



# BIP! Finder: Facilitating Scientific Literature Search by Exploiting Impact-Based Ranking

Thanasis Vergoulis<sup>1</sup>, Serafeim Chatzopoulos<sup>1,2</sup>, Ilias Kanellos<sup>1</sup>, Panagiotis Deligiannis<sup>2</sup>,  
Christos Tryfonopoulos<sup>2</sup>, Theodore Dalamagas<sup>1</sup>

1: IMSI, ATHENA Research Center, Greece

2: University of the Peloponnese, Greece

- Keyword-based search engine for papers
- It supports filtering, bookmarking & visualisations



# BIP! Finder

Find!

Order by: ☒ Popularity ☐ Influence ☐ Year Combine with keyword relevance: ☒ Yes ☐ No

2872 results (144 pages)



💡 Click on entries for comparison

Title		Venue	Year	Impact
Efficient string matching: an aid to bibliographic search ⓘ	context 👁	Commun ACM	1975	🔥 🏛️ 📌
A guided tour to approximate string matching ⓘ	context 👁	ACM Comput Surv	1999	🔥 🏛️ 📌
Fast Pattern Matching in Strings ⓘ	context 👁	SIAM J Comput	1973	🔥 🏛️ 📌

- Keyword-based search engine for papers
- It supports filtering, bookmarking & visualisations



What makes it different?

# BIP! Finder

Find!

Order by: ☒ Popularity ☐ Influence ☐ Year Combine with keyword relevance: ☒ Yes ☐ No

2872 results (144 pages)



💡 Click on entries for comparison

Title		Venue	Year	Impact
Efficient string matching: an aid to bibliographic search ⓘ	context 👁	Commun ACM	1975	🔥 🏛️ 📌
A guided tour to approximate string matching ⓘ	context 👁	ACM Comput Surv	1999	🔥 🏛️ 📌
Fast Pattern Matching in Strings ⓘ	context 👁	SIAM J Comput	1973	🔥 🏛️ 📌

- Keyword-based search engine for papers
- It supports filtering, bookmarking & visualisations



# BIP! Finder

## What makes it different?

It supports ranking & comparing papers based on different aspects of their impact

string matching Find!

Order by: ☒ Popularity ☐ Influence ☐ Year Combine with keyword relevance: ☒ Yes ☐ No

2872 results (144 pages)



💡 Click on entries for comparison

Title		Venue	Year	Impact
Efficient string matching: an aid to bibliographic search ⓘ	context 👁	Commun ACM	1975	🔥 🏛️ 📌
A guided tour to approximate string matching ⓘ	context 👁	ACM Comput Surv	1999	🔥 🏛️ 📌
Fast Pattern Matching in Strings ⓘ	context 👁	SIAM J Comput	1973	🔥 🏛️ 📌

- Keyword-based search engine for papers
- It supports filtering, bookmarking & visualisations



# BIP! Finder

## What makes it different?

It supports ranking & comparing papers based on different aspects of their impact

string matching Find!

Order by: ☒ Popularity ☐ Influence ☐ Year Combine with keyword relevance: ☒ Yes ☐ No

2872 results (144 pages)



💡 Click on entries for comparison

Title		Venue	Year	Impact
Efficient string matching: an aid to bibliographic search ⓘ	context 👁	Commun ACM	1975	🔥 🏛️ 📌
A guided tour to approximate string matching ⓘ	context 👁	ACM Comput Surv	1999	🔥 🏛️ 📌
Fast Pattern Matching in Strings ⓘ	context 👁	SIAM J Comput	1973	🔥 🏛️ 📌



**Popularity = short-term impact**  
(does the paper has a hype right now?)



**Influence = long-term impact**  
(is the paper fundamental for its discipline?)

# Why is this important?

## No one-size-fits-all impact measure

- Oversimplification, there are several aspects
- Each important for different applications

