ARTIFICIAL INTELLIGENCE

ENGINEERING YOUR AI FUTURE

Vision AI Stack - Synthetaic TEM

OUR AI ADVANTAGE AT A GLANCE

Our breadth providing AI services across the federal government allows us to deeply understand your most pressing challenges, creating insight advantages.

Our AI talent is differentiated by their unique position at the intersection of mission, commercial technology, and R&D enabling us to provide customizable professional engineering services that propel your missions forward.

#1 provider of AI services to the Federal Government

200+ AI Service Contracts

160+ Federal Clients

Largest AI Footprint in the Public Sector

Unrivaled Federal AI Workforce

2200+ AI Practitioners

100+ Years advising the Federal Government

4 Unique AI Services
1. AI Ready Organization
2. AI Innovation
3. AI Engineering
4. Data for AI

Booz Allen®

AI Assemble

5 AI Stacks

BOOZ ALLEN'S AI OFFERINGS

4 Venture Investments

Next Wave R&D

Robust Innovation Engine

Cutting Edge Collaborations

LatentAI
Adaptive AI for a Smarter Edge

NVIDIA

Azure

aws

C3.ai

synthet ai c

credo | ai

$100M Venture Capital Fund to accelerate commercial tech deployment for federal clients

By strategically investing in and partnering with pioneering AI companies, we can quickly integrate customized state-of-the-art capabilities into systems to effectively accomplish federal missions.

We pioneer AI Innovation through R&D, partnerships, and emerging tech investments – propelling government missions today with the AI solutions of tomorrow.

1

PROFESSIONAL AI SERVICES

Artificial intelligence requires a proven playbook. As the leader in AI for the federal government, our premier professional services enable your organization to design, engineer, and operationalize purpose-built AI solutions.

AI Ready Organization

Prepare your organization for the transformative power of AI through our AI Ready Organization Services. We guide you through every step of the journey from developing a strategic roadmap to talent development and upskilling

Our Services
- AI Strategy
- AI Training
- Responsible & Explainable AI
- AI Governance & AI Risk Management

AI Innovation

Spark your next breakthrough with AI Innovation. Our AI Innovation Services allow us to push the boundaries of AI and solve the mission challenges of today with the technology of tomorrow.

Our Services
- Tech Scouting
- AI Product Development
- Applied R&D
- Quantum

Data for AI

Unlock the immense potential of your AI models with Data for AI. We do the heavy lifting, delivering prepped datasets and data infrastructure ready to supercharge your AI projects.

