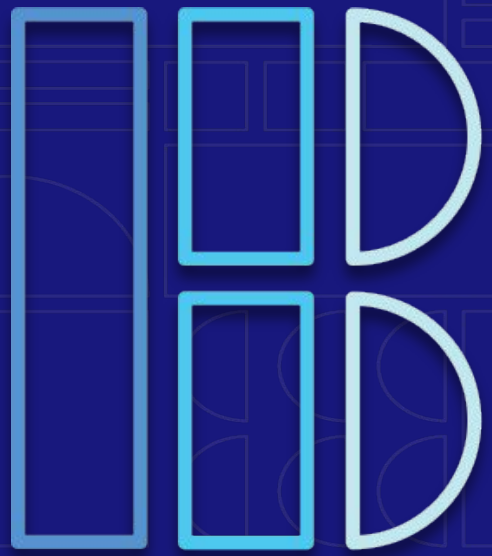


better scientific software Fellowship Community

bssw.io

SO MY CODE WILL SEE THE FUTURE

CASS BoF 2026
BSSw Fellowship BoF

February 12, 2026

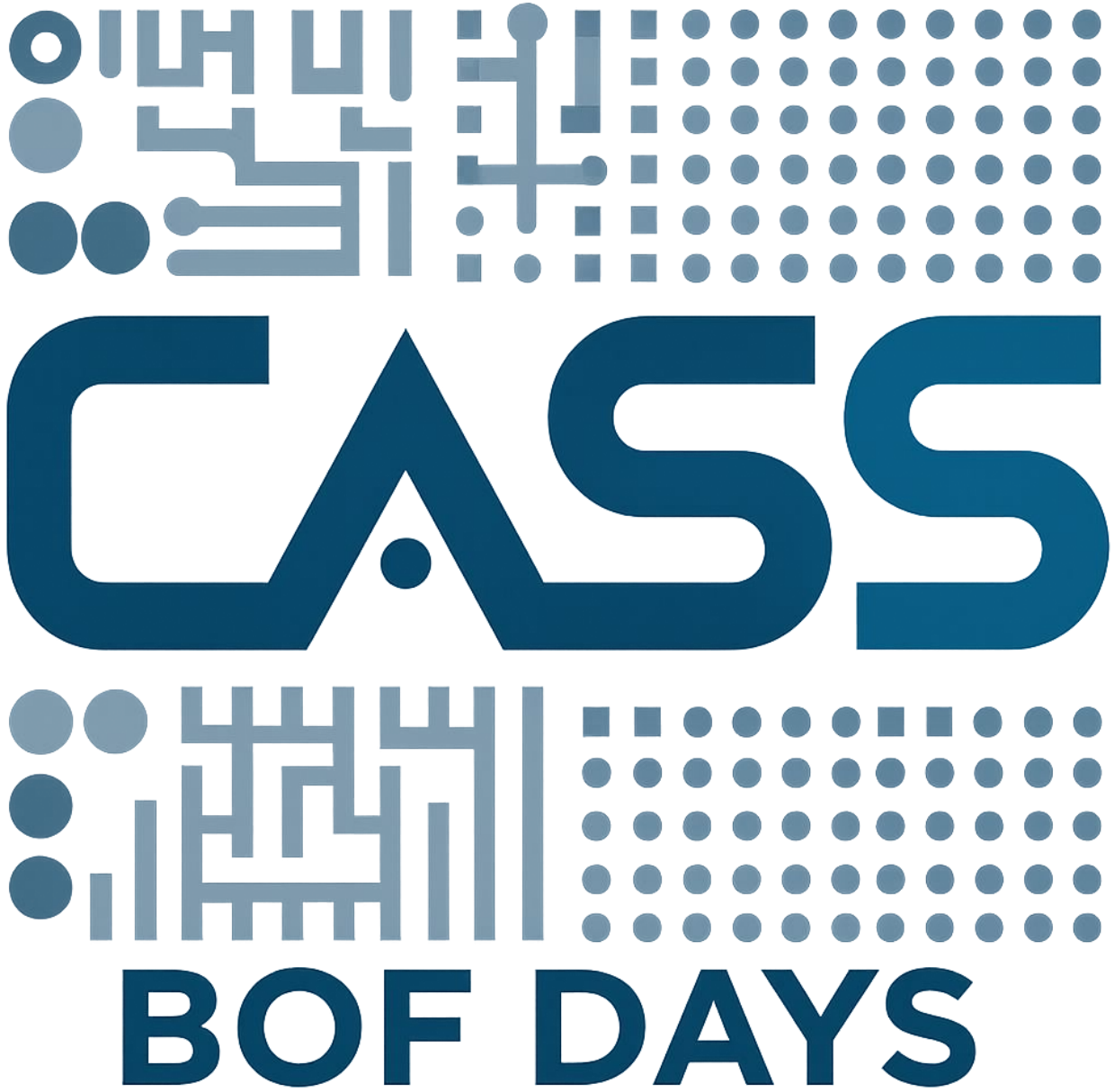
2026 Fellow Announcement soon!