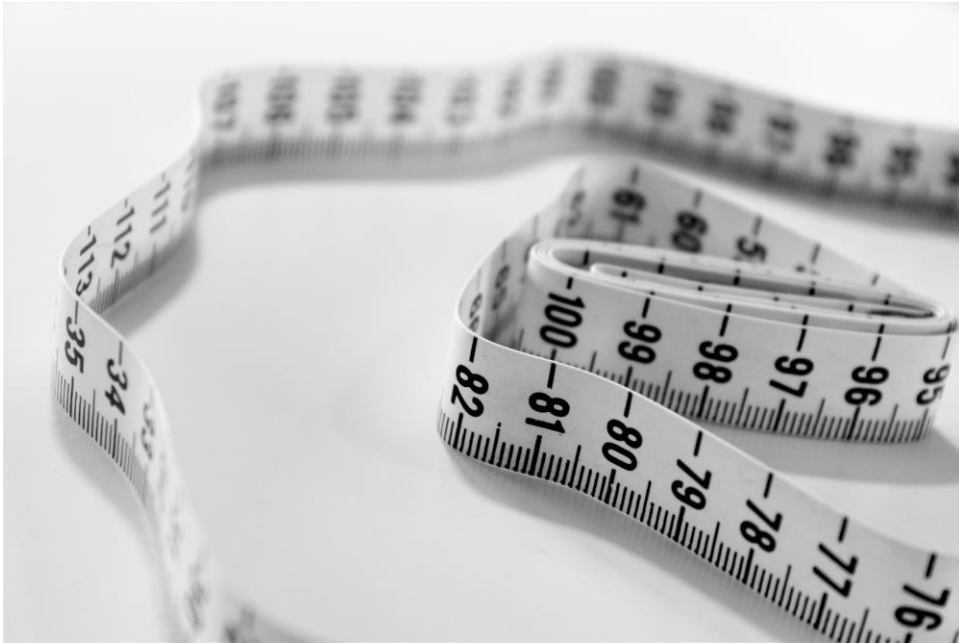
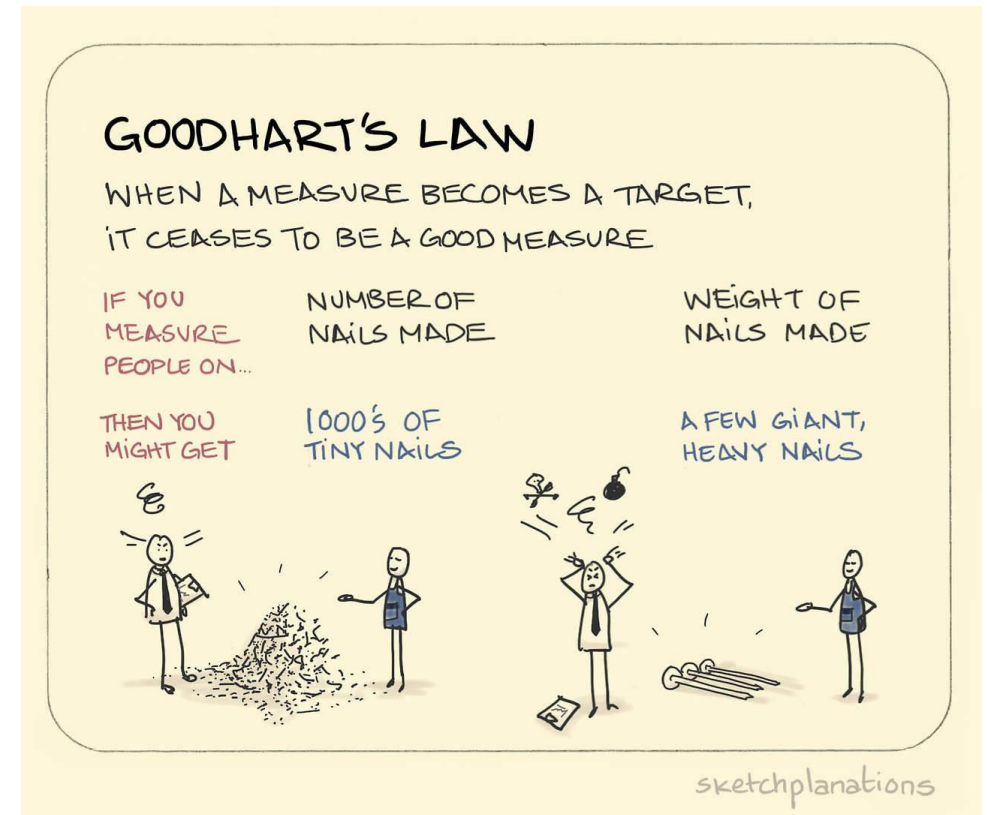


