

CURRICULUM VITAE: updated Sep 15, 2025

Michelle Pichardo

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EXPERIENCE

USPTO | Semiconductor Patent Examiner

Remote, CA

04/2024 - 04/2025

- Examined semiconductor patent applications (ICs, devices, fabrication) for novelty, non-obviousness, and eligibility
- Applied expertise in circuit design and microfabrication to assess claim scope, feasibility, and innovation
- Drafted Office Actions and conducted interviews with attorneys and inventors to communicate technical and legal findings

Santa Cruz Institute for Particle Physics | Junior Specialist

Santa Cruz, CA

07/2023 - 06/2024

Project: [Link](#)

- Lead microcontroller software development for an intense radiation integrating sensor (IRIS) used for detecting terrestrial gamma-ray flashes (TGFs), which pose a risk to aircraft personnel
- Designed, developed, and modified additional software systems using Python for scientific analysis and mathematical models to predict and measure outcomes and consequences of designs
- Monitored the performance of project team members, providing and documenting performance feedback

AESOP-Lite Experiment @ UCSC | Circuit & Software Developer

Santa Cruz, CA

05/2022 - 07/2023

Project: [Link](#)

- Assisted in simulating subatomic particle paths within the Anti-Electron Sub-Orbital Payload (AESOP-Lite) experiment, which measures cosmic ray electrons and positrons
- Redesigned an LTspice circuit required to reproduce the effects of the payload's circuitry
- Optimized software for scalability and performance through stress-testing, multiprocessing, and memory management techniques
- Initiated efforts to convert the Python simulation to C to improve performance and speed due to current I/O bottlenecks identified as particle generation scaled up

Department of Energy | Web Development Intern

Remote, CA

06/2021 - 09/2021

- Used web technologies (HTML, CSS, Drupal) to improve the UI/UX of automated workflow onboarding
- Imported data from third-party databases to populate the Group website
- Developed new visual design concepts and adjusted concepts based on stakeholder feedback

NASA JPL & COD | EDL Research Intern

Palm Desert, CA

01/2020 - 08/2020

- Analyzed and compiled results and data from 100+ peer-reviewed publications on spacecraft entry, descent, and landing (EDL)
- Characterized various water and ice types to assess their physical strengths and risks to potential landing sites
- Laid groundwork for future in-lab stress-testing of ice samples based on research findings

National Science Foundation (NSF) & COD | Lead Research Intern

Palm Desert, CA

12/2018 - 01/2019

Article: [Link](#)

- Selected to mentor students on research habits, time management, and presentation skills
- Developed mathematical models for the detection of potentially harmful air pollutants emanating from a local artificial body of water (*Salton Sea, CA*)
- Worked with an ion chromatograph, cold traps, and impingers in series to trap and condense air

NSF & California State University, San Bernardino | Materials Intern

San Bernardino, CA

06/2018 - 09/2018

- We aimed to measure and compare electrical properties from known ferroelectric materials against novel materials emerging from the chemistry lab
- Successfully prepared a closed-temperature system capable of testing capacitance as a function of temperature
- Presented methods at the University of Nebraska-Lincoln with the support of a travel grant

TEACHING & LEADERSHIP EXPERIENCE

Girls Who Code (GWC) @ Renaissance Academy at Fisher | Program Facilitator

San Jose, CA

02/2024 - 01/2025

- Leading instruction and effectively facilitating an exciting, engaging, and accessible classroom environment for a highly diverse group of 3-10 high school students
- Use learning tools such as TinkerCAD and Scratch provided by GWC in the delivery of my lessons

Women in Physics & Astrophysics Club @ UCSC | Tech & Chat Coordinator

Santa Cruz, CA

06/2022 - 01/2024

- Recruited women professionals for bi-weekly community events to promote inclusion, continued education, and future opportunities
- Aided members with programming queries ranging from installations to scientific computing

