

# Journal of Open Source Software (JOSS)

Tania Allard, Lorena A Barba, Katy Barnhart, Juanjo Bazán, Monica Bobra, Jed Brown, Abigail Cabunoc Mayes, Jason Clark, Dan Foreman-Mackey, George Githinji, Olivia Guest, Roman Valls Guimera, Melissa Gymrek, Alex Hanna, Lindsey Heagy, Kathryn Huff, Mark A. Jensen, Daniel S. Katz, Vincent Knight, Thomas J. Leeper, Christopher R. Madan, Melissa Weber Mendonça, Kevin M. Moerman, Kyle Niemeyer, Lorena Pantano, Viviane Pons, Jack Poulson, Piotr Prins, Karthik Ram, Marie E. Rognes, Ariel Rokem, Arfon M. Smith, Charlotte Soneson, Matthew Sottile, Yuan Tang, Tracy Teal, George K. Thiruvathukal, Kristen Thyng, Leonardo Uieda, Jake Vanderplas, Bruce E. Wilson, Yo Yehudi

**Daniel S. Katz**

([d.katz@ieee.org](mailto:d.katz@ieee.org), <http://danielskatz.org>, [@danielskatz](#))

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



NCSA | National Center for  
Supercomputing Applications



# Today

# Today

- Software is still eating the world, including the research world

# Today

- Software is still eating the world, including the research world
- ~95% of researchers use research software

# Today

- Software is still eating the world, including the research world
- ~95% of researchers use research software
- ~65% rely on it

# Today

- Software is still eating the world, including the research world
- ~95% of researchers use research software
- ~65% rely on it
- ~50% develop it

# Today

- Software is still eating the world, including the research world
- ~95% of researchers use research software
- ~65% rely on it
- ~50% develop it
- But

Challenges	Technical	Cultural
Software isn't easily citable		✗
Software citations aren't allowed	✗	
Software citations aren't indexed		
Software isn't peer reviewed	✗	
Software can't cite other software		✗

Credit: Arfon M. Smith

# Today

- Software is still eating the world, including the research world
- ~95% of researchers use research software
- ~65% rely on it
- ~50% develop it
- But

Challenges	Technical	Cultural
Software isn't easily citable		✗
Software citations aren't allowed	✗	
Software citations aren't indexed		
Software isn't peer reviewed	✗	
Software can't cite other software		✗

Credit: Arfon M. Smith

- How to recognize software contributions?
  1. Find some way to fit software into current (paper/book-centric) system
  2. Evolve beyond one-dimensional credit model



# Journal of Open Source Software (JOSS)

# Journal of Open Source Software (JOSS)

- What if we could write papers about our software

# Journal of Open Source Software (JOSS)

- What if we could write papers about our software
  - Easily: short papers, around 2 pages

# Journal of Open Source Software (JOSS)

- What if we could write papers about our software
  - Easily: short papers, around 2 pages
  - With quick & open peer-review of the paper **and** the software repository

# Journal of Open Source Software (JOSS)

- What if we could write papers about our software
  - Easily: short papers, around 2 pages
  - With quick & open peer-review of the paper **and** the software repository
  - Done on GitHub



# Journal of Open Source Software (JOSS)

- What if we could write papers about our software
  - Easily: short papers, around 2 pages
  - With quick & open peer-review of the paper **and** the software repository
  - Done on GitHub
  - In a familiar open-source style, using issues for open discussion between editor, reviewers, authors

# Journal of Open Source Software (JOSS)

- What if we could write papers about our software
  - Easily: short papers, around 2 pages
  - With quick & open peer-review of the paper **and** the software repository
  - Done on GitHub
  - In a familiar open-source style, using issues for open discussion between editor, reviewers, authors
  - With a bot (@whedon) helping perform common tasks

# Journal of Open Source Software (JOSS)

- What if we could write papers about our software
  - Easily: short papers, around 2 pages
  - With quick & open peer-review of the paper **and** the software repository
  - Done on GitHub
  - In a familiar open-source style, using issues for open discussion between editor, reviewers, authors
  - With a bot (@whedon) helping perform common tasks
  - Collaboratively, with the goal of making the software and paper better (past a minimum bar)

