

# Bradley D. Hutchinson

## Curriculum Vitae

Indiana University  
Department of Astronomy  
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### Education

**B.S. Astronomy/Astrophysics, B.S. Mathematics, B.S. Physics, Indiana University**  
Began 2022, Expected 2026

- GPA: 3.8 / 4.0 2023, Fall 2023, Spring 2024
- Executive Dean's List (GPA: 3.7+): Spring

*Recent Coursework: Intro to Quantum Mechanics, Modern Observational Techniques, Stellar Astrophysics, Calculus 1-4, and Elementary Complex Variables. Fall 2024: E&M 1, Modern Physics Laboratory, MATH-X 390 Readings and Research: Complex Analysis and Applications, Diff. Eqns 1, and Honors Linear Algebra.*

### Honors & Awards

- 2024 **Alice Palma Summer Undergraduate Research Program, IU Department of Astronomy**
- 2024 **Hollis & Grete Johnson Undergraduate Research Prize, IU Department of Astronomy**
- 2024 **Hugh Brown Memorial Scholarship, IU Department of Physics**  
*Awarded annually to one physics undergraduate for their outstanding performance, service, hardwork, and dedication to the department.*
- 2023 **US ATLAS Summer Undergraduate Fellowship/Program for Exceptional Researchers (SUPER), Department of Energy (DOE)**
- 2022 **Cox Scholarship, Indiana University**  
*Full-ride scholarship with 300 hour work-study requirement each academic year.*

### Research

**Indiana University Department of Astronomy**

- Summer 2024 **Biases on the Determination of the Relaxation Time of Globular Clusters**  
Supervised by Dr. Francisco I. Aros.

**ATLAS Experiment at CERN**

- 2023–Present **Vector-Like Quarks Search**  
Supervised by Dr. Sabine Lammers.
- Summer 2023 **Electroweak Corrections on the ATLAS Vector Boson Scattering (VBS) of  $W^+W^-$**   
Supervised by Dr. Sabine Lammers.

### Publications

**Unsupervised Machine Learning for Analyzing Multiband Photometry of Stars in Large-Scale Surveys, B. D. Hutchinson, C. A. Pilachowski, C. I. Johnson, et al. (in preparation).**

## Conferences & Workshops

- May 2024 **NOIRLab Rare Gems in Big Data Conference**, Loews Ventana Canyon, Tucson, Arizona  
July 2023 **US ATLAS Machine Learning Training**, Lawrence Berkeley National Laboratory, Berkeley, CA

## Work Experience

- January 2024–Present **Indiana University Department of Astronomy**, 727 E 3rd St, Bloomington, IN 47405  
*Student researcher supervised by Dr. Catherine Pilachowski.*  
August 2023–Present **Indiana University Department of Physics (ATLAS Group)**, 727 E 3rd St, Bloomington, IN 47405  
*Student researcher supervised by Dr. Sabine Lammers. Cox worksite.*  
August 2022–May 2023 **La Casa Latino Cultural Center**, Indiana University, 715 E 7th St, Bloomington, IN 47408  
*Assistant to the Director, Lillian Casillas. Cox worksite.*

## Technical Skills

**Operator, Kirkwood Observatory 12" Refracting Telescope**, Indiana University  
**User, Bolt Cluster**, IU ATLAS Group  
**User, Carbonate Large-Memory Computing Cluster**, Indiana University  
**Operating Systems**, Linux, Windows, MacOS  
**Programming Languages**, Python (Advanced),  $\text{\LaTeX}$ (Intermediate), C/C++ (Basic)  
**Data Analysis Tools**, Robust Independent Validation of Experiment and Theory (Rivet) (Intermediate), ROOT (Basic), Paraview (Basic)  
**Astronomical Databases**, Gaia, Simbad, VizieR, High Energy Astrophysics Science Archive Research Center (HEASARC)

## Presentations

- April 2024 **IU Astronomy Tea Talk**, IU Department of Astronomy  
August 2023 **SUPER Symposium**, US ATLAS Experiment at CERN  
March 2023 **Cox Scholars Program Symposium**, Indiana University

## Outreach

### Volunteering

- March 2024 **Eclipse Viewer Distribution at Kirkwood Observatory**, IU Department of Astronomy  
October 2023 **Eclipse Viewing Event**, IU Department of Astronomy  
October 2022 **Science Fest**, Indiana University

## Languages

**English**, Native  
**Spanish**, Proficient