

KEERTHANA GUNARETNAM

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CURRENT ROLE

Computational Biology and Disease-Omics Researcher

2025 – Present

Independent / araCreate Group

On-site

- Led or contributed to an *in silico* study titled *Integrative RNA Expression Profiling to Identify Shared Molecular Signatures between Periodontitis and Alzheimer's Disease*.
- Applied comparative transcriptomic and gene-expression analysis concepts to identify potential shared molecular signatures across inflammatory and neurodegenerative disease contexts.
- Developed experience in literature synthesis, biological interpretation, and computational study design for biomedical discovery.

Computational Biologist (Bio-Intelligence Systems)

[2026] – Present

Armortrix Technologies Pvt Ltd

[India / Remote]

- Conduct research on physiology and hardware interfacing.
- Train on the physiological data and identify the required attributes.
- Verify the scientific documents, cross-check the data, and share and explain the physiology and hardware connections to the team.

EDUCATION

Sri Lanka Institute of Information Technology (SLIIT)

[2025]

BSc (Hons) in Biotechnology - Second Class Honours Upper Division

Bversity

[2025]

PGDP in Bioinformatics, Genomics, and Data Science

RESEARCH EXPERIENCE

Astrobiology and Space Biology Researcher

2019 – Present

Independent / Collaborative Projects

Remote

- Contribute to astrobiology-oriented projects involving lunar regolith, astromicrobes, biosignatures, biofuel, and microbial adaptation in space-relevant environments.
- Investigate biological and environmental questions relevant to planetary science, microbial survival, space-resource utilization, and life-detection frameworks.
- Participate in open-science and citizen-science projects related to exoplanets, space biology, asteroid detection, and astronomical data analysis.

SELECTED RESEARCH AND TECHNICAL PROJECTS

9. **Integrative RNA Expression Profiling to Identify Shared Molecular Signatures between Periodontitis and Alzheimer's Disease: In-Silico Study.** Computational biology project focused on shared disease-associated molecular signatures.
8. **SPLASH.** [Data analysis and reviewing international space station bioinstruments]
7. **Lunar Regolith.** Project focused on space-relevant lunar surface materials and potential biological or astrobiological applications.
6. **Project Astromicrobes.** Astrobiology project focused on microbial systems in space-relevant or extreme-environment including synthetic biology.
5. **Biofuel.** Project involving biological or microbial approaches relevant to bioenergy.
4. **Biosignature.** Project focused on life-detection concepts, biosignature interpretation, or astrobiology-relevant markers.

3. **Project SangerScope**. Internship research project. [GeneLabs Medical (Pvt)Ltd, Dr. Damitha Liyanarachchi, and June 2025.]
2. **EXOTIC: Exoplanet Exploration, Planets Beyond Our Solar System**. Citizen-science and exoplanet observation project.
1. **Building the Space Biology Model Zoo**. NASA Space Apps Challenge project.

PUBLISHED WORKS

3. K. Gunaretnam. **Kilonova Seekers : the GOTO project for real-time citizen science in time-domain astrophysics**. [Monthly Notices of the Royal Astronomical Society (MNRAS)], <https://doi.org/10.1093/mnras/stae1817>, [2024].
2. K. Gunaretnam. **The Kepler**. Creative Writing Competition, Poetry. [Astrobiology Science Conference (AbSciCon), Atlanta, Georgia, US], [NASA ADS](#), [2022]
1. K. Gunaretnam. **Microarray Data Analysis and Subgroup Identification of Medulloblastoma**. [ResearchGate], <https://doi.org/10.21203/rs.3.rs-3927041/v1>, [2024].

MANUSCRIPTS AND UNPUBLISHED RESEARCH

5. K. Gunaretnam. **Integrative RNA Expression Profiling to Identify Shared Molecular Signatures between Periodontitis and Alzheimer's Disease: In Silico Study**. Selected to Young Medicine Forum, 2026
4. K. Gunaretnam. **Characterization of Soil- and Rock-Inhabiting Fungi from Three Selected Localities in Sri Lanka with Potential Astrobiological Applications**. Undergraduate research project - Selected for EANA 2026
3. K. Gunaretnam. **Comparative genomics and synthetic design platform for analyzing space-induced microbial mutations, assessing risks, and proposing engineered solution**. Selected for EANA 2026
2. K. Gunaretnam. **Project SangerScope**. Internship research project.
1. K. Gunaretnam. **Microgravity associated oral biofilm dysbiosis and cardiovascular risk: a bioinformatic analysis of inflammatory and endothelial pathways**. Submitted to ESCI Conference, 2026.

