Tools for building literature review and measuring research impact

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Tools for building literature review and measuring research impact

This presentation will introduce you to library databases that you can use for finding articles related to your topic. Learn how to use advanced features of the databases to set up automated alerts and keep abreast of current developments in your area. In addition, this presentation will demystify various ways to measure your research impact including citation analysis, the H-Index, and Journal Citation Reports. By the end of the presentation, you will have a better understanding of the tricks that some authors use to boost their research impact.
Access Rutgers Library databases: http://libraries.rutgers.edu/indexes
## Library Databases for Electrical & Computer Engineering

<table>
<thead>
<tr>
<th><strong>Compendex</strong></th>
<th><strong>Inspec</strong></th>
<th><strong>ACM Computing Reviews</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>covers publications in the fields of electrical and electronic engineering, computer science, control engineering, manufacturing and mechanical engineering, operations research, engineering mathematics etc</td>
<td>covers 3,500 journals in physics, electrical engineering, electronics, communications, control engineering, computers, computing, and information technology</td>
<td>Approximately 30,000 reviews covering books, journal articles, and conference proceedings from different publishers and hundreds of thousands of publications</td>
</tr>
</tbody>
</table>
Interactions among biotic and abiotic factors affect the reliability of tungsten microneedles puncturing in vitro and in vivo peripheral nerves: A hybrid computational approach


Self-sufficient wireless transmitter powered by foot-pumped urine operating wearable MFC


Large deformation of self-oscillating polymer gel

**Library Databases for Electrical & Computer Engineering**

<table>
<thead>
<tr>
<th>ACM Digital Library</th>
<th>IEEE Xplore</th>
</tr>
</thead>
<tbody>
<tr>
<td>covers articles published by ACM and affiliated organizations in the fields of computing, including software, hardware, computational theory, artificial intelligence, human-computer interaction etc</td>
<td>covers more than 140 journals, over 800 conference proceedings and 800 standards from IEEE and IEE</td>
</tr>
</tbody>
</table>
### Library Databases for Electrical & Computer Engineering

<table>
<thead>
<tr>
<th>Database</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scopus</td>
<td>Covers multi-disciplines including physical sciences (7,200+ titles), health sciences (6,800+ titles), followed by the life sciences (4,300+ titles), and finally the social sciences &amp; humanities (5,300+ titles)</td>
</tr>
<tr>
<td>Web of Science</td>
<td>Covers multi-disciplines including sciences (8000+ titles), followed by social sciences (almost 3000 journals)</td>
</tr>
<tr>
<td>Google Scholar</td>
<td>Freely accessible search engine that covers peer-reviewed literature, pre-prints depository, institutional repository and books etc</td>
</tr>
</tbody>
</table>
Do I have to search all of these databases?

Library databases take you to the full-text articles

“Google Scholar is much more accurate indexing articles and references, as well as much faster.”

Both ACM and IEEE publications are indexed in Google Scholar

Compendex and Scopus have nearly 100% overlap of source content


Scopus (Total: 29,566)

Web of Science (Total: 18,843)

15,175

14,391

2,452

15,175

14,391

2,452
Library links

Show library access links for (choose up to five libraries):

- Rutgers

Languages:

- e.g., Harvard

Account:

- Rutgers University Library - Check for Full Text
- Open WorldCat - Library Search

Online access to library subscriptions is usually restricted to patrons of that library. You may need to log into your library password, use a campus computer, or configure your browser to use a library proxy. Please visit your library's website or ask a local librarian for assistance.

Save
Set up alert

Create alert

Alert query: biorobotics and nursing

Email:

Number of results: Show up to 10 results

Update results

CREATE ALERT

Sample results since 2016:

[PDF] Interventions for Childhood Obesity: Evaluating Technological Applications Targeting Activity Level and Diet
J DiPietro

... The nursing profession has partnered with the White House “Let’s Move” campaign to ... Page 11. 5 Gilbert, 2010). Thus it is critical for nurses to actively promote better ... were made in consultation with a nurse-researcher and allowed the use of all the evidence identified. Page 22.
Cited Reference Search
Beginning of Controversy…

Cited Reference Search is no longer used to expand search results, but to measure research impact of an article, an author and a journal…

Eugene Garfield, the founder of Science Citation Index
The more times an author, an article or a journal is cited by another publication, the more influential and important these are for any given field.
Major Tools of Citation Analysis

- **Web of Science**
- **Scopus**
- **Google Scholar**
- **Other subject specific databases such as MathSciNet**
1. **NEUROExos: A Powered Elbow Exoskeleton for Physical Rehabilitation**
   
   By: Vitiello, Nicola; Lenzi, Tommaso; Roccella, Stefano; et al.
   