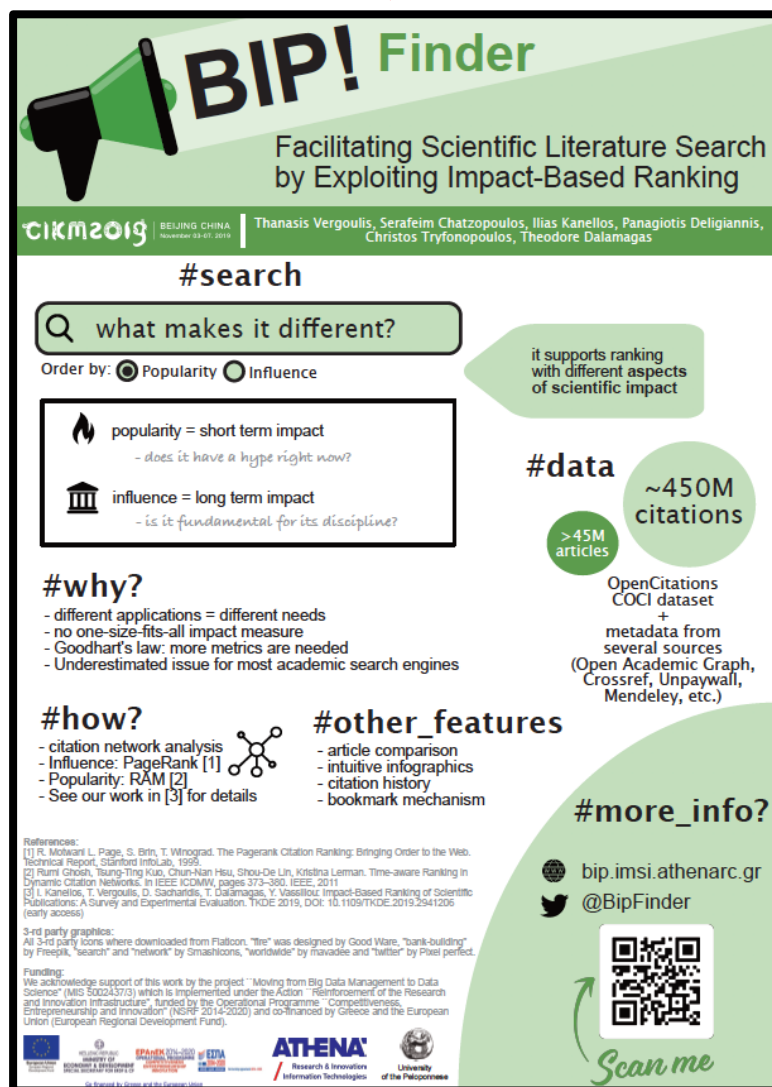
Photo by [Siora Photography](#) on [Unsplash](#)

## One measure is easy to be manipulated

- Goodhart's law



More details? Come & talk to us!



**BIP! Finder**  
Facilitating Scientific Literature Search by Exploiting Impact-Based Ranking

CIKM2019 | BEIJING CHINA | November 23-27, 2019 | Thanasis Vergoulis, Serafeim Chatzopoulos, Ilias Kanellos, Panagiotis Deligiannis, Christos Tryfonopoulos, Theodore Dalamagas

**#search**

Q what makes it different?

