BigBear.ai

Arcas: Computer Vision, Predictive Analytics and Event Alerting for Autonomous Systems

Domestic militaries and partner alliances are responsible for maintaining security, free and open transportation, and communications to ensure global economic stability. Complex operational challenges like **disparate data sources,** a **lack of integrated data to a common visualization platform, and the inability to characterize behavior quickly** prevent these militaries and alliances from having the domain awareness they need to execute effective command and control.

Solution Brief. ↗

Create A Coherent View Of Your Operational Space

BigBear.ai's computer vision, predictive analytics, and event alerting application, Arcas, conflates millions of data points to provide situational awareness, enables predictive forecasts using AI/ML, interprets vessel video streams, and alerts both analysts and decision-makers of potential threats. It improves operations by delivering consistent, decision-quality information to provide overwhelming advantages over adversaries.

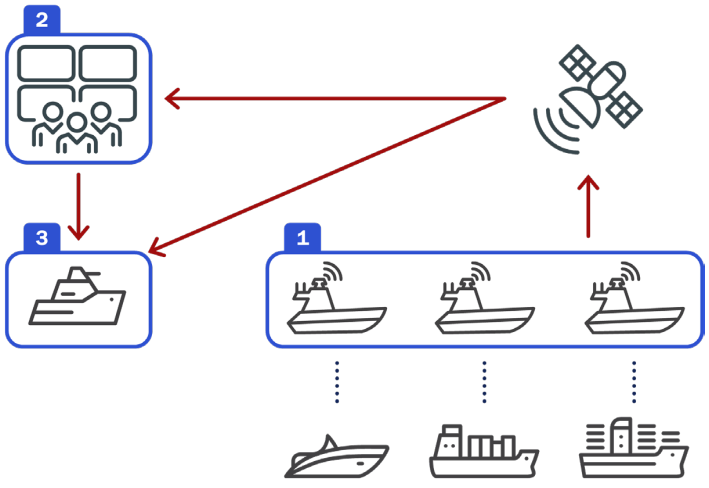
Through our extensible analytics framework, we create descriptive analytics monitoring what has happened and predictive analytics projecting what is to happen – all so that leaders can confidently take action. This enables analysts to focus on developing action strategies to present to decision-makers instead.

Analysts can combine data sets from traditional and non-traditional sources including:

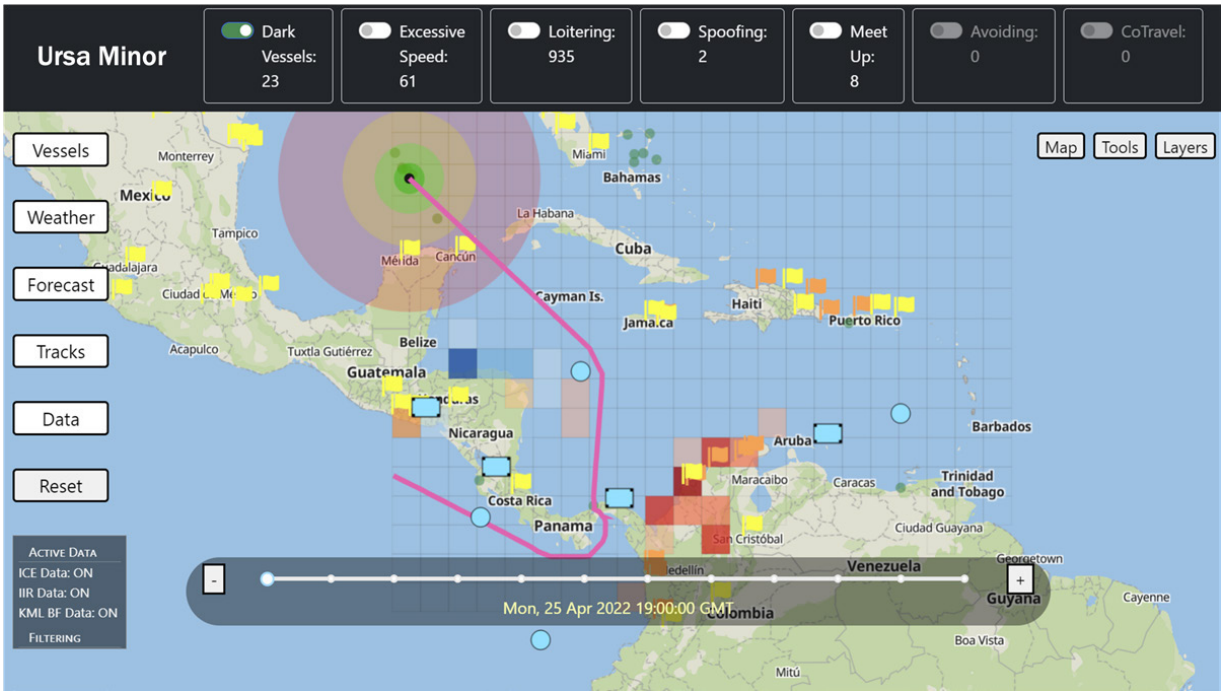
- Automatic Identification Systems (AIS)
- Enterprise data sources
- Event data (e.g. GDELT)
- SIGINT (e.g., X-band, L-band, VHF/UHF)
- Social media and traditional news media
- Vessel Monitoring Systems (VMS)
- Weather

