Biographical Sketch for Jacob Vanderplas

Professional Preparation

University of Washington	Computer Science	Postdoc	2013 - Present
University of Washington	Astronomy	Postdoc	2012 - 2013
University of Washington	Astronomy	Ph.D.	2006 - 2012
University of Washington	Astronomy	M.Sc.	2006 - 2007
Calvin College	Physics	B.Sc.	1999 - 2003

Appointments and Teaching Experience

University of Washington	NSF Postdoctoral Fellow	2013 - Present
University of Washington	Post-doctoral Researcher	2012 - 2013
University of Washington	Research Assistant	2007 - 2012
University of Washington	Planetarium Coordinator	2008 - 2010
University of Washington	Teaching Assistant	2006 - 2008
Mt. Hermon Outdoor Science School	K-12 Environmental Educator	2004 - 2006

Selected Related Publications

Jake Vanderplas, Andrew Connolly, Željko Ivezić, & Alex Gray. *AstroML: Machine Learning for Astronomy in Astrophysics.* CIDU proceedings, 2012

Jake Vanderplas, Andrew Connolly, Bhuvnesh Jain, & Mike Jarvis. *Interpolating Masked Weak Lensing Signals with Karhunen-Loeve Analysis.* ApJ 744:180, 2012.

Jake Vanderplas, Andrew Connolly, Bhuvnesh Jain, & Mike Jarvis. *3D Reconstruction of the Density Field: An SVD Approach to Weak Lensing Tomography.* ApJ 727:118, 2011.

LSST Science Collaboration LSST Science Book, Version 2.0, 2009 arXiv:0912.0201

Jake Vanderplas & Andrew Connolly. *Reducing the Dimensionality of Data: Locally Linear Embedding of Sloan Galaxy Spectra.* AJ 138:1365, 2009.

Other Significant Publications

V. Vikram, A. Cabre, B. Jain & **J. VanderPlas**. *Astrophysical Tests of Modified Gravity: the Morphology and Kinematics of Dwarf Galaxies.* JCAP 08:20, 2013

Bhuvnesh Jain & **Jake Vanderplas**. *Tests of Modied Gravity with Dwarf Galaxies.* JCAP 10:32, 2011.

Scott Daniel, Andrew Connolly, Jeff Schneider, **Jake Vanderplas** & Liang Xiong. Classication of Stellar Spectra with LLE. AJ 142:203, 2011.

Pedregosa, F.; Varoquaux, G.; Gramfort, A.; Michel, V.; Thirion, B.; Grisel, O.; Blondel, M.; Prettenhofer, P.; Weiss, R.; Dubourg, V.; **Vanderplas, J.**; Passos, A.; Cournapeau, D.; Brucher, M.; Perrot, M.; Duchesnay, E. *Scikit-learn: Machine learning in Python.* Journal of Machine Learning Research, 12:2825, 2011

R. Kessler, A. Becker, D. Cinabro, **J. Vanderplas**, & 42 co-authors. *First-Year Sloan Digital*

Sky Survey-II Supernova Results: Hubble Diagram and Cosmological Parameters. ApJ 703:1374, 2009.

Synergistic Activities

Open Source Contributions: I have developed fast sparse matrix eigen-decomposition code and graphical analysis for the numerical package `scipy`, and a number of optimized supervised and unsupervised learning and data visualization methods for the machine learning packages `scikit-learn` and `MDP-toolkit`. I created `SciDB-py`, a Python interface to SciDB. I have also written and contributed to astronomy-specic packages such as `astroML` (Astronomy Machine Learning), and `SNANA` (Fermilab's supernova analysis software).

Digital Planetarium: From 2010-2011, I managed and coordinated the upgrade of the UW planetarium to a digital system based on the World Wide Telescope software. This was a joint project between the University of Washington and Microsoft Research. I have developed related educational tools for K-12 class visits as well as undergraduate astronomy courses. I have occasionally partnered with Microsoft as an astronomy expert at a variety of education and technology conferences around the country.

Science Communication Fellow: I have participated in the Portal to the Public training program at the Pacic Science Center, and have volunteered regularly since 2009 as a Science Communication Fellow, exploring astronomical research with visitors to the museum.

Undergraduate Mentoring: I have participated as a mentor for the U. Washington PreMajor in Astronomy Program (PreMAP), providing research experiences for undergraduates from demographics which are traditionally under-represented in the sciences.

K-12 Curriculum Development: I taught for two years at the Mount Hermon Outdoor Science School, where among other activities I developed an outdoor astronomy curriculum for K-12 students, and conducted an astronomy training workshop for my peers at a regional conference for outdoor educators.

Selected Collaborators

Magda Balazinska, *University of Washington*	Mike Jarvis, *University of Pennsylvania*
Andrew Becker, *University of Washington*	Rick Kessler, *FNAL*
Andrew Connolly, *University of Washington*	John Marriner, *FNAL*
Scott Daniel, *University of Washington*	Masao Sako, *University of Pennsylvania*
Alex Gray, *Georgia Tech*	Jeff Schneider, *Carnegie Mellon University*
Željko Ivezić, *University of Washington*	Vinu Vikram, *University of Pennsylvania*
Bhuvnesh Jain, *University of Pennsylvania*	Liang Xiong, *Carnegie Mellon University*

Graduate Advisors

Andrew Connolly	*University of Washington*	(2008-2012)
Bhuvnesh Jain	*University of Pennsylvania*	(2009-2012)
Andrew Becker	*University of Washington*	(2006-2008)
Craig Hogan	*University of Washington*	(2006-2007)