

Fernando Pérez

a. Professional Preparation

Universidad de Antioquia, Colombia	Physics	B.S. 1994
Universidad de Antioquia, Colombia	Physics	M.Sc. 1999
University of Colorado at Boulder	Physics	Ph.D. 2002

b. Appointments

- March 2008-present: Associate Researcher, Helen Wills Neuroscience Institute, University of California at Berkeley
- February 2010: Visiting Professor, Physics Department, Universidad de Antioquia, Colombia.
- 2002-2008: Postdoctoral Research Associate, Dept. of Applied Mathematics, University of Colorado at Boulder.

c. Publications

(i) Publications most closely related to proposed project

1. A. Rokem, M. Trumpis, F. Pérez, *Nitime: time-series analysis for neuroimaging data*, Proc. 8th Python in Science Conference, G. Varoquaux, S. van der Walt, J. Millman (Eds), **2**, 68-76 (2009).
2. M. Brett, J. Taylor, C. Burns, K. J. Millman, F. Pérez, A. Roche, B. Thirion, M. D'Esposito, *NIPY: an open library and development framework for FMRI data analysis*, Human Brain Mapping, San Francisco, June 2009.
3. F. Pérez, H-P. Langtangen and R. LeVeque, *Python for Scientific Computing at CSE09*, SIAM News, **42:5**, 4 (2009).
4. G. Beylkin, M. Mohlenkamp and F. Pérez, *Approximating a Wavefunction as an Unconstrained Sum of Slater Determinants*. J. Math. Phys. **49**, 032107 (2008).
5. F. Pérez and B. E. Granger. *IPython: a System for Interactive Scientific Computing*, Comput. Sci. Eng. **9:3**, 21-23 (2007).

(ii) Other publications

1. G. Beylkin, V. Cheruvu and F. Pérez. *Fast Adaptive Algorithms in the Non-Standard Form for Multi-dimensional Problems*, Appl. Comput. Harmon. Anal. **24:3**, 354-377 (2008).
2. G. Beylkin, M. Mohlenkamp and F. Pérez, *Preliminary results on approximating a wavefunction as an unconstrained sum of Slater determinants*, Proc. Appl. Math. Mech., **7:1**, 1617-7061 (2007). DOI: 10.1002/pamm.200700145
3. M.V. Goldman, D.L. Newman and F. Pérez. *Dynamics and Instability of Electron Phase-Space Tubes*, Phys. Rev. Lett. **86**, 1239-1242 (2001).
4. A. Santander, J. Mahecha and F. Pérez, *Rigid Rotator and Fixed shape solutions to the Coulomb Three-Body Problem*. Few Body Systems, **22:1**, 37-60 (1997).
5. F. Pérez and J. Mahecha J. *Classical trajectories in Coulomb three body systems*. Rev. Mex. Física **39** (1997).

d. Synergistic Activities

1. Creator of the IPython project, an interactive environment for scientific computing using the Python language with support for distributed and parallel computing. Widely used in multiple scientific computing projects worldwide.
2. Developer in the NIH-funded Neuroimaging in Python project, which is hosted at the UC Berkeley Brain Imaging Center. This project provides an open platform for neuroimaging data analysis and is developed in coordination with other scientific Python libraries.
3. Collaborate with the development of libraries and tools for scientific computing in the Python language, in particular the NumPy, SciPy and Matplotlib projects.
4. I coordinate a seminar series at UC Berkeley on the use of Python-based tools for scientific research.
5. Conferences and workshops organized or co-organized that are relevant to this project:
 - (a) Workshops on the use of Python for scientific computing at Los Alamos National Laboratory, the University of California, Berkeley, the California Institute of Technology, Claremont Graduate University (NSF funded), the National Center for Atmospheric Research, the University of Stellenbosch (South Africa), and more.
 - (b) *Interactive Parallel Computation in Support of Research in Algebra, Geometry and Number Theory*. An NSF funded workshop at the Mathematical Sciences Research Institute (MSRI), University of California, Berkeley, February 2007.
 - (c) *Sage/Scipy Days 8: Connecting Pure Mathematics With Scientific Computation*. At Enthought Inc., Austin, Tx, February 2008.
 - (d) *Python and Sage: open source scientific computing*. A 3-part minisymposium at the annual Society for Industrial and Applied Mathematics (SIAM) conference, San Diego, June 2008.
 - (e) *SciPy'08 conference*. Organizer and presenter, tutorials track, Caltech, Pasadena, August 2008.
 - (f) *SciPy'09 conference*. Organizer, tutorials track, Caltech, Pasadena, August 2009.
 - (g) *Sage Days 11: Special functions and computational number theory meet scientific computing*. Mathematics department, University of Texas at Austin (NSF funded), November 2008.
 - (h) *Python for Scientific Computing*. A 3-part minisymposium at the SIAM Conference on Computational Science and Engineering, Miami, March 2009.

e. Collaborators and other Affiliations**Collaborators:**

Michael Silver (University of California at Berkeley)
 Matthew Brett (University of California at Berkeley)
 Brian Granger (Cal Poly San Luis Obispo)
 Jonathan Taylor (Stanford University)
 Jean-Baptiste Poline (Neurospin/CEA, France)
 Gregory Beylkin (University of Colorado)
 Martin J. Mohlenkamp (Ohio University)
 Robert Harrison (Oak Ridge National Lab, University of Tennessee)
 Lucas A. Monzón (University of Colorado)
 Ben Herbst (University of Stellenbosch, South Africa)

Graduate and Postdoctoral Advisors:

Gregory Beylkin (University of Colorado)
 Anna Hasenfratz (University of Colorado)

Thesis Advisor and Postgraduate-Scholar Sponsor for: None.