Keeping sight of what we cite: the ethics of citations

G Mahesh

Chief Scientist CSIR-NIScPR



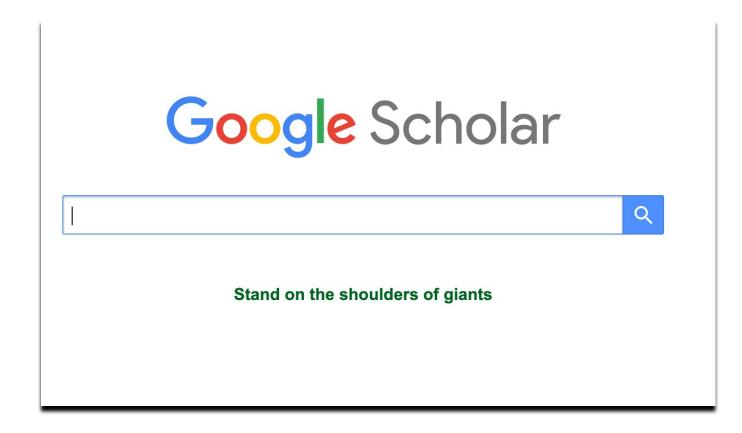
#### Citation based metrics

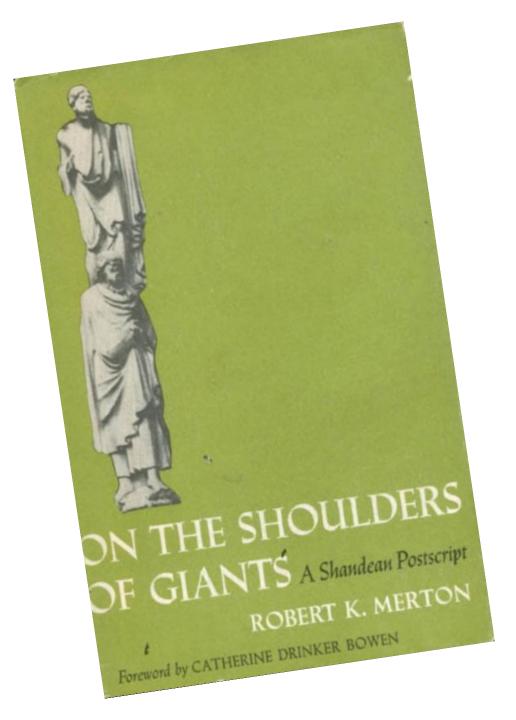
Impact<br/>Factorh-Indexp-Indexg-IndexCiteScoreSJREigenfactor<br/>ScoreSNIP

#### **Isaac Newton** [edit source]

Isaac Newton remarked in a letter to his rival Robert Hooke dated 5 February 1675:[10]

What Des-Cartes [sic] did was a good step. You have added much several ways, & especially in taking the colours of thin plates into philosophical consideration. If I have seen further it is by standing on the sholders [sic] of Giants.





#### Citation Indexes for Science

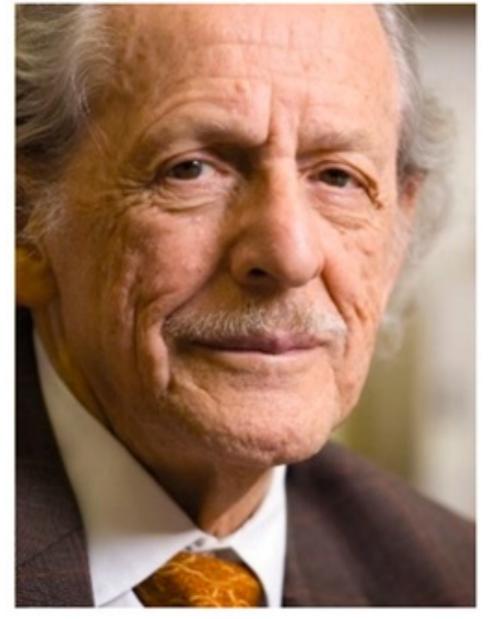
#### A New Dimension in Documentation through Association of Ideas