Our Services
- AI Ready Data
- DataOps for AI
- Data Mesh & Platform

AI Engineering

Harness the true power of AI with our expert AI engineering services. We build custom AI solutions that solve your specific business challenges ensuring scalability, reliability, and ethical considerations.
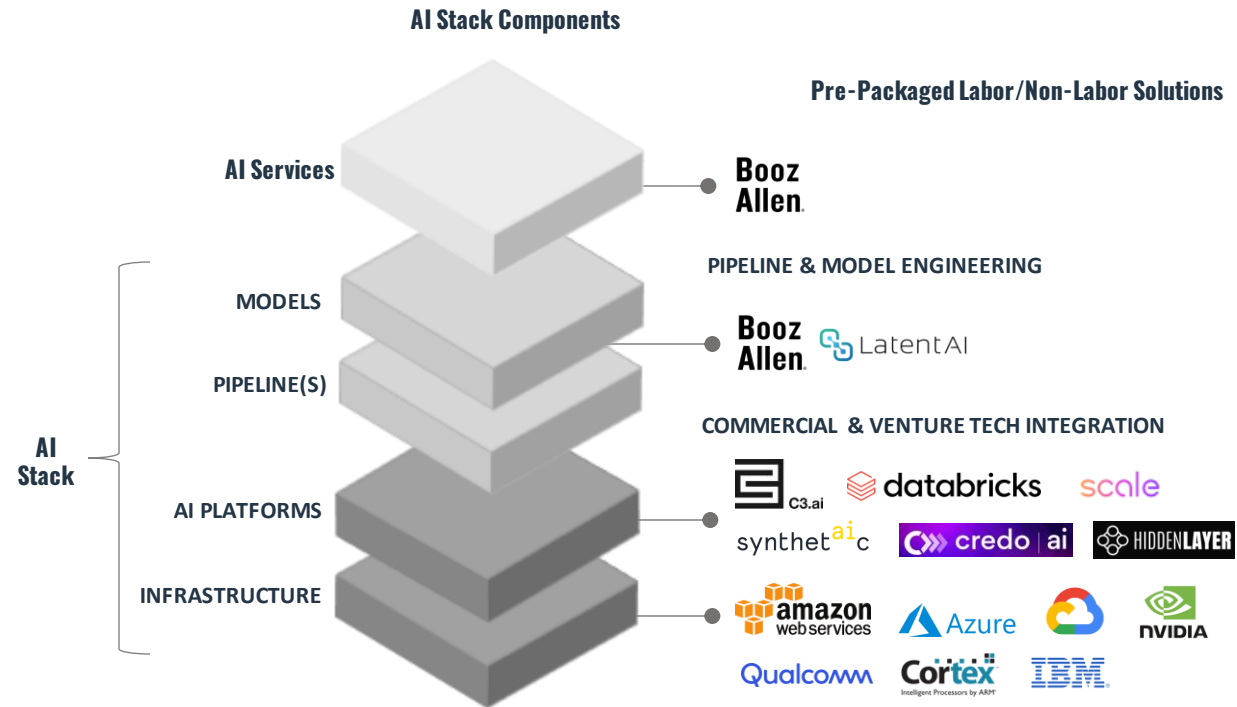
Our Services
- Model Development (LLM, CV, RLHF)
- MLOps
- Edge AI Solutions

VISION AI STACK

AI STACKS 101

- **AI Stacks** are pre-packaged solutions that scale AI specialization, differentiated delivery and economics

- **AI Stacks** are enhancements to AI services that:

  - ✓ Make it easier to scale specialized AI skillsets
  - ✓ Reduce risk, accelerate delivery and increase quality of AI services

- **AI Stacks** are critical components of VOLT/WOW and our multi-year business transformation

AI Stack Components

Pre-Packaged Labor/Non-Labor Solutions

AI Services — **Booz Allen.**

PIPELINE & MODEL ENGINEERING

MODELS

PIPELINE(S) — **Booz Allen.** · **LatentAI**

COMMERCIAL & VENTURE TECH INTEGRATION

AI PLATFORMS — C3.ai · databricks · scale · synthet ai c · credo|ai · HIDDENLAYER

INFRASTRUCTURE — amazon web services · Azure · Google Cloud · nVIDIA · Qualcomm · Cortex · IBM

AI Stack

VISION AI

Booz Allen's Vision AI Stack is a set of integrated software services designed to build, deliver, run, and sustain AI for computer vision.

Tailored to fit your need for the cloud, the powered edge, or the mobile edge, the Vision AI Stack supports the full lifecycle of AI development and offers tools for both data science teams and non-AI engineers.

+ Superior data engineering methods to label, organize, and augment data

+ Accelerated pipelines built with our partners LatentAI® and Synthetaic®

+ Optimization to best-fit computer vision methods on different compute hardware

WHY WE BUILT IT

Getting the right data is too expensive.

Organizations can spend significant time and money collecting, searching, curating, and labeling data.

Traditional AI/ML development is too slow.

AI Training time presents a new problem. Deployed models need to rapidly adapt to changing missions has grown.

AI struggles to run outside of the cloud.

The size, weight, and power (SWaP) constraints of mission hardware make running performant AI outside of the enterprise very difficult.

