

Introducing the Software Citation: Giving Credit Where Credit is Due

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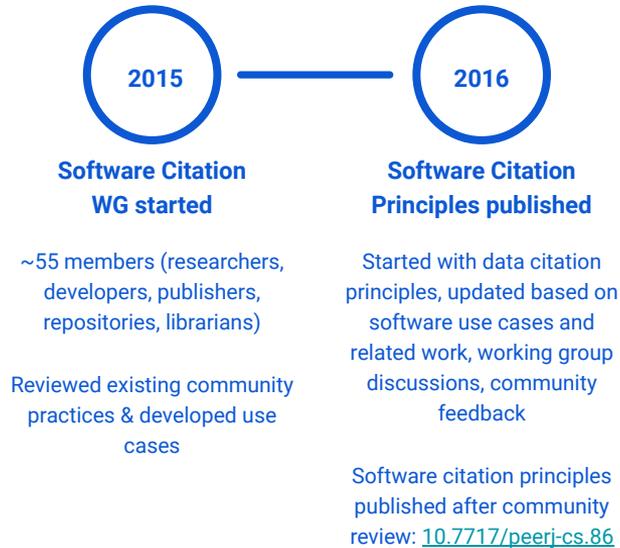
Outline & Introductions

1. Guidance for authors, developers, and journals - Dan
2. Software Citation: A View from the journals - Erika
3. Software Citation and JATS/JATS4R - Melissa

Guidance for authors, developers, and journals

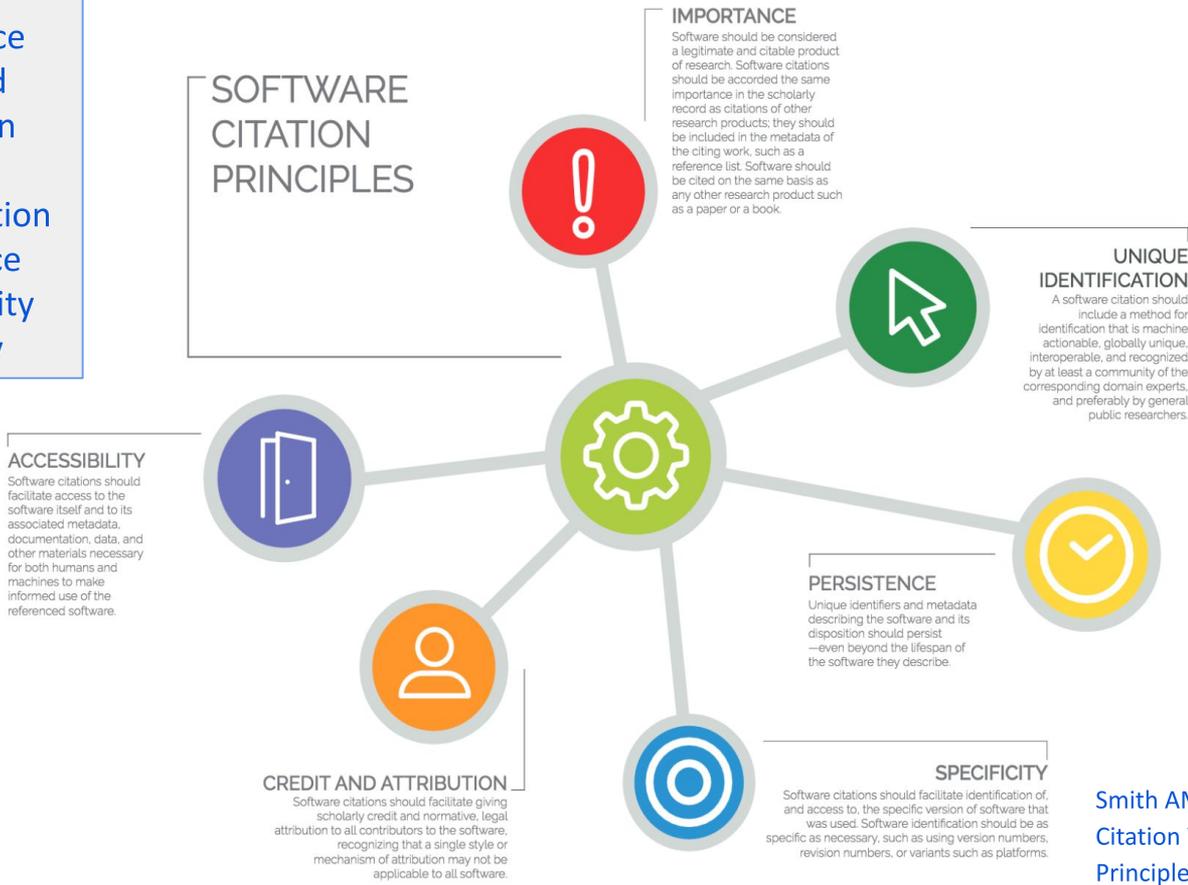
Daniel S. Katz, University of Illinois at Urbana-Champaign