Eugene Garfield

"The uncritical citation of disputed data by a writer, whether it be deliberate or not, is a serious matter. Of course, knowingly propagandizing unsubstantiated claims is particularly abhorrent, but just as many naive students may be swayed by unfounded assertions presented by a writer who is unaware of the criticisms. Buried in scholarly journals, critical notes are increasingly likely to be overlooked with the passage of time

approach to subject control of the literature of science. By virtue of its different construction, it tends to bring together material that would never be collated by the usual subject indexing. It is best described as an association-of-ideas index, and it gives the reader as much leeway as he requires. Suggestiveness through association-of-ideas is offered by conventional subject indexes but only within the limits of a particular subject heading

Science, 122(3159), p.108-11, July 1955.



Eugene Garfield (1925-2017)

- Advanced the theory and practice of information science and envisioned information systems that made the discovery of scientific information much more efficient
- Founded Institute for Scientific Information (ISI)
- Developed innovative information products that have revolutionized science
- Science Citation Index (SCI) Today's Web of Science
- Current Contents
- Gave the Journal Impact Factor (IF)
- Triggered the development of new disciplines scientometrics, infometrics, webometrics
- His ideas changed how researchers gather scientific information, communicate their findings, and advance their careers.

# Eugene Garfield: from the metrics of science to the science of metrics

Scientometrics 114, 637–650 (2018) Cite this article

#### Abstract

Quantity and quality are Aristotelian categories. Ever since Galileo, the defining feature of Science is the accurate measure of quantity, e.g., time, length and mass, to begin with. Length and mass are size dependent. Quality remained an elusive category as it is a size-independent feature. It was Archimedes who first brought a revolution in physics by defining density as a size-independent attribute. A similar revolution was effected in the measurement of science when Eugene Garfield introduced the concept of the citation as a unit of measurement and from this, separated quantity (number of publications) from quality (impact). In this article,

At a time when databases were mainly covering individual fields like biology, chemistry and medicine, he thought of a database for all of science and later all of knowledge. With his work and writings spanning over six decades, Garfield has had a tremendous impact not only on scholarly communication and information access but also on public policy and public understanding of science.

#### S. Arunachalam, 2010

#### On the Shoulders of Giants presented by

**Eugene Garfield** 

Chairman Emeritus, ISI®, Publisher, The Scientist® Tel. 215-243-2205 Fax 215-387-1266

email: <a href="mailto:garfield@codex.cis.upenn.edu">garfield@codex.cis.upenn.edu</a>
Home Page: <a href="mailto:http://www.garfield.library.upenn.edu">http://www.garfield.library.upenn.edu</a>

at

The Conference on
The History and Heritage of Science Information Systems

Pittsburgh, PA
October 24, 1998

#### On the Shoulders of Giants – Tracing the impacts of information retrieval systems on science policy

Presented by
Eugene Garfield
<a href="http://eugenegarfield.org">http://eugenegarfield.org</a>
garfield@codex.cis.upenn.edu

60<sup>th</sup> Anniversary Celebration of Department of Energy Office of Scientific and Technical Information Oak Ridge, TN - September 18, 2007

\_\_\_\_\_\_

The Office of Scientific and Technical Information (OSTI) was about five years old when I first entered the field of scientific documentation in 1951. The launch of *Nuclear Science Abstracts* and OSTI in 1947 coincides with a key event in the history of science information systems — the Royal Society Conference on Scientific Information held in London (1948) inspired by the polymath John Desmond Bernal about whom I shall say more later.

#### **Annual Meeting Coverage**

# ASIS Award of Merit On the Shoulders of Giants

If standing on the shoulder of a giant is a citation, then co-citation is straddling the shoulders of two giants…

#### by Henry Small

Henry Small, director, corporate research, Institute for Scientific Let me say what a pleasure and honor it is to receive this award. I want to begin by thanking the person without whose support I would not be here tonight, my wife Lois. She has given me the

result of inadequate institutional mechanisms in those days for insuring proper attribution of credit and authorship of ideas, but it also highlights the powerful drive for individual recognition and idenI had always envisaged a time when scholars would become citation conscious, and to a large extent they have, for information retrieval, evaluation, and measuring impact...I did not imagine that the worldwide scholarly enterprise would grow to its present size, or that bibliometrics would become so widespread.