20-80% Reduction in Real Data Need

Booz Allen's Replicant **synthetic data suite** and integrations with COTS solutions show huge savings in real data needed to build models. This translates to lower cost and reduced time for data collection.

10x Faster Label and Train Time

Synthetaic's RAIC™ Software delivers rapid, semi-supervised labeling capability, paired with Booz Allen **rapid training methods** to bring agile model development to the mission.

Multi-Spectral Data Fusion

Build, deliver, and re-train a variety of **EO/IR, LiDAR, RF, and SAR imagery** based classification, detection, and tracking solutions. Extendable to support new data fusion algorithms within our existing pipelines.

VISION AI STACK

AI Stack Components

AI Services

MODELS

PIPELINE(S)

AI Stack

AI PLATFORMS

INFRASTRUCTURE
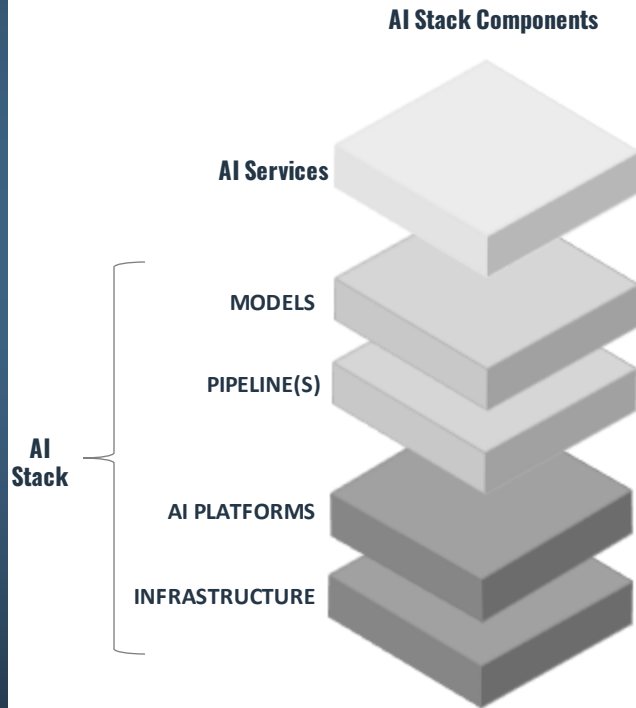
MODELS

PIPELINES

Data Engineering
Software for multi-modal data ingest, search, and automated labeling. Connections to synthetic data services for reduction in amount of real data.

BATCH/STREAM INGEST

SYNTHETIC DATA

DATA SYNC

synthet**ai**c
ADVANCED SEARCH & LABEL
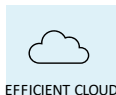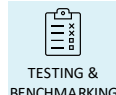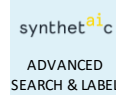
Advanced Training
Advanced AI/ML training methods to support rapid development of computer vision models and sustainment due to changing need.

RAPID TRAINING

aws
CLOUD SERVICE INTEGRATION

TESTING & BENCHMARKING

COMMERCIAL INTEGRATION

Optimized Inference Engines
Software that provides 1st and 3rd party model runtimes, pre- and post-processing, and tracking methods for efficient cloud inference and optimized inference for edge devices under SWaP constraints.

EFFICIENT CLOUD

EDGE ENGINES

OBJECT TRACKING

Latent AI MODEL OPT.

PLATFORMS / VENTURE TECH INTEGRATION

INFRASTRUCTURE

DESCRIPTION
Booz Allen's Vision AI Stack is a set of integrated software services to <u>build</u>, <u>deliver</u>, <u>run</u>, and <u>sustain</u> computer vision AI.