# Journal of Open Source Software (JOSS)

- What if we could write papers about our software
  - Easily: short papers, around 2 pages
  - With quick & open peer-review of the paper **and** the software repository
  - Done on GitHub
  - In a familiar open-source style, using issues for open discussion between editor, reviewers, authors
  - With a bot (@whedon) helping perform common tasks
  - Collaboratively, with the goal of making the software and paper better (past a minimum bar)
  - Where developers volunteer to be reviewers

# Journal of Open Source Software (JOSS)

- What if we could write papers about our software
  - Easily: short papers, around 2 pages
  - With quick & open peer-review of the paper **and** the software repository
  - Done on GitHub
  - In a familiar open-source style, using issues for open discussion between editor, reviewers, authors
  - With a bot (@whedon) helping perform common tasks
  - Collaboratively, with the goal of making the software and paper better (past a minimum bar)
  - Where developers volunteer to be reviewers
- Led to Journal of Open Source Software (JOSS)



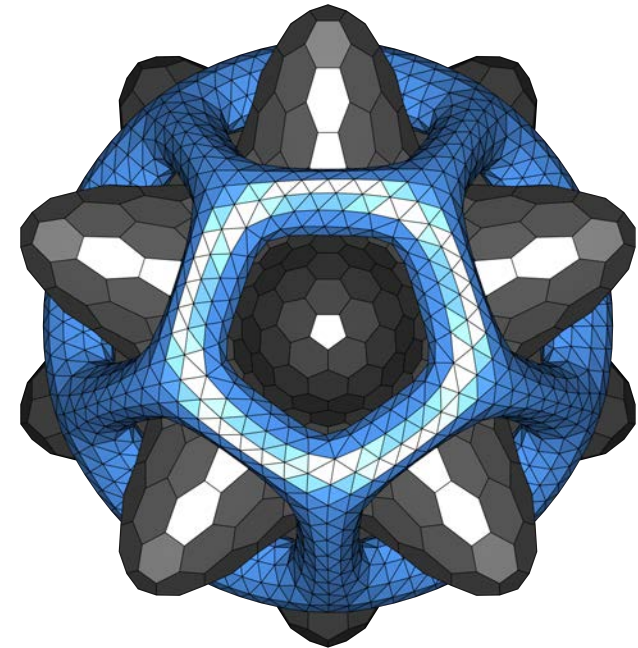
# Journal of Open Source Software (JOSS)

- What if we could write papers about our software
  - Easily: short papers, around 2 pages
  - With quick & open peer-review of the paper **and** the software repository
  - Done on GitHub
  - In a familiar open-source style, using issues for open discussion between editor, reviewers, authors
  - With a bot (@whedon) helping perform common tasks
  - Collaboratively, with the goal of making the software and paper better (past a minimum bar)
  - Where developers volunteer to be reviewers
- Led to Journal of Open Source Software (JOSS)
  - A developer friendly journal for research software packages

# Journal of Open Source Software (JOSS)

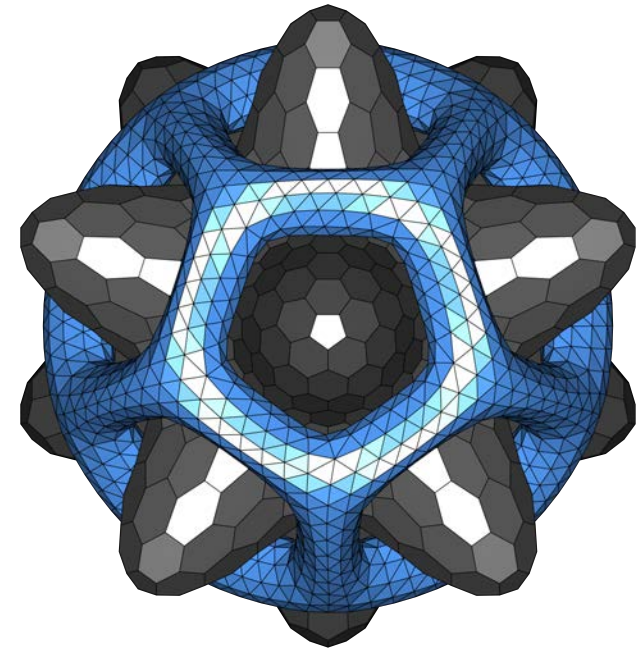
- What if we could write papers about our software
  - Easily: short papers, around 2 pages
  - With quick & open peer-review of the paper **and** the software repository
  - Done on GitHub
  - In a familiar open-source style, using issues for open discussion between editor, reviewers, authors
  - With a bot (@whedon) helping perform common tasks
  - Collaboratively, with the goal of making the software and paper better (past a minimum bar)
  - Where developers volunteer to be reviewers
- Led to Journal of Open Source Software (JOSS)
  - A developer friendly journal for research software packages
  - “If you've already licensed your code and have good documentation then we expect that it should take **less than an hour** to prepare and submit your paper”