   IEEE TRANSACTIONS ON ROBOTICS  Volume: 29  Issue: 1  Pages: 220-235
   
   Published: FEB 2013
   
   Times Cited: 22

2. **Context Separability Mediated by the Granular Layer in a Spiking Cerebellum Model for Robot Control**
   
   By: Lucio, Niceto R.; Gamarro, Jesus A.; Camilo, Richard R.; et al.
   
   Conference: 11th International Work-Conference on Artificial Neural Networks (IWANN)
   
   Location: Torremolinos, SPAIN  Date: JUN 08-10, 2011
   
   Times Cited: 0

3. **Design and development of a novel robotic platform for neuro-robotics applications: the neurobotics arm (NEURARM)**
   
   By: Catin, Emanuele; Roccella, Stefano; Vitiello, Nicola; et al.
   
   ADVANCED ROBOTICS  Volume: 22  Issue: 1  Pages: 3-37  Published: 2008
   
   Times Cited: 5
Design and development of a novel robotic platform for neuro-robotics applications: the NEURobotics ARM (NEURARM)
E Cattin, S Roccella, N Vitiello, I Sardelli... - Advanced..., 2008 - Taylor & Francis
This paper presents the NEURARM, a novel robotic platform specifically designed for performing joint experiments between neuroscience and robotics. The NEURARM replicates the main functions and characteristics of the human arm during the execution of planar...

Cited by 10
Related articles  All 9 versions  Web of Science: 5  Cite  Save

Micromanipulator system (NeuRobot): clinical application in neurosurgery
K Hongo, T Goto, Y Kakizawa, J Koyama... - International Congress..., 2003 - Elsevier
... Several parts of the tumor were resected by using potassium titanyl phosphate (KTP) laser in the center arm and microforceps in the bilateral arms. All the procedures with the NeuRobot were accurately performed without causing any complications. ...

Cited by 15
Related articles  All 3 versions  Cite  Save

Learning the motion map of a robot arm with neural networks
... The position-map is that hypersurface in the four dimensional space (x, y, 81, 82) which contains all valid mappings between (x, y) and (el, 82) for this arm. Neurobot creates a set of associatively coupled nodes that lie on this hypersurface. ...

Cited by 9
Related articles  All 3 versions  Cite  Save More

Clinical application of robotic telesmanipulation system in neurosurgery: case report
T Goto, K Hongo, Y Kakizawa, H Muraoka... - Journal of..., 2003 - thejns.org
... The KTP laser was contained in the center arm and microforceps were housed in the bilateral arms. ... The procedures that were performed using the NeuRobot were accurate and took only 30
<table>
<thead>
<tr>
<th>Title</th>
<th>Authors</th>
<th>Year</th>
<th>Journal</th>
<th>Citations</th>
</tr>
</thead>
<tbody>
<tr>
<td>On control of human arm switched dynamics</td>
<td>Babiarz, A.</td>
<td>2015</td>
<td>Advances in Intelligent Systems and Computing</td>
<td>0</td>
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</tbody>
</table>
An author has an H-index “8” if his/her top 8 most cited articles have each received at least 8 citations (been cited 8 times).

H-index is a metric that is used to measure
a) Productivity of the author
b) Impact of his/her works

Source: http://bitesizebio.com/24043/getting-to-know-your-h-index/

Jorge Hirsch, a physics professor at Univ. California, San Diego
1. Tuning the electronic structure of monolayer graphene/MoS2 van der Waals heterostructures via interlayer twist
   By: Jin, Wencan; Yeh, Po-Chun; Zaki, Nader; et al.
   PHYSICAL REVIEW B Volume: 92 Issue: 20 Article Number: 201409 Published: NOV 16 2015
   [Get it @ R] [View Abstract]
   Times Cited: 0

2. Sudden gap closure across the topological phase transition in Bi2-xMnxSe3
   By: Lou, Rui; Liu, Zhonghao; Jin, Wencan; et al.
   PHYSICAL REVIEW B Volume: 92 Issue: 11 Article Number: 115150 Published: SEP 28 2015
   [Get it @ R] [View Abstract]
   Times Cited: 0

3. Characterization of selective etching and patterning by sequential light- and heavy-ion irradiation of LiNDO3
   [Get it @ R] [View Abstract]
   Times Cited: 0
Citation Report: 154
(from Web of Science Core Collection)

You searched for: AUTHOR: (osgood richard) ...More

This report reflects citations to source items indexed within Web of Science Core Collection. Perform a Cited Reference Search to include citations to items not indexed within Web of Science Core Collection.

