Sofia Z. Sheikh

POSITIONS

Technosignature Research Scientist SETI Institute

NSF MPS-Ascend Postdoctoral Fellow SETI Institute

Postdoctoral Scholar Berkeley SETI Research Center

EDUCATION

Pennsylvania State UniversityUniversity Park, PADual-Title Ph.D. in Astronomy & Astrophysics and AstrobiologySummer 2021Thesis: Observational and Theoretical Studies of Radio Technosignatures and PulsarsAdvisor: Jason Wright

University of California, Berkeley

B.A. in Physics and Astronomy

Research Interests

Technosignatures / SETI — Pulsars — Fast Radio Bursts — Astrobiology — Radio Astronomy — Exoplanets

CURRENT AFFILIATIONS

- SETI Institute
- Breakthrough Listen Search for Intelligent Life
- Berkeley SETI Research Center
- Penn State Extraterrestrial Intelligence Center
- Pulsar Search Collaboratory
- Order of the Octopus

PUBLICATIONS

For online access to all of the works below, please see my public ADS library. Publications with an * are supervised papers first-authored by current or former mentees. At a glance:

- h-index: 15
- Number of papers led or supervised (refereed): 11
- Number of papers co-author (refereed): 19

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> Mountain View, CA January 2025–present

Mountain View, CA January 2022–January 2025

> Berkeley, CA Summer–Winter 2021

> > Berkeley, CA Spring 2017

Mountain View, CA Oxford, UK Berkeley, CA State College, CA Morgantown, WV Virtual Community

Refereed

- 30. S. Z. Sheikh and 7 other authors, "Earth Detecting Earth: At what distance could Earth's constellation of technosignatures be detected with present-day technology?", ApJ, in press (2024).
- 29. S. Z. Sheikh and 17 other authors, "Scintillation Bandwidth Measurements from 23 Pulsars from the AO327 Survey", *ApJ*, 976(2), p. 225, (2024).
- 28. N. Tusay, **S. Z. Sheikh**, and 7 other authors, "A Radio Technosignature Search of TRAPPIST-1 with the Allen Telescope Array", *AJ*, **168(6)**, p. 283, (2024).
- 27. *B. Cabrales, J. Davenport, S. Z. Sheikh and 4 other authors, "Searching the SN 1987A SETI Ellipsoid with TESS", *AJ*, 167(3), p. 101, (2024).
- 26. S. Z. Sheikh and 19 other authors, "Characterization of Repeating FRB 20220912A with the Allen Telescope Array", MNRAS, 527(4), p. 10425–10439, (2024). See also associated Correction, MNRAS, 534(3) p. 1949, (2024).
- C. Choza and 19 other authors including S. Z. Sheikh, "The Breakthrough Listen Search for Intelligent Life: Technosignature Search of 97 Nearby Galaxies", AJ, p. 10, 167(1), 2023.
- 24. A. Suresh, V. Gajjar, P. Nagarajan, S. Z. Sheikh, and 5 other authors, "A 4–8 GHz Galactic Center Search for Periodic Technosignatures", *AJ*, 165(6), p. 255, 2023.
- J. Bright and 20 other authors including S. Z. Sheikh, "Precise Measurements of Self-absorbed Rising Reverse Shock Emission from Gamma-ray Burst 221009A,", *Nature Astronomy*, 7, p. 986–995, 2023.
- 22. B. Brzycki and 6 other authors including **S. Z. Sheikh**, "On Detecting Interstellar Scintillation in Narrowband Radio SETI", *ApJ*, **952(1)**, p. 46, 2023.
- 21. *M. Li, S. Z. Sheikh, and 5 other authors, "Developing a Drift Rate Distribution for Technosignature Searches of Exoplanets", *AJ*, 166(5), p. 182, 2023.
- S. Z. Sheikh and 14 other authors, "A Green Bank Telescope search for narrowband technosignatures between 1.1 1.9 GHz during 12 Kepler planetary transits", AJ, 165(2), p. 61, 2022.
- J. Davenport, B. Cabrales, S. Z. Sheikh, and 4 others, "Searching the SETI Ellipsoid with Gaia", AJ, 164(3), p. 117, 2022.
- P. Ma and 16 other authors including S. Z. Sheikh, "A deep-learning search for technosignatures from 820 nearby stars", *Nature Astronomy*, 2023.
- 17. V. Gajjar and 21 other authors, including S. Z. Sheikh, "Searching for broadband pulsed beacons from 1883 stars using neural networks", *ApJ*, 932(2), p. 81, 2022.