# JOSS is novel



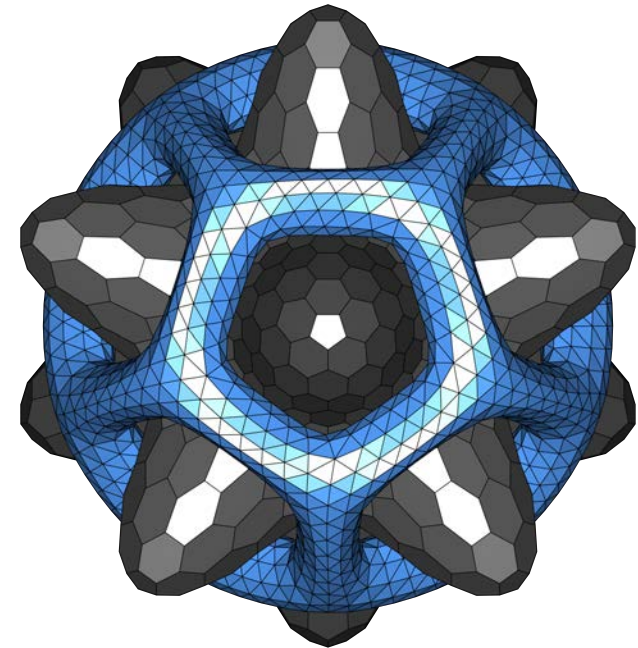
# JOSS is novel

- Everything is open:
  - Submitted/published paper: <http://joss.theoj.org>
  - Code itself: where is up to the author(s)
  - Reviews & process: <https://github.com/openjournals/joss-reviews>
  - Code for the journal itself: <https://github.com/openjournals/joss>



# JOSS is novel

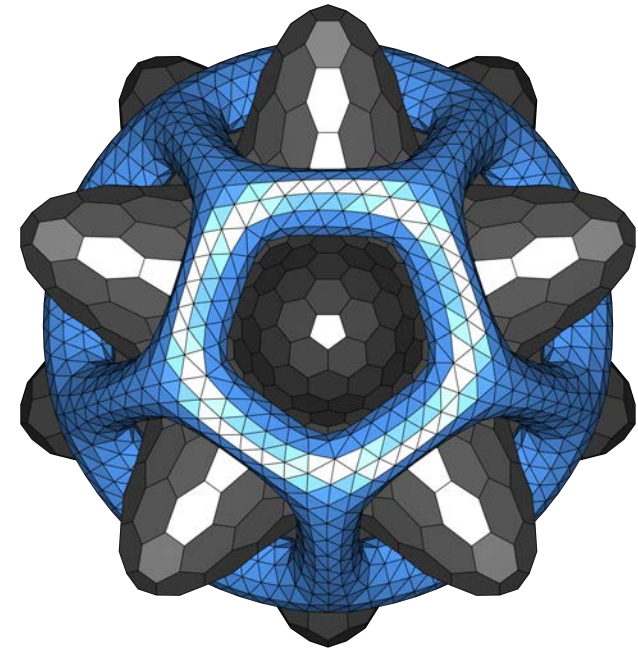
- Everything is open:
  - Submitted/published paper: <http://joss.theoj.org>
  - Code itself: where is up to the author(s)
  - Reviews & process: <https://github.com/openjournals/joss-reviews>
  - Code for the journal itself: <https://github.com/openjournals/joss>
- Using scholarly communications standards
  - ORCIDs identify users
  - Crossref stores metadata and issues DOIs
  - Portico archives papers and reviews
  - Author deposits reviewed software in Zenodo, figshare, Dryad, ...





