Clarissa Rizzo Credidio Do Ó

Physics Ph.D. Candidate and NSF Fellow, UC San Diego

Education

University of California, San Diego

Physics, Ph.D. (Expected)

University of California, San Diego

Physics, M.S.

University of California, Santa Barbara

Physics, B.S. (Honors) - Minor in Astronomy and Planetary Science

Research and Work Experience

University of California, San Diego

Graduate Research Fellow (Advisor: Prof. Quinn Konopacky)

» 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.
- » Testing and characterizing 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

Test Engineer

- » 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

Astrophysics Research Intern

- » 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

Undergraduate Researcher (Advisor: Prof. Ben Mazin)

- » 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.

Awards, Grants and Honors

NASA ExoExplorers AwardJanuary 2023The School of Physical Sciences Cohort Program Mentorship Award at UCSDSeptember 2022National Science Foundation Graduate Research FellowshipMarch 2020San Diego FellowshipMarch 2020Caltech SURF (Summer Undergraduate Research Fellowship)June 2019Edison GRE ScholarshipMay 2019Edison Summer Research Program ScholarshipJune 2018Starting Lines Essay Publication Prize at UCSBJanuary 2018	Carol and George Lattimer Award for Graduate Excellence	February 2023
The School of Physical Sciences Cohort Program Mentorship Award at UCSDSeptember 2022National Science Foundation Graduate Research FellowshipMarch 2020San Diego FellowshipMarch 2020Caltech SURF (Summer Undergraduate Research Fellowship)June 2019Edison GRE ScholarshipMay 2019Edison Summer Research Program ScholarshipJune 2018Starting Lines Essay Publication Prize at UCSBJanuary 2018	NASA ExoExplorers Award	January 2023
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San Diego FellowshipMarch 2020Caltech SURF (Summer Undergraduate Research Fellowship)June 2019Edison GRE ScholarshipMay 2019Edison Summer Research Program ScholarshipJune 2018Starting Lines Essav Publication Prize at UCSBIanuary 2018	National Science Foundation Graduate Research Fellowship	March 2020
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Edison Summer Research Program ScholarshipJune 2018Starting Lines Essav Publication Prize at UCSBJune 2018	Edison GRE Scholarship	May 2019
Starting Lines Essav Publication Prize at UCSB	Edison Summer Research Program Scholarship	June 2018
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</> Programming Languages and Skills

Python Proficient

MATLAB Proficient

Linux Proficient

C Advanced Beginner

September 2020 - Present San Diego, CA September 2020 – February 2023 San Diego, CA September 2016 – June 2020 Santa Barbara, CA

> September 2020 - Present San Diego, CA

June 2019 – September 2019

Santa Barbara, CA

January 2020 – September 2020

Pasadena, CA

lune 2018 – lune 2020

Santa Barbara, CA

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English Fluent

Portuguese Fluent

Spanish Proficient

German Advanced Beginner

Presentations

Talks:

- 1. "Constraining the Formation of Directly Imaged Exoplanets Using Instrumentation and Orbit Fitting Techniques" **Invited Talk at NASA Ames Research Center Seminar** (May 2023, Santa Clara, CA)
- 2. "At the Edge of Chaos: The Dynamics of Directly Imaged Exoplanet Systems" **iTelescope Webinar** (May 2023, Online)
- 3. "Constraining the Formation of Directly Imaged Exoplanets by Upgrading the Gemini Planet Imager (GPI)'s Wavefront Sensor" **NASA ExoExplorers Talks** (April 2023, Online)
- 4. "Upgrading the Gemini Planet Imager 2.0's Wavefront Sensor" NYRIA Workshop (November 2022, Sarcedo, Italy)
- 5. "The Palomar Radial Velocity Instrument's commissioning" NASA JPL Intern Talks (July 2019, Pasadena, CA)

Posters:

- 1. "GPI 2.0: performance evaluation of the wavefront sensor's EMCCD" **AO4ELT Conference** (June 2023, Avignon, France)
- 2. "The Orbital Eccentricities of Directly Imaged Companions Using Observable-Based Priors: Implications for Population-level Distributions" **Keck Science Meeting** (September 2022, Pasadena, CA)
- 3. "GPI 2.0: performance evaluation of the wavefront sensor's EMCCD" **SPIE Astronomical Telescopes & Instrumentation** (July 2022, Montreal, Canada)
- 4. "The Orbital Eccentricities of Directly Imaged Companions Using Observable-Based Priors: Implications for Population-level Distributions" **Spirit of Lyot Conference** (June 2022, Leiden, Netherlands)
- 5. "A Database for the Stars Observed by the Mazin Lab using MKID Technology" **APS' Conference for Undergraduate Women in Physics** (January 2019, Santa Barbara, CA)
- 6. "A Database for the Stars Observed by the Mazin Lab using MKID Technology" **UCSB Undergraduate Research Colloquium** (August 2018, Santa Barbara, CA)

Publications

Peer Reviewed:

- Clarissa R. Do Ó, Kelly K. O'Neil, Quinn M. Konopacky, et al. "The Orbital Eccentricities of Directly Imaged Companions Using Observable-Based Priors: Implications for Population-level Distributions", The Astronomical Journal, Volume 166, Issue 2, id.48, 22 pp.
- 2. William Thompson, Christian Marois, **Clarissa R. Do Ó**, et al. "Deep orbital search for additional planets in the HR 8799 system", The Astronomical Journal, Volume 165, Issue 1, id.29, 20 pp.
- 3. Yinzi Xin, Jerry W. Xuan, (including **Clarissa Do Ó**), et al. "On-sky speckle nulling through a single-mode fiber with the Keck Planet Imager and Characterizer", accepted to JATIS

Conference Proceedings:

- 1. Clarissa R. Do Ó, Saavidra Perera, Jêrome Máire, et al. "GPI 2.0: performance evaluation of the wavefront sensor's EMCCD", AO4ELT 2023 Conference Proceedings (In Prep)
- Saavidra Perera, Jêrome Máire, Clarissa R. Do Ó, et al. "GPI 2.0: Pyramid Wavefront Sensor Status", Proceedings of the SPIE, Volume 12185, id. 121854C 7 pp. (2022)

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- 3. Eckhart Spalding, **Clarissa Do Ó**, Dillon Peng, et al. "GPI 2.0: Baseline testing of the Gemini Planet Imager before the upgrade", Proceedings of the SPIE, Volume 12184, id. 1218448 11 pp. (2022)
- 4. Dillon Peng, Maeve Curliss, et al. (including **Clarissa Do Ó**). "GPI 2.0: performance of upgrades to the Gemini Planet Imager CAL and IFS", Proceedings of the SPIE, Volume 12184, id. 1218443 9 pp. (2022)
- 5. Jeffrey Chilcote, Quinn M. Konopacky, et al. (including **Clarissa Do Ó**). "GPI 2.0: upgrade status of the Gemini Planet Imager", Proceedings of the SPIE, Volume 12184, id. 121841T 15 pp. (2022)