

# JENNIFER KADOWAKI

## PhD Candidate in Astrophysics



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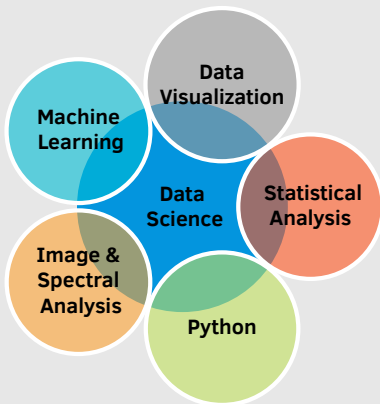
/in/jennifer-kadowaki



jkadowaki

## Skills

### Overview



## Relevant Graduate Coursework

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

## Relevant Course Projects

- **ASTR 513:** Reproduced the 2011 Physics Nobel Prize results using Bayesian analysis. Tested results for bias due to host galaxy masses.
- **ASTR 502:** Detected dwarf galaxies using kernel density estimation on large imaging surveys. Evaluated the completeness and false detection rates for different kernels.

## Publications

- “*Spectroscopy of Ultra-diffuse Galaxies in the Coma Cluster*”  
Kadowaki, Zaritsky, & Donnerstein.  
2017, ApJL, 838, L21.

## Education

2015 - 2020 **PhD, Astronomy & Astrophysics**

University of Arizona

2015 - 2017 **MS, Astronomy & Astrophysics**

2010 - 2014 **BS, Physics**

UCLA

## Research

Aug 2015 -  
present

### Graduate Research Assistant

University of Arizona

**PhD Dissertation:** *The Formation of Massive Ultra-diffuse Galaxies*

- Mining for ultra-diffuse galaxies (UDG) on TB-sized, deep-imaging surveys.
- Developing an algorithm to predict distances to and environments of UDGs to test whether environmental mechanisms halted star formation.
- **Tools:** Python (scikit-learn, pandas, bokeh, matplotlib, AstroPy, statistics, NumPy, SciPy), Machine Learning (kernel density estimation, regression), SQL
- **Award:** 🏆 Honorable Mention, NSF Graduate Research Fellowship (2017)

Aug 2015 -  
May 2017

### Graduate Research Assistant

University of Arizona

**Masters Thesis:** *Spectroscopy of Ultra-diffuse Galaxies in the Coma Cluster*

- Confirmed the first set of UDGs in a galaxy cluster and discovered the first with ionized gas via spectroscopy.
- Determined the average age and chemical composition of UDGs in galaxy clusters using stellar population synthesis models.
- **Tools:** Python (matplotlib), IRAF, PÉGASE-HR

Jan 2012 -  
Apr 2015

### Undergraduate Research Assistant

UCLA

**Senior Thesis:** *Separating the Disk and Jet Activities of Quasars*

- Built a data reduction pipeline to reduce optical and infrared imaging data and to automatically measure quasar brightnesses against standard stars.
- 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)

June 2014 -  
Aug 2014

### REU Summer Student

Space Telescope Science Institute

*AGN Variability in the Hubble CANDELS Survey*

- Simulated the AGN detection limits and spurious source fractions for the CANDELS survey by modeling Hubble's point spread function.
- **Tools:** Python (multiprocessing, NumPy, matplotlib), TinyTim, Bash

June 2013 -  
Sept 2013

### REU Summer Student

National Radio Astronomy Observatory

*Stacking Spectra of Dense Gas Tracers in the Antennae Galaxies*

- Extracted faint signals from dense gas by stacking spectra corrected for line-of-sight velocities. Determined that a greater fraction of dense gas exists across the most extreme star forming regions in the galaxy merger.
- **Tools:** Python (NumPy, matplotlib), IDL

## Experience

Jan 2017 -  
May 2018

### Graduate Teaching Assistant

University of Arizona

*ASTR 170B (The Physical Universe), ASTR 201 (Cosmology)*

- Lectured, planned curriculum, graded assignments, and held bi-weekly office hours and exam reviews.