THE STACK

MODELS

PIPELINES

PLATFORMS / VENTURE TECH INTEGRATION

INFRASTRUCTURE

GO TO MARKET

Full Stack Menu
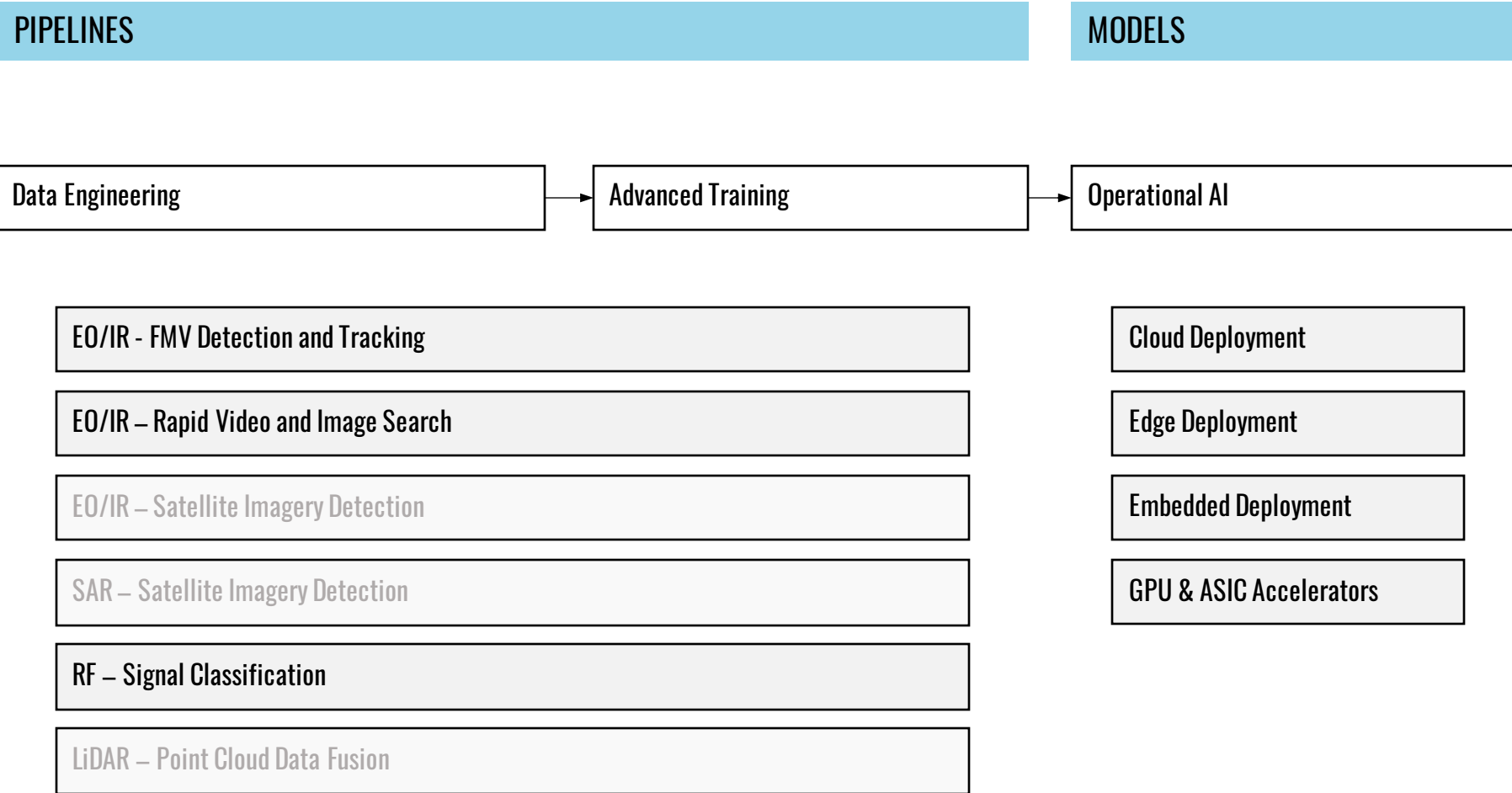Ecosystem-level integrations with connections to CSPs and commercial tech.

