

MACHINE LEARNING



Ball Aerospace provides solutions to the most challenging analysis and processing problems for the defense and intelligence communities. Leveraging expertise in machine learning (ML), algorithm development, sensor phenomenology, data management, open-source computing and software technologies, we deliver fully automated, best-value systems that enhance analyst capabilities and fill critical intelligence needs.

Image (Below): Target Detection; Images (Right Top to Bottom): Video Tagging; Super Resolution and Color Enhancement.



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Overview

Applying ML successfully to geospatial intelligence (GEOINT) problems involves more than knowing how to use open-source capabilities. In-depth knowledge of the mission, collected data, the sensor and sensor electronics are critically important to creating effective training data and generalized ML models. Signal processing and data management expertise ensures that your ML results are meaningful and not driven by sensor or processing artifacts. In addition, understanding of enterprise systems and architectures enables rapid and effective integration and deployment.

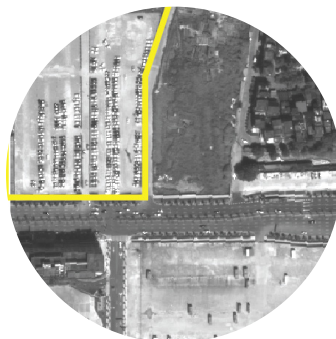
With an in-depth understanding of data processing and sensor engineering, Ball works with our customers to understand their missions and deliver the right solution. Leveraging new technologies, commercial approaches and open systems, we have demonstrated that you can develop effective systems quickly and affordably.

Demonstrated Application of Machine Learning Capabilities for Remote Sensor Data

- ML model development and production processing for commercial and intelligence customers
- Successfully demonstrated ML target detection and machine reasoning capabilities during Trident Spectre 2018 and 2019 exercises; demonstration of results available for U.S. Government agencies
- Experience developing and deploying ML capabilities to cloud environments, including AWS, Amazon GovCloud, Azure and C2S
- Experience deploying ML capabilities to heterogeneous environments, including partnering with chip makers to deploy ML capabilities to edge processing hardware



NOT ACTIVE



ACTIVE

Activity detection and monitoring



Ball Aerospace

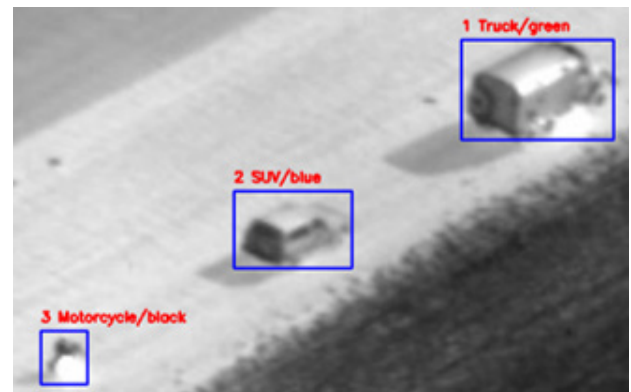
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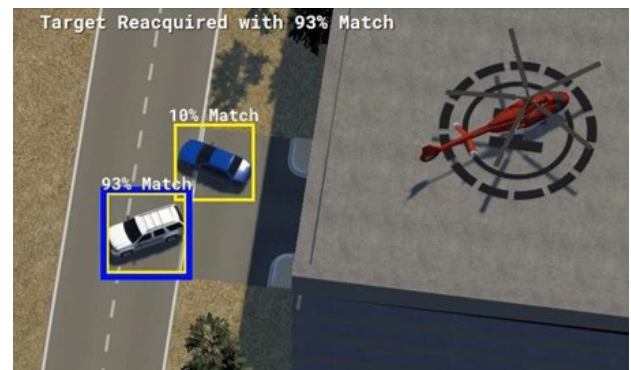
Quick Facts

Broad experience deploying ML to various domains:

- Fusing track fragments in electro-optical (EO) data
- False colorization of grayscale imagery
- Anomaly detection in satellite health and safety data
- Autonomous detection of objects of interest in high-resolution EO data
- Detection and tracking of objects in Full-Motion Video (FMV) and Wide Area Motion Imagery (WAMI)
- Characterization of radio frequency signals



Target Detection in TIR data



Simulation based training data and scenario testing