

JENNIFER KADOWAKI

PhD Candidate in Astrophysics



(714) 726 0579



jkadowaki.github.io



jkadowaki@email.arizona.edu

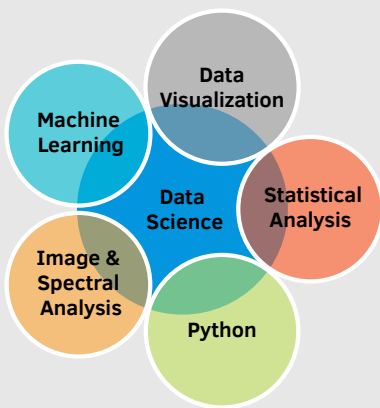


/in/jennifer-kadowaki



jkadowaki

Skills



Courses

Relevant Graduate Coursework

- Data Mining & Discovery
- Data Mining & Machine Learning in Astronomy
- Instrumentation & Statistics
- Introduction to Machine Learning
- Neural Networks
- Numerical & Statistical Methods
- Statistical Methods in Astrophysics

Relevant Course Projects

- **Statistical Methods:** Reproduced the 2011 Physics Nobel Prize results of the accelerating expansion of the universe using Bayesian analysis. Tested results for bias due to host galaxy masses.
- **DM/ML in Astronomy:** Detected dwarf galaxies using kernel density estimation on large imaging surveys. Evaluated the completeness and false detection rates for different kernels.
- **Neural Networks:** Conducting sentiment analysis of tweets. (To be completed in Dec 2018.)

Education

2015 - 2020	PhD Major, Astronomy & Astrophysics PhD Minor, Information Sciences	University of Arizona
2015 - 2018	MS, Astronomy & Astrophysics	University of Arizona
2010 - 2014	BS, Physics	UCLA

Publications

- *Spectroscopic Confirmation of the Existence of Massive Ultra-diffuse Galaxies* Kadowaki, Zaritsky, & Donnerstein. *in prep.*
- *Separating the Disk and Jet Activities of Violently Variable Gamma-ray Sources* Malkan, Kadowaki, & Webb. *in prep.*
- *Systematically Measuring Ultra Diffuse Galaxies (SMUDGes). I. Survey Description and First Results in the Coma Galaxy Cluster and Environs* Zaritsky, Donnerstein, Dey, Kadowaki, et al. Accepted in ApJL.
- *Spectroscopy of Ultra-diffuse Galaxies in the Coma Cluster* Kadowaki, Zaritsky, & Donnerstein. 2017, ApJL, 838, L21.

Employment

Data Reduction Specialist The NOAO Data Lab Team	National Optical Astronomy Observatory May 2018 - Aug 2018
<ul style="list-style-type: none">• Developed ML-based science cases to showcase Data Lab products to users.• Conducted exploratory analysis and predictive modeling to discover new ultra-diffuse galaxies in image and catalog data.• Tools: Python (scikit-learn, pandas, bokeh, seaborn), Machine Learning (random forest, nearest neighbor), JupyterLab, SQL	

Graduate Teaching Assistant ASTR 170B: <i>The Physical Universe</i> ASTR 201: <i>Cosmology</i>	University of Arizona Jan 2017 - May 2017 Jan 2018 - May 2018
---	---

Research

Graduate Research Assistant PhD Dissertation: <i>The Formation of Massive Ultra-diffuse Galaxies</i>	University of Arizona Aug 2015 - present
---	---

- Searching for ultra-diffuse galaxies (UDG) in TB-sized, deep-imaging surveys.
- Developing a distance-predicting algorithm to identify environments around UDGs and to determine the environment's role in UDG formation.
- **Tools:** Python (keras, scikit-learn, pandas, bokeh), Machine Learning (neural networks, random forest, nearest neighbor, kernel density estimation, regression), SQL
- **Award:** 🏆 Honorable Mention, NSF Graduate Research Fellowship (2017)

Graduate Research Assistant Masters Thesis: <i>Spectroscopy of UDGs in the Coma Cluster</i>	University of Arizona Aug 2015 - May 2017
--	--

- Spectroscopically confirmed the first set of UDGs in a galaxy cluster.
- Measured the average age and chemical composition of UDGs in galaxy clusters using stellar population synthesis models.
- **Tools:** Python (matplotlib), IRAF, PÉGASE-HR

Undergraduate Research Assistant Senior Thesis: <i>Separating the Disk and Jet Activities of Quasars</i>	UCLA Jan 2012 - Apr 2015
---	-----------------------------

- Built a data reduction pipeline for optical and infrared imaging data.
- Measured photometry and modeled simultaneous disk and jet activities of 15 quasars to understand how accretion disks power relativistic jets.
- **Tools:** Python (AstroPy, NumPy, SciPy, AliPy, matplotlib), IRAF/PyRAF
- **Awards:** 🏆 UCLA Dean's Prize (2013), 🎓 Clare Boothe Luce Scholarship (2012-2013), 🎓 Northrup Grumman-Litton Scholarship (2013-2014)