How to author, cite, and acknowledge

Ivo F. Sbalzarini

Slides in part based on:
“Sicherung guter wissenschaftlicher Praxis”, A. Reichenbach, Universität Leipzig.

Outline

- Author lists in different disciplines
- Citation habits and reference formats
- DOIs and citing electronic sources
- Software citations
- What is citable, what not?
- Writing acknowledgements

Author Lists

THE AUTHOR LIST: GIVING CREDIT WHERE CREDIT IS DUE

The first author
Senior grad student on the project. Made the figures.

The third author
First year student who actually did the experiments, performed the analysis and wrote the whole paper. Thinks being third author is "fair".

The second-to-last author
Ambitious assistant professor or post-doc who instigated the paper.

Michaels, C., Lee, E. F., Sap, P. S., Nichols, S. T., Oliveira, L., Smith, B. S.

The second author
Grad student in the lab that has nothing to do with this project, but was included because he/she hung around the group meetings (usually for the food).

The middle authors
Author names nobody really reads. Reserved for undergrads and technical staff.

The last author
The head honcho. Hasn't even read the paper but, hey, he/she got the funding, and their famous name will get the paper accepted.

Definition

An author is a person without whose work/ contribution the paper would not exist in its given form.

Sole provision of funds does not warrant authorship.

DFG 1998, p.19-20

Authors of a scientific publication shall be all, and exclusively those, persons who contributed to conceiving the study or the concepts, to the generation, analysis, and interpretation of the data, and to the writing of the manuscript itself. All authors have approved the publication and are responsible for it.

Deutsche Forschungsgemeinschaft, Vorschläge zur Sicherung guter wissenschaftlicher Praxis, Empfehlungen der Kommission „Selbstkontrolle in der Wissenschaft“, Wiley-VCH, Weinheim 1998.

DFG 1998, p.19-20

The following alone is not enough to warrant authorship:

- provision or organization of funds (e.g., grants)
- teaching/instruction of co-authors in methods used
- management of the organizational unit where the publication originated
- Honor or high standing

Deutsche Forschungsgemeinschaft, Vorschläge zur Sicherung guter wissenschaftlicher Praxis, Empfehlungen der Kommission „Selbstkontrolle in der Wissenschaft“, Wiley-VCH, Weinheim 1998.

Ordering of authors

- Sciences / Engineering: in order of decreasing contribution, typically:
    - 1st author: scientist (typically PhD student) who did the majority of the work and drafted the paper.
    - Last author: scientist (typically group leader) who conceived the project, coordinated it, and helped writing the manuscript.
    - Joint first and last authorships are possible.

- Mathematics: alphabetical

Ordering of authors

Neurochem Res (2012) 37:2317–2325
DOI 10.1007/s11064-012-0760-y

OVERVIEW

Multifunctional Roles of NAD^+ and NADH in Astrocytes

Franziska Wilhelm · Johannes Hirrlinger

PhD student Supervisor

Ordering of authors

Ultrafast Action Potentials Mediate Kilohertz Signaling at a Central Synapse

Andreas Ritzau-Jost,[1,2,5] Igor Delvendahl,[1,2,5] Annika Rings,[1,2,5] Niklas Byczkowicz,[1,2] Harumi Harada,[3] Ryuichi Shigemoto,[3] Johannes Hirrlinger,[1,4] Jens Eilers,[1] and Stefan Hallermann[1,2,*]

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Joint first authors

Ordering of authors

PhD students

A figure/ program

Professor

Postdoc supervised work

Photonic Crystal Light Collectors in Fish Retina Improve Vision in Turbid Water

Moritz Kreysing,[1,2]* Roland Pusch,[3]* Dorothee Haverkate,[4]* Meik Landsberger,[3]* Jacob Engelmann,[3,5]* Janina Ruiter,[6] Carlos Mora-Ferrer,[7] Elke Ulbricht,[6,8] Jens Grosche,[6] Kristian Franze,[1,6,8] Stefan Streif,[9] Sarah Schumacher,[3] Felix Makarov,[10] Johannes Kacza,[11] Jochen Guck,[1,12] Hartwig Wolburg,[13] James K. Bowmaker,[14] Gerhard von der Emde,[3] Stefan Schuster,[4] Hans-Joachim Wagner,[15] Andreas Reichenbach,[6]† Mike Francke[1,6,16]

Despite their diversity, vertebrate retinae are specialized to maximize either photon catch or visual acuity. Here, we describe a functional type that is optimized for neither purpose. In the retina of the elephantnose fish (*Gnathonemus petersii*), cone photoreceptors are grouped together within reflecting, photonic crystal–lined cups acting as macroreceptors, but rod photoreceptors are positioned behind these reflectors. This unusual arrangement matches rod and cone sensitivity for detecting color-mixed stimuli, whereas the photoreceptor grouping renders the fish insensitive to spatial noise; together, this enables more reliable flight reactions in the fish's dim and turbid habitat as compared with fish lacking this retinal specialization.

