Curriculum Vitae

JILL PALMER NAIMAN

NSF+ITC Postdoctoral Fellow (CfA) and Visiting Scholar (NCSA)

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Astronomical Fields of Research: Multidimensional magnetohydrodynamical simulations – cosmology and small scale star formation regions
Multidisciplinary Research: Development of visualization and storytelling tools for early-to-late career scientists, co-development of hardware and software for the Maker community, inclusion of under represented minorities in the STEAM fields, introductory science activities for girls
Hardware Development: Prototyping and testing for the MindMics startup, development of interactive LED art pieces

Big Data Experience

- Simulating and analyzing data from several stellar wind projects (PI; 100s of GB – a few TB), and the IllustrisTNG simulations (co-i; 10s of TB), all heterogeneous, large, and unprocessed datasets

Observational Data Experience

- Reduced & analyzed multidimensional and multiwavelength images and spectra from several astronomical detectors including Keck NIRC2 and NIRSPEC, VLA, LIGO, RHESSI

Selected Invited Visualization Talks

- "*Ytini for Cinematic Visualization in Houdini*", National Center for Supercomputing Applications, Champaign, IL, June, 13, 2018.
- "*Visualizing Astronomy: How do we learn stuff from big datasets?*", American Museum of Natural History, New York, May, 1, 2018.
- *"Visualization for Astrophysics"*, National Center for Supercomputing Applications, Illinois, September 21, 2016.
- "*Visualization Techniques in Astronomy*", Pixar University, Pixar Emeryville Campus, August 25, 2016.
- "*AstroBlend – An Astrophysics Visualization Library*", Blender Conference, Amsterdam, October, 24, 2015.

Selected Invited Astronomy Talks

- "*Modeling the Universe: Cosmological Simulations of Elemental Production*," Center for Astrophysics Summer Colloquium, Cambridge, MA, July, 19, 2018
- "*Chemical Evolution in Simulations of Galaxy Formation: Elemental Evolution in IllustrisTNG*," APS Meeting, Columbus, OH, April 14, 2018
- "*Elemental Evolution in Cosmological Simulations*," UIUC Colloquium, Champaign, IL, September 13, 2017
- "*R-process elements in the IllustrisTNG Simulations*," Nebular Emission Modeling Workshop, Cairns, AU, May 21, 2017
- "*The IllustrisTNG Simulations: Elemental Evolution in Cosmological Simulations,*" University of Wisconsin Madison Colloquium, May 4, 2017
- "*Should I Stay or Should I Go: Effects of Stellar Winds on Gas Retention and Expulsion in Star Clusters*," MODEST Meeting, NYC, Sept 10, 2016.
- "*Recent Star Formation in Dwarf Galaxies?*" Amherst/UMass Physics and Astronomy Colloquium, Feb 19, 2015.
- "*Stellar Wind Mixing: Physical Properties and Visualization*," NSF Symposium, Seattle, WA, Jan 3, 2015.

Visualization Publications

- *"Cinematic Visualization of Multiresolution Data: Ytini for Adaptive Mesh Refinement in Houdini"*, Borkiewicz, Kalina; Naiman, Jill; Lai, Haoming, submitted, arXiv:1808.02860.
- *"Houdini for Astrophysical Visualization"*, Naiman, J.P.; Borkiewicz, Kalina; Christensen, A.J., Publications of the Astronomical Society of the Pacific, Special Focus Issue: Techniques and Methods for Astrophysical Data Visualization, 129, 058008, 2017
- *"AstroBlend – An astrophysical visualization package for Blender"*, Naiman, J.P., Astronomy & Computing, 15, 50, 2016.

Selected Astronomy Publications

- **Naiman, J. P.**; Ramirez-Ruiz, E.; Lin, D.N.C, "*Stellar wind retention and expulsion in massive star clusters*," MNRAS, 478, 2794, 2018.
- **Naiman, J. P.**; Pillepich, Annalisa; Springel, Volker, Ramirez-Ruiz, E.; Hernquist, Lars; Pakmor, Ruediger; Vogelsberger, Mark; Nelson, Dylan; Marinacci, Federico, Genel, Shy; Torrey, Paul, "*First results from the IllustrisTNG simulations: A tale of two elements -- chemical evolution of magnesium and europium*," MNRAS, 477, 1206, 2018.
- **Naiman, J. P.;** E. & Ramirez-Ruiz, E.; Debuhr, J.; Ma, C.-P., "*The Role of Nuclear Star Clusters in Enhancing Supermassive Black Hole Feeding Rates During Galaxy Mergers*", ApJ 81, 10, 2015
- **Naiman, J.P**.; Ramirez-Ruiz, E.; Lin, D.N.C., "*External Mass Accumulation onto Core Potentials: Implications for Star Clusters, Galaxies, and Galaxy Clusters*," 2011, ApJ, 735, 25.
- **Naiman, J.P.;** Ramirez-Ruiz, Enrico, Lin, Douglas N. C., "*Gas Accretion by Star Clusters and the Formation of Ultraluminous X-ray Sources from Cusps of Compact Remnants*," 2009, ApJL, 705, L153.

