

Erick Guadalupe Martinez

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Academic Experience

The University of Texas at Austin Austin, TX

Pursuing a Doctorate in Physics

Elements of Computing Program Certification Summer 2024

Dr. Michael Downer

The University of Texas at Austin

Austin, TX

Bachelor of Science in Physics

Spring 2020 – Spring 2023

Dr. Deirdre Shoemaker

Richland College – DCCCD

Richland, TX

Associate of Science

Spring 2016 – Fall 2019

Research Experience

APS Bridge Fellow

Fall 2023 – Fall 2025

Center for High Energy Density Science

Dr. Michael Downer

Undergraduate Research Assistant

Summer 2021– Spring 2023

Center for Gravitational Physics

Dr. Deidre Shoemaker

- Used numerical relativity code, MAYA, to generate gravitational waveforms from binary black hole mergers with a variety of initial conditions.
- Added a total of 10 waveforms to the group's public waveform catalog.
- Added functions to existing classes in the numerical relativity code.
- Used a parameter estimation tool, RIFT, to obtain probability distributions for parameters of a real LIGO event, GW191109.

Publications

Ferguson et al., Mayawaves: Python Library for Interacting with the Einstein Toolkit and the MAYA Catalog. Journal of Open Source Software, 9(98), 6032, <https://doi.org/10.21105/joss.06032>, 2024.

Ferguson et al., "MAYA Catalog of Binary Black Hole Numerical Relativity Waveforms," *arXiv preprint arXiv:2309.00262*, 2023.

Martinez, E. "Computational and Observational Analysis of Gravitational Waves from Binary Black Hole Mergers," Senior Thesis, 2023.

Teaching Experience

Teaching Assistant
Advanced Laboratory
Intro Physics Laboratory 1

Spring 2024
Spring 2025

Professional Experience

Texas Army National Guard
Mortar Team Leader

June 2014 – June 2021

- Supervised up to four soldiers in completing a variety of different tasks ranging from organization and inventory of equipment to live fire exercises in the field.
- Gave classes to groups up to 40 soldiers explaining how to perform and execute common soldier and mortarmen tasks.
- Handle and maintain complex and expensive equipment to ensure proper function.

Chemistry Lab Assistant

Fall 2019

- Prepared labs for up to 18 General Chemistry I sections.
- Mixed or diluted many kinds of solutions necessary for the class experiments.
- Assisted professors in monitoring ongoing experiments.
- Helped other lab assistants in preparing their labs for other general chemistry and organic chemistry courses.

Skills

- Python
- MATLAB
- Mathematica
- Excel
- Numerical Methods
- Data Analysis
- Error Analysis
- Spanish

Awards

APS Bridge Fellowship

Fall 2023 – Spring 2025