BERYL HOVIS-AFFLERBACH

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EDUCATION

Caltech
Astrophysics
B.S. exp. June 2023
GPA: 3.6

COURSEWORK

Galaxies and Cosmology
Mathematical Methods of Physics
Machine Learning Systems
Waves, Quantum Physics, and Statistical Mechanics
Classical Mechanics and Electromagnetism
Linear Algebra
Probability and Statistics

SKILLS

Python ◆ IDL ◆ Linux
Mathematica ◆ LaTeX
Java ◆ HTML ◆ CSS

RESEARCH

NASA GODDARD SPACE FLIGHT CENTER, SOLAR PHYSICS LAB
Research Assistant, September 2020 - PRESENT
Investigate how solar prominence motion can act as early predictor of CME deflection and behavior. Advisor: Dr. Barbara Thompson.
Develop method to identify and track polar faculae on the sun, and use method to investigate behavior of polar faculae over the solar cycle. Advisor: Dr. Dean Pesnell.

CARNEGIE OBSERVATORIES, Pasadena, CA
Summer Undergraduate Research Fellow, Summer 2020
Analyzed stellar evolution models to predict conditions (mass, metallicity) under which stars stripped by binary companions are expected not to form. Advisor: Dr. Ylva Götberg.

COSMIC DAWN CENTER, Niels Bohr Institute, Copenhagen
Summer Undergraduate Research Fellow, Summer 2019
Developed method using t-SNE (machine learning algorithm for dimensionality reduction) to identify and repair catastrophic errors in galaxy properties determined from photometry. Advisor: Dr. Charles Steinhardt.

NASA GODDARD SPACE FLIGHT CENTER, SPACE WEATHER LAB
Space Weather Forecasting Intern, Summer 2018
Compared behavior of solar prominences and coronal mass ejections to understand the solar magnetic field and improve forecasting capabilities. Trained as independent space weather forecaster, one of five selected for work during school year (2018-2019, 12 hr/wk). Advisor: Dr. Barbara Thompson.

NASA GODDARD SPACE FLIGHT CENTER, SOLAR PHYSICS LAB
High School Research Intern, Fall 2016 - Summer 2017
Tested and analyzed results from new method for mapping motion of solar prominences. Converted code for analysis from IDL to Python. Advisor: Dr. Barbara Thompson.

PUBLICATIONS

Hovis-Afflerbach, B., Steinhardt, C. L., Masters, D., Salvato, M., *Identifying and Repairing Catastrophic Errors in Galaxy Properties Using Dimensionality Reduction*. Accepted to ApJ for publication in 2021

Steinhardt, C. L., et al., incl. Hovis-Afflerbach, B., *The BUFFALO HST Survey*. 2020, ApJS, 247, 1538

PRESENTATIONS

AAS Winter Meeting Poster Sessions, 2020, 2021
Caltech Summer Undergraduate Research Fellowship Seminar Day, 2019, 2020
NASA Goddard Summer Intern Poster Sessions, 2018, 2017

AWARDS

2020 Alain Porter Memorial SURF Fellow
2019 George W. Housner Fund Recipient
2019 David L. Glackin Memorial SURF Fellow
2018 NASA GSFC Intern Research Poster Session Finalist
2018 National Merit Scholarship Winner
2017 NASA GSFC Intern Research Poster Session Award