Custom Stack
Full integrations of Vision AI Kit in cloud, on-premise, or edge (e.g., Bighorn AI Kit™)

Managed
BAH-hosted services with data, model, or report artifact delivery.

VISION AI STACK PIPELINES

| PIPELINES | MODELS |

| Data Engineering | → | Advanced Training | → | Operational AI |

PIPELINES

| EO/IR - FMV Detection and Tracking |

| EO/IR – Rapid Video and Image Search |

| EO/IR – Satellite Imagery Detection |

| SAR – Satellite Imagery Detection |

| RF – Signal Classification |

| LiDAR – Point Cloud Data Fusion |

MODELS

| Cloud Deployment |

| Edge Deployment |

| Embedded Deployment |

| GPU & ASIC Accelerators |

VISION AI STACK EXAMPLES

COMPUTER VISION FOR DRONES

Build and Run CV models on edge hardware.

Booz Allen AI at the Tactical Edge
AFCEA West 2023

SAR ML Ship Detection
Running Live on Tomahawk KXM + MPU5 Tactical Radio

AI-on-Platform (SAR, RF, or EO/IR) and Edge-based Routing (EBR) enable ROI for autonomous solutions with machine learning optimized for the edge and smart data transport from the edge to adapt information sent back to ship or shore when network conditions change.
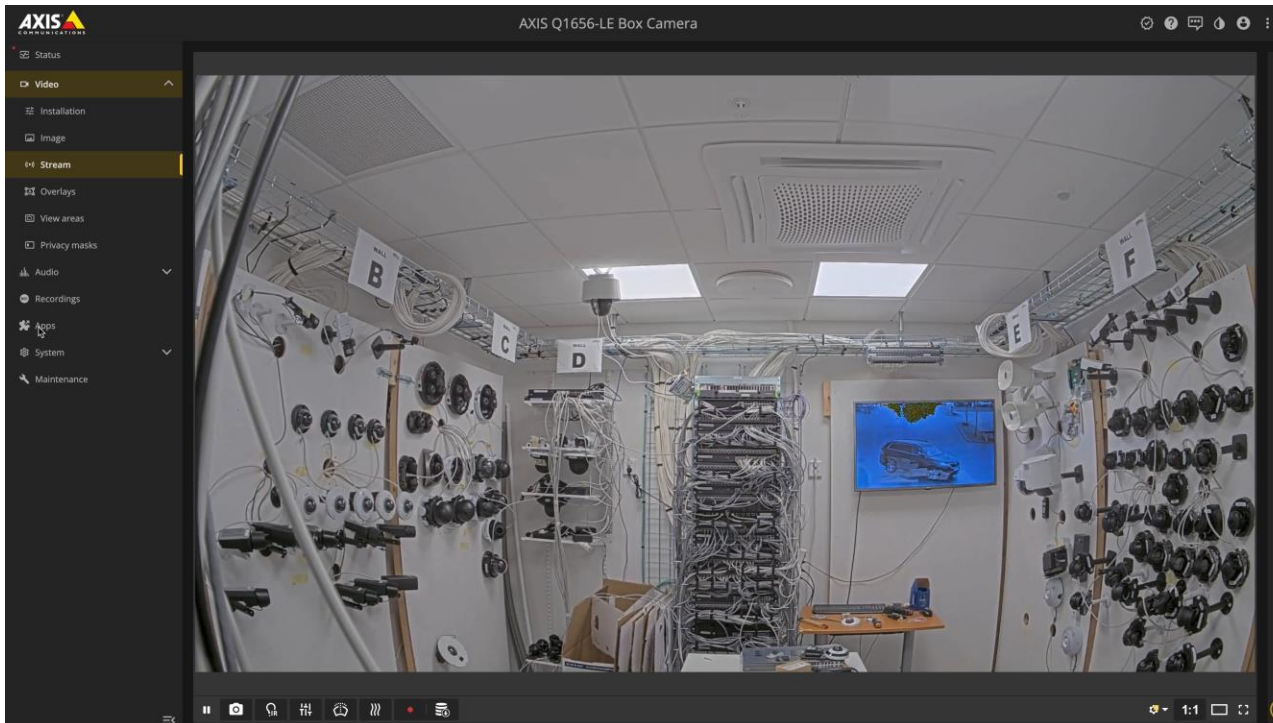
Integrated Vision AI runtime software with mission applications.