Results found: 154
Sum of the Times Cited: 1648
Sum of Times Cited without self-citations: 1609
Citing Articles: 1396
Citing Articles without self-citations: 1307
Average Citations per Item: 12.00

h-Index: 24
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<th>Year</th>
<th>Total Citations</th>
<th>Average Citations per Year</th>
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<tr>
<td>1</td>
<td><strong>Mid-infrared optical parametric amplifier using silicon nanophotonic waveguides</strong></td>
<td>Liu, Xiaoping; Osgood, Richard M., Jr.; Vlasov, Yuri A.; et al.</td>
<td>2012</td>
<td>228</td>
<td>168.00</td>
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<tr>
<td></td>
<td><strong>Magnetooptical isolator with silicon waveguides fabricated by direct bonding</strong></td>
<td>Shoji, Yuya; Mizumoto, Tetsuya; Yokoi, Hidoki; et al.</td>
<td>2013</td>
<td>272</td>
<td>24.29</td>
</tr>
<tr>
<td></td>
<td><strong>Ultrafast-pulse self-phase modulation and third-order dispersion in Si photonic wire-waveguides</strong></td>
<td>Hsieh, I-Wei; Chen, Xiaogang; Dadap, Jerry I.; et al.</td>
<td>2014</td>
<td>413</td>
<td>20.65</td>
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<tr>
<td></td>
<td><strong>Supercontinuum generation in silicon photonic wires</strong></td>
<td>Hsieh, I-Wei; Chen, Xiaogang; Liu, Xiaoping; et al.</td>
<td>2015</td>
<td>376</td>
<td>12.34</td>
</tr>
<tr>
<td></td>
<td><strong>Direct Measurement of the Thickness-Dependent Electronic Band Structure of MoS2 Using Angle-Resolved Photoemission Spectroscopy</strong></td>
<td>Jin, Wen-Can; Yeh, Po-Chun; Zaki, Nader; et al.</td>
<td>2016</td>
<td>6</td>
<td>1.00</td>
</tr>
<tr>
<td>Title</td>
<td>Cited by</td>
<td>Year</td>
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<td></td>
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<td>Experimental demonstration of near-infrared negative-index materials</td>
<td>1122</td>
<td>2005</td>
<td></td>
<td></td>
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<td>S Zhang, W Fan, NC Panoiu, KJ Malloy, RM Osgood, SRJ Brueck</td>
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<td>Physical review letters 95 (13), 137404</td>
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<td>Laser microphotochemistry for use in solid-state electronics</td>
<td>316</td>
<td>1990</td>
<td></td>
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<td>D Ehrlich, R Osgood, T Deutsch</td>
<td></td>
<td></td>
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<td>Quantum Electronics, IEEE Journal of 16 (11), 1233-1243</td>
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<td>Near-infrared double negative metamaterials</td>
<td>315</td>
<td>2005</td>
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<td>S Zhang, W Fan, KJ Malloy, SRJ Brueck, NC Panoiu, RM Osgood</td>
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<td>Opt. Express 13 (13), 4922-4930</td>
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<td>Elliptical-hole photonic crystal fibers</td>
<td>287</td>
<td>2001</td>
<td></td>
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<td>MJ Steel, RM Osgood Jr</td>
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<tr>
<td>Optics Letters 26 (4), 229-231</td>
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</table>

**Citation indices**

- **Citations**: 13843 (3765 since 2011)
- **h-index**: 66 (33 since 2011)
- **i10-index**: 202 (76 since 2011)
The H-index for the same person tends to be higher in Google MyCitation profile because Google Scholar includes books chapters. Web of Science does not have good coverage with conference proceedings or book chapters. However, Web of Science has data that goes back to 1970s. Scopus only covers cited references since 1996.
True or False?

H-index favors young researchers in their early careers.

H-Index benefits researchers who have longer careers. They tend to have published more. Those papers also cumulate more citations. Remember that H-Index measures two things: productivity and citations.
Journal Impact Factor is measured by dividing the number of current citations a journal has in a given year, by the number of articles published in the two previous years.

Year 2014 impact factor = $A/B$

where:

$A =$ the number of times that all items published in that journal in 2012 and 2013 were cited by indexed publications during 2014.

$B =$ the total number of "citable items" published by that journal in 2012 and 2013. ("Citable items" for this calculation are usually articles, reviews, proceedings, or notes; not editorials or letters to the editor).
<table>
<thead>
<tr>
<th>Rank</th>
<th>Journal Name</th>
<th>Total Cites</th>
<th>Impact Factor</th>
<th>Eigenfactor Score</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td>IEEE TRANSACTIONS ON FUZZY SYSTEMS</td>
<td>8,581</td>
<td>6.746</td>
<td>0.01281</td>
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<tr>
<td>2</td>
<td>IEEE TRANSACTIONS ON INDUSTRIAL ELECTRONICS</td>
<td>27,141</td>
<td>6.408</td>
<td>0.06333</td>
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<tr>
<td>3</td>
<td>IEEE TRANSACTIONS ON POWER ELECTRONICS</td>
<td>21,131</td>
<td>6.008</td>
<td>0.04013</td>
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<tr>
<td>4</td>
<td>IEEE SIGNAL PROCESSING MAGAZINE</td>
<td>5,989</td>
<td>5.852</td>
<td>0.01478</td>
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<tr>
<td>5</td>
<td>IEEE TRANSACTIONS ON PATTERN ANALYSIS AND MACHINE INTELLIGENCE</td>
<td>29,822</td>
<td>5.781</td>
<td>0.05103</td>
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<tr>
<td>6</td>
<td>IEEE WIRELESS COMMUNICATIONS</td>
<td>3,015</td>
<td>5.417</td>
<td>0.01696</td>
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<tr>
<td>7</td>
<td>PROCEEDINGS OF THE IEEE</td>
<td>21,017</td>
<td>4.934</td>
<td>0.04188</td>
</tr>
</tbody>
</table>
Other ways to measure journals

