Alexander J. Mendez

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Curriculum Vitae

Education

2010 – 2014 **Ph.D** in Astrophysics — University of California, San Diego
Thesis: *Multi-wavelength population studies of Active Galactic Nuclei and Galaxies using PRIMUS and AEGIS at z~0.7*
Faculty advisor: Professor Alison L. Coil

2008 – 2010 **Masters of Science** in Astrophysics — University of California, San Diego
Projects: *Green Galaxy Morphology and DLA Observations*
Advisors: Professor Alison L. Coil and Professor Arthur M. Wolfe

2003 – 2008 **Bachelor of Science** — University of Washington, Seattle
Astronomy and Physics with College Honors in Astronomy

2003 – 2008 **Bachelor of Science** — University of Washington, Seattle
Mathematics

Experience

2014 – *Now* **Johns Hopkins University** — Baltimore, Maryland
Postdoctoral Research Fellow
Deprojecting the WISE sky using the clustering redshift technique with Professor Brice Ménard.

2009 – 2014 **University of California, San Diego** — San Diego, California
Graduate Student Researcher
Led multiple studies of galaxy and AGN properties using large redshift surveys.

2010 – 2011 **MXW LLC** — San Diego, California
Co-Founder
Founded startup with Dr. Jonathan Whitmore to develop finance iOS Application and test viability of entrepreneurship. Released two applications to the iOS Appstore.

2008 – 2009 **University of California, San Diego** — San Diego, California
Teaching Assistant
Led discussion groups, handled exams, automated homework grading, and lectured.

2004 – 2008 **University of Washington, Oceanography** — Seattle, Washington
Undergraduate Summer Research Program
Developed machine-vision fluid-dynamic methods to measure and improve models of energy transport in the ocean with Dr. Peter Rhines.

2007 **Jet Propulsion Laboratory** — Pasadena, California
Undergraduate Summer Research Fellowship
Worked with Dr. Hamid Hemmati on novel adaptive optics for free-space communications.

2003 **University of Washington, Applied Physics Laboratory** — Seattle, Washington
Undergraduate Summer Research Program
Worked with Dr. Matthew Alford to develop remote fiber-optic salinity/density sensors.

Data Analysis Experience

Python – Data Visualization and Package Development 8 years
Released multiple packages and developed clustering data-pipelines. Developed multi-processor and multi-threaded data analysis programs. Experienced in svn, git (GitHub), iPython, numpy, pandas, matplotlib and many other scientific python libraries.

Objective C – iOS Application Development 2 years
Asynchronous multi-threaded server and client applications. Location-aware applications.

Interactive Data Language (IDL) – Data Reduction and Data Analysis 9 years
Scientific Data Analysis and visualization. Used and improved the XIDL, iSEDfit, and PRIMUS pipelines.

Matlab – Image Processing Toolbox and Signal Processing Toolbox 5 years
Development of machine vision techniques.

Linux – Data management and System Administration 17 years
System administrator for 16 node cluster and multiple workstations. Supervised backup and restoration of few terabyte data archives. Proficient in shell scripting and network security.

Observing and Data Experience

SDSS Spectra and Photometry Database
Built spectroscopic reference catalogs for large-scale structure visualization and use in clustering-redshift technique.

WISE photometry catalogs
Measured redshift distribution of WISE quasars and galaxies.

Keck – LRIS, HIRES, ESI 10 nights
Remote observations and XIDL data reduction for Echelle spectra and multi-object spectra.
PI: Alison Coil, Aleks Diamond-Stanic, James Aird

LICK – Shane, Nickel 2 nights
Spectroscopic and spatial data reduction.

AEGIS and PRIMUS redshift catalogs
Created multi-wavelength matched redshift catalogs. Built and maintain the public data release of the PRIMUS redshift catalog.

Spitzer Space Telescope imaging with IRAC and MIPS
Spitzer Science Center Mopex data reduction and mosaic generation.

Chandra and XMM-Newton X-ray catalogs
Likelihood ratio matching of X-ray sources to multi-wavelength catalogs.

