Arcelia Hermosillo Ruiz

Personal Data

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Education

2014 - 2018 **The University of California, Berkeley**
Dec. 2018 Bachelor of Arts Physics; Bachelor of Arts Astrophysics
Gpa: 3.52

Research Experience

June 2016 - | Undergraduate Researcher
UC Berkeley Astrophysics
Thermalization Effects In Late-Time Type Ia Supernova Light Curves
Advisors: Prof. Daniel Kasen, Dr. Jennifer Barnes

We explored the discrepancy of "twin" Supernovae (SNe) lightcurves several hundred days after explosion. I studied this discrepancy by simulating how radioactive decay produces heat in the ejecta. I paid particular attention to how magnetic fields impact heating and explored how radioactive isotopes other than Nickel-56.

SACNAS Poster Presentation Award Winner

Summer 2017 | Banneker & Aztlan Summer Institute
Harvard-Smithsonian Center for Astrophysics
Identifying M Dwarfs and their Stellar Companions
Advisor: Dr. Jennifer Winters

I studied the environment of low mass M dwarf stars to assess the number of close-orbit stellar companions. I developed an efficient method to analyze 800 images of stars and used this to characterize binary systems based on distance and color. Using this dynamic method, I discovered 10 new binary candidates, providing important constraints for M dwarf exoplanet research.

SACNAS Poster Presentation Award Winner & NSF CAMP Symposium Honorable Mention Winner

Summer 2018 | Department of Energy-Istituto Nazionale di Fisica Nucleare Summer Exchange Program
INFN - Padova; Padova, Italy
b-Jet and c-Jet Identificaton at LHCb Using Deep Learning Techniques
Advisors: Prof. Donatella Lucchesi, Dr. Lorenzo Sestini, Dr. Alessio Gianelle

I improved a deep learning algorithm identifying subatomic particles from the Large Hadron Collider beauty (LHCb) experiment at CERN. I accomplished this by analyzing newly simulated data with recent LHCb conditions and assessing which observables and configurations would improve the performance of the algorithm.

Poster, Presentations, Publications

Thermalization Effects In Late-Time Type Ia Supernova Light Curves, **Poster**
Presented at SACNAS 2016 Conference and Director's Review of the Nuclear Science Division at Lawrence Berkeley National Lab. **Poster Presentation Award winner**

Thermalization Effects In Late-Time Type Ia Supernova Light Curves, **Paper**
Hermosillo Ruiz, Arcelia; Barnes, Jennifer; Kasen, Daniel. *(in Prep)*

Identifying M Dwarfs and their Stellar Companions, **Poster and Talk**
Presented at SACNAS 2017 Conference and NSF CAMP 2018 Symposium. **Poster Presentation Award winner and Honorable Mention**. Gave a 10 minute talk at Harvard Center for Astrophysics, linked here.

b-Jet and c-Jet Identificaton at LHCb Using Deep Learning Techniques, **Poster**
Presented at SACNAS 2018 Conference.

WORK EXPERIENCE

May 2016 -	Planetarium Presenter at LAWRENCE HALL OF SCIENCE, Berkeley
	I engage university guests and students in constellation, eclipse, universe, and NASA space mission shows. I teach the public how to navigate a star map, how astronomers find exoplanets, and more
SUMMER 2015	Instructor at DAVINCI CAMP SUMMER INSTITUTE, Berkeley
	I developed and taught physics and math curricula to 22 Latino middle school and high school students. I worked with students for 10 hours a day and refined their problem solving and arithmetic skills and understanding of poetry, World War I technology, and literature

CAMPUS LEADERSHIP

2014 -	HISPANIC ENGINEERS AND SCIENTISTS, UC Berkeley
	Positions held: Secretary (2 years) and President (1 year)
	Played an active role in increasing our membership by 7 times. I mentor and support physics and astrophysics students by providing information on courses, resources, and study skills. I led meetings with corporate representatives and faculty to discuss how they can help first generation Latinx students succeed in Berkeley. I oversaw and participated in k-12 outreach events.
2015 - 2017	RAICES CENTER, UC Berkeley
	Positoin Held: Co-Lead for Spring Break Higher Education Outreach
	We contacted staff members from 20 high schools to participate in our outreach efforts by allowing us to visit their classrooms and present. I visited 10 high schools in 4 days and engaged 1200 students in conversations about demystifying higher education and preparing applications for universities.

AWARDS AND HONORS

2014-2016	Hispanic Scholarship Fund Recipient
2016,2017	Undergraduate Poster Presentation Award, SACNAS Conference
2018	Honorable Mention, NSF CAMP Symposium
	Bergeron Women in STEM Leadership Scholarship
	NSF CAMP Scholar
	S-STEM Scholar

COMPUTER SKILLS

Programming Language:	C++ & PYTHON
Software & Tools:	MATLAB, Mathematica, LabView, GitHub, ROOT, LaTeX

Interests and Activities

Supernovae, Stars, Galaxies; simulations, data analysis, machine learning
Dancing, Soccer, Traveling, Photography