• Eigenfactor score
• SCIMago Journal and Country Rank
• Scopus Journal Analyzer
• Journal acceptance rate
Australian computer scientist named Peter Vamplew sent it to the *International Journal of Advanced Computer Technology* in response to spam from the journal. Apparently, he thought the editors might simply open and read it.

Instead, they automatically accepted the paper — with an anonymous reviewer rating it as "excellent" — and requested a fee of $150.

How to boost an author’s citation counts?

[PDF] Effective Strategies for Increasing Citation - U.S. Departm...
files.enc.ed.gov/fulltext/EJ1068698.pdf
by NA Ebrahim - 2013 - Cited by 38 - Related articles
Oct 23, 2013 - over 30 different ways to improve the citation record. ... Citation analysis shows that papers with international co-authors are cited up to four ...

An easy way to boost a paper’s citations: Nature News
Aug 13, 2010 - An easy way to boost a paper’s citations. An analysis of over 50,000 Science papers suggests that it could pay to include more references.

Citation Boost or Bad Data? Academia.edu Research Under ...
scholarlykitchen.sspnet.org/.../citation_boost_or_bad_da...
Scholarly Kitchen
May 18, 2015 - Filed Under Academia.edu, citation advantage, citation analysis, Google ... just a tiny effect against the mighty power of Academia.edu to boost citations. ... nowadays, I will set up my own list, with open access articles only.

Google Scholar - a new data source for citation analysis
www.harzing.com/pop_gs.htm
by AW Harzing - Cited by 74 - Related articles
Google Scholar - a new data source for citation analysis ... The authors expect Google Scholar’s performance to improve for old articles as journals’ back issues...

How to increase your papers citations and h index in 5 ...
www.academia.edu/.../How_to_increase_your_papers_cita...
How to boost an author’s citation counts?

• Use your name consistently throughout your career

• Use a standardized institutional affiliation and address, using no abbreviations

• Publish in journal with high impact factor

• Keep your professional web pages and published lists up to date; Join ResearchGate, Academia.edu, Linked-in and Google MyCitation

• Open Access (OA) increases citation rate

• Team-authored articles get cited more (Are you the first author or the last author?)

• Write comprehensive and substantial review articles

True or False?

It is a good idea to increase my visibility by using social media such as Facebook or twitter to publicize my article.

Be sure to provide a link to your article that is sustainable. Preferably the link should contain a DOI, digital object identifier. The link should also come from a site that collects download statistics or citation statistics.
# Manage your Research Identity

<table>
<thead>
<tr>
<th>Profile</th>
<th>Description</th>
<th>URL</th>
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</thead>
<tbody>
<tr>
<td>Google MyCitation Profile</td>
<td>Be sure to have a Google MyCitation profile.</td>
<td><a href="https://scholar.google.com/intl/en/scholar/citations.html">https://scholar.google.com/intl/en/scholar/citations.html</a></td>
</tr>
<tr>
<td>ORCID ID</td>
<td>Be sure to have an ORCID ID. This is useful if you want to have correct data in Scopus.</td>
<td><a href="https://orcid.org/register">https://orcid.org/register</a></td>
</tr>
<tr>
<td>Researcher ID</td>
<td>Be sure to have a profile in ResearcherID (Thomson Reuters). This is useful if you want to have a correct citation analysis in Web of Science.</td>
<td><a href="http://www.researcherid.com/">http://www.researcherid.com/</a></td>
</tr>
</tbody>
</table>
Why do we want to cite other peoples’ works?

plagiarism  pronunciation: [pley-juh-riz-uh m, -jee-uh-riz-]  

noun
1. an act or instance of using or closely imitating the language and thoughts of another author without authorization and the representation of that author’s work as one’s own, as by not crediting the original author:
   It is said that he plagiarized Thoreau’s plagiarism of a line written by Montaigne.
   Synonyms: appropriation, infringement, piracy, counterfeiting; theft, borrowing, cribbing, passing off.