Women of STEM Club @ COD | Co-Founder

Palm Desert, CA

08/2019 - 06/2020

- Prepared and facilitated bi-weekly workshops on applications such as FAFSA, scholarships, internships, and university transfer
- Provided private instruction on community college math, physics, and chemistry
- Collaborated with professors and professionals in the development of workshops

Club Z! In-Home Tutoring Services | STEM Tutor

Palm Desert, CA

01/2019 - 08/2020

- Tutored high school and middle school students in math and chemistry
- Prepared students for college demands, focusing on AP courses and university selection

Tutoring & Academic Skills Center @ COD | STEM Tutor

Palm Desert, CA

10/2017 - 06/2020

- Managed 20 weekly hybrid hours of tutoring in chemistry, trigonometry, calculus, multivariable calculus, and engineering physics
- Collaborated with professionals to create an informative video series on mathematical concepts
- Facilitated individual and group tutoring sessions ranging from 2 to 20 students

After School Tutoring Program @ Cathedral City High School | Tutor

Cathedral City, CA

09/2010 - 06/2011

- Tutored Algebra to at-risk first- and second-year students

EDUCATION

University of California, Santa Cruz (UCSC)
B.S., Applied Physics
B.A., Mathematics, Concentration: Pure mathematics

Santa Cruz, CA
June 2023

College of the Desert (COD)
A.S.-T, Physics
A.S.-T, Mathematics

Palm Desert, CA
May. 2020

EXTRACURRICULARS

Physics Department @ UCSC | Web Designer & Special Projects Assistant
02/2023 - 04/2023

Santa Cruz, CA

- Designed the department's new computational physics concentration webpage

Disability Resource Center @ UCSC | Peer Notetaker
09/2022 - 12/2022

Santa Cruz, CA

- Made descriptive and clear notes of lectures for peers with DRC accommodations

Children's Museum of Discovery | Science Volunteer
06/2022 - 12/2022

Santa Cruz, CA

- Led chemistry and physics demonstrations for groups of up to 10 K-12 and under children

COD | Transfer Speaker
06/2020

Palm Desert, CA

- Selected to speak on behalf of the graduating class of 2020

Chemistry Club @ COD | Special Projects Assistant
01/2018 - 06/2020

Palm Desert, CA

- Helped organize, schedule, and participate in club events and Science Day demonstrations

SELECTED PRESENTATIONS

Ronaldo E. Rodriguez, *Michelle Pichardo*, et al. (2023). A Novel, Low-Cost Approach to Direct Measurements of Radiation Dose Associated with Terrestrial Gamma Ray Flashes, Abstract (AE23B-2673) presented at AGU23, 11-15 Dec.

Heather Mentzer, *Michelle Pichardo*, et al. (2023). The Motivation, Calibration, and Simulations of IRIS: Intense Radiation Integration Sensor, Abstract (AE23B-2669) presented at AGU23, 11-15 Dec.

SELECTED AWARDS, GRANTS, AND SCHOLARSHIPS

Cultivamos Excelencia Research Grant (UCSC, '23) – Alumni Association Scholarship & Eric Thomas Award (UCSC, 2020-23) – NSF S-STEM Scholarship (COD, 2019-20) – Math/Science Scholarship (COD, '19)

SKILLS

Spoken Languages: Native English, Native Spanish

Programming Languages: Python, C/C++, MATLAB, Fortran, ROOT, R, LaTeX

Technical: Unix/Linux, Bash, Powershell, Git, LTSpice, 3D printing, Bambu Slicer, TinkerCAD, Blender, Jupyter Notebooks, Scratch, Mathcad, HTML, CSS

Focus: Fourier analysis, statistics, thermodynamics, E&M, analog circuits, signal processing, simulation

AFFILIATIONS

American Geophysical Union (Member 2022-23) – Society of Hispanic Professional Engineers (Mentorship Program 2022-23) – Women in Science and Engineering (Member 2020-23)