

# Benjamin L. Davis, Ph.D.

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## SUMMARY

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My research focuses on using recent developments in artificial intelligence (AI) and machine learning (ML) to solve the most difficult and impactful problems in astrophysics. Particular interests include:

- Symbolic Regression – used to find new (higher dimensional) scaling relations and provide new insights into the astrophysical processes behind these relations.
- Causal Discovery – enables researchers to look beyond correlation and uncover the fundamental mechanisms driving complex systems.

## EDUCATION

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2015 Ph.D. (Space & Planetary Sciences) at the **University of Arkansas**  
*Thesis: Logarithmic Spiral Arm Pitch Angle of Spiral Galaxies: Measurement and Relationship to Galactic Structure and Nuclear Supermassive Black Hole Mass*

2008 B.S. (Physics), B.S. (Mathematics), & Minor (Music) at **Pittsburg State University**

## WORK EXPERIENCE

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**New York University Abu Dhabi** Sep 2020 – Aug 2026  
Center for Astrophysics and Space Science – Fellow, Research Associate

**Swinburne University of Technology** Aug 2016 – Jul 2020  
Centre for Astrophysics & Supercomputing – Postdoctoral Fellow

**Arkansas Tech University** Aug 2015 – May 2016  
Department of Physical Sciences – Visiting Assistant Professor of Physics

**University of Arkansas** Aug 2015 – Dec 2015  
Department of Physics – Visiting Assistant Professor of Physics

## PUBLICATIONS

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34 peer-reviewed publications, 1,673 citations, and  $h$ -index = 19 (according to NASA ADS).

 ORCID |  Google Scholar |  NASA ADS |  Scopus |  Web of Science |  ResearchGate

★ Media Highlight – *NASA Telescopes Capture Stellar Delivery Service for Black Hole*    

## TECHNICAL PROFICIENCIES

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### Programming Languages

C++ • Fortran • HTML • IDL •  $\text{\LaTeX}$  • Mathematica • MATLAB (image processing, signal processing, optimization) • Python (pandas, scikit-learn, Seaborn, SciPy, NumPy, PySR) • R • Supermongo

### Software

Adobe Creative Cloud • DS9 • Gimp • IRAF • Microsoft Office Suite • PC/Mac/Unix/Linux OS • Git

For my unabridged curriculum vitae, visit <https://bendavis007.github.io/PDFs/CV.pdf>.

Last updated: August 11, 2025; the current version is maintained at <https://bendavis007.github.io/PDFs/Resume.pdf>.