Order by: ☒ Popularity ☐ Influence

popularity = short term impact  
- does it have a hype right now?

influence = long term impact  
- is it fundamental for its discipline?

it supports ranking with different aspects of scientific impact

**#data**

~450M citations  
>45M articles

OpenCitations COCI dataset + metadata from several sources (Open Academic Graph, Crossref, Unpaywall, Mendeley, etc.)

**#why?**

- different applications = different needs
- no one-size-fits-all impact measure
- Goodhart's law: more metrics are needed
- Underestimated issue for most academic search engines

**#how?**

- citation network analysis
- Influence: PageRank [1]
- Popularity: RAM [2]
- See our work in [3] for details

**#other\_features**

- article comparison
- intuitive infographics
- citation history
- bookmark mechanism

**#more\_info?**

bip.imsi.athenarc.gr  
@BipFinder

Scan me

References:  
[1] R. Motwani, L. Page, S. Brin, T. Winograd. The Pagerank Citation Ranking: Bringing Order to the Web. Technical Report, Stanford InfoLab, 1999.  
[2] Runt Chocho, Tsung-Ting Kuo, Chun-Nian Hsu, Shou-De Lin, Kristina Lerman. Time-aware Ranking in Dynamic Citation Networks. In IEEE ICDEW, pages 373-380. IEEE, 2011.  
[3] I. Kanellos, T. Vergoulis, D. Sacharidis, T. Dalamagas, Y. Vassiliou. Impact-Based Ranking of Scientific Publications: A Survey and Experimental Evaluation. TKDE 2019, DOI: 10.1109/TKDE.2019.2941206 (early access)

3rd party graphics:  
All 3rd party icons where downloaded from Flaticon. "fire" was designed by Good Ware, "bank-building" by Freepik, "search" and "network" by Smashingicons, "worldwide" by maxadee and "twitter" by Pixel perfect.

Funding:  
We acknowledge support of this work by the project "Moving from Big Data Management to Data Science" (MIS 5002437/3) which is implemented under the Action "Reinforcement of the Research and Innovation Infrastructure" funded by the Operational Programme "Competitiveness, Entrepreneurship and Innovation" (NSRF 2014-2020) and co-financed by Greece and the European Union (European Regional Development Fund).

ATHENA+  
Research & Innovation  
Information Technologies  
University of the Peloponnese

Our (distributed) implementations for impact-based ranking algorithms:  
<https://github.com/diwis/PaperRanking>

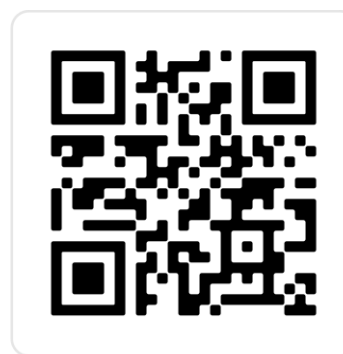
Our experimental evaluation of impact-based ranking algorithms:  
I. Kanellos, T. Vergoulis, D. Sacharidis, T. Dalamagas, Y. Vassiliou: Impact-Based Ranking of Scientific Publications: A Survey and Experimental Evaluation. TKDE 2019, DOI: 10.1109/TKDE.2019.2941206 (early access)

Our open API:  
<http://bip.imsi.athenarc.gr:4000/documentation>

Try it out!

Email: [bip@athenarc.gr](mailto:bip@athenarc.gr)

Website: [bip.imsi.athenarc.gr](http://bip.imsi.athenarc.gr)



Scan me

Funding:  
We acknowledge support of this work by the project "Moving from Big Data Management to Data Science" (MIS 5002437/3) which is implemented under the Action "Reinforcement of the Research and Innovation Infrastructure", funded by the Operational Programme "Competitiveness, Entrepreneurship and Innovation" (NSRF 2014-2020) and co-financed by Greece and the European Union (European Regional Development Fund).