-Eugene Garfield, 2015

Ethical Issues





#### CITATION MANIPULATION

#### Citation manipulation refers to the following types of behaviour:

- Excessive citation of an author's research by the author (ie, self-citation by authors) as a means solely of increasing the number of citations of the author's work;
- Excessive citation of articles from the journal in which the author is publishing a research article as a means solely of increasing the number of citations of the journal; or
- Excessive citation of the work of another author or journal, sometimes referred to as 'honorary' citations
  (eg, the editor-in-chief of the journal to which one is submitting a manuscript or a well-known scholar in
  the field of the researcher) or 'citation stacking' solely to contribute to the citations of the author(s)/
  journal(s) in question.



"Out of 73 references cited, 72 articles bear the name of the first author." Now this--THIS!--is what science is all about! pubpeer.com/publications/1... (via @BorisBarbour)

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French physicist Serge Galam wrote a review article about "Galam models," in which he cites 71 papers, all by him.

improbable.com/2016/11/26/gal...

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# Emission analysis of the diesel engine using $Stoechospermum\ marginatum$ , brown marine algae with $Al_2O_3$ nano fluid

S. Karthikeyan <sup>a</sup>, A. Prathima <sup>b</sup>, M. Periyasamy <sup>c</sup>, G. Mahendran <sup>c</sup>

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International Journal of Modern Physics C Vol. 19, No. 3 (2008) 409–440 © World Scientific Publishing Company



#### SOCIOPHYSICS: A REVIEW OF GALAM MODELS

#### SERGE GALAM

Centre de Recherche en Épistémologie Appliquée (CREA) École Polytechnique and CNRS, 1 Rue Descartes, 75005 Paris, France serge.galam@polytechnique.edu

# Hundreds of extreme self-citing scientists revealed in new database

Some highly cited academics seem to be heavy self-promoters — but researchers warn against policing self-citation.

Richard Van Noorden & Dalmeet Singh Chawla





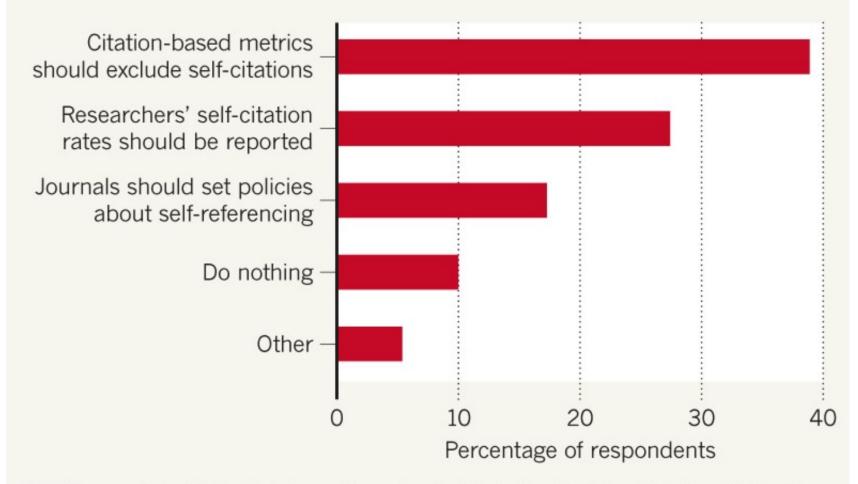


"Those with greater than 25% self-citation are not necessarily engaging in unethical behaviour, but closer scrutiny may be needed,"

The world's most-cited researchers, according to newly released data, are a curiously eclectic bunch. Nobel laureates and eminent polymaths rub shoulders with less familiar names, such as Sundarapandian Vaidyanathan from Chennai in India. What leaps out about Vaidyanathan and hundreds of other researchers is that many of the citations to their work come from their own papers, or from those of their co-authors.