BOF Days

February 10 - 12, 2026

https://cass.community

The Consortium for the Advancement of Scientific Software (CASS)



https://cass.community/news/2026-02-10-cass-bof-days.html

CASS: Stewardship and Advancement of the Scientific Software Ecosystem

- **Inward-facing activities:** Strengthening software products
  - Improve development practices, sustainability, quality, and trustworthiness
  - Enhance user experience and integration within the broader ecosystem
- **Outward-facing activities:** Community engagement and discovery
  - Curate and evolve the software portfolio
  - Help teams connect with and grow their user communities
  - Enable the broader community to discover and adopt useful software

CASS Members

CORSA Partnering with foundations to provide sustainable pathways for scientific software	**FASTMATH** Stewardship, advancement, and integration for math and ML/AI packages	**PESO** Stewarding, evolving and integrating a cohesive ecosystem for DOE software
RAPIDS Stewardship, advancement, and integration for data, visualization and ML/AI packages	**S4PST** Stewardship, advancement and engagement for programming systems	**STEP** Stewardship, advancement of software tools for understanding performance and behavior

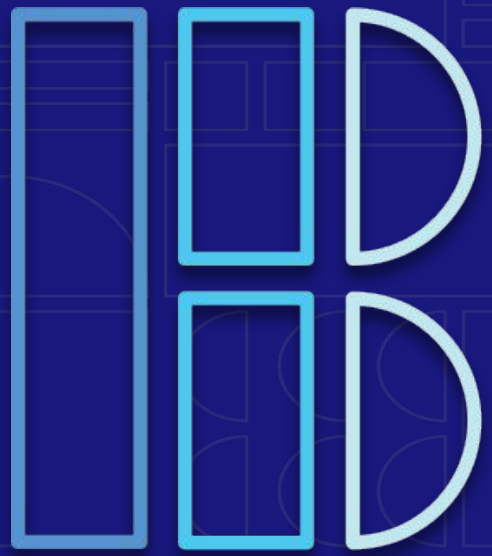
Sponsored by the Department of Energy, Office of Advanced Scientific Computing Research

3

Engage with CASS!

- Learn about CASS:
  - https://cass.community/about/
- Join the CASS Announcement list (low-volume):
  - http://eepurl.com/iRiSnY
- Find out more about our **software products**
  - Catalog: https://cass.community/software/
  - Collected as part of the Extreme-Scale Scientific Software Stack (E4S)
- Participate in **CASS Working Groups**
  - Impact Framework, Integration, Metrics, Software Ecosystem, User-Developer Experience, Workforce
  - https://cass.community/working-groups/

