

Software publishing, licensing, and citation

Matthias Liffers

Australian Research Data Commons



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```
17 string sInput;  
18 int iLength, iN;  
19 double dblTemp;  
20 bool again = true;  
21  
22 while (again) {  
23     iN = -1;  
24     again = false;  
25     getline(cin, sInput);  
26     system("cls");  
27     stringstream(sInput) >> dblTemp;  
28     iLength = sInput.length();  
29     if (iLength < 4) {  
30         again = true;  
31         continue;  
32     } else if (sInput[iLength - 3] != '.') {  
33         again = true;  
34         continue;  
35     } while (++iN < iLength) {  
36         if (isdigit(sInput[iN])) {  
37             continue;  
38         } else if (iN == (iLength - 3) ) {  
39             continue;  
40         }  
41     }  
42 }
```

Why do we want to cite research software?

Most software developed for research is, unfortunately, funded on a rather temporary basis, or not funded at all!

After all, research funding can generally only be spent on research and not on developing the infrastructure on which research depends.

[Video: Research Software Sustainability Webinar - Recorded 27 May 2020](#)

Research Software Sustainability

ARDC, 27 May 2020

Daniel S. Katz

(d.katz@ieee.org, <http://danielskatz.org>, [@danielskatz](https://twitter.com/danielskatz))

Assistant Director for Scientific
Software & Applications
Research Associate Professor,
CS, ECE, iSchool


ILLINOIS
NCSA | National Center for
Supercomputing Applications

An increasing number of publishers require code and/or software used in analyses to be made available alongside data

This is a statement from the AGU:

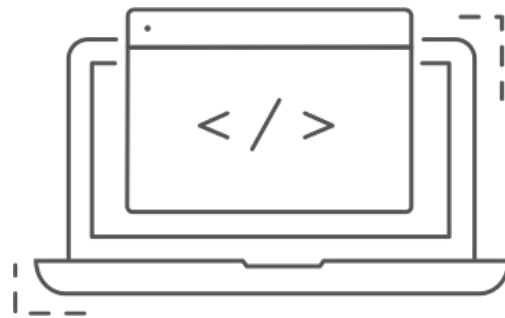
For the purposes of this policy, data include, but are not limited to, the following:

- Data used to generate, or be displayed in, figures, graphs, plots, videos, animations, or tables in a paper.
- New protocols or methods used to generate the data in a paper.
- ***New code/computer software used to generate results or analyses reported in the paper.***
- Derived data products reported or described in a paper.

<https://publications.agu.org/author-resource-center/publication-policies/data-policy/>

Nature also requires the availability of code for at least the peer review process.

Authors must make available upon request, to editors and reviewers, any previously unreported custom computer code or algorithm used to generate results that are reported in the paper and central to its main claims. Any reason that would preclude *the need for code or algorithm sharing will be evaluated by the editors who reserve the right to decline the paper if important code is unavailable.*



Why is it important for important code to be made available?

OUT OF SORTS —

Researchers find bug in Python script may have affected hundreds of studies

"Willoughby-Hoye" scripts used OS call that caused incorrect measurements on Linux, Mojave

SEAN GALLAGHER - 10/15/2019, 10:17 PM



Making software citable also means that we are co-opting an existing mechanism for academic recognition - citations!



Stephanie Watts-Williams
@myco_research

Thank you @CSIROnews for making a free and user-friendly program for calculating grain dimensions! Getting this to work so easily has made my Friday night 😄🌱 #GrainScan



4:47 PM · Jul 20, 2018 from Adelaide, South Australia · Twitter Web Client

13 Retweets 53 Likes

Zenodo has started doing some great work by partnering with the Astrophysics Data Service

<https://blog.zenodo.org/2019/01/10/2019-01-10-asclepias>

[10.5281/zenodo.598352](https://doi.org/10.5281/zenodo.598352)

zenodo

September 21, 2014

LMFIT: Non-Linear Least-Square Minimization and Curve-Fitting for Python

Newville, Matthew, Stornikoff, T.O. Allen, Daniel G. Hogganville, Aronie

