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Interactive Presentations - 53rd IAA SYMPOSIUM ON THE SEARCH FOR EXTRATERRESTRIAL INTELLIGENCE (SETI) – The Next Steps (IP)

Author: Mr. Luigi Cruz
SETI Institute, United States

Mr. Adam Thompson
United States

ACCELERATING SETI: NVIDIA HOLOSCAN AT THE ALLEN TELESCOPE ARRAY

Abstract

The NVIDIA Holoscan is a high-performance platform developed for sensor data processing and AI inferencing. It leverages the power of NVIDIA GPUs and ConnectX NICs for efficient data movement and computation. It is designed to be a flexible and scalable platform that can be used in a variety of applications, including radio astronomy. Holoscan also provides a rich set of abstraction layers for easy integration of AI models and RDMA-based data movement while maintaining efficiency.

The Allen Telescope Array (ATA) is a radio telescope array located in northern California. It is used for a variety of scientific research, including the search for extraterrestrial intelligence. The 42 antennas of the ATA generate a large amount of data, that must be processed in real-time. This processing includes conversions, calibration, beamforming, channelization, and AI inferencing.

In this talk, we demonstrate how the NVIDIA Holoscan is being used at the Allen Telescope Array in conjunction with pre-existing software such as Breakthrough Listen Accelerated DSP Engine (BLADE) to enable fast and efficient data movement, computation, and visualization, setting the stage for real-time AI inferencing and reducing the time for new discoveries. We will show how the Holoscan platform is being used to process and analyze the data from the ATA, and how it is being used to accelerate the search for extraterrestrial intelligence.