Operational View

- Intelligence asset collects and transmits data via satellite link to the Operations Center
- Software offered by BigBear.ai resides at the Operations Center
  - Continuously ingests new data
  - Monitors model drift
  - Trains and deploys new algorithms
- Solution can be extended to run at the edge for better decision making when needed



Key Features



- Ingest, parse, and fuse disparate data sources (sensor, log, and edge devices), and ship data into a common and open format
- Generate alerts when suspicious behavior is happening or expected
- Visualize large volumes of data, perform analytics, and receive alerts through any common operational picture (COP) or user interface (UI agnostic)
- Characterize vessel behavior, detect anomalies (vessels without AIS), and implement machine learning algorithms to provide operators with insights
- Interpret, identify, and classify objects with computer vision

Use Cases

Scout

SCOUT, part of the Office of Naval Research, is an ongoing campaign for identifying alternative ways to bring unmanned technologies to warfighter problems, operationalize them, and bring them to scale.

During a SCOUT exercise with the United States Southern Command and Joint Interagency Task Force South (JIATF-S), BigBearai's computer vision, predictive analytics and event alerting analytics application demonstrated its ability to synthesize mass quantities of multimodal data and provided actionable insights to enable interdictions that could curb illegal and illicit behaviors in the JIATF-S Area of Operations.

Digital Horizon

Task Force 59 (TF-59) accelerates new tech integration across U.S. 5th Fleet and has deployed a suite of new unmanned systems from operational hubs in Bahrain and Aqaba, Jordan.

During TF-59's Digital Horizon event, BigBear.ai's computer vision, predictive analytics and event alerting analytics application delivered five critical successes:

- Ingested, parsed, and fused disparate data sources into a common and open format
- Implemented AI/ML-powered capabilities to understand the normal Pattern of Life for the exercise region
- Generated rapid alerts to flag suspicious behavior
- Deployed computer vision models that accurately classified, labeled, and identified weapons systems aboard vessels
- Incorporated analytics and computer vision models into the AFS Common Operating System, allowing users to observe relevant data from multiple sources on one screen.

BigBear.ai is proud to have recently accepted an invitation to participate in a follow-on exercise.

Eliminate Blind Spots in the New Battlefield

BigBear.ai's computer vision, predictive analytics and event alerting analytics application eliminates blind spots by sifting through data to flag suspicious behavior using AI/ML that human eyes would often miss. Additionally, high-fidelity algorithms can provide decision-makers with recommended time windows that give missions the highest likelihood of success.

As warfare continues to evolve, operators and analysts need analytics suites like BigBear.ai's computer vision, predictive analytics and event alerting analytics application to deploy an easy to-understand user interface on a "single pane of glass" that will arm decision-makers with the information necessary to prevail on the modern battlefield.

Email Info@BigBear.ai to schedule a demo of BigBear.ai's computer vision, predictive analytics and event alerting application, Arcas.