2,177 views 39 downloads

1 Teamwork 2 210 users on Zenodo

Publication Date: September 21, 2014
DOI: 10.5281/zenodo.11141

Using Parameter objects instead of plain floats as variables. A Parameter has a value that can be varied in the fit, fixed, have upper and/or lower bounds. It can even have a value that is constrained by an algebraic expression of other Parameter values.

Ease of changing fitting algorithms. Once a fitting model is set-up, one can change the fitting algorithm without changing the objective function.

Improved estimation of confidence intervals. While scipy.optimize.leastsq() will automatically calculate uncertainties and correlations from the covariance matrix, lmfitt also has functions to explicitly explore parameter space to determine confidence levels even for the most difficult cases.

Improved curve fitting with the Model class. This class extends the capabilities of scipy.optimize.curve_fit(), allowing you to turn a function that models for your data into a python class that helps you parameterize and fit data with that model.

Many pre-built models for common use.

The lmfitt package is Free software, using an

File size: 1.9K

Name: lmfitt-0.9.0.tar.gz
url: https://zenodo.org/record/11141/files/lmfitt-0.9.0.tar.gz

Citations 39

Show only: Literature (88) Unknown (1) Dataset (0) Software (0)

Search

Systematically Measuring Ultra-diffuse Galaxies (SMUGles). I. Sur...
Zaritsky, Dennis et al. (doi: 10.3847/1538-4365/aafef9) 2018 ADS ARXIV DOI

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Lam, Stephen T. et al. (doi: 10.1016/j.jucomat.2018.09.009) 2018 ADS DOI

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Fulton, Benjamin J. & Petigura, Erik A. (doi: 10.3847/1538-3881/aaf828) 2018 ADS ARXIV DOI

Correlating structural distributions in silica glass with two-dim...
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Simultaneous Spectral Energy Distribution and Near-infrared Inter...
Davies, Claire L. et al. (doi: 10.3847/1538-4357/aaf511) 2018 ADS ARXIV DOI

Testing strong line metallicity diagnostics at z ~ 2
Patricio, V et al. (doi: 10.1093/mnras/sty2508) 2018 ADS ARXIV DOI

The gravitational redshift of Sirius B
Joyce, S R G et al. (doi: 10.1093/mnras/sty2404) 2018 ADS ARXIV DOI

Page size: 10

Making your Software Citable

Three prerequisites,
two steps

1

Prerequisite one:
A code repository

<https://github.com/>



2

Prerequisite two: An ORCID

<https://orcid.org/>



3

Prerequisite three: **A licence**

<https://choosealicense.com/>



1

Step one:

Link to Zenodo (or Figshare)



<https://guides.github.com/activities/citable-code/>

<https://help.figshare.com/article/how-to-connect-figshare-with-your-github-account>

2

Step two:

Create a citation statement

And add it to your *software* if you haven't already been doing so



For Example:

Coon, E., Berndt, M., Jan, A., et al. (2020, March 25).
Advanced Terrestrial Simulator (ATS) v0.88 (Version 0.88)
[Computer software]. Zenodo.
<https://doi.org/10.5281/zenodo.3727209>

More options for structuring citations are outlined in:

Katz DS, Chue Hong NP, Clark T et al. *Recognizing the value of software: a software citation guide* [version 2; peer review: 2 approved]. F1000Research 2021, 9:1257
<https://doi.org/10.12688/f1000research.26932.2>

LIKELIHOOD YOU WILL GET CODE WORKING
BASED ON HOW YOU'RE SUPPOSED TO INSTALL IT:

Provide useful
documentation to your
software, pre-built
packages or container
images that others can
use



Will it work?
by Randall Monroe
CC BY-NC 2.5

Thank you

Liffers, Matthias (2021, July 12). Software publishing, licensing, and citation. Zenodo.
<http://doi.org/10.5281/zenodo.5091717>

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contact@ardc.edu.au

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