MetalScrap is leveraged by Computer Vision and AI

- Detect the energetics in metal scraps that cannot be detected by human
- Classify energetic type, location, volume, and quantity
- Automatic & 99.99% accuracy
- Throughout of million seconds per metal scrap

InfoBeyond Technology

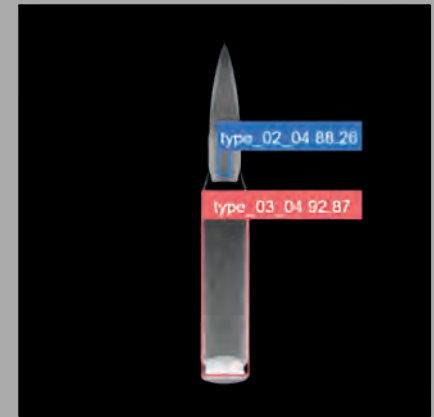## Delivering Cutting-Edge Solutions for Energy, Defense, National Security, and IT Industries

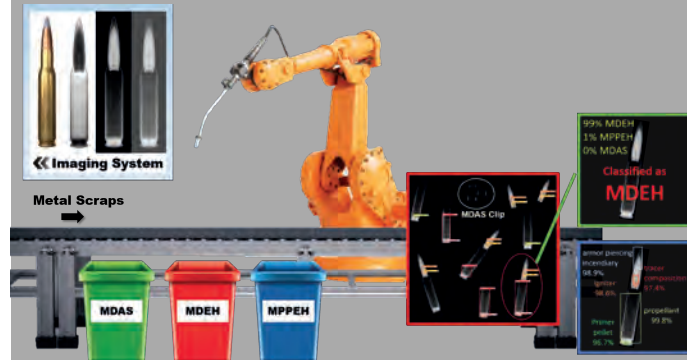## Our MetalScrap - Sponsored by Army SBIR program

InfoBeyond Technology LLC
Focusing on multimodality image AI

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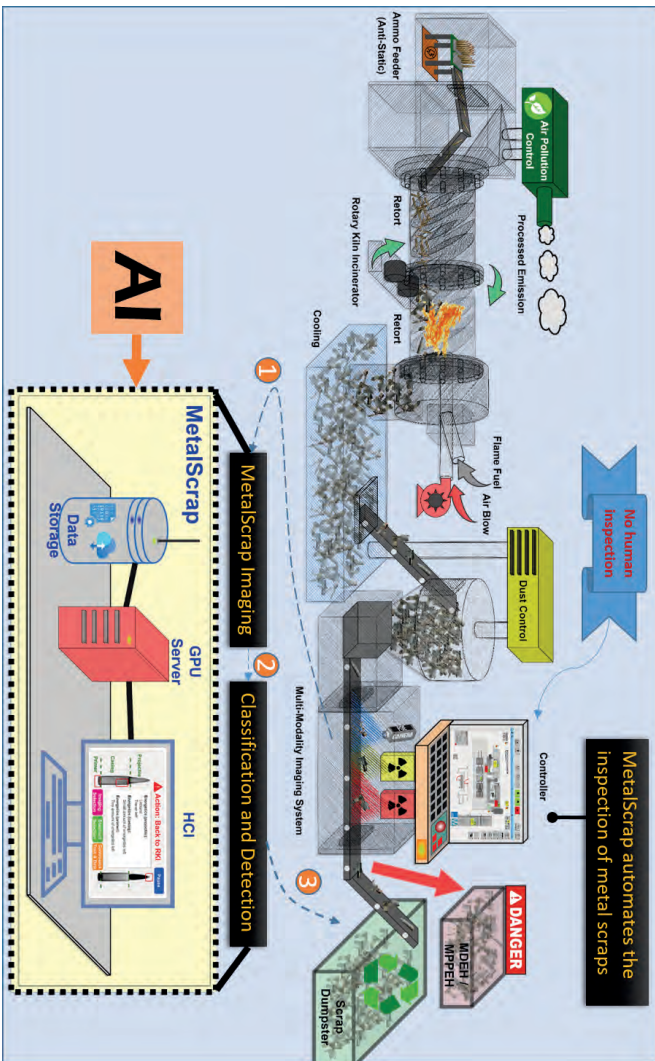https://infobeyondtech.com/
Info@InfoBeyondtech.com