4



better scientific software Fellowship Community

bssw.io

SO MY CODE WILL SEE THE FUTURE

CASS BoF 2026
BSSw Fellowship BoF

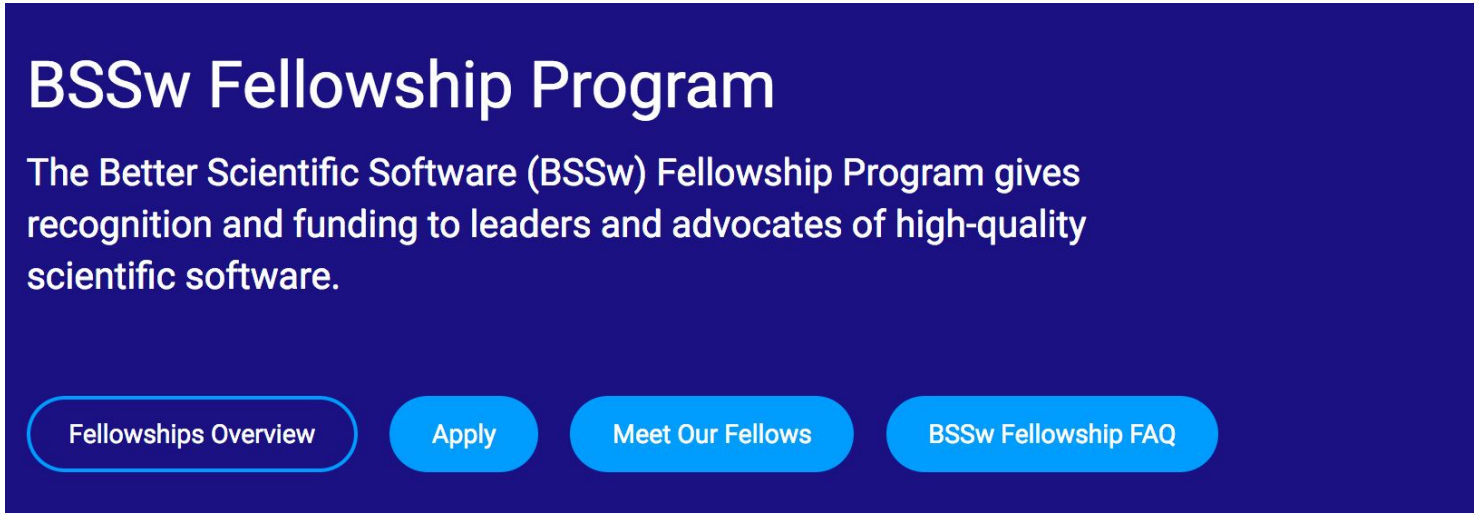
February 12, 2026

2026 Fellow Announcement soon!

BSSw Fellowship Program

better scientific software

https://bssw.io/fellowship



2026 fellowship announcement soon!

U.S. DEPARTMENT OF ENERGY

NSF

SUSTAINABLE HORIZONS INSTITUTE

GOAL:

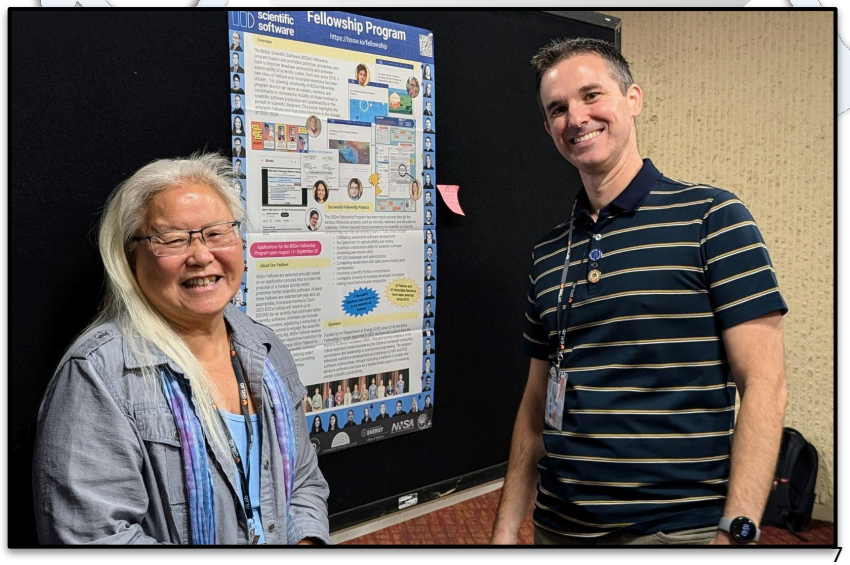
Foster and promote practices, processes, and tools to improve developer productivity and software sustainability of scientific codes

AWARD:

We select at least three Fellows per year and honorable mentions as appropriate. Each 2026 BSSw Fellow will receive up to $25,000 for an activity that promotes better scientific software. Activities can include organizing a workshop, preparing a tutorial, or creating content to engage the scientific software community.