The FORCE11 Software Citation journey



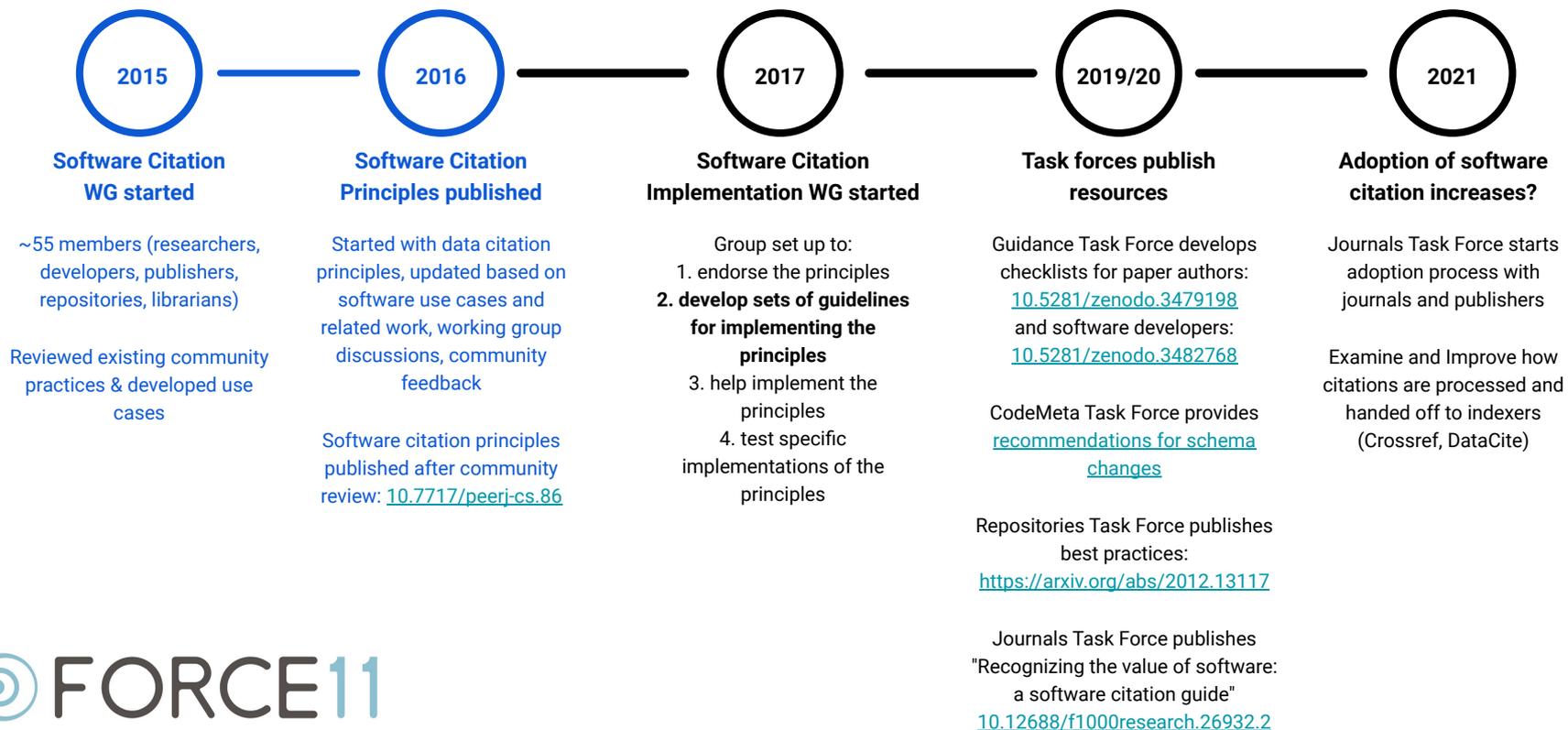
Software is a critical part of modern research...

