

GABRIELA TORRINI

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EDUCATION

University of Illinois Urbana-Champaign

M.S. in Astronomy

Aug. 2020 – Aug. 2022

Urbana, IL

The Ohio State University

B.S. in Astronomy & Astrophysics, Minor in Spanish

Aug. 2016 – May 2020

Columbus, OH

RESEARCH

Graduate Fellow

Department of Astronomy, University of Illinois

Jan. 2021 – Aug. 2022

Urbana, IL

Advisor: Dr. Xin Liu

- Performed optical variability selection to hunt for dwarf AGNs in the DES-COSMOS deep field
 - Analyzed 31,000 sources using astroPy, pandas, sciPy, & numpy
 - Synthesized multi-wavelength COSMOS data to reduce sample of candidates
 - Identified 51 dwarf AGN candidates
- Developed a proof of concept to pinpoint offset dwarf AGNs in the DES wide field
 - Analyzed 6 seasons of DECam data using astroPy, numPy, & pandas
 - Cleaned images, performed source detection, and measured spatial offsets

Research Assistant

Department of Astronomy, The Ohio State University

Sep. 2019 – May 2020

Columbus, OH

Advisors: Dr. Laura Lopez & Dr. Udara Abeysekara

- Completed a senior thesis

Research Assistant

Department of Astronomy, The University of Utah

May 2019 – Aug. 2019

Salt Lake City, UT

Advisors: Dr. Udara Abeysekara & Dr. David Kieda

- Optimized a cosmic-ray background subtraction algorithm to improve imaging of spatially extended sources
- Processed 97 hours of V6-epoch VERITAS data
- Analyzed optimization factors such as particle shower shape, elevation, azimuth, & season
- Determined a 1-year constraint on observing season

WORK EXPERIENCE

Software Development Intern

Turnell Corp

Dec. 2022 – July 2023

St. Charles, MO

Supervisor: Victor Turnell

- Developed a full-stack, web-based pilot application to simulate & optimize cement production processes
- Created web forms for equipment flowsheets & optimization problems using React.js & Material UI
- Built a Flask API to handle requests & perform mass-energy balance calculations
- Helped design a database with SQL Server Express; managed database-API interactions with SQLAlchemy
- Documented design & architecture choices in Scope of Work

Graduate Student Developer

National Center for Supercomputing Applications

Jan. 2022 – May 2022

Urbana, IL

Supervisor: Dr. T. Andrew Manning

- Helped develop cutout request form to access SPT-3G microwave maps using React.js & MUI
- Implemented a monitor via Uptime Kuma to maintain access to data services
- Reviewed & deployed new code using GitLab & Kubernetes

TECHNICAL SKILLS

Programming Languages: Python, JavaScript, HTML, CSS, SQL, C++

Frameworks & Libraries: pandas, numPy, astroPy, sciPy, matplotlib, seaborn, Flask, SQLAlchemy, React.js, MUI

Software Systems: Git, SQL Server Express, Mathematica, LaTeX

Operating Systems: Windows, Linux

POSTER PRESENTATIONS

Astrofest **April 2022**
Department of Astronomy, University of Illinois Urbana-Champaign *Urbana, IL*

Sloan Conference **April 2022**
University Center of Exemplary Mentoring, University of Illinois Urbana-Champaign *Urbana, IL*

Planetary Nebulae & Supernova Remnants Session, 235th AAS Meeting **Jan. 2020**
American Astronomical Society *Honolulu, HI*

Research Experience for Undergraduates (REU) Symposium **Oct. 2019**
Council on Undergraduate Research *Alexandria, VA*

Office of Undergraduate Research Summer Symposium **Aug. 2019**
The University of Utah *Salt Lake City, UT*

RELEVANT COURSEWORK & CERTIFICATES

Astronomy: Galaxies, Cosmology, Stellar Evolution, Radiative Processes, Dynamics, AI & Big Data in Astro

Physics: Statistical Mechanics, Quantum Mechanics, Electricity & Magnetism

Mathematics: Multivariable Calculus, Differential Equations, Linear Algebra

Certificate of Completion, Fundamentals of Data Science Summer Workshops **August 2022**
Stanford Institute for Computational & Mathematical Engineering

LEADERSHIP & OUTREACH

Treasurer, SACNAS Chapter **Aug. 2019 – May 2020**
The Ohio State University *Columbus, OH*