MetalScrap:
An AI-Enabled Metallic Scrap Inspection System

MetalScrap provides an automatic metallic scrap inspection approach utilizing advancements in X-ray technology, digital imaging, and advanced deep learning algorithms to provide an alternative metal scrap inspection method that can see through ammo-casing and is accurate, safe, and time-effective.
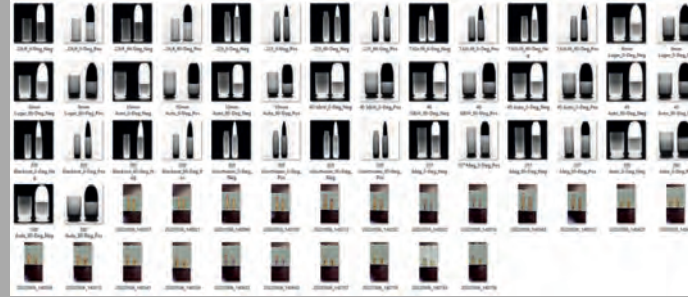
The Problem: Human-based MetalScrap Inspection

The common practice employed by the U.S. Army to ascertain the destruction of energetics in metal scraps is to inspect each metal scrap using two independent trained and certified inspectors. The inspectors classify the metal scraps as Material Documented as Safe (MDAS) or Material Potentially Possessing Explosive Hazard (MPPEH). Human based approaches have several limitations:

- Lack of automation due to human operations
- Poor classification accuracy due to limited visual capability
- Human judgment bias based on inspectors,
- Low DEMIL time/cost-efficiency

MetalScrap Inspection Easy and User-Friendly

MetalScrap: A cost-saving, time-effective, and environmental-friendly solution
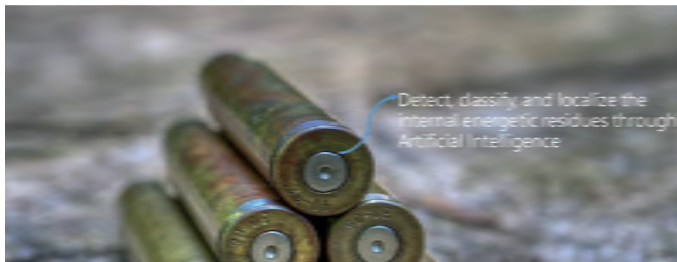
MetalScrap addresses these issues by leveraging leading AI technology to provide metal scrap inspection, classification, energetic residue identification, and flexible GUI (graphic interfaces)-based human control.

MetalScrap uses multiview-multimodal images as a training dataset to precisely identify explosives in images of metal scraps, and accurately classify such metal scraps as MPPEH in a matter of seconds. This removes the limitations of poor accuracy, human judgment bias, and safety risks present with a human inspection.

MetalScrap HCI to show ammo energetics

Dust in casing	Full amount of propellant in casing and primer	Full amount of propellant in casing and primer
Large amount of propellant in casing and primer	Medium amount of propellant in casing and primer	Small amount of propellant in casing and primer
Tiny amount of propellant in casing and primer	Large amount of propellant in deformed casing	Large amount of propellant in deformed casing with primer

METALSCRAP FEATURES & BENEFITS

Reduce Operating Cost
- Minimize labor cost and training cost
- Maximize labor efficiency

Improve Inspection Efficiency
- High inspection throughput
- Minimize project makespan for easier project management

Increase Inspection Accuracy
- Accurately classify metal scraps into MDAS/MDEH/MPPEH
- Accurately identify energetic types, locations, and amount

Minimize Environmental Impact
- Reduce energetic hazard pollution
- Automated inspection process, less manual inspection