

Foundation for Mathematical and Scientific Computing

Python for Scientific Computing Conference

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

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- Computing revolution & science

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- Purpose & aims
- Computing revolution & science
- Status & next steps

The Foundation

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.

Computing revolution

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.

Reproducible Research

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

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- open access books & courses

Open development

open source software developed by collaborative, meritocratic communities

- no more single lab projects!

Academic recognition

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

- conferences, peer-reviewed journals

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- **new type of journal**

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 - **Journal of Statistical Computing**

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 - 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

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- tested

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- 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

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- Started talking with PSF

Foundation for Mathematical and Scientific Computing

Home

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

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- Website (<http://mscomp.org>)

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- 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

