

ABRA GEIGER

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EDUCATION

Cornell University, Ithaca, NY

B.A., Physics and Math, Minor in Astronomy, 2022 to 2026 (expc.)

GPA: 3.943

PUBLICATIONS

1. **Geiger, A.**, & Lam, M. T. 2022. *The Frequency-Dependent Scattering of Pulsar J1903+0327*. NANOGrav Memo Series No. 8, Tech. rep., NANOGrav

RESEARCH EXPERIENCE

Cordes Radio Astronomy Lab

Research Assistant

Cornell University

Sept 2022 - Present

- Analyze interstellar scattering utilizing python for application to pulsar timing as a junior member of the North American Nanohertz Observatory for Gravitational Waves, NANOGrav (a continuation of previous scattering project)
- Write scientific publication on scattering research (Geiger et al. in prep) and conduct literature reviews
- Install and operate the Cornell Global Radio Explorer (GRex) Radio Telescope
- Collaborate and discuss weekly project reports with team of professors and researchers

Lam Radio Astronomy Lab

Research Assistant

Rochester Institute of Technology

Sept 2021 - Aug 2022

- Measured and analyzed interstellar scattering variations for millisecond pulsar J1903+0327 utilizing python
- Modeled autoregressive variations in timing residuals for millisecond pulsar B1937+21 utilizing python
- Presented and discussed progress in weekly meetings with a team of pulsar timing researchers

AWARDS AND FELLOWSHIPS

McNair Scholar (2023-2026)

Cornell Arts & Sciences Nexus Scholar (2023)

Dean's List Awardee (FA22, SP23)

AP Scholar with Distinction (2022)

Donald F. and Maxine B. Davison Foundation Scholarship Recipient (2022)

George Eastman Young Leaders Award Recipient (2021)

Clarkson University Leadership Scholarship Recipient (2021)

PRESENTATIONS

American Astronomical Society Winter Meeting

January 2024

Probing Interstellar Turbulence and Precision Pulsar Timing with PSR J1903+0327

Cornell Arts & Sciences Nexus Capstone Presentations

July 2023

Probing Interstellar Turbulence and Its Intermittency Through Observation of a Millisecond Pulsar

Cornell Astronomy Undergraduate Research Poster Forum May 2023

The Frequency-Dependent Scattering of Pulsar J1903+0327

Cornell Undergraduate Research Board Spring Symposium April 2023

The Frequency-Dependent Scattering of Pulsar J1903+0327

- Awarded Best in Category for Physical Sciences

APS Conference for Undergraduate Women in Physics January 2023

The Frequency-Dependent Scattering of Pulsar J1903+0327

Rochester Institute of Technology Undergraduate Research Symposium July 2022

The Frequency-Dependent Scattering of NANOGrav Pulsar J1903+0327

TEACHING EXPERIENCE

PHYS 1116: Mechanics and Special Relativity **Cornell University**

Undergraduate Teaching Assistant

Jan 2023 - Present

- Collaborate with professors and graduate student TAs to support students in augmented introductory physics
- Host weekly office hours to aid students in homework completion and content comprehension

LEADERSHIP AND SERVICE

Cornell Society of Physics Students **Cornell University**

Vice President

Dec 2023 - Present

- Organize and oversee ~ 10 physics events per semester, collaborating with the president and executive board
- Serve on the CEDI committee and continue the "A Physicist Is" project (more information below)

Women in Physics Chair

Feb 2023 - Dec 2023

- Spearhead tri-weekly outreach for ~ 40 local fifth grade students by gathering and training volunteers, communicating weekly physics concepts, and coordinating with local fifth grade teacher and The Ithaca Physics Bus
- Plan and host ~ 10 physics events per semester: including professional development workshops, speakers, etc
- Serve as a student-faculty liaison on the Cornell Physics Committee for Climate, Equity, Diversity, and Inclusion (CEDI)
- Develop "A Physicist Is" with Prof. Holmes to highlight the diversity of careers and people in physics

The Stemminist Movement **Cornell Chapter**

Outreach Co-Director

Nov 2022 - Present

- Co-lead a committee of 5 members to organize ~ 10 STEM outreach programs for middle school students each year
- Train co-director and committee members in organizational workflow and event planning
- Foster an empowering community for women in STEM at Cornell and beyond through professional development workshops, invited talks, socials, and more

Cornell Astronomical Society*Keyholder***Cornell University**

Feb 2023 - Present

- Manage sky tours and telescope observing for weekly open houses at Cornell's Fuertes Observatory
- Write astrophysics columns in our newsletters

Ballet & Books*Treasurer***Ithaca Chapter**

Jan 2023 - Present

- Manage club logistics including semesterly show planning, fundraisers, finances, and funding allocation

Dance Teacher

Sept 2022 - Present

- Lead weekly ballet classes for ~ 15 students aged 6-9 years, managing a team of 2 teaching assistants

Cornell Tatkon Center for New Students*Orientation Leader***Cornell University**

Aug 2023

- Facilitate small group sessions and large-scale events with new students
- Support and guide new students through the transition to campus life
- Engage in training for developing inclusive spaces, building connections, and strengthening teamwork

Court-Kay-Bauer Residence Hall Student Council*Vice President***Cornell University**

Sept 2022 - June 2023

- Plan and run events for the 275+ residents of Court-Kay-Bauer Hall every 1-to-2 months
- Collaborate with other Hall Councils and Residential Student Congress for larger scale events

Rochester Museum and Science Center*Volunteer***Rochester, NY**

Dec 2022 - Jan 2023

- Present the "Science On A Sphere" exhibit and its connection to scientific research and discovery
- Monitor and tidy the museum and assist with other operational tasks as needed

SKILLS

Programming: Python, Java, Latex, HTML, Beginner C++**Computer:** UNIX, Microsoft (Word, Powerpoint, Excel, Office), Google Workspace**Language:** Native Fluency in English, Intermediate French**AFFILIATIONS**

*Junior Member, North American Nanohertz Observatory for Gravitational Waves**Member, American Astronomical Society**Member, American Physical Society**Member, Society of Physics Students*