

Geospatial Intelligence & Infrastructure Monitoring

AI-Enabled Computer Vision Management System

Overview

ProHawk AI brings precision visibility and actionable insight to Geospatial Intelligence and Infrastructure Monitoring, helping government agencies, utilities, and environmental organizations see clearly across vast, complex terrain. Using patented pixel-level restoration powered by NVIDIA® accelerated computing and CUDA®-based processing, ProHawk AI transforms degraded, low-contrast aerial, satellite, or field imagery into clear, real-time, actionable visual data.

ProHawk Vision Computer Vision Management System® (CVMS) connects cameras, drones, and sensor networks into unified AI-driven pipelines that analyze and visualize conditions across infrastructure, coastlines, forests, and cities. Each restored stream fuels the AI Data Flywheel, continuously improving detection, classification, and predictive models—enhancing visibility and decision-making without the need for expensive sensor upgrades.

Key Challenge

Degraded Satellite and Drone Imagery

Atmospheric interference, motion blur, and low contrast reduce visibility and data accuracy.

Slow Image Processing

Large datasets and manual analysis delay time-critical insights.

Fragmented Monitoring Systems

Disparate imagery sources hinder unified situational awareness.

Inconsistent Model Accuracy

Environmental noise lowers AI reliability for detection and change tracking.

High Infrastructure Costs

Upgrading imaging hardware or launching higher-spec satellites increases capital spend.

Key Benefits and Outcomes

ProHawk AI delivers real-time clarity and scalable intelligence—helping agencies and organizations detect, predict, and act faster. By restoring pixel-level visibility across aerial, fixed, and mobile sensor feeds, ProHawk AI enables accurate monitoring of critical infrastructure, transportation networks, environmental conditions, and geospatial activity even in glare, low light, weather distortion, or degraded imaging conditions. This restored fidelity strengthens anomaly detection, pattern analysis, and situational awareness while feeding clean data into the AI Data Flywheel to improve model accuracy over time. With seamless integration across edge, field, and command environments, ProHawk AI empowers teams to respond earlier, manage assets more effectively, and maintain operational resilience at scale.

• Improved Visual Accuracy

Restores satellite, aerial, and sensor imagery at the pixel level for precise analytics.

• Accelerated Analysis

AI pipelines deliver faster image processing and anomaly detection.

• Unified Situational Awareness

CVMS integrates all visual sources into a single operational view.

• Cost Savings & Longevity

Extends the lifespan of existing sensors and cameras—reducing CapEx by up to 60%.

• Continuous AI Model Optimization

Each frame strengthens the AI Data Flywheel for more accurate insights over time.

Visibility Restored. Engagement Enhanced. Experience Optimized.

ProHawk AI's CVMS Geospatial Intelligence solution, powered by NVIDIA accelerated computing, delivers real-time restoration, detection, and terrain-level analytics across aerial, fixed, and mobile imaging platforms. By restoring video and imagery at the pixel level, CVMS cuts through glare, haze, shadows, weather distortion, and motion blur—enabling accurate monitoring of terrain changes, infrastructure conditions, environmental shifts, transportation networks, and emerging anomalies using existing sensors. Restored data strengthens situational awareness, improves asset and risk assessment, and supports earlier detection of patterns and irregularities—all in a scalable, edge-ready deployment suited for field, airborne, and command environments.



As a NVIDIA accelerated solution in several AI Factories, ProHawk AI CVMS unifies restoration & detection across geospatial and infrastructure-monitoring environments. CVMS connects existing aerial, fixed, and mobile sensors, manages real-time pipelines, and improves visibility into terrain changes, infrastructure conditions, environmental patterns, and emerging anomalies. Running on the NVIDIA Metropolis Vision AI stack, ProHawk AI delivers pixel-level clarity through haze, glare, shadows, motion, and severe weather—enabling accurate monitoring and assessment across large, complex geographies while extending sensor life and reducing capital costs. ProHawk AI drives sharper geospatial insights, faster anomaly response, and stronger operational ROI for agencies and critical infrastructure operators.

Use Case	Result
Satellite & Aerial Restoration	Clarifies imagery from drones or orbit for environmental and land-use monitoring.
Infrastructure Health Monitoring	Detects cracks, corrosion, or erosion in bridges, pipelines, and coastal assets.
Climate & Environmental Tracking	Monitors vegetation, flood zones, and wildfire expansion in real time.
Urban Development Analysis	Provides clear imagery for planning, zoning, and compliance verification.
Disaster Damage Assessment	Enables faster and more accurate post-event analysis for emergency response

Feature	Requirement
Compatible NVIDIA Hardware	NVIDIA Jetson Orin™ & NVIDIA RTX™ Pro – Blackwell, Ada Lovelace
Supported Operating Systems	Windows Server 2019/2022/2025 & Ubuntu 20.04/22.04
No Replacement or Changes	Existing IP Cameras or VMS Streams

ProHawk AI's CVMS solution delivers real-time restoration, detection, and analytics across aerial, roadside, and fixed monitoring platforms. CVMS cuts through glare, haze, shadows, weather distortion, and motion blur—enabling accurate tracking of terrain changes, structural conditions, transportation flow, and environmental anomalies using existing sensors. CMVS strengthens asset monitoring, improves situational awareness, and accelerates decision-making for field, airborne, and command environments.