Most vertebrate retinae have two types of photoreceptor cells: rods, capable of sensing one or a few photons, and cones, less light-sensitive by two orders of magnitude but wired to contrast- and color-sensitive neuronal circuits. Cones are "blind" in the dark whereas rods are saturated when cones are active, so typically there is only a small ("mesopic") range of light intensities at which both rods and cones contribute to vision. All presently known retinae are specialized for either cone-dominated high-acuity vision at daylight or rod-dominated maximum sensitivity in dim environments (*1*, *2*). Fitting neither description, the so-called "grouped retina" was already described 100 years ago as a puzzling retinal anomaly in some fish (*3*). In such retinae, many cones are grouped together inside large crystalline cups (*4*), which is incompatible with high spatial resolution (*5*). But the short rods

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*These authors contributed equally to this work.
†To whom correspondence should be addressed. E-mail: reia@medizin.uni-leipzig.de

Citations and References

What and why?

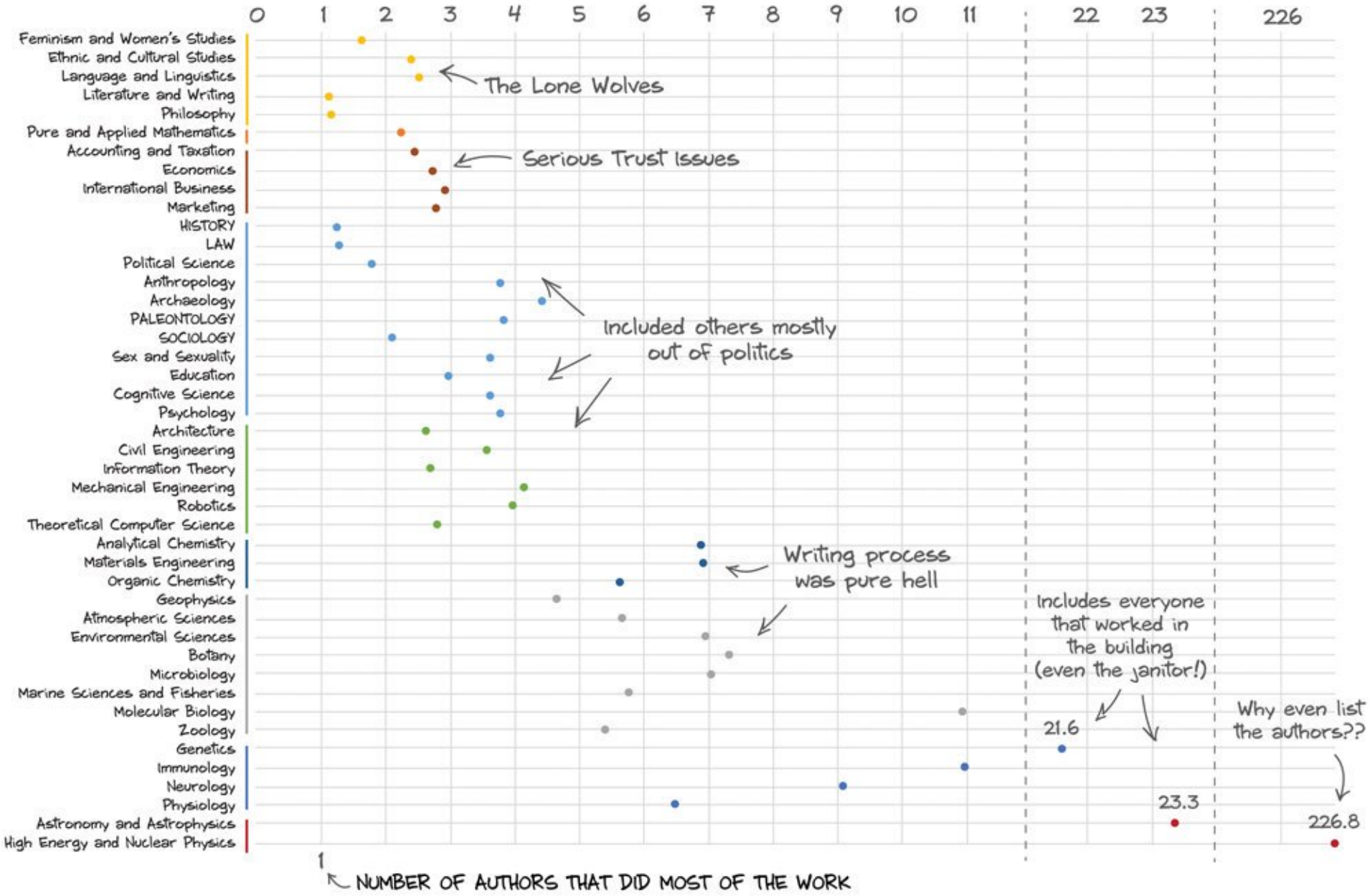
Every piece of scientific writing (thesis, report, paper, …) should contain references citing the relevant sources (literature, web pages, software, personal communication):

- Any source you have used, built upon, gotten ideas from (allows tracing your ideas and attribute contributions).
- Any of your own previous works from which you repeated information for convenience (self-plagiarism!)
- Any similar, related, or contradicting works (allows judging novelty and significance of your work).

