius]

Writing

Auto-generate annotated bibliography (Scholarcy)



Breaking Research

Subscribe

Recent research from the American Political Science Association

Our AI reads the latest RSS feed of APSA preprints from Cambridge Open Engage and summarises the findings

Scholarcy Research Findings

The individual reports below - including each headline - were generated automatically by our machine-reading software from recent political science research from APSA.

The impact of the past on voters' political ideology

Sanghoon Kim-Leffingwell (2021) reported on alternative legacies of authoritarianism. Recent studies investigate 'anti-dictator bias' in political ideology, where citizens in a former right-wing dictatorship may display a leftist bias in their ideological self-identification. In countries with negotiated transitions and stronger former ruling parties, successors could continue mobilizing the popular base of the former dictatorship with inherited advantages from the past. The findings emphasize the role of post-transition features in shaping alternative legacies on voter attitudes in former authoritarian societies.

Why autocrats in Egypt distribute economic benefits during the month of Ramadan.

Ahmed Mohamed (2021) described religious cycles of government responsiveness. Why do autocrats distribute in Ramadan? And, who do they target? Focusing on Egypt, this paper argues that the regime distributes in Ramadan to contain political

https://scholarcy.substack.com/p/recent-research-from-the-american

Writing

Auto-generate annotated bibliography (Scholarcy)

Suggests background reading.

New to a field? Want to understand the main topics of the latest research? Scholarcy generates a background reading list helping you get up to speed. Scholarcy also highlights terms and abbreviations in the text so you can refer back to them while you are reading.

Highlights important points.

Scholarcy's unique Robo-Highlighter™ automatically highlights important phrases and contributions made by the paper. No more printing off papers and manually going over them with a marker pen – Scholarcy's advanced AI has learnt how academic papers are written and can identify when an important point is being made.

Creates a referenced summary.

Scholarcy summarises the whole paper with references, rewriting statements in the third person, making it easier to cite the information correctly in your report, essay or thesis.

The summarisation process is fully customisable; choose the number of words, the level of highlighting and level of language variation.

Finds the references.

No more traveling the web trying to find the papers in the references – Scholarcy does that for you, locating open-access PDFs from Google Scholar, arXiv and elsewhere. Scholarcy enlists the excellent Unpaywall API to help with this.

You can also download the entire bibliography in BibTex or .RIS format, so you can import each entry into your favourite reference management tool.

Extracts tables and figures.

Need to check the numbers? Scholarcy finds the tables in a PDF or Word document and lets you download them in Excel format, so you can run your own calculations on the results.

Scholarcy can be configured to give you thumbnails of each figure in the PDF, cross-referenced in the text, so you can easily jump to the corresponding figure while you are reading.

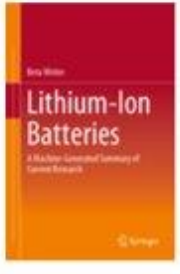
[Scholarcy features]

Writing

Springer-Nature machine generated book

London | Heidelberg, 02 April 2019

Springer Nature published its first machine-generated book in chemistry. The book prototype provides an overview of the latest research in the rapidly growing field of lithium-ion batteries. The content is a cross-corpus auto-summarization of a large number of current research articles in this discipline. Serving as a structured excerpt from a huge set of papers, the innovative pipeline architecture aims at helping researchers to manage the information overload in this discipline efficiently.



In close collaboration between Springer Nature and researchers from Goethe University Frankfurt/Main, a state-of-the-art algorithm, the so-called *Beta Writer*, was developed to select, consume and process relevant publications in this field from Springer Nature's content platform *SpringerLink*. Based on this peer-reviewed and published content, the Beta Writer uses a similarity-based clustering routine to arrange the source documents into coherent chapters and sections. It then creates succinct summaries of the articles. The extracted quotes are referenced by hyperlinks which allow readers to further explore the original source documents. Automatically created introductions, table of contents and references facilitate the orientation within the book.

https://www.springer.com/gp/about-springer/media/press-releases/corporate/springer-nature-machine-generated-book/16590126