A Community Approach

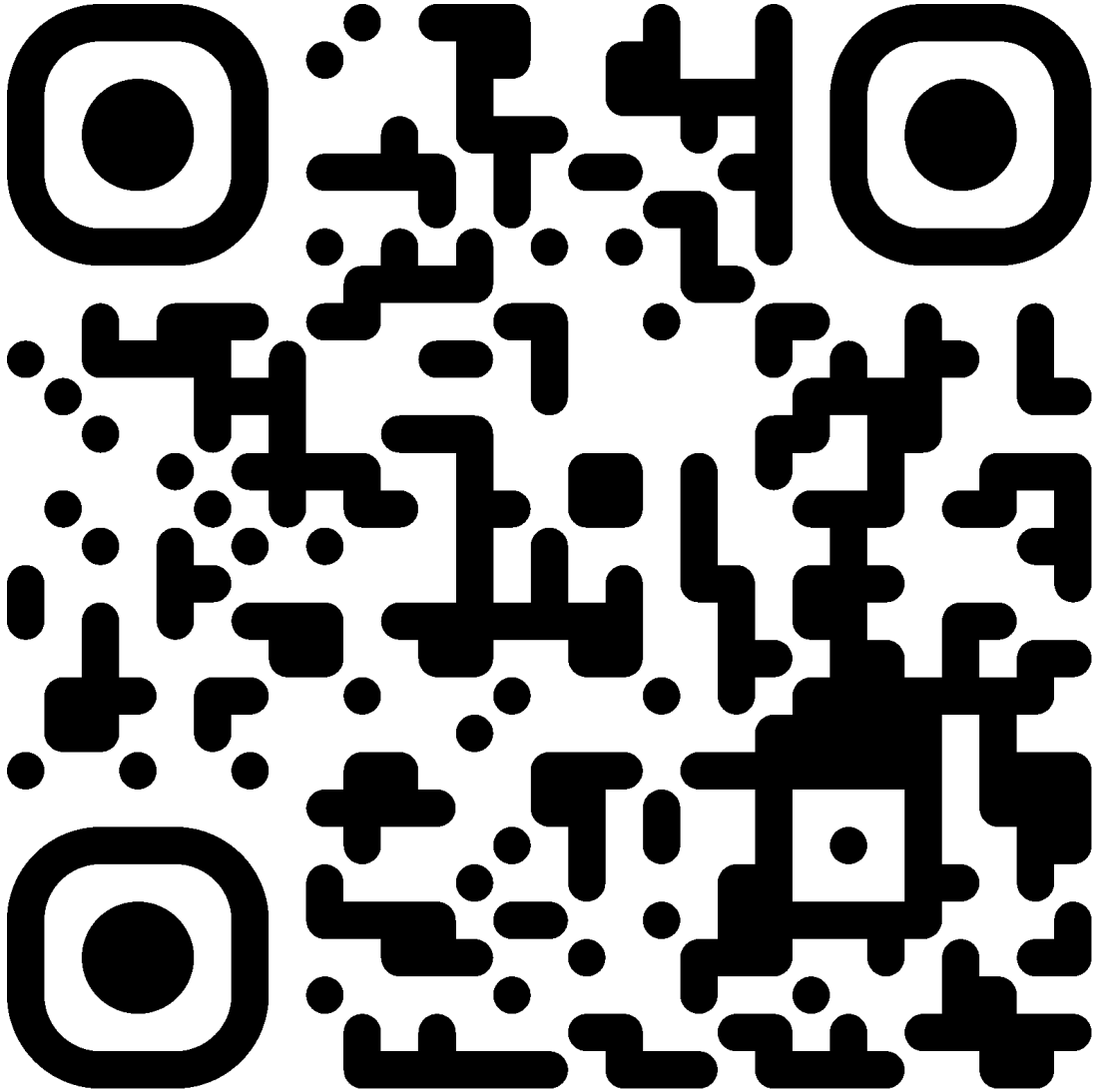
- **Identify Shared Purpose & Values**
  Meeting the scientific software challenges facing the nation requires a renewed emphasis on high-quality software and those who create it.
- **Provide Shared Spaces for Action**
  The bssw.io website and the IDEAS-Productivity HPC Best Practices Webinars are forums where BSSw Fellows and others can share content.
- **Champion the Work of Individuals**
  The BSSw Fellowship strives to promote the work and profile of outstanding individuals as a way of developing a core group of people to drive these efforts.