No need to cite: sources for “general public knowledge” / textbook knowledge (e.g., Pythagoras’ formula, Bayes’ theorem)

NUMBER OF LISTED AUTHORS

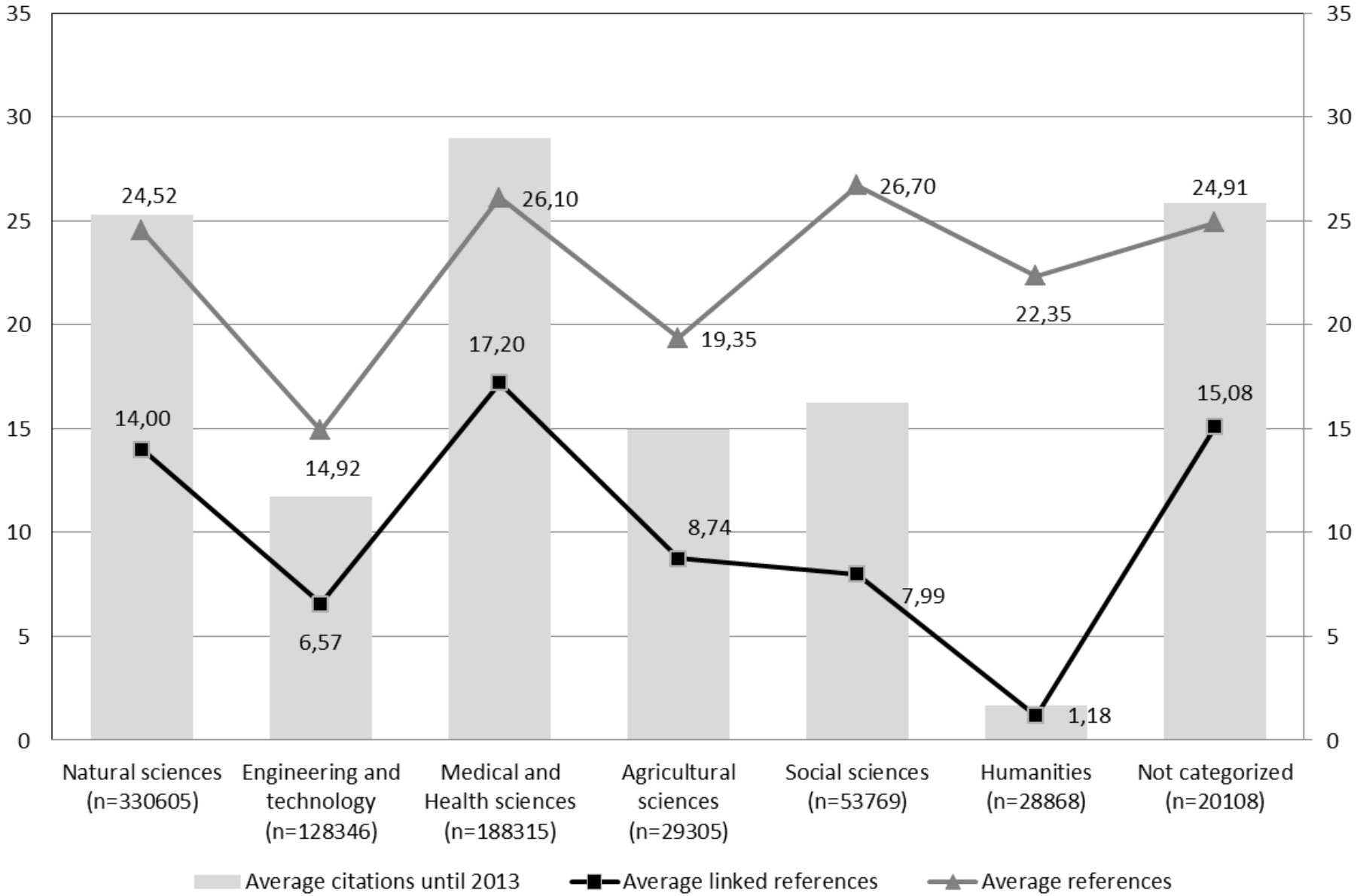
AVERAGE NUMBER OF AUTHORS PER PAPER BY DISCIPLINE



Averages taken from the latest 10 papers in each of the top five journals per field as measured by their H-index on Google Scholar.

