Clarissa Rizzo Credidio Do Ó

/clarissardoo cdoo@ucsd.edu
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Physics Ph.D. Candidate and NSF Fellow, UC San Diego

Interests and Skills: Data Analysis, Statistics, Instrumentation, System Simulations, Orbit Determination and Dynamics, Optics, Detector Characterization, Test Performance and Automation

Education

University of California, San Diego — September 2020 – Present
Physics, Ph.D. (Expected) — *San Diego, CA*

University of California, San Diego — September 2020 – February 2023
Physics, M.S. - GPA 3.95 — *San Diego, CA*

University of California, Santa Barbara — September 2016 – June 2020
Physics, B.S. (Honors) - Minor in Astronomy and Planetary Science — *Santa Barbara, CA*

Research and Work Experience

University of California, San Diego — September 2020 – Present
Graduate Research Fellow (Advisor: Prof. Quinn Konopacky) — *San Diego, CA*

- Analyzed high resolution spectroscopy data from the Keck Planet Image Characterizer (KPIC) in order to understand the atmosphere and orbit of the 1RXS0342+1216 binary star system.
- Reduced directly imaged exoplanet data from the NIRC2 camera on the W. M. Keck Observatory.
- Analyzed the distribution of exoplanet eccentricities at a population level using observable-based priors and Bayesian statistics.
- Tested and characterized the EMCCD camera for the Gemini Planet Imager 2.0's (GPI 2.0) new pyramid wavefront sensor.
- Simulated the dynamics and stability of the HR-8799 exoplanet system using NIRC2 data from the Keck II Telescope.

Lockheed Martin — January 2020 – September 2020
Test Engineer Intern — *Santa Barbara, CA*

- Wrote scripts to automate the testing process of infrared focal plane arrays (FPAs) and used these scripts to test parts.
- Used Object-Oriented programming to automate scripts for analyzing telegraph noise on infrared focal plane arrays.

NASA Jet Propulsion Laboratory — June 2019 – September 2019
Astrophysics Research Intern — *Pasadena, CA*

- Worked on PARVI (Palomar Radial Velocity Instrument) under the guidance of Drs. Gautam Vasisht and Christopher Matthews.
- Wrote programs to predict the instrument's photon throughput, and performed photometry and spectrophotometry on data to compare my projections to the actual throughput.
- Performed simulations to analyze how the single-mode fiber optics coupling efficiency changes as we introduce optical aberrations into the system.

University of California, Santa Barbara — June 2018 – June 2020
Undergraduate Researcher (Advisor: Prof. Ben Mazin) — *Santa Barbara, CA*

- Designed and developed a database for the Mazin Lab, an astrophysics laboratory that uses Microwave Kinetic Inductance Technology to directly image extrasolar planets. The database is a website currently available on the laboratory's server.
- Wrote a program that corrected cosmic ray incidents for the new device developed by the lab (MEC - MKID Exoplanet Camera).
- Performed post-processing (angular differential imaging and spectral differential imaging) and made contrast curves on MEC data.

Selected Awards, Grants and Honors

SPIE Astronomical Telescopes+Instrumentation Travel Grant — April 2024
Carol and George Lattimer Award for Graduate Excellence — February 2023
NASA ExoExplorers Award — January 2023
The School of Physical Sciences Cohort Program Mentorship Award at UCSD — September 2022
National Science Foundation Graduate Research Fellowship (NSF GRFP) — March 2020
San Diego Fellowship — March 2020
Caltech SURF (Summer Undergraduate Research Fellowship) — June 2019
Edison Summer Research Program Scholarship — June 2018

Programming Languages and Skills

Python *Proficient* | **MATLAB** *Proficient* | **Linux** *Proficient* | **C/C++** *Advanced Beginner*