K. Jarrod Millman

Helen Wills Neuroscience Institute
University of California, Berkeley
Berkeley, CA 94720
millman@berkeley.edu

Austin, TX – June 28-July 3, 2010
1. What is it?

- Purpose & aims
1. What is it?

- Purpose & aims
- Computing revolution & science
1. What is it?

- Purpose & aims
- Computing revolution & science
- Status & next steps
Our purpose is to ensure unrestricted access to the best computational tools for research and education in mathematics, science, and engineering. Our aim is to do this primarily by fostering existing efforts and communities.
As research grows increasingly dependent on computing, it becomes critical for our computational resources to be developed with the same rigor, open review and access as the results they support.
sharing of scientific software, data and knowledge necessary for reproducible research

“An article about computational science in a scientific publication is not the scholarship itself, it is merely advertising of the scholarship. The actual scholarship is the complete software development environment and the complete set of instructions which generated the figures.” — David Donoho, Wavelab and Reproducible Research, 1995
Outcomes and education

unrestricted access to research outcomes and educational tools

- open access journals
unrestricted access to research outcomes and educational tools

- open access journals
- open access books & courses
Open development

open source software developed by collaborative, meritocratic communities

- no more single lab projects!
academic recognition of computational developments on equal footing to the publication of results

- conferences, peer-reviewed journals
academic recognition of computational developments on equal footing to the publication of results

- conferences, peer-reviewed journals
- new type of journal
academic recognition of computational developments on equal footing to the publication of results

- conferences, peer-reviewed journals
- new type of journal
  - Journal of Statistical Computing
Academic recognition

academic recognition of computational developments on equal footing to the publication of results

- conferences, peer-reviewed journals
- new type of journal
  - Journal of Statistical Computing
  - Open Research Computation
High quality software

openly tested, validated and documented software as the basis for reliable scientific outcomes

■ peer-reviewed
High quality software

openly tested, validated and documented software as the basis for reliable scientific outcomes

- peer-reviewed
- tested
High quality software

openly tested, validated and documented software as the basis for reliable scientific outcomes

- peer-reviewed
- tested
- bug-vetted
High quality software

openly tested, validated and documented software as the basis for reliable scientific outcomes

- peer-reviewed
- tested
- bug-vetted
- documented (reference guides, tutorials, etc.)
Computational literacy

high standards of computational literacy in the education of mathematicians, scientists and engineers
Drafted mission statement
Status

- Drafted mission statement
- Started talking with colleagues
Status

- Drafted mission statement
- Started talking with colleagues
- Started talking with PSF
Open Research Computing in Python (June 25, 2010)

Thu, 06/10/2010 - 03:05 — Jarrod Millman

Please join us for our first event on June 25th at the Mathematical Sciences Research Institute (MSRI) in Berkeley, CA. The workshop is free and lunch is provided. In order to make sure that we have enough food, we are requiring anyone who wants to attend to RSVP by the end of the day Wednesday, June 23rd by sending an email to jarrod.millman+orcp2010@gmail.com.

Agenda

- 09:00-09:10 Welcome Jarrod Millman and William Stein
- 09:10-10:10 What to demand from a Scientific Computing Language -- Even if you don't care about computing or languages - Peter Norvig (Google)
- 10:10-11:00 Cython: the best of both worlds - Robert Bradshaw (Google)
- 11:00-11:50 Python: an ecosystem for scientific computing - Fernando Perez (UC Berkeley)
- 12:00-14:00 LUNCH
- 14:00-14:50 Python in science and engineering education in India - Prabhu Ramachandran (IIT Bombay)
- 14:50-15:40 Sage: creating a viable open source alternative to Magma, Maple, Mathematica, and Matlab - William Stein (University of Washington)
- 15:40-16:10 BREAK
- 16:10-17:00 The foundation for mathematical and scientific computing - Jarrod Millman (UC Berkeley)
Next steps

- Community outreach
Next steps

- Community outreach
- Not-for-profit status
Next steps

- Community outreach
- Not-for-profit status
- Fundraising
Next steps

- Community outreach
- Not-for-profit status
- Fundraising
- Funding events & projects
Next steps

- Community outreach
- Not-for-profit status
- Fundraising
- Funding events & projects
- Institute
Community Outreach

- Website (http://mscomp.org)
Community Outreach

- Website (http://mscomp.org)
- Numerous talks (ORCP, SciPy, EuroSciPy, SciPy.in, etc.)
Community Outreach

- Website (http://mscomp.org)
- Numerous talks (ORCP, SciPy, EuroSciPy, SciPy.in, etc.)
- Announcement list (announce@mscomp.org)
Community Outreach

- Website (http://mscomp.org)
- Numerous talks (ORCP, SciPy, EuroSciPy, SciPy.in, etc.)
- Announcement list (announce@mscomp.org)
- Discussion list (discuss@lists.mscomp.org)
Open Source Software as a Foundation for Scientific Research

http://wstein.org/grants/2010-si2/

Friday, July 30th and Saturday, July 31st