

JOSE ARITA-ESCALANTE

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EDUCATION

Fisk-Vanderbilt Master's-to-PhD Bridge Program

Fisk University, M.S. in Physics, Astrophysics Track

Currently enrolled

Virginia Commonwealth University

B.S. in Physics (Cum Laude)

B.S. in Mathematical Sciences, Concentration in Mathematics (Cum Laude)

May 2022

SKILLS

Coding Languages and Environments

Python, Sage, Mathematica, MatLab, C, Bash, GitHub

High Performance Computing Environments

NASA Pleiades

Languages

Spanish, English

ORGANIZATIONS

- EMIT Current Graduate Student
- Alpha-CEN Basic Member
- American Astronomical Society Graduate Student Member
- American Astronomical Society, High Energy Astrophysics Division Graduate Student Member
- Louis Stokes Alliance for Minority Participation, VCU Chapter Student Member

RESEARCH EXPERIENCE

Fisk-Vanderbilt Bridge Program

Fall 2023-Spring 2025 Master's Thesis Research

- Understanding mathematical properties of black hole solutions to Einstein's Field Equations.
- Understanding mathematical properties of gravitational waves and Hawking radiation.

NASA Goddard Space Flight Center

Jul 2022 - July 2023

Post-Baccalaureate Research Assistant

- Optimized the resolution of hydrodynamic simulations for Monte Carlo Radiative Transfer (MCRaT) radiative transfer calculations.
- Extended MCRaT radiative transfer calculations outside of the hydrodynamic simulation domains.

VCU Graph Theory Computational Discovery Lab

May 2022 - Jun 2022

Researcher

- Researched Graph invariants and their connections to Knot Theory.

VCU Mathematics Department

Oct 2020 - May 2022

Research Assistant

- Worked on Updating and Maintaining the Brain Graph Project.

2020 VA-NC Alliance Summer Research Program

Jun 2020 - July 2020

Research Assistant

- Researched Bending Of Light In Exoplanet Atmospheres.

2019 VA-NC Alliance Summer Research Program

Jun 2019 - July 2019

Research Assistant

- Researched Bending Of Light In Exoplanet Atmospheres.

PUBLICATIONS

American Astronomical Society's Astrophysical Journal

- Optimizing the Resolution of Hydrodynamic Simulations for MCRaT Radiative Transfer Calculations
- Refraction of Line and Continuum Light in Exoplanet Atmospheres

ACADEMIC WORK

Fisk-Vanderbilt Bridge Steering Committee

Fall 2023 - Current

Committee member

- Being a liason between the students and the committee, bringing the ideas and concerns of the students to the meeting and informing students of the inner workings of the Bridge.

VCU Campus Learning Center

Aug 2020 - May 2022

Student Tutor

- Gave supplemental resources to students looking to reinforce topics covered in classes in various Physics and Mathematics topics.

VCU Remote Learning Tools Project

Oct 2020 - May 2021

Student Advisor

- Worked along with the department of computer science to create a portal for students to engage in classes, participate and ask questions in a remote and/or synchronous manner.

Social Work Project Honduras 2016-2017

Oct 2016 - May 2017

Volunteer Teacher

- Worked as a volunteer along with a team to provide elementary education to adults who had not started or finished their elementary education in Honduras. Taught math class at the 4th grade level.

PRESENTATIONS

Optimizing the Resolution of Hydrodynamic Simulations for MCRaT Radiative Transfer Calculations

2022 Project

- American Astronomical Society's High Energy Astrophysics Division (AAS HEAD) 20 Meeting Mar 26 - 30 2023

Bending of Light in Exoplanet Atmospheres

2020 Project

- Conferencia de la IV Semana de la Carrera de Astronomía y Astrofísica (IV Week of Astronomy and Astrophysics Career Conference) May 31 - Jun 4 2021
- LSAMP Indiana Annual Undergraduate Research Symposium Oct 3 2020
- 2020 Virtual Leadership Alliance National Symposium (VLANS) Jul 30 - Aug 1 2020

Bending of Light in Exoplanet Atmospheres

2019 Project

- 235th Meeting of The American Astronomical Society Jan 4-8 2020
- 2019 National Astronomy Consortium (NAC) Workshop Sep 13-15 2019
- 2019 Leadership Alliance National Symposium (LANS) Jul 26-28 2019

OTHER CONFERENCES ATTENDED

- SuperComputing (SC) 2022 Conference Nov 13 - 18 2022
- 2019 Shenandoah Undergraduate Math and Statistics (SUMS) Conference Sept 21 2019
- 11th Annual VA-NC Undergraduate Research Symposium Oct 14-15 2018