WWW.PHDCOMICS.COM

Discipline habits

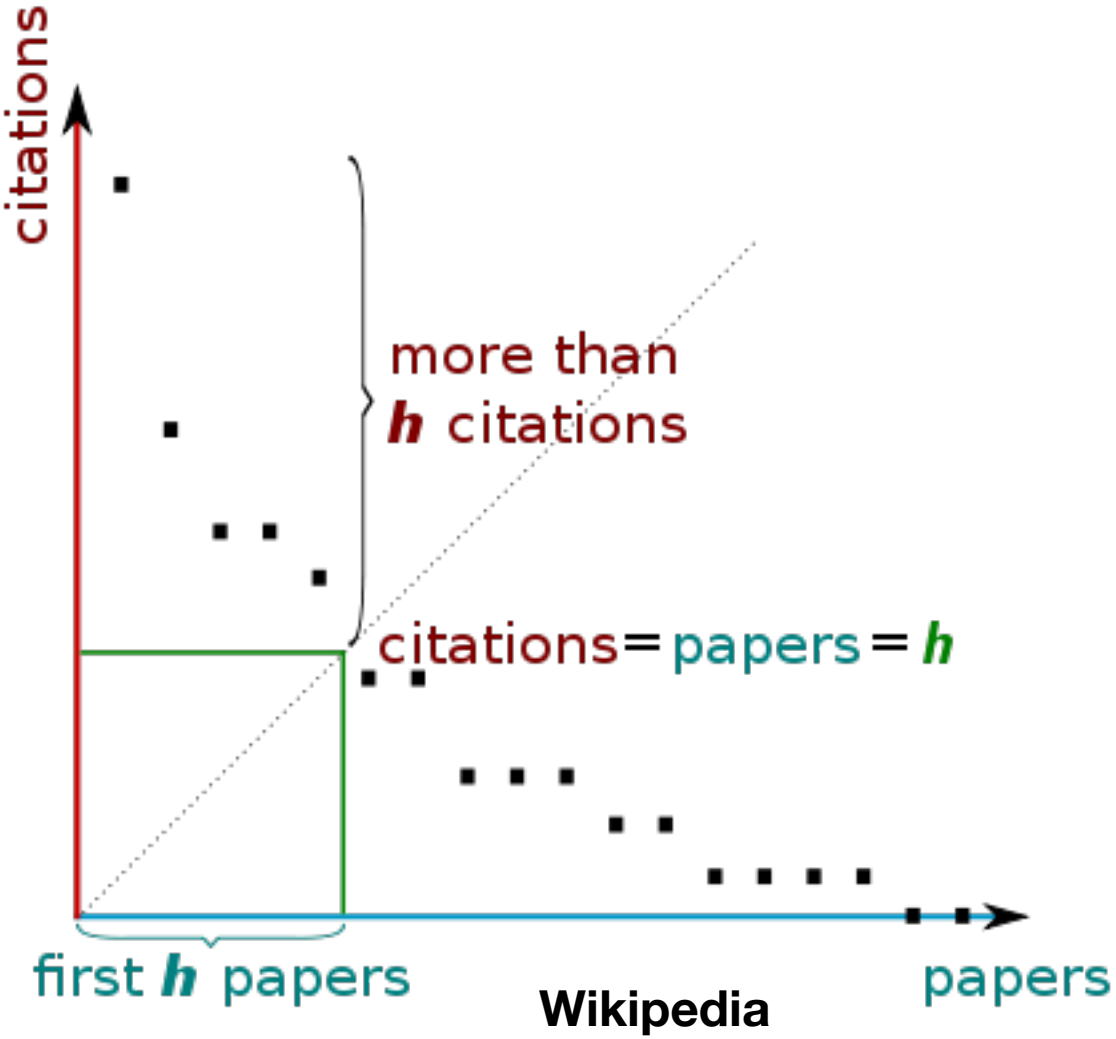


Max Planck Society

Discipline differences

- Cite a lot, get cited a lot: Medicine, Natural Science
- Cite few, get cited little: Engineering
- Cite a lot, get cited little: Humanities

h-index



Wikipedia

If h-th most cited paper has >=h citations, then h-index = h.

Measures productivity and citation impact.

Criticism: does not honor truly seminal works with very large citation counts.

Is biased by age (“age index”) since it only increases with time.

Is biased by discipline.

Does not account for author list.

Discipline normalization

Agricultural Sciences	1.27
Biology & Biochemistry	0.60
Chemistry	0.92
Clinical Medicine	0.76
Computer Science	1.75
Economics & Business	1.32
Engineering	1.70
Environment/Ecology	0.88
Geosciences	0.88
Immunology	0.52
Materials Science	1.36
Mathematics	1.83
Microbiology	0.63
Molecular Biology&Genetics	0.44
Neuroscience&Behavior	0.56
Pharmacology&Toxicology	0.84
Physics	1.00
Plant & Animal Science	1.08
Psychiatry/Psychology	0.88
Social Sciences, general	1.60
Space Science	0.74

Relative to Physics.
h_norm = h * f

Iglesias, J.E. and Pecharromán, C., 2007. Scaling the h-index for different scientific ISI fields. *Scientometrics*, *73*(3), pp.303-320.

