Meredith L. Rawls, PhD
Stellar Astronomer & Software Developer

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education

2016	**Ph.D.** Astronomy	New Mexico State University, Las Cruces NM
	Red Giants in Eclipsing Binaries as a Benchmark for Asteroseismology	
2010	**M.S.** Astronomy	San Diego State University, San Diego CA
	Refined Neutron Star Mass Determinations for Six Eclipsing X-Ray Pulsar Binaries	
2008	**B.S.** Physics (Emphasis in Astrophysics)	Harvey Mudd College, Claremont CA
	Music humanities concentration; Semester abroad in Moscow, Russia	

employment

2016–Now LSST Data Management, UW Department of Astronomy *Seattle, Washington*
2019–Now *Research Scientist*
2016–2019 *Postdoctoral Research Associate*
- Prompt image processing in python for the LSST Science Pipelines (80%)
- Continuing research in stellar astrophysics (20%)

2010–2016 NMSU Department of Astronomy *Las Cruces, New Mexico*
Research Associate
- Observed and modeled red giant binaries as a window to stellar physics
- Trained and certified observer at Apache Point Observatory

Teaching Assistant
- Prepared, taught, and graded intro astronomy laboratory exercises
- Piloted an online distance-learning lab (astronomy.nmsu.edu/geas)

2011 Indian Institute of Astrophysics *Bangalore, India*
Research Assistant - Derived orbital solutions for eclipsing binaries in the LMC

2008–2010 SDSU Department of Astronomy *San Diego, California*
Research Assistant - Neutron star masses from binary observations and models
Teaching Associate - Intro labs, field trips, planetarium, and lab manual revision

2007 Carnegie Observatories *Pasadena, California*
Research Assistant - Giant star chemical tagging & two observing runs at LCO

achievements

2019–Now LSST Science Pipelines and URSSI Workshops *LSST / URSSI, urssi.us*
Instructor and helper for advanced scientific software tutorials and workshops

2018–Now Analysis of Precursor LSST Images *LSST Science Pipelines, pipelines.lsst.io*
Connecting each step of the Prompt Processing Pipeline, running real images
from precursor surveys through it, and preparing for LSST Alert Production

2018–2019 Pre-MAP Project Mentor *University of Washington*
Undergrad mentor for projects with LSST-precursor data from ZTF and DECam

2017–Now Software Carpentry Instructor *The Carpentries, carpentries.org*
Certified instructor for introductory scientific computing (bash, git, python)
Teaching regular workshops at UW eScience and beyond

2016–2017 Student Advisor *SDSS FAST / New Mexico State University*
Primary mentor and scientific resource for a post-baccalaureate astronomer

awards

2017–Now	**Invited member of DIRAC as a Research Fellow**	Department of Astronomy, UW
	Data Intensive Research in Astrophysics & Cosmology (DIRAC) Institute	
2016	**Postdoc Poster Award Winner**	Cool Stars 19 SOC
	Awarded a plenary talk for best poster at the Cool Stars 19 conference	
2015	**Chambliss Astronomy Achievement Student Award**	American Astronomical Society
	Honorable Mention at the 225th AAS Meeting	
2012, 2013	**Graduate Fellowship**	New Mexico Space Grant Consortium
	Two-time recipient of the NM Space Grant Graduate Research Fellowship	
2009	**Graduate Fellowship**	Department of Astronomy, San Diego State University
	Ruth and Clifford Smith Astronomy Fellowship	

engagement

2018–Now	**DIRAC Visitor's Committee**	DIRAC Institute, UW
	Established new monthly seminar series and recruited a diverse set of speakers	
2018–2019	**UAW Local 4121 Postdoctoral Unit Area Steward**	Department of Astronomy, UW
	Lead department organizer and liaison; advocate for family & childcare issues	
2016–2017	**ComSciCon-PNW Chair**	comscicon.com/comscicon-pnw2017, Seattle
	Chair of OC for science communication conference for 40 STEM grad students	
2015–Now	**GeekGirlCon Panelist and DIY-Sci-Zone Agent**	Seattle, WA
	Invited to speak on several science panels and lead hands-on experiments	
2015	**Inclusive Astronomy Conference**	Vanderbilt University, Nashville
	Helped draft the Nashville Recommendations to break down barriers to access	
2015	**AAS Media Intern**	American Astronomical Society
	Press representative and Astrobites live-blogger for the 225th AAS Meeting	
2014	**SciCoder Workshop**	NYU, New York City
	Gained proficiency with python, git, SQLite, and other computing tools	
2013–2018	**Science Writer and Editor**	Astrobites Collaboration, astrobites.com
	Astrobites blog: daily summaries of recent research papers in astronomy	
	Spearheaded website redesign (2015), Social Media Czar (2016–2018)	
2013	**Astronomy Ambassador**	American Astronomical Society & Astronomical Society of the Pacific
	Trained in effective techniques to teach scientific concepts to varied audiences	

publications

APOGEE/*Kepler* Overlap Yields Orbital Solutions for a Variety of Eclipsing Binaries
J. M. Clark Cunningham, **M. L. Rawls**, D. Windemuth, A. Ali, et al.
2019, The Astronomical Journal, 158, 106

