

CfP: Breakthrough Listen TART Africa Programme 2026

Opportunity Overview

Breakthrough Listen, in partnership with the Electronics Research Foundation (ERF), South African Radio Astronomy observatory (NRF|SARAO), the Development in Africa with Radio Astronomy (DARA) project, and the Rhodes Centre for Radio Astronomy Techniques & Technologies (RATT), are pleased to announce a Call for Proposals (CfP) for universities and research laboratories across Africa to host a Transient Array Radio Telescope (TART). This initiative aims to deploy an open-source, highly adaptable radio interferometer to foster hands-on training, build local engineering capacity, and drive cutting-edge astronomical software development on the continent.

The selected host institutions will serve as primary partners with Breakthrough Listen in the development, testing, and optimization of the next-generation **Holoscan / Stellite pipeline**¹, leveraging GPU-accelerated computing for real-time radio astronomy data processing.

Project Objectives

- **Deploy a Functional TART:** Establish a working array to observe the radio sky and serve as a live testbed for software-defined radio (SDR) and astronomical interferometry.
- **Pipeline Co-Development:** Collaborate directly with Breakthrough Listen engineers to pioneer the Holoscan / Stellite data processing pipeline.
- **Educational Impact:** Provide a tangible, accessible instrument for African engineering, physics, and computer science students to gain hands-on experience in radio astronomy and advanced computational techniques.

Proposal Requirements

Interested institutions must submit a concise proposal addressing the following criteria:

Site Readiness:

- Identify the proposed physical location for the TART – a secure, flat area of at least 5x5m (rooftop or ground) with a relatively unobscured view of the sky above 10° elevation.
- Confirm the availability of necessary infrastructure (reliable power, stable high-speed internet, secure compute hosting).

Local Team & Expertise:

- Identify the Principal Investigator (PI) and core team members.
- Highlight relevant expertise in radio astronomy, software engineering, digital signal processing, and/or GPU computing.

¹ <https://stellite.space/>

Local Manufacturing Capacity:

- Demonstrate the institutional capability to fabricate the physical array structure locally, reducing shipping overhead and fostering regional engineering skills. This requires access to CNC tools for working with plywood, and basic fabricating skills.

Institutional Co-Funding & Support:

- Outline any available co-funding, in-kind contributions, or dedicated computing resources the institution will provide to support the installation and ongoing operation.
- Motivate the long-term sustainability of a TART telescope at the host institution, availability of funding and staff for operation, maintenance and scientific exploitation of the telescope.

Expected Impact:

- Quantify the anticipated impact: How many undergraduate and graduate students, as well as faculty members, will directly interact with and benefit from the TART?
- Describe how the instrument will be integrated into the existing curriculum, research programs, or national/regional capacity-building efforts.

Workshop Hosting:

- Confirm the ability and willingness to host an inaugural, multi-day TART/Holoscan workshop for regional students, researchers, and Breakthrough Listen team members following the commissioning of the array. Include potential venue capacity, logistical support, and accessibility for international attendees.

Submission Guidelines & Timeline

To ensure a streamlined review process, proposals must be strictly limited to a **maximum of 3 pages** (standard A4, 11pt font). Appendices or extensive CVs are not required at this stage.

- **Proposal Deadline:** 15 April
- **Selection Announcement:** 15 May
- **Submission Method:** Please submit proposals as a single PDF document to cfp2026@tart.africa.

Evaluation Criteria

Proposals will be evaluated on the suitability of the site, the strength and technical readiness of the local team, the feasibility of local manufacturing, the level of institutional commitment, and the potential for deep educational impact within the host country and the broader African astronomical community.