- N. Tusay and M. Huston and 18 other authors including S. Z. Sheikh, "A Search for Radio Technosignatures at the Solar Gravitational Lens Targeting Alpha Centauri", AJ, 164(3), p. 116, 2022.
- 15. B. Brzycki and 8 other authors, including S. Z. Sheikh, "setigen: Simulating Radio Technosignatures for SETI", AJ, 163(5), p. 222, 2022.
- J. Wright and 5 other authors, including S. Z. Sheikh, "The Case for Technosignatures: Why They May Be Abundant, Long-Lived, Highly-Detectable, and Unambiguous", *ApJ Letters*, 927(2), p. L30, 2022.
- N. Franz and 14 other authors, including S. Z. Sheikh, "The Breakthrough Listen Search for Intelligent Life: Technosignature Search of Transiting TESS Targets of Interest", AJ, 163 (3), p. 104, 2022.
- 12. B. Lacki and 14 other authors, including S. Z. Sheikh, "One of Everything: the Breakthrough Listen Exotica Catalog", *ApJ Supplements*, 257(2), p. 42, 2021.
- 11. D. Czech and 20 other authors, including S. Z. Sheikh, "The Breakthrough Listen Search for Intelligent Life: MeerKAT Target Selection", *PASP*, 133(1024), 2021.
- 10. V. Gajjar and 25 other authors including S. Z. Sheikh "The Breakthrough Listen Search For Intelligent Life Near the Galactic Center I", AJ, 162(1):33, 22 pp., 2021.
- S. Z. Sheikh and 17 other authors "Analysis of the Breakthrough Listen signal of interest blc1 with a technosignature verification framework", *Nature Astronomy*, 5(11), pp. 1153–1162, 2021.
- S. Smith, D. Price, S. Z. Sheikh and 15 other authors "A radio technosignature search towards Proxima Centauri resulting in a signal of interest", *Nature Astronomy*, 5(11), pp. 1148–1152, 2021.
- 7. S. Z. Sheikh and M. G. MacDonald "A Statistical Analysis of the Nulling Pulsar Population", *MNRAS*, **502(4)**, 4669–4679, 2021.
- R. Traas and 10 other authors, including S. Z. Sheikh, "The Breakthrough Listen Search for Intelligent Life: Searching for Technosignatures in Observations of TESS Targets of Interest", AJ, 161(6), p. 286, 2021.
- 5. S. Z. Sheikh, "Nine axes of merit for technosignature searches", *IJA*, 19, pp. 237–243, 2020.
- S. Z. Sheikh, A. Siemion, J. E. Enriquez, D. C. Price, H. Isaacson, M. Lebofsky, V. Gajjar, and P. Kalas, "The Breakthrough Listen Search for Intelligent Life: A 3.95–8.00 GHz Search for Radio Technosignatures in the Restricted Earth Transit Zone", AJ, 160, p. 29, Jun. 2020.
- M. Lebofsky and 24 other authors, including S.Z. Sheikh, "The Breakthrough Listen Search for Intelligent Life: Public Data, Formats, Reduction, and Archiving", *PASP*, 131(1006), pp. 1–23, 2019.