#### THE NUMBERS GAME

A *Nature* poll asked what (if anything) should be done to curb excessive self-citation. Respondents said that citation-based indicators are useful, but should be deployed in more nuanced and open ways.



Of 5,575 respondents, 2,183 said citation metrics such as the h-index should exclude self-citations; 1,541 said researchers' self-citation rates should be reported; 968 said journals should set policies about appropriate levels of self-referencing; 565 said to do nothing and 318 chose 'other'.

September 2019

Published: 02 February 2012

#### Researchers feel pressure to cite superfluous papers

Richard Van Noorden

Nature (2012) Cite this article

391 Accesses | 1 Citations | 380 Altmetric | Metrics

First survey to quantify problem finds that junior faculty are more likely to be targeted.

One in five academics in a variety of social science and business fields say they have been asked to pad their papers with superfluous references in order to get published. The figures,

from a curvey published today in Science also suggest that journal aditors strategically

# Elsevier investigates hundreds of peer reviewers for manipulating citations

The publisher is scrutinizing researchers who might be inappropriately using the review process to promote their own work.

**Dalmeet Singh Chawla** 







The Dutch publisher Elsevier is investigating hundreds of researchers whom it suspects of deliberately manipulating the peer-review process to boost their own citation numbers.

#### nature

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602 papers with more than 58,000 citations

NEWS 06 February 2020

Chou asked authors of dozens of papers he was editing to cite a long list of his publications — sometimes more than 50 — and suggested that they change the titles of their papers to mention an algorithm he had developed.

# Highly cited researcher banned from journal board for citation abuse

Investigation finds that biophysicist Kuo-Chen Chou repeatedly suggested dozens of citations be added to papers.

Published: 27 August 2013

#### **Brazilian citation scheme outed**

Richard Van Noorden

Nature 500, 510-511 (2013) | Cite this article
 1921 Accesses | 61 Citations | 925 Altmetric | Metrics

Thomson Reuters suspends journals from its rankings for 'citation stacking'.

Mauricio Rocha-e-Silva thought that he had spotted an easy way to raise the profiles of Brazilian journals. From 2009, he and several other editors published articles containing hundreds of references to papers in each others' journals — in order, he says, to elevate the journals' impact factors.

### The Ethics of Scientific Publication: Authorship Attribution and Citation Amnesia\*

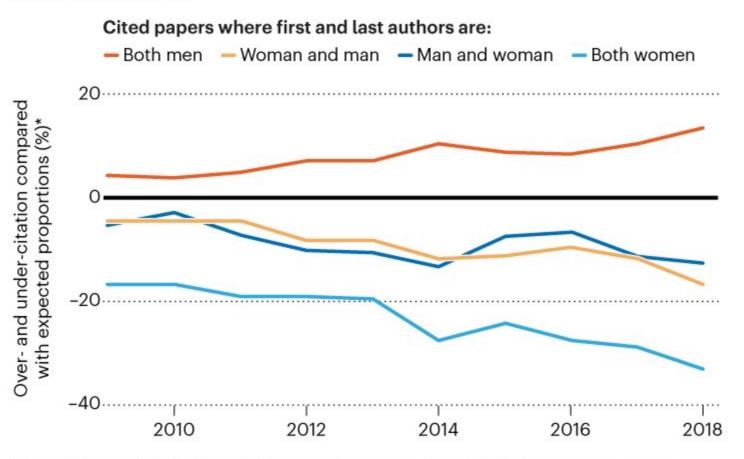
#### Eugene Garfield

There are two topics I'd like to focus on today—the ethics of authorship in multiauthored papers and the problem of plagiarizing work by failing to cite proper sources. These problems may seem less pressing than the few cases of scientific fraud that have recently received wide publicity. But they are far more widespread, and certainly more irksome to the scientists affected. They present a major challenge to any ethical biomedical publisher or editor.