Source Video Tablet

Edge AI Processor
LatentAI
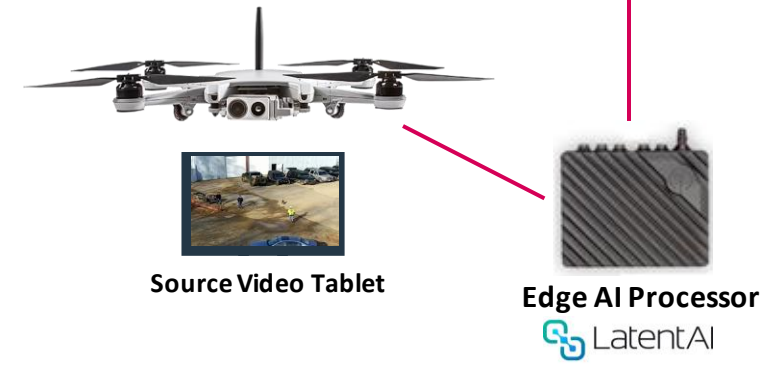
Demonstrated to Navy, Army, SOF Community

Partnered with DBP – Edge Based Routing

COMPUTER VISION FOR SECURITY

Build and Run CV models on Axis, eliminating need for GPU hardware.

Axis Communications Q1656-LE

Demonstrated to

Department of State DSS

(Jacoby, Buteau)

Integrated Vision AI runtime software with Axis SDK to create "app".

Summary

Booz Allen partnered with the US Army AI Integration Center (AI2C) to take drone footage from live fire exercises and rapidly curate it for training computer vision AI detection and tracking models. Using Booz Allen's Vision AI Stack, which includes Synthetaic's Rapid Automatic Image Categorization tool (RAIC), we deployed a pre-integrated computer vision pipeline into a CUI-accredited computing environment to process AI2C's drone video.

Developed

a system with an efficient auto- and semi-supervised video labeling service, allowing the team to process more than 16,000 images pulled directly from AI2C video.

Integrated

a pipeline leveraging custom-built machine learning models created from labeled data that will cut down on the number of hours needed for any future work.

Innovated

the development of new machine learning models and labeling tasks, allowing AI2C to quickly implement our strategies to cut down their labeling process by 100s of hours.

LIDAR AI | AIR FORCE CIVIL ENGINEER CENTER

Summary

The Air Force awarded Booz Allen a $30M contract to capture global installation space utilization. This space utilization data is used to efficiently plan modifications to installations (new additions, re-allocation of space, etc.). The current workflow utilizes a manual process capturing LiDAR data and then hand drawing the buildings. The CTO-AI Vision team worked with JDA RIES to develop an automated workflow leveraging state-of-the-art vision models to streamline the generation of the building blueprints.

Developed

a novel LiDAR to BIM workflow to process hand-captured LiDAR datasets of all buildings across Air Force installations and leverage Segment Anything and other image-processing algorithms to generate BIM blueprints.

Created

a novel metric evaluation framework to quantify the performance of the LiDAR to BIM workflow that incorporated existing Air Force standards. This framework will be used to build confidence with the client to use the AI Solution.

Streamlined

development of new Vision models by integrating Agile best-practices and automation techniques to rapidly develop new capabilities within weeks instead of the previous monthly timeline.