Age normalization

m-index = h / #years since first publication

hI-index: citation counts are normalized by the number of authors on the paper

Journal Impact Factor

Number of times articles from that journal were cited over a certain period of time, divided by the total number of articles published in the same period. (i.e., average number of citations per article)

Typical:
2-year IF
5-year IF

Top hitters 2017

Rank	Full Journal Title	Total Cites	Journal Impact Factor
1	CA-A CANCER JOURNAL FOR CLINICIANS	24,539	187.040
2	NEW ENGLAND JOURNAL OF MEDICINE	315,143	72.406
3	NATURE REVIEWS DRUG DISCOVERY	28,750	57.000
4	CHEMICAL REVIEWS	159,155	47.928
5	LANCET	214,732	47.831
6	NATURE REVIEWS MOLECULAR CELL BIOLO	40,565	46.602
7	JAMA-JOURNAL OF THE AMERICAN MEDICAL	141,015	44.405
8	NATURE BIOTECHNOLOGY	53,992	41.667
9	NATURE REVIEWS GENETICS	32,654	40.282
10	NATURE	671,254	40.137
11	NATURE REVIEWS IMMUNOLOGY	34,948	39.932
12	NATURE MATERIALS	81,831	39.737
13	Nature Nanotechnology	48,814	38.986
14	CHEMICAL SOCIETY REVIEWS	113,731	38.618
15	Nature Photonics	35,595	37.852
16	SCIENCE	606,635	37.205
17	NATURE REVIEWS CANCER	46,017	37.147
18	REVIEWS OF MODERN PHYSICS	45,510	36.917
19	LANCET ONCOLOGY	38,110	33.900
20	PROGRESS IN MATERIALS SCIENCE	10,521	31.140
21	Annual Review of Astronomy and Astrophysics	9,417	30.733
22	CELL	217,952	30.410
23	NATURE MEDICINE	70,491	29.886

Web of Science

Bottom hitters 2017

12034	DRUGS OF THE FUTURE	313	0.035
12035	Implantologie	35	0.034
12036	Journal of Credit Risk	121	0.032
12036	MANUFACTURING ENGINEERING	136	0.032
12038	Psychoanalytic Study of the Child	356	0.031
12039	CATTLE PRACTICE	101	0.029
12040	Traitement du Signal	72	0.028
12041	Journal of the Belgian Society of Radiology	5	0.027
12042	ELECTRONICS WORLD	45	0.026
12042	FOOD AUSTRALIA	173	0.026
12042	SECURITIES REGULATION LAW JOURNAL	5	0.026
12045	ECONTENT	17	0.025
12046	Civil Szemle	10	0.024
12046	Road & Transport Research	115	0.024
12048	Informacios Tarsadalom	4	0.022
12049	WOCHENBLATT FUR PAPIERFABRIKATION	91	0.018
12050	INTERNASJONAL POLITIKK	7	0.016
12051	Andamios	58	0.014
12051	BULLETIN MENSUEL DE LA SOCIETE LINNEE	112	0.014
12053	AATCC REVIEW	182	0.000
12053	Amme Idaresi Dergisi	27	0.000
12053	Cadmo	17	0.000
12053	Correspondances en Metabolismes Hormones Diabet	1	0.000
12053	Current Perspectives in Social Theory	16	0.000
12053	Denver Law Review	13	0.000
12053	Journal of the Institute of Telecommunications Profes	2	0.000
12053	POLICY REVIEW	71	0.000
12053	SURFACE COATINGS INTERNATIONAL	126	0.000

Typical CS/Eng

Good Engineering / CS journals have IF between 1…10.

Examples:
IEEE Trans. Evolutionary Computation (IF=11)
IEEE PAMI (IF=8.3)
IEEE Trans. Cybernetics (IF=7.3)
ACM Trans. Graphics (IF=4)
SIAM J. Imaging Science (IF=2.4)
SIAM J. Scientific Computing (IF=2.2)
SIAM J. Computing (IF=1.4)

Bibliography manager

- References must be formatted differently depending on journals.
- Use a bibliography manager
- Free: BibTeX / paid: EndNote
- Collect everything you ever read or cited in a growing (version controlled!) database. Free: BibDesk, Papers
- Keep notes and annotations in the database as well as PDFs if you have them

BibTeX

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@article{article,
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  title   = {The title of the work},
  journal = {The name of the journal},
  year    = 1993,
  number  = 2,
  pages   = {201–213},
  month   = 7,
  note    = {An optional note},
  volume  = 4
}

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  title     = {The title of the work},
  publisher = {The name of the publisher},
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  series    = 10,
  address   = {The address},
  edition   = 3,
  month     = 7,
  note      = {An optional note},
  isbn      = {3257227892}
}
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Citing electronic sources: DOI

What is a DOI?

