Simularity Artificial Intelligence Solves Image Anomaly Detection from Space

Simularity combines Artificial Intelligence with Satellite data to detect anomalies not previously seen by Analysts.

Fusing intelligence from multiple sources to provide enhanced decision making.

Unique Differentiators:

- **Flexible:** Data agnostic- can function in any vertical or industry.
- **Scalable:** Supports trillions of data points.
- **Smart:** Reduces false alarms & alerts users to future problems in time to prevent disasters.
- **Real time:** Our AI supports data ingestion of millions of data points per second, and millisecond analysis of all data, both streaming and historical.
- **Timely:** Rapid analysis of high volumes of images allows the user to quickly find the hotspots of interest in near real-time, allowing for deeper understanding and more response options.

Artificial Intelligence + Satellite Data

The Simularity Automated Image Anomaly Detection System (AIADS) is the result of extensive development at Simularity. We have leveraged our cutting-edge AI technology and experience with massive volumes of time series data, and applied these competencies to satellite imagery. Our product uses AI and advanced image analysis techniques to learn what's normal in a user's area of interest, and detect anomalies in those areas when they happen.

Our real-time technology can identify anomalies in minutes - spot fires, spills, changes in the terrain or ground cover, questionable activity in imagery that would take an analyst hours or even days to find. The user can specify coordinates of the area of interest. Immediate alerts allow the analyst to focus on an area of interest to determine if a call to action is required.

New satellites are being launched daily. Streams of data are increasing dramatically. Resolution is getting finer and frequency of the data is increasing, which is compounding the current manual processes further.

Per NASA scientist Jer-Chyi Liou, "*while there are currently about 1,400 operational satellites in Earth orbit, mega-constellations could increase that to as many as 7,000 to 8,000.*"

The magnitude of data we must sift through and make sense of is continually growing. Using Simularity's AIADS can help analysts uncover serious anomalies much easier, faster, and with greater accuracy.

Our AI can analyze billions of pixels and look for anomalies in the data. This is the needle in the haystack the analysts are looking for, and can not only reduce the need for human eyes staring at image difference tools, but can also increase the accuracy of the results. By using AI in a "tip and cue" process, detecting an area of interest to focus on, Simularity doesn't need high resolution imagery to begin recognizing the anomalies.

AIADS Features:

- Graphical User Interface with map tiles for easy navigation.
- Unlimited Areas of Interest (AOI) Management for optimization of the geographic region.
- Multiple user support to easily delegate responsibilities.
- Alert Configuration – Immediate notification.
- Anomaly threshold setting per AOI.
- Supports multiple data sources.
- Tip & Cue support with image & coordinate output for more detailed inspection.
- Image marking for reducing duplication of efforts.

Example:

On March 1, 2016, a fire erupted in the desert approximately 10 miles northwest of the Ali Al Salem Air Base – just west of Kuwait City and about 20 miles from the Iraqi border.

What caused it? Was it an oil rig fire? A failed missile strike? A "normal" munitions testing event for that area or something else?

Without a system to keep an eye out for such anomalies, significant changes on the ground – especially the ones that are not obvious or reported – can be a serious matter for defense, the environment, and other interests commercial and public.

Change Detection vs Anomaly Detection

Some changes are normal – such as movement of tidal waters, shifting of sand dunes, cars appearing in a parking lot etc. Other changes can be abnormal – such as sudden appearance of smoke, unexpected activities involving large vehicles near a border, or construction happening in an area that normally sees little change.

An AI that learns and Gets Smarter

We've built an artificial intelligence that learns. It creates a multivariate and complex view of the world based on the data it ingests and can do temporal reasoning, and learning on the fly, without models to train and deploy, nor rules to create.

The more data it observes, the smarter it gets. This makes it very fast and cost-effective to deploy.

Let Simularity help you quickly discover anomalies on the ground, using data from space.

For a live demo and pricing contact:
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