Jonathan Rodriguez

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Career Objective

Passionate and motivated physics student seeking research opportunities, particularly interested in experimental physics and cosmology. Looking forward to applying my theoretical knowledge, analytical skills, and practical experience in an environment that encourages innovation, critical thinking, and collaboration. Committed to contributing unique insights and precise technical skills to further scientific research and innovation.

Education

California State University, Stanislaus *(Expected Graduation: May 2026)*
B.S. Physics
Relevant Courses: Introductory Particle Physics, Quantum Mechanics, Classical Mechanics, Experimental Physics, Honors Capstone Course, Chemistry I-II
Modesto Junior College, Modesto, CA *(August 2017 – May 2024)*
Associate of Science for Transfer (A.S.T.) in Physics
Relevant Coursework: Multivariable Calculus, Calculus I-III, Differential Equations, Classical Mechanics, General Chemistry

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Experience

Research Assistant | nEXO (June 2025 -Present) - SLAC
- **Objective:** Research and development of a neutrino detector component for the large-scale implication in the observation of neutrinoless double beta decay
- PCB Design, impedance matching, trace routing, soldering micro components
- 3-D CAD modeling, mounting objects, calculations for components, implementation of constraints
- Research and Analysis

Research Assistant | Rubin Observatory LSST Project *(August 2024 – Present)* - CSU Stanislaus
- **Objective:** Evaluate the classification accuracy of high-magnitude, redshifted stars and galaxies using simulated LSST data.
- Developed Python scripts and analysis pipelines in Jupyter Notebooks.
- Utilized Table Access Protocol (TAP) to retrieve, cross-reference, and validate astronomical data.
- Conducted statistical analysis and data visualization to investigate classification discrepancies.
- Upcoming: Analysis of star and galaxy shape influence on classification accuracy using positional data to determine host galaxies for potential GRB sources.

Research Class Project | Interpolation Techniques using Gaia Data *(Fall 2024)*
- Conducted a comparative study using Gaussian Process Regression (GPR), linear, and cubic interpolation methods.
- Developed scripts in Python utilizing Pandas, NumPy, and Matplotlib for data visualization.

Presentations:
- H.E.P. GROWTH Program (2025) - LLNL
- McNair Scholars Conference (2025) - UCLA
- AAS Global Summit (2025) - Anchorage, Alaska
- Stem CRU RCF (2024) - CSU Stanislaus

Honors and Awards

- **McNair Scholar** *(2024 – Present)*
- **Cal-Bridge Scholar** *(2024 – Present) ($30,000 stipend)*
- **Growth-MSI Scholar** *(2024-Present) ($30,000 scholarship)*
- **Triple-Alpha Honors Society** *(2024-Present)*
- **APS Student Ambassador** *(2024-2025)*
- **Osher Scholars Award** *(2024) ($2,000 scholarship)*

Technical Skills

- **Research and Development:** 3-D design, Vacuum testing, impedance matching, PCB design
- **Programming:** Python, Jupyter Notebooks, Pandas, NumPy, Matplotlib, SciPy
- **Data Management:** Familiarity with TAP (Table Access Protocol), handling large datasets
- **Experimental Techniques:** Precision measurement, laboratory instrumentation, computational physics simulations
- **Operating Systems:** Linux, Windows

Teaching and Outreach

APS Student Ambassador *(August 2025 - Present*)
SPS Student Representative - Vice President *(August 2024 - Present)*
Private Physics Tutor *(August 2024 – Present)*

- Provide individualized tutoring in AP Physics 1 (torque, rotational dynamics, conceptual physics, ect.).
- Developed structured study plans, explanations, and practice problems to reinforce concepts.

Math Tutor (Sundar STEAM) *(2020 – 2021)*

- Provide individualized tutoring in Math (Elementary to Jr. High)
- Developed structured study plans, explanations, and practice problems to reinforce concepts.

Leadership and Community Engagement

- Active Member, Physics Club – Stanislaus State, Vice President
- Physics Tutor for high school AP Physics students, promoting STEM education
- Math Tutor for at-risk youth
- American Astronomical Society (AAS)
- Society of Physics Students (SPS)
- American Physical Society (APS)
- Society for Advancement of Chicanos and Native Americans in Science (SACNAS)
- National Association of Hispanic Physicists (NAHP)
- CU*iP (2025)
- APS NMC Mentee
- McNair Scholars Conference (2025)

Professional Experience

Builder and Installer | Wrights Cabinets & Tops, Empire, CA *(2023 – Present)*

- Executed precision measurements and construction using pneumatic (air) tools, ensuring exact alignment and usability of cabinetry and counters.
- Performed detailed quality control and troubleshooting, reflecting systematic and precise work ethics transferable to experimental physics.

Parts Assistant Manager | PowerSports of Modesto, CA *(2022 – 2023)*

- Managed product data, inventory systems, and customer relationships through precise data analysis.
- Developed targeted incentive programs to improve sales and customer retention.

Assistant Manager & Product Specialist | Cycle Gear, Modesto, CA *(2018 – 2022)*

- Analyzed inventory data to optimize product distribution and sales.
- Enhanced customer experience by implementing data-driven incentive programs.
- Managed team scheduling, budget oversight, and daily operational logistics.

Bartender | Crocodiles Nightclub, Modesto, CA *(2017 – 2022)*

- Refined problem-solving, improvisation skills, and the ability to perform under pressure.
- Strengthened interpersonal and communication skills applicable to teaching, presenting, and teamwork.

References

Available upon request.