Next Generation Space Domain Awareness (SDA)

Real-time tracking and rapid orbit solutions for dynamic space environments

ARA SDA SOLUTIONS

- USE FULL ANGULAR VECTORS: POSITION, VELOCITY, AND ACCELERATION FROM A SINGLE PASSIVE OPTICAL SENSOR
- REAL-TIME OR NEAR-REAL-TIME CHARACTERIZATION OF ORBIT CHANGES
- RAPID ORBIT DETERMINATION AT SPEEDS FAR BEYOND TRADITIONAL ANGLES-ONLY METHODS
- PROVEN PERFORMANCE FROM LEO TO CISLUNAR DISTANCES

DYNAMIC ASTROMETRIC CALIBRATION

Event-based processing extracts complete angular vectors from a single optical sensor.

- High-precision angular measurements
- Works with low-cost optical hardware
- Enables downstream rapid orbit determination and maneuver detection

IMMEDIATE MANEUVER DETECTION

Patent-pending technology that detects and characterizes maneuvers the moment they occur.

- Real-time identification of trajectory changes
- Improved custody during rapid or unexpected maneuvers
- Earlier warnings for dynamic space events

AURORAS: RAPID ORBIT DETERMINATION

A patented technique producing accurate orbits in seconds to minutes – an order of magnitude faster than conventional orbit determination.

- Orbit determination with just one look
- Requires only a single passive optical sensor
- No a priori orbit information needed
- Supports both tactical and persistent monitoring

CISLUNAR OBJECT TRACKING

Optical tracking solutions designed for extreme ranges out to 1.5 million km.

- Detects and tracks dim, distant cislunar objects
- Handles complex three-body dynamics
- Demonstrated performance on Artemis II

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