

# BRIGETTE VAZQUEZ SEGOVIA

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## EDUCATION

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**University of Michigan** *August 2024–Present*  
Ph.D., Astronomy and Astrophysics, expected 2029 *Ann Arbor, MI*

**University of California, San Diego** *September 2020–June 2024*  
B.S., Physics with Specialization in Astrophysics; Minor in Mathematics *San Diego, CA*

## RESEARCH EXPERIENCE

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**University of Michigan** *August 2024–Present*  
Graduate Student Researcher *with Professor Monica Valluri*

- Develop modified particle-spray simulations to study how the time-evolving tidal field, mass, inner density profile, and orbit of a parent dwarf-galaxy dark matter halo shape the morphology and kinematics of globular-cluster stellar streams, including gaps, spurs, and tidal heating.

**Harvard Center for Astrophysics** *June 2023–September 2023*  
Astronomy Summer Intern *with Dr. Priyanka Chakraborty and Dr. Adam Foster*

- Analyzed Chandra LETG observations of the active galactic nucleus NGC 3227 using XSPEC and Cloudy spectral-synthesis models to constrain the photoionization parameter and column density.

**Carnegie Observatories CASSI REU** *June 2022–June 2024*  
*with Dr. Ana Bonaca*

- Used simulated Milky Way-like systems to investigate how cold dark matter subhalo encounters perturb stellar streams, reconstructing subhalo orbital histories and quantifying their effects on stream kinematics.

**University of California, San Diego** *June 2021–June 2022*  
*with Professor Adam Burgasser*

- Characterized Gaia eDR3 wide binary systems with late-M and L dwarf companions using multi-wavelength survey data and SpeX near-infrared spectral reductions.

## PUBLICATIONS

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Zhou, T., Jacobsen, D., **Vazquez Segovia, B.**, et al. “Resolved Binaries with Late-M and L Dwarf Companions Identified in Gaia eDR3.” 2023, *Research Notes of the AAS*, 7, 50.

**Segovia, B. V.**, Bonaca, A., & Nadler, E. “Detecting Dark Matter Subhalos Using Gaia-1 and Other Stellar Streams.” 2023, *Bulletin of the AAS*, 55, 2.

## SCIENCE PRESENTATIONS

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**Carnegie Mellon University, Pittsburgh, PA** *June 2024*  
Accreted Globular Cluster Stellar Stream Microstructures Resulting from Tides from the Parent Dwarf Galaxy

**243rd American Astronomical Society Meeting, New Orleans, LA** *January 2024*  
Constraining the Physical Conditions in Active Galactic Nuclei: A Case Study of NGC 3227 [Poster]

**Harvard-SAO Astrophysics REU Symposium, Cambridge, MA** *August 2023*  
Constraining the Physical Conditions in Active Galactic Nuclei: A Case Study of NGC 3227

**241st American Astronomical Society Meeting, Seattle, WA** *January 2023*  
Detecting Dark Matter Subhalos Using Gaia-1 and Other Stellar Streams [Poster]

**Carnegie Observatories REU Symposium, Pasadena, CA**  
Detecting Dark Matter Subhalos Using Gaia-1 and Other Stellar Streams

*August 2022*

**UC San Diego Lightning Talk, San Diego, CA**  
Curating a Sample of M and L Dwarfs in Wide Binary Systems

*February 2022*

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## AWARDS & RECOGNITION

2024–Present **Rackham Merit Fellow**, University of Michigan  
2023 **Harvard Astronomy Summer Intern Program**, Harvard Center for Astrophysics  
2022 **Carnegie CASSI REU Internship**, Carnegie Observatories  
2021 **Triton Research Scholar**, University of California, San Diego  
2020–2024 **Provost Honors**, University of California, San Diego  
2020–2024 **Morgan Family Foundation Scholarship**  
2019 **STEAM Scholarship**  
2019 **State of California Senate Certificate of Recognition**  
2019 **House of Representatives Certificate of Recognition**  
2019 **County of San Diego Certificate of Recognition**

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## TEACHING

**UC San Diego Supplemental Instruction Leader** *September 2022–June 2024*

- Led weekly study sessions for undergraduate physics and programming courses.
- Facilitated collaborative learning, developed Python coursework, and supported students in strengthening problem-solving skills.
- Coordinated with faculty and conducted review sessions before exams.

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## OUTREACH & SERVICE

**Undergraduate Research Advising** *Fall 2024–Present*  
Graduate Student Advisor

- Support an undergraduate student through monthly advising meetings focused on research progress, coursework, internship applications, and professional development.

**Stellar Halos Group Meetings** *Fall 2025–Present*  
Meeting Host and Organizer

- Plan and host regular research group meetings for the stellar halos group, including coordinating meeting logistics, setting up the meeting space, and communicating with participants.
- Coordinate with invited guest speakers to schedule presentations and ensure smooth meeting organization.

**Graduate Student Lunch Talks** *Fall 2025–Present*  
Graduate Lunch Talk Host

- Serve as MC for weekly graduate student research lunch talks, introducing speakers and facilitating the presentation schedule.
- Coordinate with graduate students to organize the weekly speaker rotation.

**University of Michigan Astronomy FEMMES** *August 2024–Present*  
Coordinator

- Coordinate departmental outreach efforts for FEMMES, developing astronomy activities that introduce K–12 students to scientific inquiry, observational thinking, and careers in STEM.
- Design accessible presentations and hands-on demonstrations that connect astronomical concepts to students' everyday experiences.

**Senior Outreach Center***February 2024–Present*

Student Volunteer

- Collaborate with astronomy graduate students to create community-centered astronomy programming for senior citizens in Ann Arbor.
- Develop presentations and interactive activities that make current topics in astronomy accessible to lifelong learners.

**UC San Diego Astronomy Club***January 2023–June 2024*

Vice President

- Helped reestablish the UC San Diego Astronomy Club as an active student organization by organizing stargazing nights, outreach events, and community-building activities.
- Led outreach planning, media coordination, and faculty communication to strengthen student engagement with astronomy.

**UC San Diego Society of Physics Students***September 2020–June 2024*

External Secretary and Outreach Member

- Supported programming and outreach efforts aimed at building an inclusive physics community for undergraduate students.
- Organized events, maintained communication calendars, and helped coordinate faculty talks and student-facing academic resources.

**SKILLS**

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PROGRAMMING &amp; SCIENTIFIC COMPUTING: Python, MATLAB, IDL

TECHNICAL SKILLS: Numerical simulation, data analysis, scientific visualization, and computational modeling

LANGUAGES: Native fluency in English and Spanish; beginner French