1. Importance
2. Credit and Attribution
3. Unique Identification
4. Persistence
5. Accessibility
6. Specificity



Smith AM, Katz DS, Niemeyer KE, FORCE11 Software Citation Working Group.(2016) Software Citation Principles. PeerJ Computer Science 2:e86.
DOI: [10.7717/peerj-cs.86](https://doi.org/10.7717/peerj-cs.86) and <https://www.force11.org/software-citation-principles>

The FORCE11 Software Citation journey



The Future of Research Communications and e-Scholarship

<https://www.force11.org/group/software-citation-implementation-working-group>

Recognizing the value of software: a software citation guide

- Paper published Jan 2021
 - Authors include representative and editors from: AAS Journals, AGU Journals, American Meteorological Society, eLife, Elsevier, GigaScience Press, Hindawi, IEEE Publications, F1000Research, Journal of Open Source Software (Open Journals), Journal of Open Research Software (Ubiquity Press), Oxford University Press, PLOS, Science Magazine, Springer Nature, Taylor & Francis, Wiley, Crossref, DataCite
 - <https://doi.org/10.12688/f1000research.26932.2>
- Recommendations for citation
 - Must include: creator(s), title, publication venue, publication date, identifier (preferentially, a PID that resolves to a landing page)
 - Desirable to include: version, type (e.g., Computer software)
 - If an article exists that describes the software, it should be cited as an additional reference, as well as citing the software itself
- Includes examples in APA style for
 - Software in archival repository, software on GitHub, software in Software Heritage archive, commercial software, ...
- Customization
 - Paper provides generic guidance
 - Communities & institutions will produce versions with appropriate software examples and citation styles

Software Citation: A View from the journals

Erika Pastrana, Springer Nature

As publishers, what problem are we trying to solve?

- Today's scientific discovery process depends on a dynamic set of digital resources: data, code and the right environment to run the analysis.
- As publishers, we want to adapt to the changing outputs of science, and ensure the papers we publish promote reproducibility and open science.
- The number of research papers that make use or develop new code is increasing rapidly.
- When code is central to the main claims in the paper, it is imperative that the code be properly documented, evaluated so that it is functional, **and cited to ensure permanent accessibility and proper recognition.**

Best practice and guiding principles

- **Proper documentation** : Code needs to be sufficiently documented to enable others to check and re-use it. This includes information on dependencies, operating systems, technical requirements as well as licenses and terms of use.
- **Peer review**: peer reviewing the code ensures that it is evaluated by an expert and it is functional and re-usable.
- **Sharing and recognition** : as the code is a central element of the paper and the research output, it should be shared and *cited via a permanent identifier (DOI) in a form that facilitates wider use by the academic community and recognition of its own value.*

Journal policies

[Nature research policies](#)

Upon publication, Nature Research Journals consider it best practice to release custom computer code in a way that allows readers to repeat the published results. Code should be deposited in a DOI-minting repository such as [Zenodo](#), [Gigantum](#) or [Code Ocean](#) and cited in the reference list following the guidelines described [here](#). Authors are encouraged to manage subsequent code versions and to use a [license](#) approved by the open source initiative. Full details about how the code can be accessed and any restrictions must be described in the Code Availability statement.