BSSw Fellowship Program

better scientific software

https://bssw.io/fellowship



Use this for the BSSw website

- Fellowship information
- Applicant requirements
- Sign up for future webinars and mailing list
- Current fellows and honorable mentions
- Project information from past fellows and honorable mentions including deliverables
- FAQ

Meet the Fellows

RECOGNIZING LEADERS since 2018

Meet the 2025 Fellowship Class

Alper Altuntas
NSF National Center for Atmospheric Research

Jasmine Buckley-Williams
San Diego State University

Brigitta Sipöcz
California Institute of Technology

Peter K. G. Williams
Center for Astrophysics | Harvard & Smithsonian

Junchao Zhang
Argonne National Laboratory

2025 Honorable Mentions

Emmanuel Atoleya Atindama

Alejandra Castillo

Sierra Brown

Zeinab Serhan

Minhaz Zibran

Brigitta Sipőcz

Astronomer turned RSE at NASA/IPAC Infrared Science Archive

- *Python open source maintainer*
  - *Mostly astronomy specific libraries, but also a lot generic infrastructure pieces through the Scientific Python Project*
- *Conferences: Scipy; Scientific Python Developer Summits; hackweeks; etc.*
- *Python tutorials and infrastructure*

California Institute of Technology

Cross project and domain reusability and collaboration

BSSw Project: *User-facing tutorials as code: Reproducible and reliable tutorials with CI/CD*

Peter K. G. Williams

Center for Astrophysics | Harvard & Smithsonian

pwilliams@cfa.harvard.edu

https://newton.cx/~peter/

Technical lead, IAU Minor Planet Center; radio astronomer; long-time open-source contributor (GNOME, conda-forge, Tectonic); Rust enthusiast.

BSSw Project: Framework for architecting technical documentation

One Good Tutorial

https://onegoodtutorial.org/

https://github.com/pkgw/onegoodtutorial/

https://doi.org/10.5281/zenodo.18362470

- [ ] 🗺️ **Synopsis:** 1–3 sentence summary of your project
- [ ] 📑 **Tutorial:** ✨ Show people what your software can do! ✨
- [ ] 💁‍♀️ **Contact Information:** How to ask a human about your software
- [ ] 🚀 **Install Instructions:** How to install your software
- [ ] 📜 **Citation Instructions:** How to cite your software
- [ ] 🙌 **Contribution Statement:** How users can contribute to your project
- [ ] 📚 **Reference Material:** Precise specifications of APIs, etc.
- [ ] ⚖️ **Licensing Statement:** The legal status of your code
- [ ] 🙏 **Acknowledgments:** Credit your funders

12

Junchao Zhang

(jczhang@anl.gov)

RSE, Argonne National Laboratory

Former MPICH developer; Current PETSc/TAO developer

Daily work: coding, debugging and debugging

Argonne NATIONAL LABORATORY

MPICH

PETSc

TAO

BSSw Project: https://mpi-debug.org

MPI debugging resources and community hub

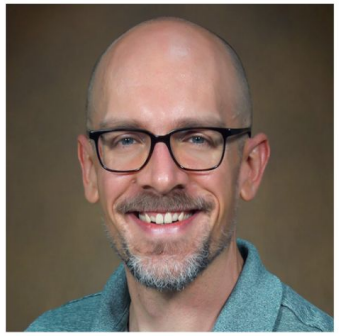
The Problem

- There is always one more bug to fix
- RSEs *very likely* need to debug MPI codes
- Being able to debug MPI codes efficiently could enhance your productivity, morale, code quality and KPI
- Commercial MPI debuggers will cost you an arm and a leg
- MPI debugging resources are scattered on the web and might be outdated
- Generally unfriendly to MPI beginners

The Proposal

- A community hub dedicated to MPI debugging, introducing free debugging tools, tips, and best practices
  - Hanging, non-deterministic results
  - MPI communicator, tag management
  - Error messages from 1M processes
- Everyone can comment, ask and contribute
- By RSEs, for RSEs, from newbies to veterans
- All are welcome to leave feedback there!

