

GEORGE A. MITCHELL

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EDUCATION

Master of Science
University of Texas at Dallas

- Major in Physics
- Final GPA: 3.433

Jan. 2021 - Dec. 2022
Degree conferred: December 2022

Bachelor of Science
Purdue University

- Major in Physics

Aug. 2016 - May 2020
Degree conferred: May 2020

RESEARCH EXPERIENCE

Dark Energy Spectroscopic Instrument (DESI)

March 2021 - Dec. 2022

- Used the publicly available python code BAO_Fitter_dev to fit the Baryon Acoustic Oscillation (BAO) of the Power Spectra of the eBOSS DR12 spectroscopic data using python and made edits to perform a chi-squared minimization.
- Measured power spectra on the NERSC Cori HPC using mock data for the upcoming DESI spectroscopic survey for use by the collaboration using the python package PyPower and performed reconstruction using PyRecon.
- Performed fits of the BAO feature on the NERSC Cori HPC of these power spectra using the publicly available code BARRY and presented the results to the collaboration

CMB Machine Learning

June - Oct. 2022

- Provided physics expertise in collaboration with the computer science department to create a code that uses spherical CNN to clean data from astrophysical surveys such as the PLANCK mission.

Dark Matter Halo Analysis

Aug. 2019 - May 2020

- Used Python to analyze data from a cosmological simulation to study the distribution of protocluster galaxies and how such distributions might appear in real observational data.
- Designed a gaussian convolution smoothing function to visualize the data and search for distribution patterns.
- Calculated the expected redshift range detected by a narrow band filter in order to construct the expected line of sight.

CMS Research

June - Jan. 2018

- Conducted and improved multiple thermal experiments in an attempt to measure the gradient of a carbon fiber-based material for the inner silicon pixel detector in the LHC high luminosity phase.
 - Analyzed data from the thermal experiments to map the thermal gradient.
 - Designed, tested and analyzed ANSYS FEA simulations of the carbon fiber material and compared the simulation to thermal gradient and mechanical stress experiments carried out in the lab.
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KEY SKILLS

- Office Suite Software
- Familiarity with Linux, Windows and MacOS
- Python, Matlab, C++, Julia
- Familiarity with data analysis and parallelization
- Familiarity with SLURM based servers and workflows
- Familiarity with FEA based CAD software

COURSE PROJECTS	Void Cosmology Paper & Presentation	May 2021
	<ul style="list-style-type: none"> Wrote a review article in APA format using Latex about the use of voids in cosmology and presented results. 	
	Baryon Acoustic Oscillations in the Primordial Plasma	May 2021
	<ul style="list-style-type: none"> Wrote a review article in APA format using LATEX about the creation of Baryon Acoustic Oscillations in the primordial plasma. 	
	Charles W. Misner Presentation	November 2021
	<ul style="list-style-type: none"> Presented a review and summary of the work and influence of Charles W. Misner in the field of physics 	
	Baryon Acoustic Oscillation Code	October 2022
	<ul style="list-style-type: none"> Wrote a code to fit the BAO signature in the power spectra of the eBOSS DR12 using chi-squared minimization and presented results. 	
TEACHING EXPERIENCE	Adjunct Professor	May 2023 - Present
	<ul style="list-style-type: none"> Organized and taught courses in Electromagnetism, Classical Mechanics and Astronomy Created original lecture presentations, videos and course shells for in-person, asynchronous and hybrid courses. 	Lone Star College Houston Community College Alvin Community College
	Teaching Assistant	Jan. 2021 - Dec. 2022
	<ul style="list-style-type: none"> Graded and proctored the exams for up to 300 students and led two weekly recitation sessions. Assisted in the creation and scheduling of exams and homework assignments. Directed up to 60 students to complete 10 mechanics labs over a semester and graded up to 60 lab reports completed during said labs. 	University of Texas at Dallas
LEADERSHIP POSITIONS	Leasing Agent	June 2020 - Feb. 2021
	<ul style="list-style-type: none"> Handled leasing duties and oversaw community events and part-time staff. 	Launch Social Living
	Taproom Manager Intern	May 2019 - Aug. 2020
	<ul style="list-style-type: none"> Supervisor and manager in charge of hiring and training 8 employees, organizing and analyzing 3 years of financial information, obtaining clients and heading creative projects. 	1869 Taproom
	Student Supervisor	Aug. 2016 - May 2019
	<ul style="list-style-type: none"> Supervisor in charge of coordinating and training up to 20 students, serving food to a large clientele, cleaning and running various food stations 	Wiley Dining Court
WORKSHOPS	NERSC AI for Science Bootcamp	June 2020 - Feb. 2021