# JOSS is novel

- Everything is open:
  - Submitted/published paper: <http://joss.theoj.org>
  - Code itself: where is up to the author(s)
  - Reviews & process: <https://github.com/openjournals/joss-reviews>
  - Code for the journal itself: <https://github.com/openjournals/joss>
- Using scholarly communications standards
  - ORCIDs identify users
  - Crossref stores metadata and issues DOIs
  - Portico archives papers and reviews
  - Author deposits reviewed software in Zenodo, figshare, Dryad, ...
- Zero cost to authors and readers
  - Cost is about \$3/paper
  - Cost model: <https://joss.theoj.org/about#costs>
  - Sustained by donations, grants, and lots of volunteer time



# JOSS status

# JOSS status

- First paper submitted 4 May 2016
  - 31 May 2017: 111 accepted papers + 56 in processing
  - 13 November 2019: 750 accepted papers + 111 in processing
  - Current publication rate: ~450 papers/year

# JOSS status

- First paper submitted 4 May 2016
  - 31 May 2017: 111 accepted papers + 56 in processing
  - 13 November 2019: 750 accepted papers + 111 in processing
  - Current publication rate: ~450 papers/year
- Editors: 1 editor-in-chief and 11 editors at launch
  - 1 EiC, 5 associate EiCs, 29 topic editors, 9 emeritus editors today

# JOSS status

- First paper submitted 4 May 2016
  - 31 May 2017: 111 accepted papers + 56 in processing
  - 13 November 2019: 750 accepted papers + 111 in processing
  - Current publication rate: ~450 papers/year
- Editors: 1 editor-in-chief and 11 editors at launch
  - 1 EiC, 5 associate EiCs, 29 topic editors, 9 emeritus editors today
- Most highly cited articles (via Google Scholar)
  - corner.py: Scatterplot matrices in Python – 463
  - Armadillo: a template-based C++ library for linear algebra – 312
  - tidytext: Text Mining and Analysis Using Tidy Data Principles in R – 121



# JOSS status

- First paper submitted 4 May 2016
  - 31 May 2017: 111 accepted papers + 56 in processing
  - 13 November 2019: 750 accepted papers + 111 in processing
  - Current publication rate: ~450 papers/year
- Editors: 1 editor-in-chief and 11 editors at launch
  - 1 EiC, 5 associate EiCs, 29 topic editors, 9 emeritus editors today
- Most highly cited articles (via Google Scholar)
  - corner.py: Scatterplot matrices in Python – 463
  - Armadillo: a template-based C++ library for linear algebra – 312
  - tidytext: Text Mining and Analysis Using Tidy Data Principles in R – 121



Thomas J. Leeper

@thosjleeper

Follow



One of the things I really enjoy about editing for [@JOSS\\_TheOJ](#) is that because the editorial process is all on GitHub, I can do most of the work on my phone while commuting.

7:19 PM - 21 May 2018

# JOSS status

- First paper submitted 4 May 2016
  - 31 May 2017: 111 accepted papers + 56 in processing
  - 13 November 2019: 750 accepted papers + 111 in processing
  - Current publication rate: ~450 papers/year
- Editors: 1 editor-in-chief and 11 editors at launch
  - 1 EiC, 5 associate EiCs, 29 topic editors, 9 emeritus editors today
- Most highly cited articles (via Google Scholar)
  - corner.py: Scatterplot matrices in Python – 463
  - Armadillo: a template-based C++ library for linear algebra – 312
  - tidytext: Text Mining and Analysis Using Tidy Data Principles in R – 121



**Thomas J. Leeper**  
@thosjleeper

Follow



One of the things I really enjoy about editing for [@JOSS\\_TheOJ](#) is that because the editorial process is all on GitHub, I can do most of the work on my phone while commuting.