- 2. S. Z. Sheikh, J. T. Wright, A. Siemion, and J. E. Enriquez, "Choosing a Maximum Drift Rate in a SETI Search: Astrophysical Considerations", *ApJ*, 884, p. 14, 2019.
- H. Isaacson and 12 other authors, including S. Z. Sheikh, "The Breakthrough Listen Search for Intelligent Life: Target Selection of Nearby Stars and Galaxies", *PASP*, 129(975), p. 054501, 2017.

Non-Refereed

- P. Joshi and 16 other authors, including S. Z. Sheikh, "Wideband detection of FRB 20240114A above 2 GHz with the Allen Telescope Array", Astronomer's Telegram, 16599, 2024.
- C. Choza and 7 other authors, including S. Z. Sheikh, "A Radio Technosignature Search of Six Resonant Sub-Neptunes Orbiting HD 110067", *RNAAS*, 8(1), pp. 37, 2024.
- J. Lazio, S.G. Djorgovski, A. Howard, C. Cutler, S. Z. Sheikh, and 19 other authors, "Data-Driven Approaches to Searches for the Technosignatures of Advanced Civilizations", Keck Institute for Space Sciences, Workshop Report, 2023.
- R. C. Saide, W. Farah, S. Z. Sheikh, and 11 other authors, "Hycean Exoplanets as Targets for Technosignature Detection: A Case Study of K2-18 b in the 3–10 GHz Band", *RNAAS*, 7(11), pp. 233, 2023.
- 13. J. Davenport, S. Z. Sheikh, and 6 other authors, "Real-Time Technosignature Strategies with SN 2023ixf", *RNAAS*, 7(6), pp. 120, 2023.
- J. Haqq-Misra, S. Z. Sheikh, and 9 other authors, "Opportunities for Technosignature Science in the Astro2020 Report", Unsolicited white paper by the NASA Nexus for Exoplanet System Science (NExSS) Research Coordination Network's Working Group on Technosignatures, 2022.
- S. Z. Sheikh and 15 other authors, "Bright radio bursts from the active FRB 20220912A detected with the Allen Telescope Array", Astronomer's Telegram, 15735, 2022.
- 10. K. Perez, W. Farah, **S. Z. Sheikh**, and 20 other authors, "Breakthrough Listen Search for the WOW! Signal", *RNAAS*, **6(9)**, pp. 197, 2022.
- 9. S. Z. Sheikh and 14 other authors, "Technosignatures as a Priority in Planetary Science", submitted to the *Planetary Science Decadal Survey 2023–2032*, *Bulletin of the American Astronomical Society*, 53(4), pp. 1–7, 2021.
- J. Faber and 17 other authors, including S. Z. Sheikh, "Re-Analysis of Breakthrough Listen Observations of FRB 121102: Polarization Properties of Eight New Spectrally Narrow Bursts", *RNAAS*, 5(1), pp. 17–21, 2021.

- S. Z. Sheikh and 8 other authors, "No Redetections of blc1 in 39 hr of Reobservation Campaigns of Proxima Centauri", *RNAAS*, 5(10), p. 248, 2021.
- D. C. Price and 12 other authors including S. Z. Sheikh, "Expanded Capability of the Breakthrough Listen Parkes Data Recorder for Observations with the UWL Receiver", *RNAAS*, 5(5), p. 114, 2021.
- 5. S. Z. Sheikh and 9 other authors, "A Compilation of Pulse Widths and Their Associated Observing Parameters for All Known Nulling Pulsars", *RNAAS*, 5, p. 128, 2021.
- 4. K. Perez and 12 other authors, including **S. Z. Sheikh**, "Breakthrough Listen Search for Technosignatures toward the Kepler-160 System", *RNAAS*, **4(6)**, p. 97, 2020.
- B. Brzycki and 18 other authors, including S. Z. Sheikh, "Breakthrough Listen Follow-up of the Random Transiter EPIC 249706694/HD 139139 with the Green Bank Telescope", *RNAAS*, 3(10), p. 147, 2019.
- 2. J. T. Wright, S. Z. Sheikh, I. Almár, K. Denning, S. Dick, and J. Tarter, "Recommendations from the Ad Hoc Committee on SETI Nomenclature", 2018.
- 1. NASA Technosignatures Workshop Participants including **S. Z. Sheikh**, "NASA and the Search for Technosignatures: A Report from the NASA Technosignatures Workshop", 2018.