AWARDS, PRIZES AND HONOURS

5. 2026 – Abstract Selected via Competitive Review – All-Russian Pitch Session, "Young Medicine", International Scientific School, V.P. Filatov International Foundation, Russia, "Integrative RNA Expression Profiling to Identify Shared Molecular Signatures between Periodontitis and Alzheimer's Disease: In Silico Study"
4. 2026 – EANA (European Astrobiology Network Association), "Comparative genomics and synthetic design platform for analyzing space-induced microbial mutations, assessing risks, and proposing engineered solution", Poster presentation
3. 2026 – EANA (European Astrobiology Network Association), "Characterization of Soil and Rock-Inhabiting Fungi from Selected Sri Lankan Localities with Potential Astrobiological Applications", Space Factor, Oral presentation
2. 2025 – Mycological Society of America, "Characterization of Soil and Rock-Inhabiting Fungi from Selected Sri Lankan Localities with Potential Astrobiological Applications", Oral presentation.
1. 2024 – Global Nominee, "Biological Zoo", NASA Space Apps Challenge.

PROFESSIONAL MEMBERSHIPS AND AMBASSADORSHIPS

10. 2026 – Present Abstract Reviewer American Society for Gravitational and Space Research (ASGSR)
9. 2025 – Present NASA Open Science for Life Sciences (AWG) Regular Member.
8. 2025 – 2026 Eisenhower Fellowship Team - Sri Lanka.
7. 2024 – Present NASA Space Apps Collective Member.
6. 2024 – Present Citizen Scientist Ambassador, CitSci Foundation.
5. 2024 – Present Ambassador of Asia, Women in Data Science.

4. 2024 – 2025 Mentee, Women in Big Data Science.
3. 2019 – Present Member, Space Generation Advisory Council.
2. 2019 – Present Member, Space Medicine and Life Sciences Project Group.
1. 2020 – 2021 Marketing Team, Moon Village Association.

CERTIFICATIONS AND TRAINING

17. Oct 2025 International Panelist 8th International Conference on Innovation and Research in Engineering – UNAD
16. Oct 2024 Certificate of Participation, *Humanos en el Espacio*.
15. Oct 2024 Galactic Problem Solver / Global Problem Solver.
14. Oct 2024 Certificate of Stellar Lead.
13. Jun 2024 Certificate of Achievement, Educator Professional Development Event, NASA EPDC Virtual Learning Opportunities.
12. Jun 2024 Finalist, 2nd Inter University Space Quiz Competition.
11. May 2024 Certificate of Participation, Mission to Mars Student Challenge.
10. Nov 2023 Certificate of Planetary Defender, The Planetary Society and Stardust@Home.
9. Nov 2023 Certificate of Participation, Women in Data Science Worldwide Climate Change Challenge.
8. Aug 2023 NASA Artemis Generation Member.
7. Jul 2023 Top 105 Young Entrepreneurs Certificate of Achievement, SPARK.
6. Jun 2023 Certificate of Achievement, Educator Professional Development Event: Explore Humans in Space; Explore Solar System and Beyond.
5. Jun 2023 Presenter, Moon Village Design Hackathon.
4. May 2023 Certificate of Participation, Codecon 3.0.
3. Mar 2023 Certificate of Participation, Flood Risk Assessment in Cameroon Workshop.
2. Jul 2022 Certificate of Participation, International Space Challenge.
1. May 2022 Certification, VI Encuentro Internacional de la Red Latinoamericana y del Caribe del Espacio – ReLaCa ESPACIO.

SKILLS AND TRAINING

Computational Biology & Omics	RNA expression profiling; in silico study design; disease-gene association analysis; biological pathway interpretation; literature-based molecular signature analysis.
Astrobiology & Space Biology	Astromicrobiology; lunar regolith concepts; biosignatures; exoplanet science; space biology model systems; citizen-science astronomy and planetary science projects.
Data Science & AI	Data-driven project development; biomedical prediction projects; climate change prediction; image-based classification projects; open-science datasets; challenge-based data science workflows.
Science Communication	Scientific writing; creative writing; translation; public outreach; science communication; content writing; interdisciplinary collaboration.
Leadership & Community Building	NASA Space Apps local leadership; event coordination; student organization leadership; international collaboration; citizen-science ambassadorship.