Curriculum Development – Maker spaces, Data Analysis and Visualization

2016,2017	Intro to Computational Astronomy, Banneker & Aztlan Institutes (4 days, 1.5 hrs)
2016,2017	Intro to Scientific Visualization, Banneker & Aztlan Institutes (4 days, 1.5 hrs) – An REU program for undergraduates of color in physics and astronomy, 10 weeks of classes and research projects at the CfA - https://bannekerinstitute.fas.harvard.edu – slides, code, and activities available 2017: http://www.astroblend.com/ba2017/ – for 2016: http://www.astroblend.com/ba2016/
2014	LAMAT Python Programming Bootcamp for Transfer Students (7 afternoons) – Inquiry based program for introductory Python projects, including Raspberry PI's, scientific simulations, and three dimensional data visualization – Detailed lesson plans available upon request
2013	Programming Fundamentals Workshop (3 days) – Inquiry based Python instruction – materials available upon request
2012/15/18	Sew Your Own Circuit workshop at GeekGirlCon (1.5 hrs) – Inquiry based activity to introduce girls and women to electronic circuits with sewable LEDs and conductive thread – slides available (http://avriot.com/talks/introToSewCircuit_noNotes_short-web.pdf) – materials list available: http://avriot.com/educational_materials/ggc2015.html
2012	Co-instructor, Astronomy 202, Graduate level "Radiative Processes" (Quarter)
2011	Visualizing Astronomy workshop (2.5 days) – Inquiry based teaching for mixed class of science and art undergraduates – mixed groups used Arduinos to produce hands-on scientific art instillations through a process of data acquisition, analysis, and data visualization

Other Teaching

2016	Instructor, yt user's meeting
2010-2013	Instructor, Santa Cruz Prison Inmate Education project
2012	Guest lecturer, DANM 133 Electronics Class
2011	Teaching Assistant, “Introduction to the Cosmos”
2011	Light and Spectra workshop at Girls Go Tech Faire, NASA AMES
2008	Teaching Assistant, “Introductory Astronomy: The Stars”

Mentoring

2016-present	Advisor to two undergraduate Aztlan Institute students
2015	Advisor for a student through the CfA's Latino Initiative
2008-2014	Advisor of eight undergraduates on their thesis research

Public/Open Source Visualization Packages

AstroBlend	Tools for using scientific data within Blender – www.astroblend.com - Founder, Primary Developer
ytini	Methods for Python package yt within Houdini for Scientific Viz – www.ytini.com - Founding Member, Co-developer
AVRiot	Projects/ideas for making sound & motion sensitive LED wearables – www.avriot.com - Founder, Primary Developer

Education

2007-2014	Astronomy & Astrophysics PhD Student, University of California, Santa Cruz
2006-2007	Physics Masters Student, University of California, Santa Cruz
2002-2005	B.S. Astrophysics, University of California, Los Angeles. Mathematics minor.
2000-2002	A.A. Individual Studies, Foothill Junior College, Los Altos, CA

Work Experience

2018-present	Visiting Scholar, NCSA
2018-present	Adjunct Lecturer, iSchool, University of Illinois, Champaign-Urbana
2017-2018	Institute of Theory & Computation Postdoctoral Fellow, Harvard-Smithsonian CfA
2017-2018	Co-founder, MindMics – prototyping and testing of “smart” earbuds which track the user's vitals (heart and breathing rate, temperature)
2014-2017	NSF Postdoctoral Fellow, Harvard-Smithsonian CfA

Selected Honors and Awards

2014	Chancellor's Achievement Award For Diversity, UCSC
2013	ARCS Scholar
2012	Presidents Dissertation Year Fellowship
2012	Departmental Mentoring Award
2006	Regent's Fellowship (1 quarter)
2005	Charles Geoffrey Hilton Award for Academic Excellence, UCLA
2005	Highest Departmental Honors & Phi Beta Kappa, UCLA

In the Media

- *“Visualize astrophysics data with Blender”*, opensource.com interview, November 24, 2015.
- *“Spotlight 41: Jill P. Naiman”*, CodePancake Interview, December 11, 2015.