LANGUAGES, PROGRAMS, AND SKILLS

- **Programming Languages:** Python (Advanced), IDL (Intermediate), R (Intermediate), Julia (Intermediate), MySQL (Beginner)
- Pulsar tools (Advanced): PSRCHIVE, PRESTO, PyPulse, DSPSR
- SETI Software (Advanced/Developer): turboSETI, bliss, blipss, setigen, SPANDAK
- Other Scientific Software: Unix and Bash Scripting (Advanced), ${\rm \slash Scripting}$ (Advanced)
- Observing Experience: Trained Green Bank Telescope (GBT) Observer (100+ hours), Allen Telescope Array (ATA) Observer (250+ hours)

GRANTS

- [NASA XRP] "New Approaches to Laser and Radio Technosignatures"
 24-XRP24_2-0031 (\$483,147) Role: Collaborator PI: Wright 01/01/2025-10/31/2027
- [SETI Institute STRIDE Grant] "Accelerating multi-backend capability development on the Allen Telescope Array" Award Amount: \$81,800 — Role: PI 07/01/2024-06/30/2025
 [NSE A ST SII] "SII NEDZ Badia Astronomy Dynamic Satellite Interference Mitigation and
- [NSF-AST SII] "SII-NRDZ: Radio Astronomy Dynamic Satellite Interference-Mitigation and Spectrum Sharing (RADYSISS)"
 2232368 (\$2,299,023) — Role: Collaborator — PI: Gifford 10/01/2022-09/30/2025
- [NASA Exobiology] "Characterizing Atmospheric Technosignatures" 80NSSC20K0622 (\$286,926) — Role: Co-I — PI: Frank 12/15/2019--12/14/2022

• [PSU Institute for Computational and Data Science Seed Grant] "SETI@PSU: Partnering with the \$100 million Breakthrough Listen Initiative" Award Amount: \$10,000 — Role: Collaborator 04/01/2018-03/31/2018

Telescope Time

•	[NRAO] "Confirmation of Life in the Galaxy: Re-Observation of Signals From COSMI	C"
	VLA/23A-040 (6 hr) — Role: Collaborator — PI: Tremblay	2023A
•	[NRAO] "Confirmation of Life in the Galaxy: Re-Observation of Signals From COSMI	C"
	VLBA/23A-041 (6 hr) — Role: Collaborator — PI: Tremblay	2023A
•	[NRAO] "A Radio Technosignature Search at Anti-Pulsar Points"	

2020A **GBT20A-589**, DDT (10 hr) — **Role: PI**

Fellowships, Honors and Awards

•	[NSF] MPS-Ascend Postdoctoral Fellowship	2022-2024
•	PSU Cecilia Payne-Gaposchkin Science Achievement Graduate Scholarship	2020 - 2022
•	[PSU Astronomy] Brumbach-Sampson Memorial Fund Award	2019
•	[PSU] University Graduate Fellowship	2017 - 2018
•	[UC Berkeley] High Honors in Astrophysics	2017

MENTORING

• Supervisor for ATA Post-Bacc Summer Interns

- Taught post-baccs at Hat Creek Radio Observatory (HCRO) how to observe, guided research in SETI and pulsar projects (being incorporated into *in prep* manuscripts), and provided professional development and mentorship