Meet the 2024 Fellowship Class



David Bunten

University of Colorado Anschutz Medical Campus

Software gardening almanac: Cultivating sustainable software development in the generative era

Dorota Jarecka

MIT McGovern Institute for Brain Research

Best practices for reproducibility and testing in scientific software

Olivia Newton

University of Central Florida

Team learning in scientific software projects

Ken Raffenetti

Argonne National Laboratory

Guidelines for improving MPI performance

Ryan Richard

Ames National Laboratory

Sustainable scientific software through multi-project CI/CD

Leah Wasser

pyOpenSci

Essential collaboration skills for contributing to open source software

Antigoni Georgiadou

Oak Ridge National Laboratory

Computational Scientist, National Center of Computational Sciences

Jack Marquez

University of Tennessee, Knoxville

Research Assistant Professor, Electrical Engineering and Computer Science

Drew Paine

Lawrence Berkeley National Laboratory

User Experience Researcher, Scientific Data Division

Noam Ross

EcoHealthAlliance

Principal Scientist, Computational Research

Matthew Scarpino

Purdue University

Lead Research Software Engineer, Rosen Center for Advanced Computing

Aristana Scourtas

Globus Labs, University of Chicago and Argonne National Laboratory

Project Manager and Research Software Engineer

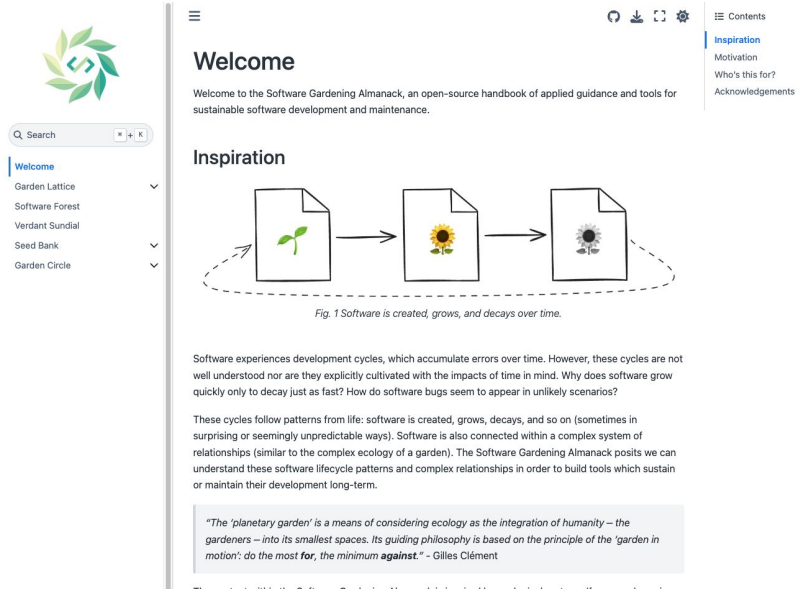
14

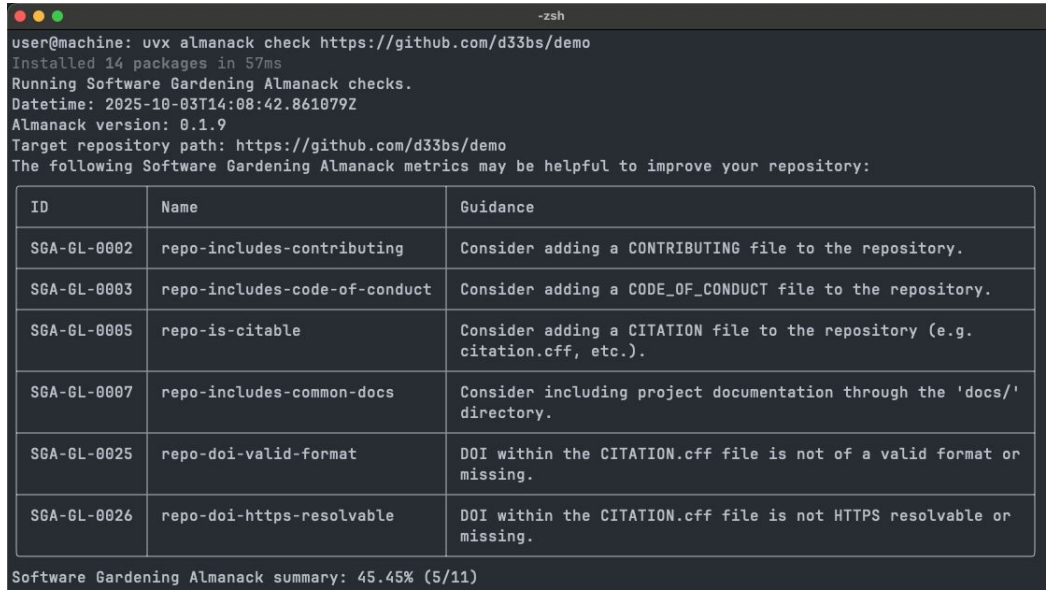
Dave Bunten
Principal Research Software Engineer