- Digital Object Identifier
- ISO 26324 standard
- Used since 2000
- >175 million DOIs assigned by >5000 publishers
- String of numbers and letters unique to a digital object
- If DOI is not a full link, simply prepend http://dx.doi.org/
- DOIs are unique, actionable, and persistent

What has a DOI?

- electronic version (typically PDF) of every scientific article published since 2000.
- books, manuals, standards
- open source software (specific to version)
- scientific datasets
- figures (e.g., figshare.com)
- preprints deposited on a public preprint server
- scientific databases

Software Citations

Problems

Often, we use software to achieve the results reported in a paper. This leads to problems with reproducibility:

- The software may not be publicly available.
- The software may not run on another system.
- The version of the software used for the paper may no longer be available.
- The software has dependencies that were not described.
- The version of the software used for the paper no longer compiles.

Citing software

1. Describe any software that played a critical part in, or contributed something unique to, your research. Do this in enough detail for a peer to be able to understand what you did, repeat and validate what you did, and reuse your research.
2. The are many options for describing the software you have used: footnotes, acknowledgements, methods sections, and appendices.
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4. Cite papers that describe software as a complement to, not a replacement for, citing the software itself.
5. In the first draft of a paper, always put software citations in references or bibliographies.

https://www.software.ac.uk/how-cite-software

Citing software

6. Be prepared to debate with reviewers why you have cited the software: you want to acknowledge the contribution of the software's authors and the value of software as a legitimate research output.
7. Inform reviewers if you are legally obliged to cite the software because of a clause in the software's license.
8. If a reviewer disagrees with a formal software citation, you can still make a general reference to the software in the paper.
9. Recommended citations may not have enough information to accurately describe the software that was used - you may need to add more detail yourself.
10. If the software has a DOI (digital object identifier) use it to cite the software. If the software has its own website, use the website's URL for the citation.

https://www.software.ac.uk/how-cite-software

Publishing Software

Scientific Software is research output just as other results are. As such, it should:

- Be published as a “software paper” (available in most journals) describing the design concept and algorithms.
- Have a web site and a manual / tutorial
- Use a clearly defined OSS license
- Be open source, publicly, and version controlled. Source code should contain README, CHANGELOG, LICENSE
- Have a DOI, specific to version / commit revision (zenodo.org)
- Additionally be archived at the time of writing and uploaded to the journal as supplementary file

Example

http://doi.org/10.5281/zenodo.1111824

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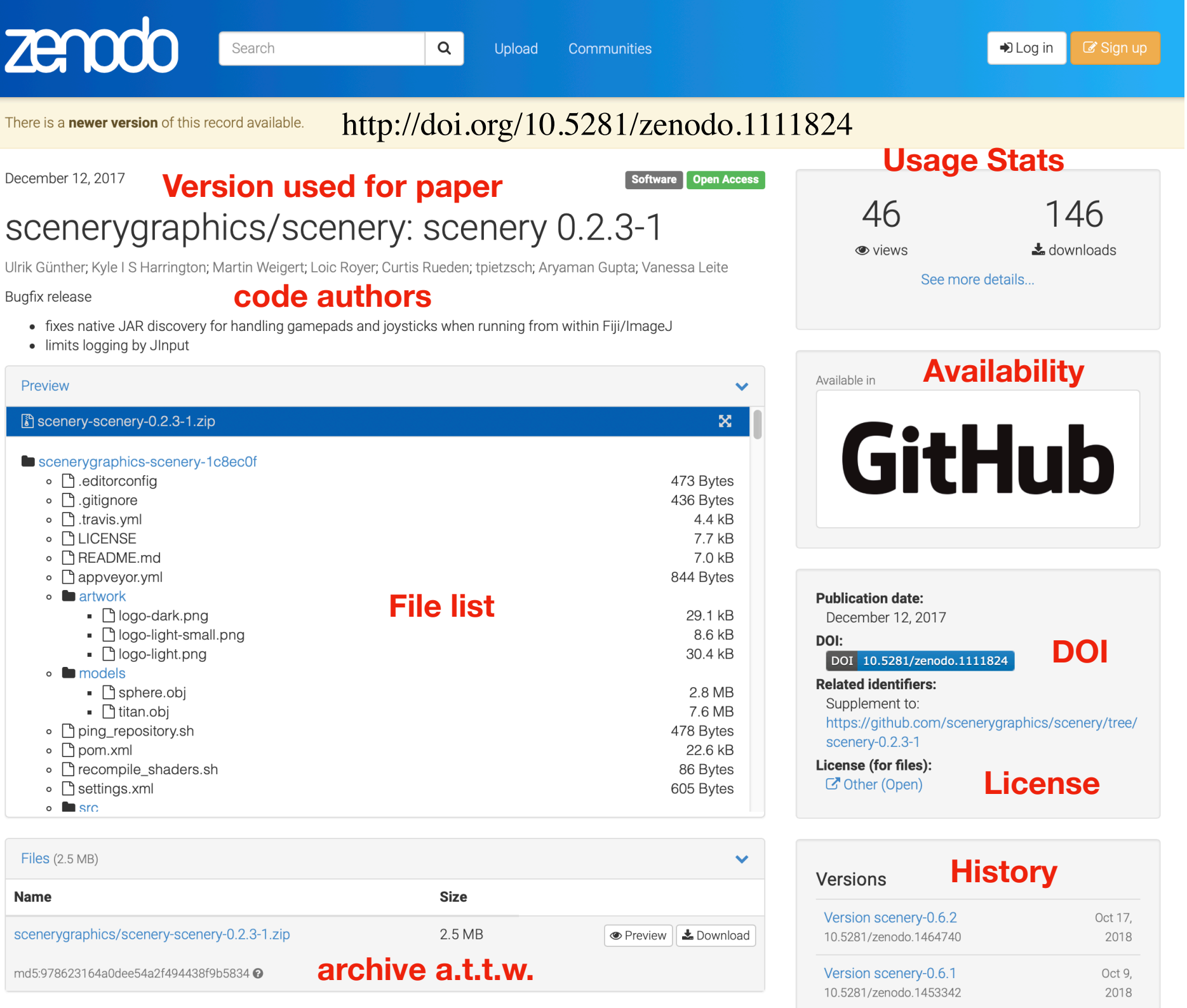
skalarproduktraum Remove unnecessary Elvis operators Latest commit 6a0e511 4 hours ago