- Secured \$1100 in funding for a keynote & documentary screening with Catalina Martinez, Regional Program Manager at the National Oceanic and Atmospheric Administration (NOAA)

Mentor, Latinx Early Arrival Program **Aug. 2019 – May 2020**
Office of Diversity & Inclusion, The Ohio State University *Columbus, OH*

- Mentored 3 Latina undergraduates during their academic & social transition to college

President, The Astronomical Society **Aug. 2017 – May 2019**
The Ohio State University *Columbus, OH*

- Equipped 1,500 Central Ohioans with glasses & safety instructions to view the August 2017 solar eclipse
- Planned an annual educational trip to the Green Bank Observatory for 35 undergraduates in February 2018/2019
- Hosted 8 seasonal star parties for up to 100 members of the general public; operated 12-inch Meade telescope and dome, provided free educational content, & led guided night sky tours
- Wrote a transition manual for future executive boards

Social Media Coordinator, SACNAS Chapter **Aug. 2017 – May 2019**
The Ohio State University *Columbus, OH*

- Curated chapter profiles on 3 platforms: Twitter, Instagram, Facebook
- Promoted opportunities for scholarships, internships, research positions, & jobs
- Collaborated with chapter members to share stories about their research, work-life balance, & the lived experience of underrepresented minorities in STEM

Volunteer, Physical Sciences Gallery **May 2017 – May 2019**
St. Louis Science Center *St. Louis, MO*

- Trained for over 195 hours to operate plasma globes, Van de Graaff generators, Tesla coils, & liquid nitrogen
- Performed Amazing Science Demonstrations for up to 100 visitors at a time

AWARDS, FELLOWSHIPS, & SCHOLARSHIPS

Sloan Scholar

Aug. 2020 – Aug. 2022

University Center of Exemplary Mentoring, University of Illinois

Urbana, IL

- To broaden participation in advanced engineering, physical and mathematical science careers

Graduate College Fellow

Aug. 2020 – Aug. 2022

University of Illinois

Urbana, IL

- To increase the enrollment of outstanding students from populations that have been historically underrepresented in graduate study

Morrill Distinction Scholarship

Aug. 2016 – May 2020

Office of Diversity & Inclusion, The Ohio State University

Columbus, OH

- For actively engaging in diversity-based leadership, social justice and service

REU NSF Grant Award

Aug. 2019

Department of Physics & Astronomy, The University of Utah

Salt Lake City, UT

- To represent the REU site in the Physics Division at the NSF's Council on Undergraduate Research

Tuttle Scholarship in Astronomy

Jan. 2019

Department of Astronomy, The Ohio State University

Columbus, OH

- For demonstrating strong academic performance in astronomy & astrophysics

SACNAS Bound Buckeye Travel Grant

Oct. 2018

College of Arts & Sciences, The Ohio State University

Columbus, OH

- To support attendance at the 45th National Diversity in STEM Conference

TEACHING

Teaching Assistant, 1102: From Planets to the Cosmos

May 2020 – Aug. 2020

Department of Astronomy, The Ohio State University

Columbus, OH

Instructor: Rachel Patton

- Tutored students during weekly virtual office hours
- Graded homework, quizzes, & exams for 79 students

Teaching Assistant, 1141: Life in the Universe

May 2020 – July 2020

Department of Astronomy, The Ohio State University

Columbus, OH

Instructor: Dr. Stephan Frank

- Facilitated breakout room activities during live online course lectures
- Tutored students during weekly virtual office hours
- Graded homework, labs, & exams for 55 students

Instructional Aide, 1101: From Planets to the Cosmos

Jan. 2020 – Apr. 2020

Department of Astronomy, The Ohio State University

Columbus, OH

Instructors: Dr. Todd Thompson & Dr. Wayne Schlingman

- Taught material during laboratory section
- Graded labs for 20 students
- Collaborated with instructors to modify content for online learning

OTHER COMMUNITY INVOLVEMENT

Speaker, "Sick Burn: The Story Behind Your Sizzling Summer Nightmare"

July 21, 2022

Astronomy on Tap Champaign-Urbana

Urbana, IL

Co-chair, Journal Club Committee

Aug. 2020 – July 2021

Department of Astronomy, University of Illinois

Urbana, IL

Panelist, Undergraduate Research & Graduate School Applications

Oct. 19, 2020

Society for Equity in Astronomy, University of Illinois

Urbana, IL