Princeton University, recently observed that current funding patterns for scientific research have reinforced situations where an accomplished scientist presides over the research activities of a large number of post-doctoral fellows and graduate students. In these cases, the senior scientist may delegate most of the actual research and writing to his postdocs, graduate students, or junior faculty members, but receive first authorship on papers.<sup>11</sup>

#### **OVERCITED, UNDERCITED**

An analysis of more than 270,000 citations in neuroscience papers suggests that papers with men as first and last authors over-cite papers from men, and under-cite papers from women.



\*Researchers used software to estimate genders of first and last authors in citations to papers in five top neuroscience journals, from 2009 to 2018. To estimate expected citation proportions, they applied a statistical model that examined the gender of authors in all citable papers, and controlled for characteristics of papers such as publication year, journal, and number and seniority of authors. (Analysis assigned binary gender categories; authors recognize that gender is neither binary nor fixed.)



#### The Racial Politics of Citation

The lack of citations of scholars of color furthers racial dominance and forecloses potentially valuable avenues of intellectual inquiry, argues Victor Ray.

By Victor Ray • Published April 27, 2018

Citation is political. Since Richard Delgado's groundbreaking article "The Imperial Scholar," critical race theorists have been interested in how the politics of citation shape both disciplinary knowledge and the career trajectories of scholars of color. Delgado argued that racial exclusion deeply shaped legal scholarship on African-American civil rights. Top (white) civil rights scholars tended to rely upon a closed circle of citation

A group of communication scholars studied citation patterns over the last 10 years.
Looking at 12 journals, the authors found that scholars of colour remain undercited and are less likely to serve on editorial boards.

# Citation Justice

# Journals launch 'citation justice' to make academics include 'diverse' races and genders in footnotes

Some academics told to ensure 'straight, white men' do not dominate their fields

By Ewan Somerville

10 October 2021 • 2:49am





Cite Black Women Collective

Credit: Montinique Monroe for *Nature* 

#### **GCBI-alyzer**

#### A Gender Citation Balance Index tool

Using tools from data science, one can estimate the likelihood that a person with any given first name self-identifies as 'woman' or 'man'. For example, a person named Jacqueline is 98% likely to self-identify as 'M' and a person named lleri is 67% likely to self-identify as 'M.' With this approach it has been estimated that authorship of papers published in broad-scope neuroscience journals is 55.3% M-first-author/M-last-author, 10.2% M/W, 26.2% W/M, and 8.3% W/W (Dworkin et al, 2020). For the Journal of Cognitive Neuroscience, the current break down (as of late 2021) is 40.7% M/M, 11.5% M/W, 32% W/M, and 15.9% W/W (Postle & Fulvio, 2021), which can be taken as a proxy for the gender breakdown of active research teams in our field. These latter values provide the base rate with which one can compute Gender Citation Balance Indices (GCBI) for the reference section of any paper that may be published in JoCN. The GCBI is a value that can range from -1 to >0, with values of 0 indicating that the proportion of X/X papers in one's reference section perfectly matches the base rate of JoCN authorship (see "About this tool" section below for more information). JoCN is encouraging authors to use this "GCBI-alyzer" to calculate the GCBIs for the reference section of their manuscript, and to include this along with other metadata (e.g., acknowledgment, grant funding).

#### Instructions:

Please copy and paste your reference list with Crossref DOIs in the box below, and click the "Submit" button. Copying and pasting from a pdf document is not recommended, as this is known to cause problems with the text supplied to the parser that prevents some references from being categorized. Disabling AdBlock and other similar browser extensions may be necessary if you are experiencing failures, as these are known to interfere with the queries. *Please note that it may take several minutes to obtain a result, especially for large reference lists.* If you experience any technical difficulties, please see the "Understanding Failures" section toward the bottom of this page.

Crossref DOIs have the format: https://doi.org/10.1101/2020.08.19.257402. If you need to acquire the Crossref DOIs for your references, please retrieve them from crossref.org here. Note that some references may not have a Crossref DOI associated with it. In such a case, that reference simply will not be categorized. You may copy and paste your manuscript's reference list with DOIs or the crossref query output into the box below.