artwork	Updated README with better building and usage instructions	2 years ago
models	Added example model	3 years ago
src	Remove unnecessary Elvis operators	4 hours ago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scenerygraphics/scenery: scenery 0.2.3-1
Ulrik Günther; Kyle I S Harrington; Martin Weigert; Loic Royer; Curtis Rueden; tpietzsch; Aryaman Gupta; Vanessa Leite
code authors
Bugfix release
fixes native JAR discovery for handling gamepads and joysticks when running from within Fiji/ImageJ
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Preview
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settings.xml 605 Bytes
src
Files (2.5 MB)
Name
Size
scenerygraphics/scenery-scenery-0.2.3-1.zip
2.5 MB
Preview
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archive a.t.t.w.
Usage Stats
46
views
146
downloads
See more details...
Availability
Available in
GitHub
Publication date:
December 12, 2017
DOI:
DOI 10.5281/zenodo.1111824
DOI
Related identifiers:
Supplement to:
https://github.com/scenerygraphics/scenery/tree/scenery-0.2.3-1
License (for files):
Other (Open)
License
Versions
History
Version scenery-0.6.2
10.5281/zenodo.1464740
Oct 17, 2018
Version scenery-0.6.1
10.5281/zenodo.1453342
Oct 9, 2018

What is citable, what not?

Depending on journal…

- Published (by a publisher) and indexed (by WoS, GoogleScholar, SCOOPUS, etc.) articles from scientific journals or conferences.
- Books and book chapters published by a publisher.
- DOIs
- Preprints from public preprint servers (e.g. ArXiV, bioarxiv)
- Papers “in print” or “submitted” with full author list and journal name (better: preprint server if available!)
- Web pages (with URL, date accessed). Problem: not persistent
- Theses (usually required to be available from a library’s page)
- Personal communications (“A. Einstein, personal communication”). Rarely allowed as citation (but essential as credit!).

Acknowledgements

What is it?

Every piece of scientific writing (thesis, report, paper, …) should contain an “acknowledgements” section, containing free text thanking:

- Anyone who helped, but not enough to be an author (e.g., discussion partners, test users, feedback provider).
- Anyone who gave something (e.g., funding, computer access, CPU time on a HPC system, feely available code, …).
- Personal fellowships, awards, supervisors, mentors.

In a paper, these are typically just a few lines. In a thesis, acknowledgements can be an entire page, also including friends, colleagues, and family who provided moral support.

Example

Acknowledgements

We would like to thank the members and leaders of the Tomancak Lab at the Max Planck Institute of Molecular Cell Biology and Genetics (MPI-CBG), Huisken Lab at the MPI-CBG and Morgridge Institute for Research, Royer Lab at the CZ Biohub, Keller Lab at HHMI Janelia Farm, Lemaire Lab at Centre des Recherches de Biochimie Macromoléculaire, and the Deutsches Zentrum für Neurodegenerative Erkrankungen e.V., all for generously allowing us to use their images during the development and benchmarking of this work. Further, we thank Joel Jonsson for work on the Python wrappers, Michael Hecht for discussions regarding mathematical notation, and Jan Huisken for his feedback during the development of the APR. This work was funded by the Max Planck Society and by the German Federal Ministry of Education and Research (BMBF) under funding code 031L0044. B.L.C further acknowledges financial support though a DIGS-BB fellowship, awarded by the DFG-funded Excellence Graduate School of TU Dresden under code DFG-GSC-97.