7:19 PM - 21 May 2018



**Lee J. O'Riordan**  
@mlxd



For each of the (few) times I have participated in the review stages of a [@JOSS\\_TheOJ](#) paper I am incredibly impressed by the fluidity of the process. It is a great model for how other journals could (and should aim to) operate.

8:06 PM · Oct 16, 2018 · [Twitter Web Client](#)

# JOSS status

- First paper submitted 4 May 2016
  - 31 May 2017: 111 accepted papers + 56 in processing
  - 13 November 2019: 750 accepted papers + 111 in processing
  - Current publication rate: ~450 papers/year
- Editors: 1 editor-in-chief and 11 editors at launch
  - 1 EiC, 5 associate EiCs, 29 topic editors, 9 emeritus editors today
- Most highly cited articles (via Google Scholar)
  - corner.py: Scatterplot matrices in Python – 463
  - Armadillo: a template-based C++ library for linear algebra – 312
  - tidytext: Text Mining and Analysis Using Tidy Data Principles in R – 121



**Thomas J. Leeper**  
@thosjleeper

Follow

One of the things I really enjoy about editing for [@JOSS\\_TheOJ](#) is that because the editorial process is all on GitHub, I can do most of the work on my phone while commuting.

7:19 PM · 21 May 2018



**Lee J. O'Riordan**  
@mlxd

For each of the (few) times I have participated in the review stages of a [@JOSS\\_TheOJ](#) paper I am incredibly impressed by the fluidity of the process. It is a great model for how other journals could (and should aim to) operate.

8:06 PM · Oct 16, 2018 · [Twitter Web Client](#)



**Jonathan Reardon**  
@waterlego

I have to say, I've really enjoyed reviewing for The Journal of Open Source Software ([@JOSS\\_TheOJ](#)) so far, what a top-tier review process -- transparent, clear, supportive, and inspirational -- and all done on [@github](#). A brilliant place to submit your research software imho 👍

1:14 PM · Jul 6, 2019 · [Twitter Web Client](#)

# JOSS status

- First paper submitted 4 May 2016
  - 31 May 2017: 111 accepted papers + 56 in processing
  - 13 November 2019: 750 accepted papers + 111 in processing
  - Current publication rate: ~450 papers/year
- Editors: 1 editor-in-chief and 11 editors at launch
  - 1 EiC, 5 associate EiCs, 29 topic editors, 9 emeritus editors today
- Most highly cited articles (via Google Scholar)
  - corner.py: Scatterplot matrices in Python – 463
  - Armadillo: a template-based C++ library for linear algebra – 312
  - tidytext: Text Mining and Analysis Using Tidy Data Principles in R – 121



Vince Knight  
@drvinceknight

Reviewing for [@JOSS\\_TheOJ](#) and [#JOSE\\_theOJ](#) (of the Open Journals: [github.com/openjournals](https://github.com/openjournals)) is an exercise in restoration of faith in the "scientific process".

Both times it has felt like I'm doing something worthwhile through a collaborative conversation with the author. 🙌



Thomas J. Leeper  
@thosjleeper

Follow

One of the things I really enjoy about editing for [@JOSS\\_TheOJ](#) is that because the editorial process is all on GitHub, I can do most of the work on my phone while commuting.

7:19 PM - 21 May 2018



Lee J. O'Riordan  
@mlxd

For each of the (few) times I have participated in the review stages of a [@JOSS\\_TheOJ](#) paper I am incredibly impressed by the fluidity of the process. It is a great model for how other journals could (and should aim to) operate.

8:06 PM · Oct 16, 2018 · [Twitter Web Client](#)



Jonathan Reardon  
@waterlego

I have to say, I've really enjoyed reviewing for The Journal of Open Source Software ([@JOSS\\_TheOJ](#)) so far, what a top-tier review process -- transparent, clear, supportive, and inspirational -- and all done on [@github](#). A brilliant place to submit your research software imho 🙌

1:14 PM · Jul 6, 2019 · [Twitter Web Client](#)





**ILLINOIS**

NCSA | National Center for  
Supercomputing Applications