• Research Mentor for REU Programs

- Served as an REU mentor to nine undergraduate students in the Breakthrough Listen (BL) and SETI Institute (SI) programs
- Science topics include observational pulsar, FRB, and SETI programs using ATA, GBT, TESS, Exoplanet Archive, and simulation tools
- Helped students learn how to operate the Allen Telescope Array and develop coding skills in software tools such as Python (including AstroPy and pandas), turboSETI, Jupyter Notebooks, Unix, Bash, LaTeX and more
- Assisted students with preparing talks and posters on their work for major conferences (AAS, SACNAS, PSETI)
- Co-organized and taught a two-day ATA workshop to the entirety of the SI and BL REU cohorts each summer in 2022-present

• Research Mentor for Foothill Mini-Internship Program

- Served as a Science Learning Institute "Mini-Internship Program" mentor at Foothill Community College

Summer 2023–Present

Summer 2021–Present

Winter 2023

- Research Mentor for Penn State Pulsar Search Collaboratory
 - Led a dozen undergraduates through parts of a pulsar research project over the last five years, with a paper in press as of August 2024
 - Students used Arecibo 327 MHz drift scan data of 160 pulsars to measure the properties of the ISM using pulsar scintillation
 - Met with students twice a week for "hack-sessions", teaching them software tools such as Python, Jupyter Notebooks, Unix, Bash, PRESTO, PSRCHIVE, and more

MENTEES

Post-Baccs

• Grayce Brown (HCRO Intern; PSPSC Mentee)	2020–Present
• Barbara Cabrales (HCRO Intern; BL REU 2021)	2021–Present
Current: PhD Student at University of Manchester	
Undergraduates	
• Sarahi Palma (SI REU 2024)	2024
Current: Undergraduate at University of Michigan	
• Ella Hort (SI REU 2023)	2023-2024
Current: PhD Student at University of New Mexico	
• Alex Medina (SI REU 2023)	2023 - 2024
Current: MS-PhD Bridge student at UCF	
• Felix Weber (SI REU 2023)	2023
Current: PhD Student at CalTech	
• Brianna Bermudez (Foothill SLI)	2023
Current: Undergraduate at San Jose State University	
• Sofia Marquez (Foothill SLI)	2023
Current: Post-Bacc at San Jose State University	
• Brandon Grimaldo (Foothill SLI)	2023
Current: Post-Bacc at CalState Monterrey Bay	

- Led a cohort of 3 students through a project using Allen Telescope Array data to quantify long-term scintillation of ~ 20 pulsars (work is being incorporated into an *in prep* publication)
- Repurposed resources from the Penn State PSC project to teach scientific programming skills, science communication, and general professional development and problem-solving

- Served as a research mentor to a Chabot Community College student via the Cal-URSA

- Student repurposed GBT data of calibration pulsars taken for Breakthrough Listen as a dataset for pulsar nulling measurements, developing scientific programming skills in e.g.,

