



Improve Airport Safety, Security, and Operations with Computer Vision AI Restoration

Airport Infrastructure Challenges

Applying real time computer vision AI to existing and new airport video camera networks offers a compelling range of benefits for improving the safety, security and operations of airports in all environmental and lighting conditions. These include improved threat detection and perimeter security, streamlining security processes with improved service response times and accuracy, and lowering the total cost of ownership of the video infrastructure including illumination.

Analyzing images and video feeds from sensors is often impeded by operational complexities, including the inability to interpret real-world, unconstrained environments where video and images are less than perfect. Like humans, even the highest quality cameras and sensors don't see through night, glare, fog, rain, snow, pollution, and other visual obstacles. And most often, computer vision AI solutions are trained on pristine imagery and unobscured objects.

Why AI-Enabled Computer Vision

Applying real time, AI-enabled computer vision restoration to airport infrastructure video networks can immediately address a wide range of complex safety and operational problems. ProHawk AI solves the challenges in viewing and acting on high and low-quality live videos due to environmental factors. These arise from types of particulates of varying sizes that obstruct videos, as well as challenges related to lighting conditions, including both excess and insufficient light.

Key Benefits and Outcomes

Real-time monitoring of airport infrastructure with ProHawk AI Vision in the video workflow overcomes all environmental impediments and lighting issues to enable decisive action at the decisive time and place.

- **Enhance facility safety and security:** Detect security breaches, suspicious activity, and unattended bags in all lighting, weather and other challenging conditions. Applies to airport perimeters, transportation, and terminals for unauthorized entry and improving operations such as monitoring for unattended luggage, crowds, or people exhibiting unusual behaviors.
- **Improve efficiency of operations:** By resolving poor visibility conditions, ProHawk facilitates faster decision-making and response times without the need for additional equipment or staff. Reduce false positives between harmless objects and potential threats, minimizing the need for manual checks of flagged items.
- **Lower TCO of video camera infrastructure:** Greatly increase object detection and reduce time required to process and analyze video data, which is critical for real-time decision-making. Existing cameras and sensor work better without the addition of lighting, avoiding new capital expenditures for camera and lighting upgrades.

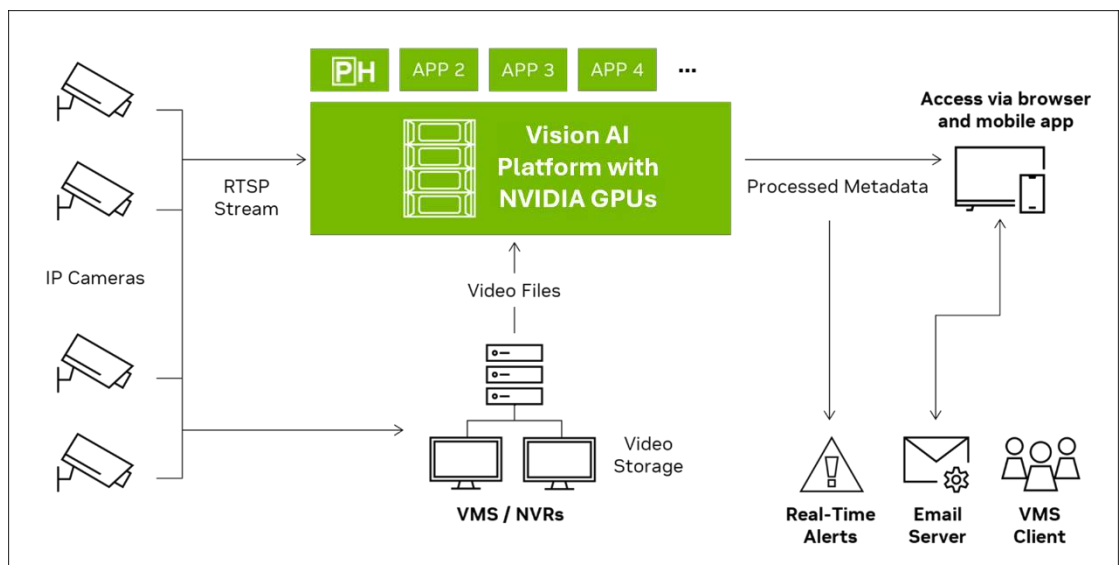
Better Business Outcomes Powered by NVIDIA Accelerated Computing

By using accelerated computing solutions with NVIDIA GPUs, ProHawk AI Vision transforms video in real time, on a pixel-by-pixel basis, overcoming all environmental obstacles and lighting conditions to restore live video and images. Previously unseen objects and their details are revealed for humans and AI tools, as can be seen below with before and after video restoration by ProHawk AI.



Downstream video workflow processes and inferencing tools can then always perform at unobstructed, daytime safety levels, allowing for earlier and greater object detection and confidence levels, and reduced false positives.

ProHawk AI uses the NVIDIA Metropolis stack for computer vision AI deployments to analyze video and sensor data in real time, to restore clear video for live camera and VMS streams, and restore images and recorded video.



Validated through deployments and benchmark testing on standard GPU accelerated systems, ProHawk AI Vision has demonstrated robust performance improvements:

- 300% improved object detection and tracking accuracy
- 30X faster video stream restoration than conventional systems
- <3 milliseconds of latency

Overall, computer vision restoration from ProHawk AI offers a powerful tool for improving security and operations and lower costs at airports by automating tasks, enhancing threat detection, streamlining security processes, and boosting customer satisfaction with faster response times and improved service accuracy.