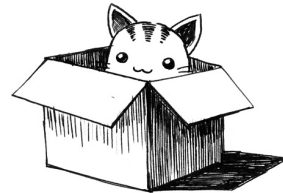


Opening the computational box: software sharing and the ASCL



Alice Allen

Astrophysics Source Code Library (ASCL)/UMD

@asclnet aallen@ascl.net



Astrophysics Source Code Library (ASCL)

Registry of codes used in research

Can serve as a repository

Indexed by ADS, Web of Science, and other indexers

ASCL registers codes used in

refereed articles

articles submitted for refereeing

accepted PhD theses

AND which has

source code available for download without barriers

ASCL Code Record

ascl:2106.028 [FRBSTATS: A web-based platform for visualization o](#)

[Spanakis-Misirlis, Apostolos](#)

FRBSTATS provides a user-friendly web interface to an open-access catalog of fast radio bursts with a highly accurate statistical overview of the observed events. The platform supports the retrieval of data either directly through the FRBSTATS API, or in the form of a CSV/JSON-parsed database, while also providing statistical distributions for a variety of visualizations. These features allow researchers to conduct more targeted searches by narrowing down the list of astrophysical models describing the origins and emission mechanisms. The platform provides a visualization tool that illustrates associations between primary bursts and repeater information provided by the Transient Name Server.

Code site: <https://www.herta-experiment.org/frbstats/>
<https://github.com/HeRTA/FRBSTATS>

ASCL Code Record

[[ascl:2106.028](#)] [FRBSTATS: A web-based platform for visualization of fast](#)

[Spanakis-Misirlis, Apostolos](#)

FRBSTATS provides a user-friendly web interface to an open-access catalog of fast radio bursts (FRBs) statistical overview of the observed events. The platform supports the retrieval of fundamental FRB data in the form of a CSV/JSON-parsed database, while enabling the plotting of parameter distributions for a researchers to conduct more thorough population studies while narrowing down the list of astrophysical mechanisms behind these sources. Lastly, the platform provides a visualization tool that illustrates and complements basic repeater information provided by the Transient Name Server.

Code site: <https://www.herta-experiment.org/frbstats/>
<https://github.com/HeRTA/FRBSTATS>

Used in: <https://ui.adsabs.harvard.edu/abs/2021ApJ...922...42R>
<https://ui.adsabs.harvard.edu/abs/2021ApJ...919L...6M>
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FREDDA: A fast, real-time engine for de-dispersing amplitudes
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open code
licensing
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curation
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research
collaboration

many researchers do not share source code...

Schrödinger's Code

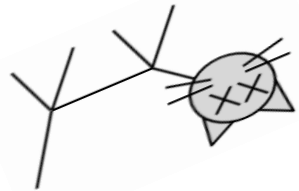
It's not until you open the box that you
know whether the code is alive or dead.

We opened the box...

many researchers do not share source code...

Could not identify the computational method: **42%**

Source code was not available for **40%** of the identifiable software used



many researchers do not share source code...

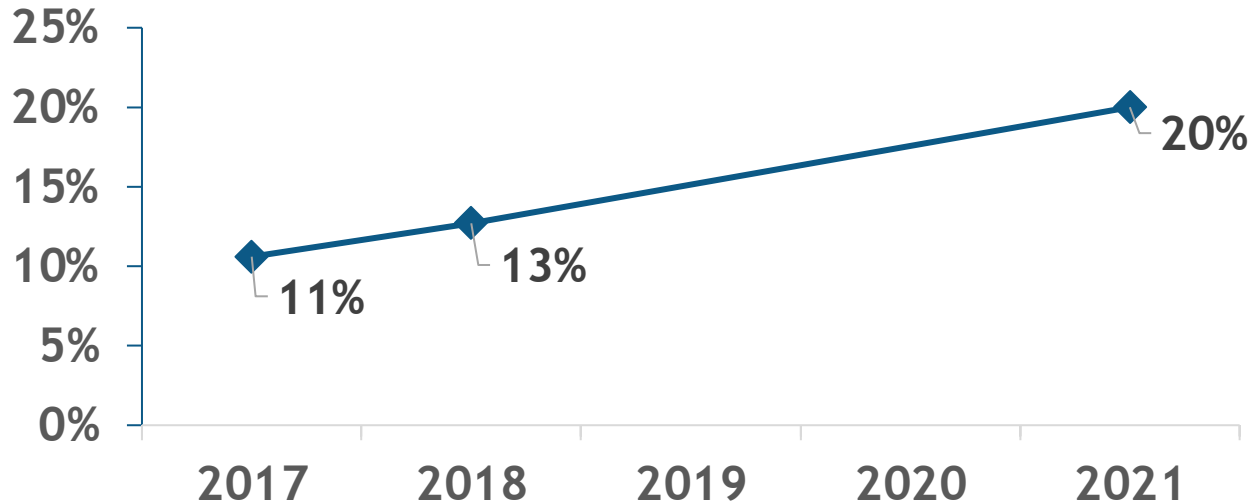
Tested **2558** http(s) and ftp: protocol
links extracted from 2015 papers

many researchers do not share source code...

11% of all links were unreachable

many researchers do not share source code...

Percentage of links failing



what software authors can do to share codes effectively

Community resources

More places to put software and information about software

Indexers capture/track software citations

Broad efforts across disciplines



what software authors can do to share codes effectively

Changes in existing journals

Encourage or require code release

Encourage or require software citations

Allow software articles without research results

what software authors can do to share codes effectively

New journals

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what software authors and authors can do to share codes effectively

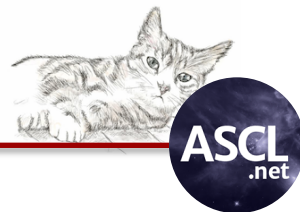
Citation methods and services

Better ways to cite software explicitly

ASCL IDs, DOIs, RRIDs, Software Heritage hash...

New tools to help with citation

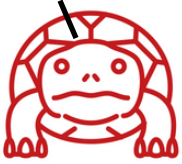
CiteAs.org, cffinit, CodeMeta generator...



what software authors can do to share codes effectively

1. Release your software with a license
2. Specify citation method
3. Register your code
4. Archive your code
5. Cite your own software well
6. Cite other people's codes well
7. Include a software section in articles

RAWR



Thank you!

Links to the resources mentioned are available at:

<https://tinyurl.com/ESOROSA2022>