Fall 2021–Summer 2022

2018–Present

(Undergraduate Research Scholarships in Astronomy) program

• Research Mentor for the Cal-URSA Program

Python and Bash along the way

• Jamar Kittling (SI REU 2022)	2022
Current: PhD Student and EDGE Fellow at Stanford University	
Alanice Agosto Reyes (SI REU 2022)	2022
Current: URA-Fermilab Women in STEM Intern (Undergraduate at UPR	Mayaguez)
• Megan Li (BL REU 2021)	2021 - 2023
Current: PhD Student at UCLA	
• Ki Fraser (Cal-URSA)	2021 - 2022
Current: Undergraduate Student at UC Berkeley	
• Pranav Nagajaran (BL REU 2021)	2021
Current: PhD Student at CalTech	
• Jackson MacTaggart (PSPSC Mentee)	2020 - 2024
Current: PhD Student at University of Michigan	
• Thomas Nguyen (PSPSC Mentee)	2019 - 2024
Current: Masters Student at Penn State	
• Brenda Jones (PSPSC Mentee)	2019-2021
Current: PhD Student at University of Maine	
• Vincent Smedile (PSPSC Mentee)	2019-2021
Current: PhD Student at University of Ohio	
• Adam Stone (PSPSC Mentee)	2019-2021
Current: PhD Student at Penn State	
• Shawn You (PSPSC Mentee)	2019-2021
• William Fletcher (PSPSC Mentee)	2019-2020
• Emma Koller (PSPSC Mentee)	2019-2020
• Veronica Petrus (PSPSC Mentee)	2019-2020
Current: Lockheed Martin	
• Katie Pighini (PSPSC Mentee)	2019-2020
• Gray Rosario (PSPSC Mentee)	2019-2020
High School Students	
• Saul Balcarcel (Introduction to Astronomy Research Program)	2021
Current: Undergraduate Student at MIT	2021
ACADEMIC SERVICE	
• Leader of the ExoPAG SAG-25 on Technosignatures	2024–present
- Leading a group of volunteer experts who have been chartered to an	alyze how NASA can
better integrate technosignature searches into its portfolio	2024
• Organizer for the 2nd Assembly of the Order of the Octopus	2024
 Co-organized an in-person conference for early-career researchers in temper of the SOC 	technosignatures as a
- Gave keynote presentation chaired two sessions and moderated "SF	TI and Law" nanel
• Co-Chair and Organizer for the Penn State SETI Symposia	2022–Present
 2022: Organized and ran the first Penn State SETI Symposium as S contributed a review talk, hosted an Order of the Octopus meet-up, a 	OC chair, and presented posters
- 2023: Contributed to science direction and abstract sorting/scheduli	ng as SOC member

•	 2025: Involved in initial science planning Beport Writer for CDSLU Workshop 	2024
•	 Chapter author for CDEDC Workshop Chapter author for the final workshop report (in prep) for "Communicatin in the Search for Life in the Universe" organized by NASA Astrobiology Session Organizer and Poster Judge for AbSciCon Session Co-Chair for Breakthrough Discuss Expert Panelist for NASA Astrophysics and NSF A&A Co-lead for ATA Observer Training Workshop 	2022, 2024 2022, 2024 2023 2022, 2023 2023
•	 Co-led a 3-day workshop at the Allen Telescope Array (ATA), teaching ~2 how to use the telescope with a custom activity to detect orbiter downline Abstract Sorter and Chambliss Poster Judge for AAS Referee for Field-leading Journals (AAS, MNRAS, Astrobiology) Chair of the 1st Assembly of the Order of the Octopus 	20 participants ts from Mars 2021–2023 2020–Present 2021
	 Founded a conference for early-career researchers in technosignatures and How to Get Involved in SETI panel 	moderated
U	NDERGRADUATE TEACHING	
•	Part Time Faculty at Foothill CollegeWinter 200Astronomy Laboratory (ASTR 10L)	23; Spring 2024
	– Taught a 1-credit laboratory course at Foothill community college	
	 Led 20 students per quarter through 3-hour hands-on astronomy labs (e.g astronomical image creation and analysis) 	., spectroscopy,
	– Focused on claim-evidence scientific reasoning and engaging pedagogy	
	- Completed a 7 hour Canvas Certification course for improving online peda	igogy and
•	Instructor of Record at the Pennsylvania State UniversityFall 20Astronomy Communication (ASTRO 297)	19; Spring 2020
	 Developed entirety of curriculum for Astronomy Communication course – writing, and presenting in academic astronomy — during Summer 2019 	- reading,
	- Was co-instructor of record for the 3-credit, 25 student course in two seme	esters
	 Held out-of-class Writing and Coding hack-sessions where students collabor with peers and professors 	oratively work
	 Registered the course as a permanent undergraduate class; the course is n hands-on graduate student TA opportunity in the astronomy department continued being offered biannually 	ow the most and has
•	Instructor of Record at the Pennsylvania State University The Astronomical Universe (ASTRO 10)	Spring 2019
	 Taught astronomy lab course for non-majors focusing on developing scient and an appreciation for astronomical methods 	ific reasoning
•	Teaching Assistant at the Pennsylvania State University Planets and Planetary System Formation (ASTRO 420)	Fall 2018
	– Graded and guest-lectured for a planet-focused upper division science writ	ing course

