Patrick McCreery

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Education Summary

University of Colorado, Denver — *August 2017 - May 2018*
Cumulative GPA: 4.0

University of Colorado, Boulder — *August 2018 - May 2022*
Undergraduate of Astrophysics (Planetary Science Track) — Cumulative GPA: 3.99
Minor: Applied Mathematics w/ Statistical Emphasis — Total Credit Hours Passed: 126
Department of Astrophysical and Planetary Sciences

Computer and Technical Skills

Computer Languages	Python, IDL, HTML, Basic JavaScript
Software & Tools	LaTeX, Mathematica, MATLAB, Microsoft Suite

Relevant Coursework (SHOULD THIS BE HERE w/ TRANSCRIPT?)

Planetary Atmospheres and Geology (/)
Astrophysics I (/)
Applied Probability ()
Applied Statistical Methods I/II (/)
Matrix Methods and Applications ()
Fourier Series and Boundary Value Problems (PDEs) ()
Plasma and Space Physics ()
Data Analysis and Research Methods in Astronomy (/)
Classical Mechanics I/II (/), Electricity and Magnetism I/II (/), and Quantum Mechanics I/II (/)

Research and Project Experience

Resolving Source Solar Acoustic Oscillations - Lab of Atmospheric and Space Physics (April 2020-present)

Building upon the work of McClure, Rast, and Pillet, I used Fourier Transforms to resolve solar acoustic oscillations and separate these from the surface granulation. Upon resolving and separating the p-modes and granulation, I am now training a machine to separate these two components without requiring a time series. Ongoing project with a hopeful publication and honors thesis upon completion.

Simulating Solar Flares - Montana State University (summer 2021)

Simulated solar flares post-magentic reconnection using magnetosonic shocks. Attempted to resolve magnetic field retraction velocity inconsistencies of previous work. The observed and simulated retraction velocities were inconsistent in previous work, however the work introducing aerodynamic drag to the simulation could not resolve these inconsistencies, opening opportunity for alternative solutions.

Presentations

AGU

Awards and Scholarship

Charles A. Barth Scholarship

Research scholarship promoting student projects in the Lab for Atmospheric Space Physics. Given based on quality of classwork, previous work, and proposed work.

Theodore Snow Undergraduate Scholarship (2021 - 2022 Academic Year)

Scholarship given to undergraduates in the Astrophysical and Planetary Science department “in order to recognize the student’s academic performance in coursework and research”