

# Belen Saavedra

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## Education

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### Berea College

Jan 2021 – Dec 2024

*B.A. in Computer and Information Science*

Berea, KY

**Honors:** Dean's List, Full-tuition scholarship, Departmental Computer Science Labor Award

**Capstone:** Designed and prototyped user-centered ride-share app

## Research Experience

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### Research Assistant

Aug 2024 – Present

*Carnegie Mellon University*

Pittsburgh, PA

Mentors: Christian Kästner, Nadia Nahar, Grace Lewis

- Designed high-fidelity prototype interfaces and user personas to analyze and synthesize user assumptions in Figma
- Integrated the ChatGPT API to validate user input and suggest options during the requirements elicitation process
- Developed front-end interfaces with HTML, CSS, and the Nuxt.js framework of the explainability and inference latency non-functional requirements

### Undergraduate Researcher

Aug 2024 – Present

*Social App for Berea College Students*

Berea, KY

Mentor: Prof. Deanna Wilborne

- Proposed and designed an independent study class to extend my capstone project
- Implemented a mixed-methods study, including surveys, interviews and focus groups
- Designed user personas and a high-fidelity app prototype in Figma
- Currently developing the mobile app using React Native and Supabase
- Currently leading a team of two student collaborators to assist with data analysis and the development of the app

### Research Assistant

Aug 2024 – Present

*Memory Museum at Berea College*

Berea, KY

Mentor: Dr. Jasmine Jones

- Refined and debugged Python scripts for audio recording and playback functionalities on Raspberry Pi systems
- Organized and led weekly research paper reading sessions to foster collaboration with the Makerspace team
- Supervised and mentored a student in the design and development of a website

### Research Intern

May 2023 – Aug 2023

*National Center for Atmospheric Research*

Boulder, CO

Mentors: Dr. David John Gagne, Dr. John Schreck, Charlie Becker, Gabrielle Gantos

- Visualized error matrices to compare the accuracy of weather prediction models
- Compared 3 Explainable AI (XAI) methods to verify the physical consistency of the model's predictions
- Visualized plots to convey XAI results to a general audience and specialized meteorologists

### Research Assistant

June 2022 – Aug 2022

*University of California San Diego, Nieh's Lab*

San Diego, CA

Mentors: Dr. James Nieh and Ashley Kim

- Pre-processed behavioral data captured in around 1250 hours of video recordings by writing Python scripts
- Independently learned to use 2 deep learning frameworks for multi-object pose estimation
- Documented and presented the analysis results at two undergraduate research conferences in English and Spanish

## Publications

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- Kim, A. Y., Velazquez, A., **Saavedra, B.**, et al. (2024). *Exposure to constant artificial light alters honey bee sleep rhythms and disrupts sleep*. *Scientific Reports*, 14, 25865. <https://doi.org/10.1038/s41598-024-73378-9>
- Schreck, J. S., Gagne, D. J., Becker, C., Chapman, W. E., Elmore, K., Fan, D., Gantos, G., Kim, E., Kimpapa, D., Martin, T., Molina, M. J., Przybylo, V. M., Radford, J., **Saavedra, B.**, Willson, J., Wirz, C. (2024). *Evidential Deep Learning: Enhancing Predictive Uncertainty Estimation for Earth System Science Applications*. *Artificial Intelligence for the Earth Systems*. <https://doi.org/10.1175/AIES-D-23-0093.1>

## Presentations

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### **Society of Hispanic Professional Engineers STEM Research Competition**

*Oral Presentation: Enhancing Model Requirement Elicitation with Generative AI* 2024

### **Berea Undergraduate Research and Internship Symposium**

*Oral Presentation: Enhancing Model Requirement Elicitation with Generative AI* 2024

### **Berea Undergraduate Research and Internship Symposium**

*Poster: Peeking Inside the Black Box: Explainable AI Methods for a Precipitation-type Model* 2023

### **Berea Undergraduate Research and Internship Symposium**

*Poster: The Effects of Artificial Light at Night (ALAN) on Honey Bee Sleep* 2022

## Teaching Experience

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**Tutor Certification**, International Tutor Training Program Level 1 2024

**Code in Place Section Leader**, Stanford Online 2024

**Head of Class Teaching Assistant**, CSC 236 Data Structures, Berea College 2022

**Teaching and Laboratory Assistant**, BIO 113 Zoology and BIO 110 General Biology, Berea College 2021

## Employment

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### **Data Tracking and Analysis Coordinator**

Aug 2023 – May 2024

*Office of Sustainability, Berea College*

Berea, KY

- Preprocessed datasets, visualized data using Python scripts, and designed the 2023 Methane Inventory report
- Collected and analyzed campus data to identify insights for the 2023 Greenhouse Gas Emissions report

### **STEM Outreach Associate**

Aug 2023 - May 2024

*Yahng Discovery Center, Berea College*

Berea, KY

- Led the STEM Mentorship Program to match current students with alumni with similar interests

## Grants

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Travel grant to present at the 2024 SHPE STEM Research Competition \$1,762

Travel grant to attend the 2024 NiSTEM SACNAS conference \$1,365

Independent Study Katherine Christenson Grant, Summer 2025 \$3,000

Independent Study Sloane Shelton Grant, Summer 2024 \$4,450

Experiential education grant for Summer Research at UC San Diego \$4,300

## Leadership

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Committee Member, Berea Tech and Ethics Roundtable Aug 2022 - present

President and Chapter Founder, Society of Hispanic Professional Engineers Apr 2022 - Aug 2023

President, Google Developers Student Club Aug 2022 - May 2023

Interdisciplinary Lead, Google Developers Student Club Aug 2021 - May 2022