•	Grader at the Pennsylvania State University	Fal	l 2018
	First-Year Astronomy Seminar (ASTRO 20)		
•	Teaching Seminar Attendee at the Pennsylvania State University	Fal	l 2019
	Schreyer Institute for Teaching Excellence		
		1 1 1 1	1

 Attended seminars such as "Teaching So That All of Your Students Are Included" and "Doing Research on Your Classroom Practice"

Selected Conference Presentations

• Astrobiology and the Future of Life (Invited Talk)	October 16–18, 2024
Houston, TX	
Technosignatures and the Future of Life	
• 2nd Assembly of the Order of the Octopus (Keynote Talk)	August 12–16, 2024
Green Bank, WV	
The Future of SETI	
• AAS 241	January 8–12, 2023
Seattle, WA	
Talk 451.02: Science Programs with the Refurbished Allen Telescope Art	ray
PSETI Symposium 2022 (Plenary Talk)	June 18–23, 2022
Penn State, State College, PA	
A Review of Electromagnetic Transmission SETI	
Breakthrough Discuss	April 12–13, 2021
Virtual	
The Story of blc1: Breakthrough Listen's First Signal-of-Interest	
TechnoClimes	August 4–8, 2020
Virtual	
The Nine Axes of Merit for Technosignature Searches: Non-Radio Edite	ion
AbSciCon	June 24–28, 2019
Bellevue, Washington	
Choosing a Maximum Drift Rate in a SETI Search: Astrophysical Cons	iderations
• Data-Driven Approaches to the Search for Technosignatures o	f Advanced
Civilizations	May 20–24, 2019
Keck Institute for Space Sciences, Pasadena, CA	
Exoplanets, SETI, and Technosignatures	
NASA Technosignatures Workshop	September 26–28, 2018
Lunar and Planetary Institute, Houston, Texas	
Recommendations from the Ad Hoc Committee on SETI Nomenclature	
Decoding Alien Intelligence Workshop	March 14–16, 2018
SETI Institute, Mountain View, CA	
Recommendations from the Ad Hoc Committee on SETI Nomenclature	

Selected Invited Talks and Panels

• University of Washington, Astrobiology Colloquium October 2024 "Technosignatures: A weird and wonderful corner of astrobiology" — Invited Talk • Johns Hopkins University, Applied Physics Laboratory, SESU Series February 2024 "SETI with the Allen Telescope Array" — Invited Talk • SXSW, "2050" Theme Panel March 2023 "Habitability on Earth and Beyond" — Invited Outreach Panelist • Technical College of New Jersey, Physics Colloquium February 2023 "Current Radio Astronomy and SETI Programs on the Allen Telescope Array" — Invited Talk • European University Institute, Frontier Talk Series January 2022 "Hunting for Technosignatures in the Past, Present and Future" — Invited Talk • Georgetown University, "Habitability Beyond" SETI Institute Event November 2021 "Can the Study of Other Worlds Help Us Save This One?" — Invited Outreach Panelist DIVERSITY, EQUITY, AND INCLUSION WORK • SETI Institute Diversity and Inclusion Activities January 2022–present - Chair of the Diversity and Inclusion Working Group from 2022–2023. Led monthly committee meetings, re-wrote statement of purpose and committee goals, implemented strategic initiatives such as changing bathroom signs to be more inclusive at HQ - Leading an effort to assess and improve inclusivity and retention on-site at the Hat Creek Radio Observatory (e.g., implementing site-specific exit interview questions) • A World of Women in STEM February 2022 Provided content for a Feature Article about my work in technosignatures • Assistant Astronomy Coach for Science Olympiad February 2021 Worked with Mr. Christopher Cook to coach two middle schoolers on the East Bay Innovation Academy Science Olympiad team (the first Science Olympiad team in the Oakland Public School District) in the "Reach for the Stars" challenge • Speaker for "Girls Rock in Science and Math" Program October 2020 Gave hour-long talk covering astrobiology and women in STEM to 100 girls in grades 3–5 • PSU Astronomy Department Climate and Diversity Committee 2018-2021 - Attended monthly C&D committee meetings as a graduate student representative - Successfully advocated for the removal of the Physics GRE from PSU admissions and the accessibility retrofitting of the department's rooftop telescope • Co-Leader of Women and Underrepresented Genders in Astronomy 2018 - 2021- Led weekly discussions on topical DEI papers, headlines, and reports - Created a library of fiction and non-fiction about DEI in STEM, curated by W+iA and