Anschutz

Department of Biomedical Informatics
School of Medicine
University of Colorado Anschutz Medical Campus

Software Gardening Almanack





https://github.com/software-gardening/almanack/

15

Meet the 2023 Fellowship Class

Nicole Brewer

Arizona State University

Improving accessibility of data and software with scientific web apps

Myra Cohen

Iowa State University

Techniques for scientific software testing

Johannes Doerfert

Lawrence Livermore National Laboratory

Demystifying the compiler black box

William Hart

Sandia National Laboratories

Best practices for software supply chain security

Helen Kershaw

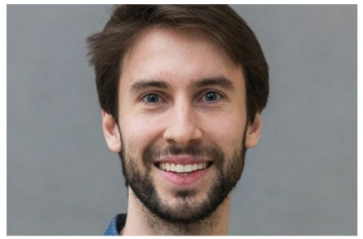
National Center for Atmospheric Research

Improving code review skills for scientific software developers

Rafael Mudafort

National Renewable Energy Laboratory

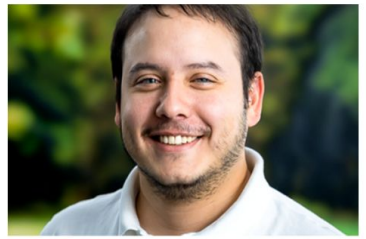
Effective communication of software design



Jean Luca Bez

Lawrence Berkeley National Laboratory

Scientific Data Division, Postdoctoral Researcher



Jose Monsalve Diaz

Argonne National Laboratory

Postdoctoral Researcher, Mathematics & Computer Science Division

Xu Liu

North Carolina State University

Associate Professor, Computer Science

Alisa Neeman

Muskingum University

Assistant Professor, Mathematics and Computer Science

Kristina Riemer

University of Arizona

Scientific Programmer, Data Science Institute

Brigitta Sipőcz

California Institute of Technology

Applications Developer

16

2022

Ritu Arora

University of Texas at San Antonio

Optimizing I/O for better performance

Rob Latham

Argonne National Laboratory

I/O sleuthing: a tour of I/O challenges and solutions

Julia Stewart Lowndes

National Center for Ecological Analysis and Synthesis (NCEAS), UC Santa Barbara

Openscapes: Open data

Amiya K. Maji

Purdue University

Simplifying scientific Python package management

Nitin Sukhija

Slippery Rock University of Pennsylvania

Secure scientific software development

Karan Vahi

USC Information Sciences Institute

Scientific workflows for high efficiency HPC

Sarah Bratt

Syracuse University

Ph.D. Student, School of Information Studies

William Godoy

Oak Ridge National Laboratory

Computer Scientist

Brittany Johnson-Matthews

George Mason University

Assistant Professor, Computer Science Department

Max Jones

University of Hawai'i at Mānoa

Postdoctoral Researcher, Department of Earth Sciences, School of Ocean & Earth Science & Technology

Rafael Mudafort

National Renewable Energy Laboratory

Research Software Engineer, National Wind Technology Center

Qiusheng Wu

University of Tennessee, Knoxville

Assistant Professor, Department of Geography

17

2021

better scientific software

https://bssw.io

SO MY CODE WILL SEE THE FUTURE

2021 Class

Fellows

Marisol García-Reyes
Farallon Institute

Increasing accessibility of data & cloud technologies

Mary Ann Leung
Sustainable Horizons Institute

Increasing developer productivity and innovation through diversity

Chase Million
Million Concepts

Project management best practices for research software

Amy Roberts
University of Colorado Denver

Enabling collaboration through version control user stories

Honorable Mentions

Keith Beattie
Lawrence Berkeley National Laboratory

Computational Research Division, Computer Systems Engineer

Julia Stewart Lowndes
National Center for Ecological Analysis and Synthesis (NCEAS), UC Santa Barbara