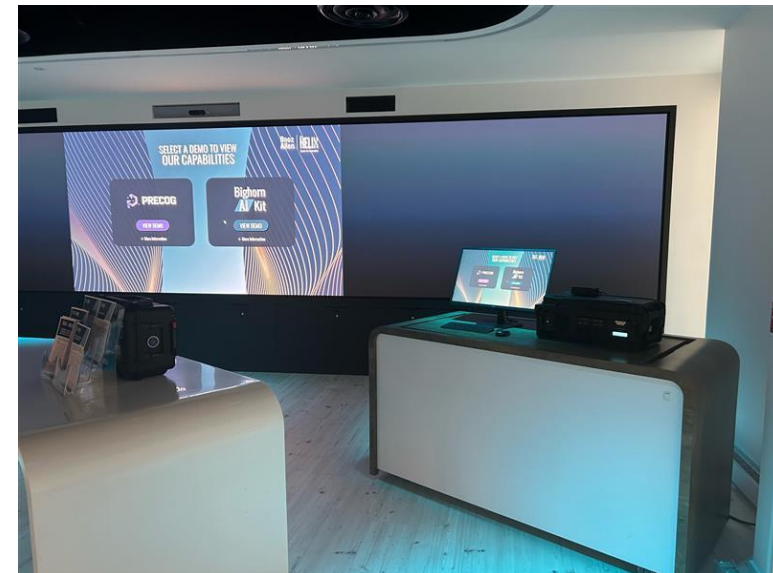# BIGHORN AI KIT

VISION AI _BIGHORN AI KIT™

Booz Allen's Bighorn Artificial Intelligence (AI) Kit™ delivers advantage in **building and sustaining computer vision AI solutions at the edge**—critical for mission success in disconnected environments.

FEATURES

- **Auto-Search** and Analyze Video On-Kit

- Auto-Label and **Rapidly Re-Train** AI Models

- Manage AI Models and **Deploy to Edge Devices**
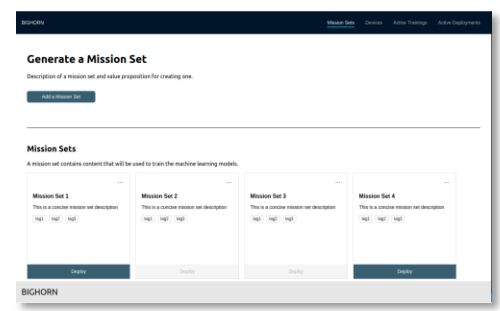
- **Synchronize Data** from Edge-to-Cloud

HELIX DEMO

VISION AI _BIGHORN AI KIT™

HOW YOU USE IT

1 Leverage New Data

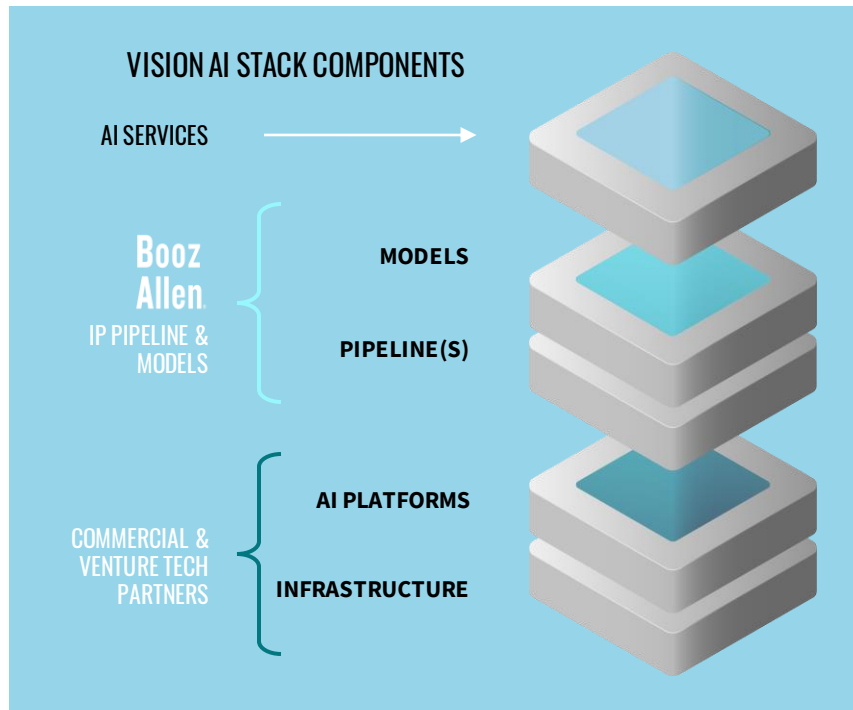**2** Mission Focused (Task + Hardware Pairing)