Other examples:

[Science Magazine policies](#)

[eLife policies](#)

[Elsevier](#)

[AGU](#)

Goal: to ensure all papers provide open, verified, properly documented and cited code

Code availability

Code used for training models and performing analyses are available in our Github repository <https://github.com/Pandaman-Ryan/AgentBind> (ref. ⁴⁵)

45. Zheng, A. Pandaman-Ryan/AgentBind v.0.1 (accessed 19 November 2020); <https://doi.org/10.5281/zenodo.4281456>

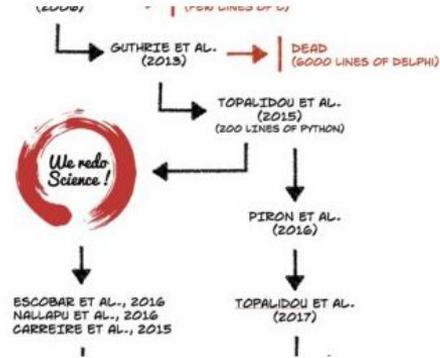
Further reading:

RECENT

Guest Post – Citing Software in Scholarly Publishing to Improve Reproducibility, Reuse, and Credit

Daniel Katz and Hollydawn Murray present the FORCE11 Software Citation Implementation Working Group's guidelines for citing the software used in research publications.

By **DANIEL S. KATZ, HOLLYDAWN MURRAY** | JAN 21, 2021 | **4 COMMENTS**



(Scholarly Kitchen guest post)

<http://bit.ly/SoftCiteBlog>

Software Citation and JATS/JATS4R

Melissa Harrison, eLife Sciences Organisation

What's the difference between JATS and JATS4R?

- **THE RULES** (jats.nlm.nih.gov)

JATS is a NISO **standard** that **defines** a set of XML elements and attributes



Photo by [Adam Griffith](#) on [Unsplash](#)

- **PLEASE DO THIS** (jats4r.org)

JATS4R is about optimising the **reusability** of scholarly content by developing best-practice **recommendations** for tagging content in JATS XML



Photo by [Mark Duffel](#) on [Unsplash](#)

<https://jats4r.org/>

@publication-type Type of Referenced Publication

Category of publication being cited (for example, "book", "letter", "review", "journal", "patent", "report", "standard", "data", "working-paper").

Remarks

The @publication-type, @publisher-type, and @publication-format attributes replace the @citation-type attribute of prior versions, which provided no clear way to distinguish these different notions.

Used on Elements: <element-citation>, <mixed-citation>, <nlm-citation>

Value	Meaning
Text, numbers, or special characters	The type of publication, for example, "book", "journal" (for a journal article), "patent", or "data" (for a dataset, database, spreadsheet, etc.).
Restriction	@publication-type is an optional attribute; there is no default.

Example 1

Citation for a book:

```

...
<element-citation publication-type="book"
publication-format="videocassette" publisher-type="gov">
<name><surname>Stryker</surname>
<given-names>MP</given-names></name>
<source>Making maps in the brain</source>
<comment>[videocassette]</comment>
<publisher-loc>Bethesda (MD)</publisher-loc>
...
</element-citation>
...

```

Example 2

Data in *figshare*, referenced through a DOI:

```

...
<mixed-citation publication-type="data">Di Stefano B, Collombet S,
Graf T. <source>Figshare</source> <ext-link ext-link-type="uri"
assigning-authority="figshare"
xlink:href="http://dx.doi.org/10.6084/m9.figshare.939408">
http://dx.doi.org/10.6084/m9.figshare.939408</ext-link>
<year iso-8601-date="2014">2014</year>.</mixed-citation>
...

```

<https://jats4r.org/data-citations/>



<JATS>

<https://jats.nlm.nih.gov/archiving/tag-library/1.2/attribute/publication-type.html>

Recommendation

1. @publication-type="data" on <mixed-citation> or <element-citation>. Use "data" as the value of @publication-type to indicate that the citation is to a dataset, even if that dataset is the entire data repository.

[[Validator tool result: if @publication-type not "data" and <data-title> is present ERROR]]

New JATS4R subgroup forming: Software citations

- Call to join sent out - JATS listserv, Twitter, word of mouth
- 15 responses ... so far
- Work to commence ASAP:
 - Set up time for calls
 - Gather samples and documentation already produced
 - Get to work writing a recommendation!