

Ian Branigan

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EDUCATION

Cornell University, College of Arts and Sciences, Ithaca, NY

08/2023 - present

Major: Physics, Minor: Astronomy (intended)

Major GPA: 4.0/4.0. Overall GPA: 4.0/4.0

Other education

(Virtual) attendee of the **Sagan Summer Workshop**, NASA Exoplanet Science Institute

2022 & 2023

RESEARCH EXPERIENCE

Cornell University Department of Astronomy

01/2024 - Present

Advisor: Nikole Lewis

- Construct 1D atmospheric disequilibrium chemistry grids for the exoplanet WASP-39 b using the chemical kinetics Python code *VULCAN*, incorporating vertical mixing and photochemistry
- Perform atmospheric retrievals on JWST transmission spectra of WASP-39 b using the Python code *POSEIDON* to place constraints on chemical abundances and mixing strength

North Carolina School of Science and Mathematics

01/2022 - 12/2022

Research in Physics Program

Advisor: Jonathan Bennett

- Conceptualized and carried out an independent project to compare Kepler/K2 and TESS transit depths of 24 known exoplanets, using Python packages *Lightkurve* (accessing and manipulating lightcurves) and *exoplanet* (lightcurve fitting with MCMC)
- Authored a paper summarizing results, published in student journal *Broad Street Scientific*
- Presented research at:
 - North Carolina Astronomers' Meeting (oral presentation)
 - State of North Carolina Undergraduate Research & Creativity Symposium (poster)
 - North Carolina Section of the American Association of Physics Teachers Fall Meeting (poster)

TECHNICAL SKILLS

Python (NumPy, Matplotlib), Java

OUTREACH

Science Olympiad

09/2023 - Present

- Developed exam questions assessing quantitative and qualitative understanding of fundamental astronomy concepts (stellar evolution, exoplanets, supernovae, variable stars, etc.) for 8 middle and high school competitions.

OTHER EXPERIENCES

NASA Proposal Writing and Evaluation Experience

05/2024 - 08/2024

- Worked with a team to conceptualize a technology idea aligned with NASA's needs and construct a detailed 7-page project proposal
- Served on proposal review board, providing constructive feedback on proposals written by other teams and becoming familiar with evaluation criteria