Provided test data

Provided a piece of code

Discussions and feedback

Provided funding

Cheeseman et al., biorxiv, 2018.

Additionally

- Acknowledge data/code sources wherever they occur in the text/figures.
- Acknowledge with name, affiliation, and (if available) citation.
- Be generous with acknowledging sources used!

Example

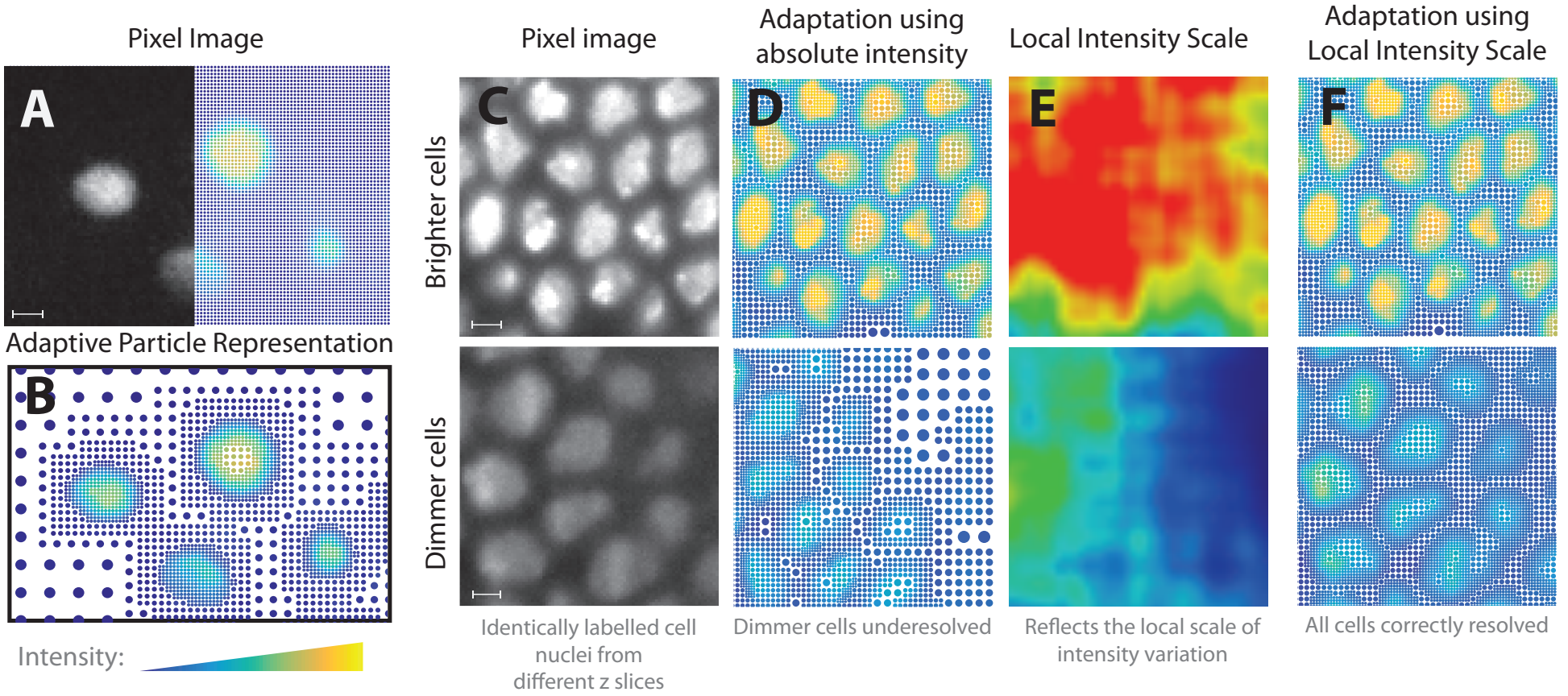

Figure 1: **Spatially adaptive representation of images**. **A.** Example image of fluorescently labeled zebrafish cell nuclei (exemplar dataset 7, courtesy of Huisken Lab, MPI-CBG & Morgridge Institute for Research [25]), represented on a regular grid of pixels. **B.** The APR of the same image. Particles are shown as dots with their color indicating fluorescence intensity and their size reflecting the local resolution of the representation. **C-F**. Adaptively representing objects of different intensity requires accounting for the local brightness levels. **C.** Two regions of labeled cell nuclei (exemplar dataset 6, courtesy of Tomancak Lab, MPI-CBG) with different brightnesses. **D.** Adaptive representation based on the absolute intensity. **F.** The APR accounting for the Local Intensity Scale of the image as shown in **E**. In **F** all objects are correctly resolved across brightness levels. Scale bars indicate 10 pixels.

Cheeseman et al., biorxiv, 2018.