

SAMANTHA R. GILBERT

<https://samrosegilbert.github.io/> [✉ samroseg@uw.com](mailto:samroseg@uw.com) [\(561\)-951-2219](tel:(561)-951-2219)

EDUCATION

University of Washington, WA *Sept. 2021 - Present*
Dual Title PhD in Astronomy & Astrobiology (in progress)
Master of Science in Astronomy *Sept. 2019 - 2021*

University of Chicago, IL *Oct. 2013 - June 2017*
Bachelor of Arts in Physics with a Specialization in Astrophysics
Awarded with Honors

SKILLS

Languages: English, Spanish
Programming: Python, Fortran, some C++
Software & Tools: coupled 1D climate and photochemistry model
line-by-line radiative transfer model
atmospheric retrieval model using nested sampling

RESEARCH EXPERIENCE

University of Washington, Prof. Victoria Meadows *Sept. 2019 - Present*
Graduate Research Assistant

- **Thesis project:** studying how we will interpret future observations of Earth-like exoplanets to search for signs of life using Bayesian inference methods, AKA "retrieval models"
- Organize and advise weekly graduate student meetings for discussing research progress and facilitating collaboration between students
- Interact with prospective graduate students to promote the lab and our research

Lawrence Berkeley National Laboratory, Prof. Akito Kusaka *Aug. 2017 - Aug. 2018*
Post-Baccalaureate Research Assistant

- Researched and successfully developed a cryogenic test-bed for the study of CMB anisotropies with POLARBEAR-2 (PB-2)
- Developed motor control scripts for the PB-2 cold half-wave plate

University of Chicago, Prof. Abigail Vieregg *Sept. 2016 - Jun. 2017*
Senior Thesis Project

- Designed, built, and characterized an RF anechoic chamber for detection of ultra-high energy neutrinos with the Askaryan Radio Array (ARA)
- Shared my results in a journal-style paper and conference-style talk to obtain Honors in Physics with a Specialization in Astrophysics

Columbia University, Prof. Brian Humensky *Summer 2016*
REU Participant

- Optimized image cleaning for the detection of high-energy gamma-ray events with the Cherenkov Telescope Array (CTA)
- Adapted scripts to manage large data trees generated by 200,000 simulated shower events

University of Chicago, Prof. Scott Wakely *Jan. 2015 - Jun. 2016*
Research Assistant

- Designed, fabricated, and programmed electronics for the CTA prototype camera, including Arduino microcontrollers
- Implemented web page-based control of stepper motors to improve handling of the camera

PRESENTATIONS

"A Modeling Comparison of Retrieved Atmospheres and Inferred Surface Properties for Habitable Terrestrial Exoplanets Using Transmission and Direct Imaging." Astrobiology Science Conference, In Person, May 2022. Talk.

"Searching for Life on Exoplanets." Lawrence Berkeley National Laboratory, SULI/BLUR Internship Meeting, Virtual, Mar. 16, 2022. Invited talk.

"How will we find and recognize life out there?" University of Washington Astrobiology Public Science Panel, Virtual, Jul. 28, 2021. Panelist.

"Developing a hierarchy of models for terrestrial habitability studies." TRAPPIST Habitable Atmosphere Intercomparison (THAI) Workshop, Virtual, Sept. 2020. Talk. *Video link available on website.*

"Leaving the Competition in the Dust: A CMB Case Study." Astronomy on Tap, Seattle, WA Sept. 2019. Public talk. *Video link available on website.*

"Assessing Our Ability to Interpret Biosignatures via Transmission and Direct Imaging." Sagan Workshop, Caltech, Jul. 15-19 2021. Poster and lightning talk.

"Design and evaluation of a cryogenic continuous rotation stage for CMB polarization modulation on POLARBEAR-2." SPIE Astronomical Telescopes + Instrumentation Conference, Austin, TX, Jun. 2018. Conference poster. *Coauthor.*

"Comparing two-level and time next neighbor cleaning protocols for optimizing CTA image cleaning." REU Program Presentation, Nevis Laboratories, NY, Aug. 2016.

MENTORSHIP & OUTREACH

Education in Science, Technology, Engineering, Astrobiology, and Math (e-STEAM) *Feb. 2022 - Present*
Founder, Leader, Tutor

- Founded and currently leading the effort to tutor incarcerated youth at Echo Glen Children's Center, a medium/maximum security juvenile detention center, on a weekly basis
- Program aims to provide incarcerated children with committed, reliable adult role models who are STEM professionals to encourage an interest in STEM education/careers

More Active Girls in Computing (MAGIC) *Jan. 2022 - Present*
Mentor

- Mentored a high school girl interested in STEM careers by working on a real astronomy research project: assessing our ability to discriminate between different types of terrestrial atmospheres on the inner TRAPPIST-1 planets using future emission spectroscopy measurements
- Program aims to encourage girls from marginalized backgrounds to pursue careers in STEM by sparking an early interest in computing

Pre-Major in Astronomy Program (Pre-MAP) *Sept. 2021 - Jun. 2022*
Academic Advisor

- Mentored new UW undergraduate students in coding and the scientific method as they work on their first astronomy research projects
- Program aims to encourage students from marginalized backgrounds to pursue the Astronomy major at UW and careers in STEM
- Developed lesson plans and workshops for teaching how to write and debug Python code and how to navigate academic mentoring relationships

Skype a Scientist *Sept. 2020*
Guest Speaker

- Talked to middle school and high school students about my research and scientific career path
- Program aims to encourage students from marginalized backgrounds to pursue careers in STEM by connecting them with real scientists

Letters to a Pre-Scientist *Sept. 2020 - Jun. 2021*
Pen-Pal

- Developed a one-on-one mentoring relationship with a middle school student in Los Angeles via regular electronic correspondence throughout the school-year
- Described my research and career path to encourage my mentee to consider a career in STEM while nurturing his personal interests

Virtual Planet Laboratory*Summer 2019**Technical Mentor*

- Co-mentored an undergraduate student working on a summer research project with my PhD advisor, Prof. Victoria Meadows correspondence throughout the school-year
- Taught the student how to implement and debug a complicated photochemistry/climate model for theoretical exoplanet atmosphere studies

Lawrence Berkeley National Laboratory*Aug. 2017 - Aug. 2018**Undergraduate Physics Journal Club Coordinator*

- Directed weekly meetings of undergraduate journal club at LBNL
- Created and presented slides for weekly discussions
- Moderated discussion and coordinated guest speakers to give technical tutorials

Bay Area Scientists in Schools (BASIS)*Dec. 2017 - Jun. 2018**Volunteer Science Educator*

- Visited K-5 classrooms to teach about the scientific method and support local teachers
- Described my research and career path to encourage future careers in astronomy

Women Youth Supporting Each Other (WYSE)*Sept. 2013 - Jun. 2017**Mentor*

- Maintained one-on-one mentoring relationships with girls attending Madero Middle School in Little Village
- Counseled in conflict resolution, personal identity, self-love, community service, coping mechanisms, and encouraged girls to pursue careers in science
- Wrote original lesson plans, coordinated supplies, and delegated tasks for weekly school visits