An Overview of the LSST Image Processing Pipelines
J. Bosch, [24 alphabetized co-authors], **M. L. Rawls**, [8 alphabetized co-authors]
2018, ADASS XXVIII Proceedings, arXiv:1812.03248

Testing the Asteroseismic Scaling Relations for Red Giants with Eclipsing Binaries Observed by Kepler
P. Gaulme, J. McKeever, J. Jackiewicz, **M. L. Rawls**, et al.
2016, The Astrophysical Journal, 832, 121

Red Giants in Eclipsing Binaries as a Benchmark for Asteroseismology
M. L. Rawls
2016, PhD Thesis, doi:10.5281/zenodo.50996
Committee: J. Jackiewicz (chair), L. Boucheron, P. Gaulme, T. Harrison, & R. Walterbos

KIC 9246715: The Double Red Giant Eclipsing Binary With Odd Oscillations
M. L. Rawls, P. Gaulme, J. McKeever, et al.
2016, The Astrophysical Journal, 818, 108

Red Giants in Eclipsing Binary and Multiple-Star Systems: Modeling and Asteroseismic
Analysis of 70 Candidates from Kepler Data
P. Gaulme, J. McKeever, **M. L. Rawls**, et al.
2013, The Astrophysical Journal, 767, 82

Refined Neutron Star Mass Determinations for Six Eclipsing X-Ray Pulsar Binaries
M. L. Rawls, J. A. Orosz, J. E. McClintock, et al.
2011, The Astrophysical Journal, 730, 25

select presentations   (t) = talk   (p) = poster

(p) Searching for Boyajian's Star Analogs
        2020 January, 235th AAS Meeting, #273.17

(t) The Software Behind LSST's Time Domain Science
        2019 August, Vanderbilt Seminar, *Invited Speaker*

(t) DIA Processing, Testing, and Development: Finding Real Bumps in the Night
        2019 August, LSST Project & Community Workshop, *Invited Speaker*

(p) Real Time Image Differencing with the LSST Alert Production Pipeline
        2019 January, 233rd AAS Meeting, #363.25, doi:10.5281/zenodo.2543927

(t) Welcome and LSST Alert Production Overview
        2018 May, DIRAC Inaugural Open House, *Invited Speaker*

(t) Red Giant Binaries Inside and Out with Asteroseismology
        2018 January, Everett Astonomical Society, *Invited Speaker*

(t) From Standalone Scripts to Software Development
        2017 May, Python in Astronomy, Leiden, Netherlands

(t) Eclipsing Binaries as Astrophysical Laboratories
        2017 February, WWU Department of Physics and Astronomy Colloquium, *Invited Speaker*

(t) A High Resolution Movie of the Night Sky with LSST
        2017 February, University of British Columbia, *Invited Speaker*

(t) The Large Synoptic Survey Telescope: From Software to Science
        2016 December, Herzberg Institute of Astrophysics, *Invited Speaker*

(t) The Odd Oscillatory Behavior of Red Giant Binaries
        2016 November, Harvard CfA Stars & Planets Seminar, *Invited Speaker*

(t) The Large Synoptic Survey Telescope: Status and Opportunities
        2016 October, Northwest Astronomers Meeting, *Invited Speaker*

(p) Red Giant Eclipsing Binaries: Exploring Non-Oscillators and Testing Asteroseismic Scalings
        2016 June, Cool Stars 19, Postdoc Poster Award Winner, doi:10.5281/zenodo.58046

(t) Red Giants in Eclipsing Binaries as a Benchmark for Asteroseismology
        2016 April, NMSU Department of Astronomy Colloquium, PhD Thesis Defense

(t) What Makes Red Giants Tick? Linking Tides, Activity, & Solar-Like Oscillations via Eclipsing Binaries
        2016 January, 227th AAS Meeting, #105.06D

(t) Refined Neutron Star Mass Determinations in Six Eclipsing X-Ray Pulsar Binaries
        2010 April, SDSU Department of Astronomy Colloquium, Master's Thesis Defense