Awards

2003 – 2013 **Gates Millennium Undergraduate and Graduate Scholar** Gates Millennium Foundation
One of 1,000 talented students in 2003 to receive a good-through-graduation scholarship to use at any college or university of their choice.

2004 – 2006 **Mary Gates Honors and Research Scholar** University of Washington
Mary Gates Research Scholarships are competitive scholarships intended to enhance the educational experiences of undergraduate students at the University of Washington while they are engaged in research guided by faculty.

2003 – 2008 **NASA Space Grant Scholar** NASA Space Grant Consortium
These competitive scholarships are based on high school academic achievement, personal essays, recommendations, and future academic promise.

2003 – 2008 **University of Washington Deans List** University of Washington
On the deans list every quarter.

Talks, Workshops, and Conferences

2016	**SPHEREx Workshop** [Invited]	Caltech
2015	**HotSci**	Space Telescope Science Institute
2014	**Wine and Cheese Seminar**	Johns Hopkins University
2014	**Clustering Measurements of Active Galactic Nuclei**	European Southern Observatory
2013	**Galaxy Journal Club** [Invited]	Space Telescope Science Institute
2013	**Astronomy Seminar** [Invited]	Dartmouth College
2013	**Cosmology Seminar** [Invited]	Yale Center for Astronomy and Astrophysics
2013	**Cosmology Seminar** [Invited]	UC Berkeley
2013	**Wunch Seminar**	Princeton University
2013	**OIR Seminar**	Harvard-Smithsonian Center for Astronomy
2013	**Steward / NOAO Galaxy Group**	University of Arizona
2013	**Flash Seminar**	UC Santa Cruz
2013	**Journal Club**	UC San Diego
2012	**Astrophysics Seminar** [Invited]	UC Riverside
2012	**Conference: AAS 219** [Poster]	Austin, TX
2012	**Conference: The Baryon Cycle** [Poster]	Center for Galaxy Evolution
2012	**Journal Club**	UC San Diego
2012	**Conference: AAS 219** [Poster]	Austin, TX
2011	**Extragalactic Reading Group** [Invited]	UC Los Angeles
2011	**Conference: Galaxy Mergers in an Evolving Universe**	Academica Sinica
2011	**Journal Club**	UC San Diego
2010	**Conference: 2010 AEGIS Meeting**	UC Santa Cruz
2010	**Conference: Inaugural Center for Galaxy Evolution Meeting** [Poster]	UC Irvine
2010	**Journal Club**	UC San Diego
2010	**Workshop: Summer School in Statistics for Astronomers**	Penn State
2009	**Workshop: Observational Astronomy Workshop**	UCO/Lick

Teaching and Service

2015 – *Now* **Wine and Cheese Seminar Committee** — Johns Hopkins University
Co-organizer of weekly seminar.

2015 – *Now* **Astrostatistics Reading Seminar** — Johns Hopkins University
Organizer of the weekly seminar.

2014 – 2015 **Astro-ph Discussion** — Johns Hopkins University
Co-organizer of weekly astro-ph science discussions.

2013 – 2014 **Graduate Astro-statics Seminar Series** — UC San Diego
Organized an astro-statistics seminar to improve graduate student statistics knowledge.

2012 – 2013 **Physics Graduate Council** — UC San Diego
Founding member of the Physics Graduate Council at UCSD. Served as co-chair, awards committee member, and coordinated graduate student input for faculty searches.

2011 – 2013 **Graduate Student Association** — UC San Diego
Physics graduate student representative for the GSA.

Teaching and Service Continued

2011 **Expanding Your Horizons Conference** UC San Diego
Volunteer presenter.

2010 **Tech Trek Math/Science Camp** UC San Diego
Volunteer presenter.

2009 **Physics7: Galaxies and Cosmology** UC San Diego
Lecture assistant: Led weekly discussion group, grading of examinations and lectured.

2009 **Physics 1C: Waves, Optics, and Modern Physics Laboratory** UC San Diego
Lecture assistant: Led weekly discussion group, and grading of examinations and homework.

2008 **Physics 2CL: Electricity and Magnetism, Waves, and Optics** UC San Diego
Laboratory assistant: Led daily overview of lab procedures, writing of pre-lab quizzes, and grading of lab notebooks.