open to the entire PSU Astronomy department

- Planned social events and meetings with colloquium speakers

• ENVISION: STEM Career Day for Girls

- 2018: Taught two astronomy workshops for middle school girls with a game about planning a mission to Mars
- 2019: Designed and taught an astronomy workshop for middle school girls with a game presenting the challenges of astrobiology and SETI
- STEM Options Astronomy Panelist 2019 Remote panelist for an event by the STEM Options Program Committee, discussing STEM careers with 9th grade girls along with speakers in geology, microbiology, and science policy

Selected Outreach Events

• Invited Speaker at Manny's Civic Gathering Space – San Francisco, CA	2023
• Invited Speaker Chabot Space and Science Center – Oakland, CA	2022
• Guest Scientist on SETI Live: blc1 (>86000 views) – Mountain View, CA	2020
• Featured Scientist in CBBC Children's Show Out of This World – UK	2020
• Astro on Tap Speaker – State College, PA	2019
• AstroNight Speaker and Volunteer – State College, PA	2017, 2018
• Artistic Resident at Global Hands on Universe Conference – Stord, Norwa	y 2016
• STEM High School Camp Instructor (Astronomy; Python) – Anderson, SC	2015,2016

Selected Press

• NPR: Blue Dot: State of the Drake Equation in 2024: The search for extraterrest	trial
intelligence (Part 2)	03/29/2024
• SETI Institute: SETI Institute Employs SETI Ellipsoid Technique for Searching	g for Signals
from Distant Civilizations	02/12/2024
• MIT Tech Review: The Biggest Questions: Are we alone in the universe?	11/13/2023
• Popular Science : Astronomers unveil a new way to search for ETI	06/11/2023
• Nature: Will an AI be the first to discover alien life?	01/30/2023
• NYT: The Search for Intelligent Life Is About to Get a Lot More Interesting	09/15/2022
• The Atlantic: Should We Be Searching for Smart Aliens or Dumb Aliens?	09/12/2022
• NatGeo: Overheard at National Geographic: Frank Drake's Cosmic Road Map	08/02/2022
• Physics World: A Rising Star in the Search for Extraterrestrial Intelligence	02/02/2022
• NPR Shortwave: Did E.T. Phone Us?	1/27/2022
• NPR: What a telescope in Australia detected that began a search for alien life	11/16/2021
• Wired: A Strange Radio Signal Was Just From Earth, Not Aliens	10/27/2021
Nature: Mysterious 'alien beacon' was false alarm	10/25/2021
• The Atlantic: Astronomers Are Keeping a Close Watch on the Next Star Over	01/11/2021
• NYT: Was That a Dropped Call from ET?	12/31/2020
• SciAm: Alien Hunters Discover Mysterious Signal from Proxima Centauri	12/18/2020
• NatGeo: Alien hunters detect mysterious radio signal from nearby star	12/18/2020
• PopSci : Aliens could be talking to us right now. This scientist is listening.	12/10/2020
• Scientific American: Space Alien Research Could Get Its First Grad Program	11/18/2019
StarTalk: Technosignatures: Detecting Alien Civilizations	09/01/2018

2018,2019