Karla Daniela Reyes Pipper Undergrad

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Education

New Mexico State University New Mexico, USA
B.Sc. in Aerospace Engineering with minor in Astronomy 2023 - 2027 *(expected)*
- GPA: 3.944/4.00

Research

Astronomy Department Research Assistant
NMSU 2025.02 - Present

- Under Prof. Joseph Burchett, I analyze SDSS quasar spectra to identify MgII absorption and characterize the intergalactic medium, developing Python pipelines (NumPy, Linetools) for data cleaning, continuum fitting, and line detection. I generate visualizations, interpret spectral features, and work with large astrophysical datasets. Recent sightline analysis shows no Mg II absorption at expected radii, indicating low gas density in regions typically associated with large-scale structure.

Mechanical and Aerospace Engineering Research Assistant
NMSU 2026.01 - Present

- Under Prof. Shashikanth Banavara, I am engaged in a faculty-supervised research and learning project focused on advanced topics in fluid dynamics, aerodynamics, dynamics, and engineering mathematics. This work involves theoretical modeling, computational exercises, and the study of technical literature across multiple physical systems. Through this project, I am building a deeper foundation in mathematical methods, physical modeling, and analytical problem-solving, while gaining exposure to the types of complex systems and computational approaches that underpin modern engineering and physics research.

Projects

NASA and NM Space Grant Consortium Lunar Logistics Challenge
NM Space Grant Consortium / NASA 2025.09 - Present

- National competition sponsored by NASA centers and the NM Space Grant Consortium to design pressurized, temperature-controlled logistics containers for lunar missions.
- Led manufacturing planning, safety analysis, and QA documentation for a pressurized, thermally controlled lunar logistics container.
- Developed standardized assembly and testing procedures aligned with NASA safety requirements. Conducted hazard assessments and contributed to mechanical reliability evaluations.

NanoSatellite Lab
NMSU | Structures Team 2023.08 - Present

- Designed and mechanically tested structural components using SolidWorks and additive manufacturing, validating reliability for spaceflight conditions.
- Developed standardized testing procedures and documentation for structural verification.

AIAA Rover Project
NMSU 2025.09 - Present

- Payload team member developing a rover prototype for volcanic exploration on Jupiter's moon Io.
- Designing mechanical components for a robotic sampling arm, including structural analysis and CAD modeling for thermal, dust, and pressure constraints.
- Collaborating on prototyping and mechanical testing to validate subsystem reliability.

Work Experiences

Webmaster, Engineering College | NMSU   2025.09 - Present
- In charge of their websites with over 5,000+ pages using HTML, CSS and Cascade.
- Migrated their old websites with 400+ pagesto the new Cascade version v.4.2. (ece.nmsu.edu, ie.nmsu.edu, etse.nmsu.edu).

Webmaster, Sunspot Solar Observatory and Astronomy Department | NMSU 2024.03 - 2025.09
- Developed and in charge of their website (sunspot.nmsu.edu) using HTML, CSS and Cascade.
- Translated documents and flyers for the museum and visitor center from English to Spanish.
- Helped manage the online and in-person store.
- Assisted with solving tech-related issues.

Student Aide, Honors Department | NMSU   2024.03 - 2025.09
- Developed their current websites (honors.nmsu.edu and discoveryscholars.nmsu.edu) using HTML, CSS and Cascade.
- Helped with any tech-related issues.
- Managed their social media accounts.
- Assisted with the office (with issues from visitors, students and faculty).

Orientation Leader, AWO Office | NMSU   2025.03 - 2025.08
- Assisted 500+ students and their families/supporters transition into the NMSU community.
- Presented both in-person and virtual orientation sessions, strengthening public speaking abilities.
- Coordinated check-in processes, campus tours, and event flow to ensure smooth program operations.
- Collaborated with university staff to resolve student concerns, directed participants to appropriate campus services, and maintained a welcoming, inclusive environment.

Participation in Organizations

Founder and President, Society of Students in Astronomy | NMSU 2025.09 - Present
- Founded and developed the club.
- Plan and oversee all activities in the club.
- Create all events / fundraising activities.
- Present at club meetings and events.
- Created and implemented a structured program enabling undergraduates to earn observation volunteer hours at the Tombaugh Observatory.
- Created and implemented a structured program enabling undergraduates to do science outreach activities at elementary / middle / high schools.
- In charge of website maintenance.

Member, American Institute of Aeronautics and Astronautics | NMSU   2025.09 - Present

Member, Society of Woman Engineers | NMSU   2023.09 - Present

Participant, Intel Shape the Future Program | NMSU   2025.02 - 2025.07

Mentee, Grad Astronomy student Julio Morales | NMSU   2023.10 - Present

Vice-president and Website Developer, International Students Club | NMSU 2024.08 - 2025.09

Treasurer and Secretary, International Students Club | NMSU   2023.10 - 2024.08

Mentor to 11 students, Honors First Year Seminar | NMSU   2024.08 - 2024.12

Mentee, Cyber Systems Engineer Ilana Moreno | ILEW   2024.02 - 2024.11

AWARDS
AND
HONORS

- **Bronze Honour,** International Astronomy and Astrophysics Competition   2025.09
- **Dean's List,** New Mexico State University   2023, 2024, 2025
- **First Prize,** Mexico interCBTa Competition,   2023.07
- **First Prize in Mathematics, Physics and Chemistry,** Basic Sciences competition of the National Technological Institute of Mexico   2022, 2023
- **Participation in Mathematics and Biology,** International Competition of the Monterrey Institute of Technology and Higher Education   2022, 2023

SKILLS

Languages: German, Chinese, English, Spanish (Native).

Programming: `Python`, `C++`, `MATLAB`, `HTML`, `CSS`, `JavaScript`, `LaTeX`, `C`.

Hardware and Systems: Solidworks, CAD, 3D Printing, Electronics Integration, Sensors, PLC, Arduino, Drones, Microsoft Access and Office Suite.

CONFERENCES

International Telemetry Conference: *Attended the conference in Arizona*

National Conference for College Women Student Leaders: *Attended the conference in Washington. Learned how to network, practiced public speaking and more professional abilities through workshops.*