3 Rapid AI/ML Re-Training

5 Optimized Operational AI

synthet**ai**c

Booz Allen | **Bighorn AI Kit™**

4 Deployment

BLUERIDGE RF AI KIT

BLUERIDGE AND THE VISION AI STACK

VISION AI STACK COMPONENTS

AI SERVICES

Booz Allen.
IP PIPELINE & MODELS

MODELS

PIPELINE(S)

COMMERCIAL & VENTURE TECH PARTNERS

AI PLATFORMS

INFRASTRUCTURE

synthet**ai**c

PIPELINES

Data Engineering	→	Advanced Training	→	Operational AI

EO/IR - FMV Detection and Tracking

EO/IR – Rapid Video and Image Search

EO/IR – Satellite Imagery Detection

SAR – Satellite Imagery Detection

RF – Modulation Classification

RF – Signal Type Classification

MODELS

Cloud Deployment

Edge Deployment

Embedded Deployment

GPU & ASIC Accelerators

BLUERIDGE USAGE

RF AI Kit: Adapt your AI to changes in the MISSION or ENVIRONMENT.
In prototype development for training, optimizing and deploying ML models at the tactical edge. The RF Kit leverages cutting edge computer vision labeling methods to enable search, discovery, and rapid labeling of RF data. By converting signals data to images and integrating Synthetaic RAIC Edge software, analysts can locate signals of interest and rapidly generate training data to update AI models.

1 Leverage New Data
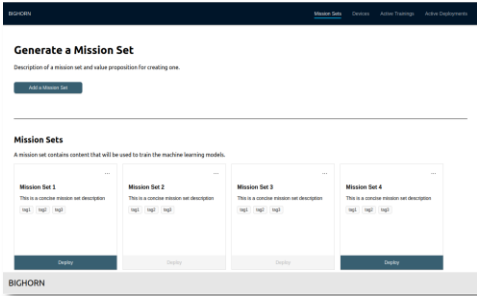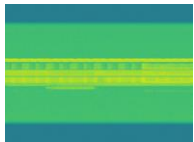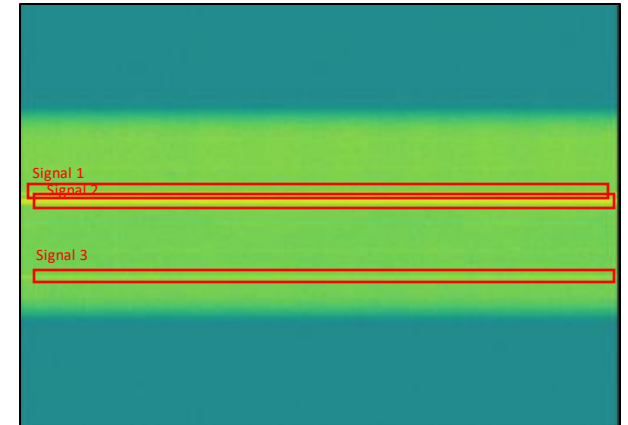
2 Mission Focused (Task + Hardware Pairing)

3 Rapid AI/ML Re-Training

5 Optimized Operational AI

4 Deployment