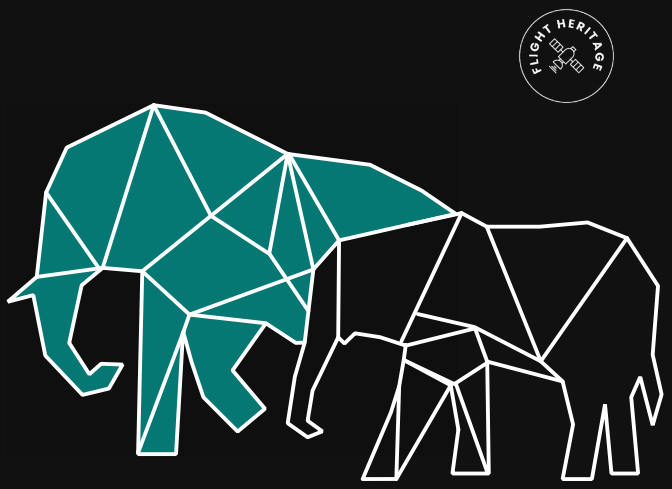
Algorithms

The Herd

Earth observation and signal processing algorithms

The Herd is a set of AI-powered algorithms designed to facilitate various data analyses. It comprises three elements – data pre-processing, data analysis algorithms and post-processing techniques.



Earth Observation and Remote Sensing

Provides efficient processing for multi- and hyperspectral data, improving satellite imagery with tasks like semantic segmentation, object detection, classification, and super-resolution reconstruction.

Satellite Telemetry Analysis

Enables real-time monitoring and analysis of satellite telemetry data, ensuring more efficient signal processing and anomaly detection.

Onboarding AI Models

Facilitates the deployment of AI models directly on satellite hardware, with robust verification processes ensuring reliability in performing tasks like image analysis and object detection during the mission.

Use Cases

GENESIS

Traditional soil monitoring is labor and cost-intensive, slow, and limited in scope, preventing farmers from accessing large-scale, real-time soil health data for effective crop management. The GENESIS project uses machine learning and hyperspectral imaging on the Intuition-1 satellite to transform soil monitoring.

Φsat-2

Φsat-2 is a 6U satellite developed by ESA with Open Cosmos as the prime contractor and launched in August 2024. The mission demonstrates the benefits of using AI paired with a multispectral instrument that captures images across seven bands, from visible to near-infrared, for Earth observation. These AI capabilities enable real-time data processing, optimizing both the quality and quantity of data sent back to Earth.

Step 1:
Design and Implementation of AI Models

Each space mission is unique. AI models are designed using cutting-edge techniques to push the limits of current capabilities in satellite data processing. Solutions are crafted specifically to meet the needs of individual missions, ensuring optimal performance.

Step 2:
Onboarding AI Models to Edge Devices

Enables real-time monitoring and analysis of satellite telemetry data, ensuring more efficient signal processing and anomaly detection.

Step 3:
Verification and Validation of AI Models

Reliability is essential. Quantitative, qualitative, and statistical verification and validation processes are used to ensure models perform effectively in harsh space environments, such as sensor noise and corruption, providing robust, reliable performance throughout the mission.

Contact Us

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