## Citation Doping

NEWS | 13 September 2019

### Italy's rise in research impact pinned on 'citation doping'

Citation of Italian-authored papers by Italian researchers rose after the introduction of metrics-based thresholds for promotions.

#### Richard Van Noorden







Italy is climbing international rankings of research impact, but that doesn't mean the country's science has improved or become more influential. An analysis suggests the upward trend could be largely the result of Italian academics referencing each other's articles more

#### **Evaluating Italy's ranking boom**

Alberto Baccini , Eugenio Petrovich & Giuseppe De Nicolao



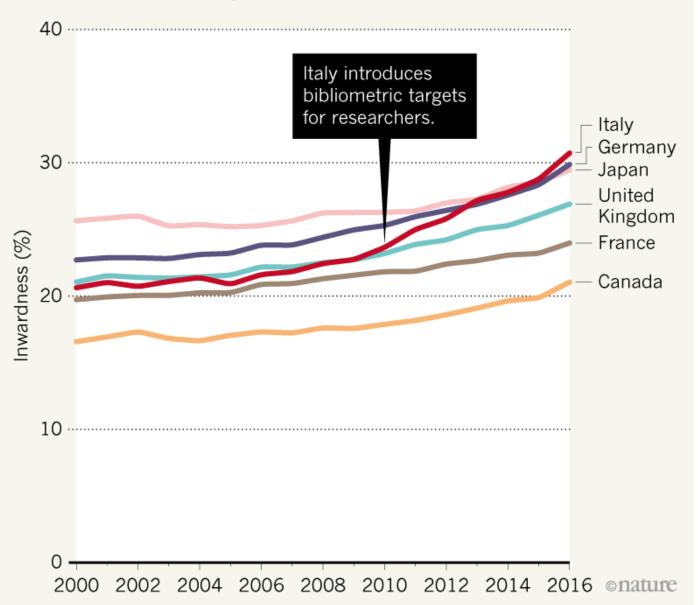




The president and vice-president of the Italian National Agency for the Evaluation of Universities and Research Institutes (ANVUR) claim that Italy's rise in international rese impact rankings is a real effect (<u>P. Miccoli and R. I. Rumiati Nature 574, 486; 2019</u>), and

#### STRATEGIC CITATIONS

Italy's inwardness — the share of its citations that come from papers with at least one Italian co-author — has risen disproportionately since the country introduced thresholds for promotions based on metrics.



### Citation Contamination

References to Predatory
Journals in the Legitimate
Scientific Literature



# Citing retracted papers

It's perfectly fine to cite a retracted paper, as long as the retraction is noted.

Ideally, cite both the paper and the retraction notice, which (according to best practices) should have different DOIs.



Retractionwatch.com

# Citation data are now open, but that's far from enough

The reference lists of more than 60 million papers on the linking site Crossref are now openly available. That is is welcome – but further steps must follow.







Published: 13 August 2010

#### An easy way to boost a paper's citations

Zoë Corbyn

Nature (2010) Cite this article

1689 Accesses 21 Citations 86 Altmetric Metrics

An analysis of over 50,000 *Science* papers suggests that it could pay to include more references.



#### **NEWS** • 7 AUGUST 2019

# Studies suggest 5 ways to increase citation counts

There's no one way to 'game the system'.

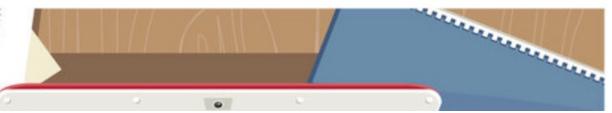
#### **Bec Crew**











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The A to Z of parthorship

### Keeping Sight of what we Cite

#### White

- Repository deposit
- Link open data
- Good citation practices
- Succinct titles
- Use of colons
- Social media

#### Black

- Gift citations
- Over citations
- Under citations
- Coercive citations
- Citation clubs/circles

### Grey (Maybe)

- Self citations
- Questionable journals
- Negative/controversial papers
- Citing Review Papers
- Citing 'unread' papers

### Goodhart's Law

"When a measure becomes a target, it ceases to be a good measure."