Openscapes Director

Jonathan Madsen
Lawrence Berkeley National Laboratory

NERSC, Application Performance Specialist

Addi Thakur Malviya
Oak Ridge National Laboratory

Software Engineering Group, Group Leader

18

Mary Ann Leung, Sustainable Horizons Institute
mleung@shinstitute.org

Increasing developer productivity and innovation through workforce development

Motivation

- Different ways of thinking increases innovation
- Critical workforce challenges
- Software sustainability for everyone → Sustainable workforce

A Few Current Projects

- Consortium for Advanced Scientific Software (CASS) – Broadening Participation Initiative
- Sustainable Research Pathways
- Building Engagement Program
- BSSw Fellowship Administration
- Intro to HPC through Energy Projects

2020

better scientific software

https://bssw.io

SO MY CODE WILL SEE THE FUTURE

2020 Class

Fellows

Nasir Eisty

University of Alabama

Automating testing in scientific software

Damian Rouson

Sustainable Horizons Institute, Sourcery Institute

Introducing agile scientific software development to underrepresented groups

Cindy Rubio-Gonzalez

University of California, Davis

Improving the reliability and performance of numerical software

Honorable Mentions

David Boehme

Lawrence Livermore National Laboratory

Research Staff, Center for Applied Scientific Computing

Sumana Harihareswara

Changeset Consulting

Founder and Principal, Open source software management and collaboration

David Rogers

National Center for Computational Sciences, Oak Ridge National Lab

Computational Scientist

2019

better scientific software

https://bssw.io

SO MY CODE WILL SEE THE FUTURE

2019 Class

Fellows

Rene Gassmoeller
University of California, Davis

Guiding your scientific software project from inception to long-term sustaintability

Ignacio Laguna
Lawrence Livermore National Laboratory

Improving the reliability of scientific applications by analyzing and debugging floating-point software

Tanu Malik
DePaul University

Reducing technical debt in scientific software through reproducible containers

Kyle Niemeyer
Oregon State University

Educating scientists on best practices for developing research software

Honorable Mentions

Stephen Andrews
Los Alamos National Laboratory

Staff Scientist, XCP-8: Verification and Analysis

Nasir Eisty
University of Alabama

Ph.D. Student, Computer Science

Benjamin Pritchard
Virginia Tech

Software Scientist, Molecular Sciences Software Institute

Vanessa Sochat
Stanford University

Research Software Engineer, Stanford Research Computing Center

2018

better scientific software

https://bssw.io

SO MY CODE WILL SEE THE FUTURE

2018 Class

Fellows

Jeffrey Carver

University of Alabama

Improving code quality through modern peer code review

Ivo Jimenez

University of California, Santa Cruz

Enabling reproducible research through automated computational experimentation

Daniel S. Katz

University of Illinois at Urbana-Champaign, National Center for Supercomputing Applications

Giving software developers long-overdue credit through principles for software citation

Andrew Lumsdaine

Pacific Northwest National Laboratory, University of Washington, Northwest Institute for Advanced Computing

Guiding efficient use of modern C++ for high-performance computing

Honorable Mentions

Neal Davis

University of Illinois at Urbana-Champaign

Teaching Assistant Professor, Computer Science

Marc Henry de Frahan

National Renewable Energy Laboratory

Postdoctoral Researcher

Elsa Gonsiorowski

Lawrence Livermore National Laboratory

HPC I/O Specialist, Livermore Computing

Ying Li

Argonne National Laboratory

Argonne Scholar, Argonne Leadership Computing Facility

22

Elsa Gonsiorowski

gonsiorowski1@llnl.gov

- BSSw Fellowship Coordinator
  Focused on stewarding the fellowship program and building connections to the broader RSE and HPC community
- HPC Support Specialist for LLNL
- WHPC Executive Board
- Passionate about knitting, CrossFit, Emacs, and fun activities for 4 year olds

Lawrence Livermore National Laboratory

23

BSSw Fellowship Program

better scientific software

https://bssw.io/fellowship

Use this for the BSSw website

- Fellowship information
- Applicant requirements
- Sign up for future webinars and mailing list
- Current fellows and honorable mentions
- Project information from past fellows and honorable mentions including deliverables
- FAQ