

# Information Access in Computer Science Research

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# Meet Our Databases!



# Looking for Research?

- **Google Scholar** is a web crawler (hey, that rhymes!)
- **Multidisciplinary databases** like Web of Science are good starting points for disciplinary *and* interdisciplinary research
- **Disciplinary databases** contain high-quality, relevant information for specific disciplines: we will look at IEEE Xplore

It all depends...

# Google Scholar Use Cases

- “I don’t know where to start, so I can’t really craft a search strategy. I want to do a little exploring first.”
- “My professor mentioned a well-known study where a scientist swallowed *Campylobacter* bacteria to see if it would cause a peptic ulcer. I’m just going to type “*Campylobacter* ulcer” and will see if I get lucky.”
- “I’d like to find studies that used a particular instrument or research method; the details I’m interested in are probably in the Methods section.”
- “I want to find research which has cited an article I’m interested in, so I’m going to search for the exact citation.”



## Any time

Since 2022

Since 2021

Since 2018

Custom range...

## Sort by relevance

Sort by date

## Any type

Review articles

☐ include patents☒ include citations☒ Create alertDeep **dilation** on multimodality **time series** for human activity recognition[R.Xi](#), [M.Li](#), M Hou, M Fu, H Qu, [D.Liu](#)... - IEEE Access, 2018 - [ieeexplore.ieee.org](#)

... , we apply a **dilation** factor on ... **time**-scale dependence, inspired by the idea of **dilation** operation, we present a novel recurrent model to learn the temporal dependencies at different **time** ...

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[\[PDF\] ieee.org](#)[Full-Text @ UW](#)Structural health and stability assessment of high-speed railways via thermal **dilation** mapping with **time-series** InSAR analysis[X Qin](#), M Liao, [L.Zhang](#), [M Yang](#) - IEEE Journal of Selected ..., 2017 - [ieeexplore.ieee.org](#)

... Based on the conventional InSAR, various **time-series** InSAR ... over a long **time**, **time-series** InSAR technologies facilitate the ... of view, the existing **time-series** InSAR approaches are still ...

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[\[PDF\] ieee.org](#)[\[HTML\]](#) A dynamic model of neurovascular coupling: implications for blood vessel **dilation** and constriction[Y Zheng](#), Y Pan, [S Harris](#), [S Billings](#), [D Coca](#), [J Berwick](#)... - Neuroimage, 2010 - Elsevier

... The model output was the **time series** of the changes in regional cerebral blood flow (CBF). ... **dilation** and constriction. The complex temporal characteristics of the CBF **time series** were ...

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[\[HTML\] sciencedirect.com](#)[Full-Text @ UW](#)itsadug: Interpreting **time series** and autocorrelated data using GAMMs[J Van Rij](#), [M Wieling](#), [RH Baayen](#), [D van Rijn](#) - 2015 - [research.rug.nl](#)

... for **time** course data such as EEG, pupil **dilation**, gaze data (eye tracking), and articulatory recordings, but also for behavioral data such as reaction times and response data. As ...

☆ Save Cite Cited by 361 Related articles

# When to Use Something Other Than Google Scholar

- At the beginning of **your own research project**: where you want to gain a solid understanding of the context of your work.
- When **writing a literature review**: your job is to represent what's known, where researchers differ in viewpoints & findings, and perhaps where there are gaps in knowledge.

# Consider the Implications of Google Scholar's Algorithm

- Do authors always cite another article because they agree with it?
- Do you think there's a tendency for the same articles to be cited over and over?
- Does this approach highlight recent innovations?
- Does this approach affect whose voices are heard?

## Google Scholar

Objective: Connect you to the “top” references matching a natural language search statement.

Scope: “All” scholarly publications in all disciplines that are discoverable on the internet. Includes preprints and other publication types in addition to articles.

Transparency: Intentional black box. Proprietary algorithm for searching and relevancy ranking. No list of sources.

## Web of Science + ACM-DL

Objective: Connect you to all references matching a search query. Queries may include discipline-specific subject headings, Boolean operators (AND, OR), and filters.

Scope: Sources typically selected by an editorial board to suit the scope of database. May include sources not otherwise discoverable on the internet.

Transparency: Database displays “search details” to show what terms were searched for and how they were combined. List of sources provided.



## Google Scholar

Reproducibility: You typically can't view/review ALL references. References just get less and less relevant as you move from page to page. Less relevant references may or may not contain all of your search terms.

Results ranked differently for different people. Results ranked differently according to order of words in query.

What's Relevant? If it's a highly-cited article from a prestigious journal, it's ranked higher. Location of search terms and popularity also affect ranking.

## Web of Science + ACM-DL

Reproducibility: ALL references matching criteria are presented.

Anyone conducting the same search at the same time retrieves the same results presented in the same order.