Publication

UNSILO Technical Checks of manuscripts

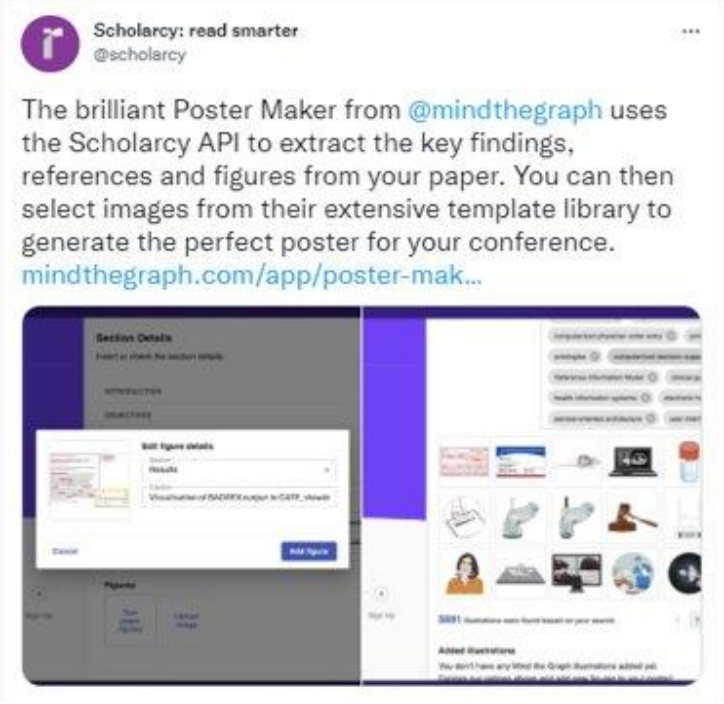
- UNSILO uses "use a combination of machine learning, rules, and natural language processing to provide editorial teams and authors with turnkey access to critical information on how well manuscripts adhere to author guidelines"

- Some checks
  - Conflicts of interest
  - Correct metadata
  - Correct use of citations and references
  - Acceptable language quality

- UNSILO Technical Checks integrated with ScholarOne, Editorial Manager, BenchPress and Manuscript Manager.

Outreach

Auto-generation of posters



Other auto-generation possibilities

- Visual Abstracts
- Plan English abstracts
- Press Releases
- Video Abstracts

https://www.scholarcy.com/combining-ai-and-visual-design-to-create-beautiful-scientific-posters/

CORD-19 – A PREVIEW OF THE FUTURE? - ALLEN INSTITUTE FOR AI +WHITE HOUSE OFFICE OF SCIENCE AND TECHNOLOGY POLICY (OSTP) + CZI +MICROSOFT RESEARCH

The Covid-19 Open Research Dataset (CORD-19) is a growing[1] resource of scientific papers on Covid-19 and related historical coronavirus research. CORD-19 is designed to facilitate the development of text mining and information retrieval systems over its rich collection of metadata and structured full text papers. Since its release, CORD-19 has been downloaded over 75K times and has served as the basis of many Covid-19 text mining and discovery systems. In this article, we describe the mechanics of dataset construction, highlighting challenges and key design decisions, provide an overview of how CORD-19 has been used, and preview tools and upcoming shared tasks built around the dataset. We hope this resource will continue to bring together the computing community, biomedical experts, and policy makers in the search for effective treatments and management policies for Covid-19.

CORD-19: The Covid-19 Open Research Dataset

Some observations of emerging tools

Diversity in origins – from startups, non-profits, individual researchers/hobbyist

May be wholly or partially based on open data

Various business models (open, free as in free beer, commercial)

Conclusion

We are in the early days of cashing the cheque....

Open tools/services vs Tools/services based on open data

What roles should libraries and institutions play?

Thank You!

Aarontay@gmail.com

@aarontay

https://musingsaboutlibrarianship.blogspot.com

Special Acknolwledgement : Phil Gooch (Scholarcy) for advice on text mining applications