

## DANIEL BABNIGG

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5500 S University Ave, Room 1185, Chicago, IL, 60637

### EDUCATION

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#### The University of Chicago

Chicago, IL

##### *Bachelor of Science*

*Expected 2025*

Prospective Astronomy and Astrophysics (B.S., Honors) & Physics (B.A.) Majors; Data Science Minor

#### Lyons Township High School

La Grange, IL

##### *Diploma*

*June 2021*

##### **Honors**

National Cyber Scholarship Foundation Cybersecurity Scholarship (2021), LTHS Boosters Leadership Awards (2021), Outstanding Student in Mathematics Award (2021), National AP Scholar (2020)

### RESEARCH EXPERIENCE

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#### The University of Chicago Department of Astronomy and Astrophysics

Chicago, IL

##### *COOL-LAMPS Collaboration Research Assistant*

*January 2024 – present*

- creating a pipeline using Python code for the Integral Field Units for Magellan (IFUM) instrument
- developed a Python wrapper for GALFIT, connecting SAOImageDS9 and GALFIT through a text-based user interface to streamline single-band photometric model construction, propagation, and visualization
- contributed to strong gravitational lenses candidate selection from DECaLS optical survey, assisted in optical imaging and spectroscopic observations using the Magellan Telescopes in-person (March 2024)
- learned photometric and uncertainty analysis tools for distant strong gravitational lenses, from photometric modelling using GALFIT to Spectral Energy Distribution fitting using Prospector

#### The University of Chicago Department of Astronomy and Astrophysics

Chicago, IL

##### *Glass Plates Research Assistant*

*June 2022 – present*

- assist in the ongoing process of digitizing and providing access to historic materials from Yerkes Observatory, including photographic and spectra glass plates, for scientific and historic research
- use scientific tools and programming like SAOImageDS9 and Python to perform quality and statistical inspections, examine or create astrometric, photometric, and/or wavelength calibrated FITS files, and utilize public databases (Gaia, SDSS, etc.) to compare or refine produced catalogs from the glass plates
- collaborate with scholars from diverse fields to develop the scientific and historical legacy of Yerkes

### PUBLICATIONS

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Escapa, I., Babnigg, D., et. al. *Digitization and Evaluation of Spectrograms from  $\epsilon$  Aurigae's 1928-1930 Eclipse*. Submitted to PASP in August 2024.

Babnigg, D. & Gladders, M. *Analysis of IFU Observations of Extremely Strongly Lensed Galaxies*. In prep.

Babnigg, D., Do, H., et. al. *Quasar Variability Over a Century*. In prep.

## CONTRIBUTED PRESENTATIONS and TALKS

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- UChicago Physical Sciences Division Student Panel at the College Parents Council Retreat** Chicago, IL  
Panelist October 2024
- 244th Meeting of the American Astronomical Society** Madison, WI  
[iPoster Session Presentation](#) June 2024  
*Edwin Hubble's Doctoral Thesis: Using OCHRE to Associate Interdisciplinary Materials*
- UChicago Undergraduate Research Symposium** Chicago, IL  
[Poster Session Presentation](#) April 2024  
*Edwin Hubble's Doctoral Thesis: Making the Interdisciplinary Materials Accessible Using OCHRE*
- Capturing the Stars: The Untold History of Women at Yerkes Observatory Exhibition** Chicago, IL  
[Exhibition Piece](#) & [Digital Case](#) September – December 2023  
*Telescope, constructed according to instructions written by Vera M. Gushee (1916)*  
*& Epsilon Aurigae: A Case Study of Spectroscopic Work*
- Alliance of Historic Observatories Meeting at Yerkes Observatory** Williams Bay, WI  
[Conference Session Presentation](#) October 2023  
*A New Look at an Old Enigma: epsilon Aurigae*
- Biennial History of Astronomy Workshops University of Notre Dame** Notre Dame, IN  
[Panel Session Presentation](#) June 2023  
*Digitization and Analysis of a Yerkes Observatory Spectroscopic Glass Plate*
- History of Science Society Annual Meeting** Chicago, IL  
[Poster Session Presentation](#) November 2022  
*Capturing the Stars: Early 20<sup>th</sup> Century Astronomical Photography and the Material Legacy of Yerkes Observatory*

## OTHER EXPERIENCE

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- The University of Chicago Housing & Residence Life** Chicago, IL  
*Resident Assistant* 2022-23, 2023-24, 2024-25 academic years  
& *Senior Resident Assistant* 2024-25 academic year
- develop house community and provide study break activities and events in a university dormitory for undergraduate students, supporting students as a student counselor for academic and personal matters
  - assist in dealing with emergency issues and concerns, along with mediating conflicts among students
  - encourage and guide other resident assistant staff in building as senior resident assistant

## PERSONAL INFORMATION

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**Languages:** English (native), German (conversational)

**Computer:** advanced Python coding knowledge, experience with SQL, LaTeX, Java, and C. experienced with Windows and Ubuntu OS.