What's Relevant? If it meets the search criteria, you see it. Typically, results are displayed in chronological order.

You can keep refining your query with search terms and filters to make the results meet YOUR criteria of what's relevant.

# Web of Science Use Cases

You want to do a **reproducible** search.

You want to search **journals, book chapters, and conference abstracts** that have been **selected by an editorial board**.

You want to **define each of your search concepts thoroughly**.

Search in: **Web of Science Core Collection** ▾ Editions: **All** ▾

DOCUMENTS

CITED REFERENCES

Title ▾

Example: water consum\*  
(coronavirus OR "COVID-19" OR influenza) ×

⊖ And ▾

Abstract ▾

Example: marine protected areas  
("self test\*" OR "self administer\*" OR "home test\*") ×

+ Add row

+ Add date range

Advanced Search

× Clear

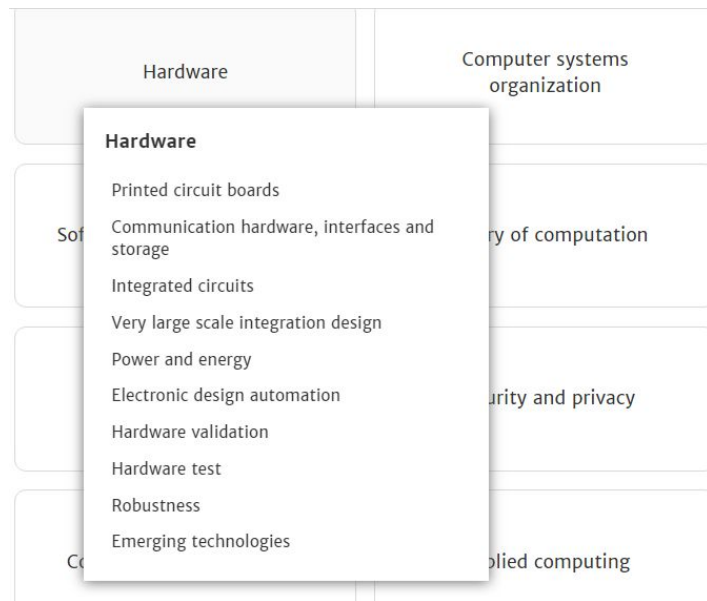
Search

# ACM Digital Library Features

- The journals and books that are indexed have been selected because they're **relevant for the discipline**.
- When searching, you can use **discipline-specific terminology**, such as “transference” (one meaning in psychology, another meaning in CS/math) **without capturing references that use the term differently**.
- It offers **subject-specific filters**, letting you refine your search by document type (review article, conference paper, etc.), date, and language.

# Web of Science and ACM's Extra Strength:

- Articles are tagged with **database-specific subject headings**
  - This is helpful because it lets you filter content for specific terms.
  - They also let you search for groups of terms.



# Result: A Thorough, Well-Defined, Reproducible Search

61 Results for: All: "dall-e"

Edit Search

Save Search

RSS

Searched The ACM Full-Text Collection (691,580 records) | Expand your search to The ACM Guide to Computing Literature (3,482,242 records)

RESULTS

VIDEOS

PEOPLE

Showing 1 – 20 of 61 Results

Select All

per page: 10 20 50 | Earliest ▾



RESEARCH-ARTICLE

July 2021



[On the effects of pruning on evolved neural controllers for soft robots](#)

[Giorgia Nadizar](#), [Eric Medvet](#), [Felice Andrea Pellegrino](#), [Marco Zullo](#), [Stefano Nichele](#)

GECCO '21: Proceedings of the Genetic and Evolutionary Computation Conference Companion • July 2021, pp 1744–1752 • <https://doi.org/10.1145/3449726.3463161>

Artificial neural networks (ANNs) are commonly used for controlling robotic agents. For robots with many sensors and actuators, ANNs can be very complex, with many neurons and connections. Removal of neurons or connections, i.e., *pruning*, may be ...

5 90 | A Highlights ▾

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Get Access



RESEARCH-ARTICLE

October 2021



[Cycle-Consistent Inverse GAN for Text-to-Image Synthesis](#)

[Hao Wang](#), [Guosheng Lin](#), [Steven C. H. Hoi](#), [Chunyan Miao](#)

MM '21: Proceedings of the 29th ACM International Conference on Multimedia • October 2021, pp 630–638 • <https://doi.org/10.1145/3474085.3475226>

# Conclusion

- **Web of Science** and **ACM Digital Library** are MUCH stronger than Google Scholar from a STEM research standpoint.
- Web of Science is stronger for **cross-disciplinary** research, but ACM is stronger for **CS-related** work. Both contain sufficiently comprehensive information for researchers, and from a CS perspective, this would be a good mix of databases.
  - Theoretically, a researcher could **start on ACM** for more specialized content but **look beyond using Web of Science**.

# Questions?