

AUTOMATIC INTELLIGENT SPACE SITUATIONAL AWARENESS

Space Situational Awareness Root Cause Hypothesis Generation and Certainty Estimation:

- Utilizes Past Real and Hypothetical Cases of Space Anomalies
- Processes a Variety of Quantitative, Qualitative, and Textual Data Sources:
 - Updated Orbital Parameters & Conjunction Predictions
 - Outages, In-space Satellite Anomalies, Space Weather
 - I&W, Intel, EMI, Space-Related Terrestrial Events, Open Sources
- Actively gathers needed additional information
- Bayesian Network Probability Calculation based on Fuzzy Evidence Factors

Virtual Space Assistant:

- Leverages existing AI technologies to bring everyday search and assistance functionality to space operations centers
- Makes use of the available data streams and services to answer questions and requests
- Initially focusing on two specific skills: Summary and Search.
 - Summary creates an at-a-glance summary of key information about a given resident space object
 - Search takes an operator's query, searches across data and services, and ranks results
- The number and variety of skills exhibited by Virsa will continue to grow as development progresses

Automated EMI Emitter, Detection, Classification, and Localization:

- Space-Based and Terrestrial Sources of EMI
- Deep Learning Signal Detection and Classification
- Location Estimation
- Utilizes Satellite and Terrestrial Previous Offenders List
- Automatic Pattern Finding
- Sophisticated Pattern Visualization Tools

