SOLUTION BRIEF

Precision Restored. Defects Revealed. Quality Assured.

AI-Enabled Computer Vision

Overview

In high-speed, precision-driven manufacturing, even the smallest visual imperfection can result in costly rework, product failure, or lost revenue. ProHawk AI delivers AI-enabled computer vision leveraging patented pixel-level restoration to ensure real-time clarity in production environments. By restoring degraded or low-contrast video streams caused by glare, vibration, dust, or poor lighting, ProHawk AI enables accurate, high-throughput defect detection & visual inspection—without replacing existing cameras.

Powered by NVIDIA® GPU accelerated computing and CUDA® parallel processing, ProHawk AI improves the performance of automated inspection systems and AI models, improving detection accuracy, reducing false positives, and supporting zero-defect manufacturing at scale.

Key Challenges

Low-Quality Visual Input

Inconsistent lighting, reflective surfaces, and production residue distort camera feeds and reduce inspection reliability.

Fast-Moving Production Lines

High-speed environments require clear, low-latency imagery for real-time defect detection and quality control.

Reduced AI Model Accuracy

Outdated or fixed cameras often cannot deliver the clarity needed for modern AI systems or human monitoring in dynamic conditions.

High Infrastructure Costs

Field teams and command centers rely on visual inputs that are often compromised at the moment they're needed most.

Manual Inspection Inefficiencies

Agencies often operate under tight budgets, limiting the ability to replace or upgrade existing camera systems.

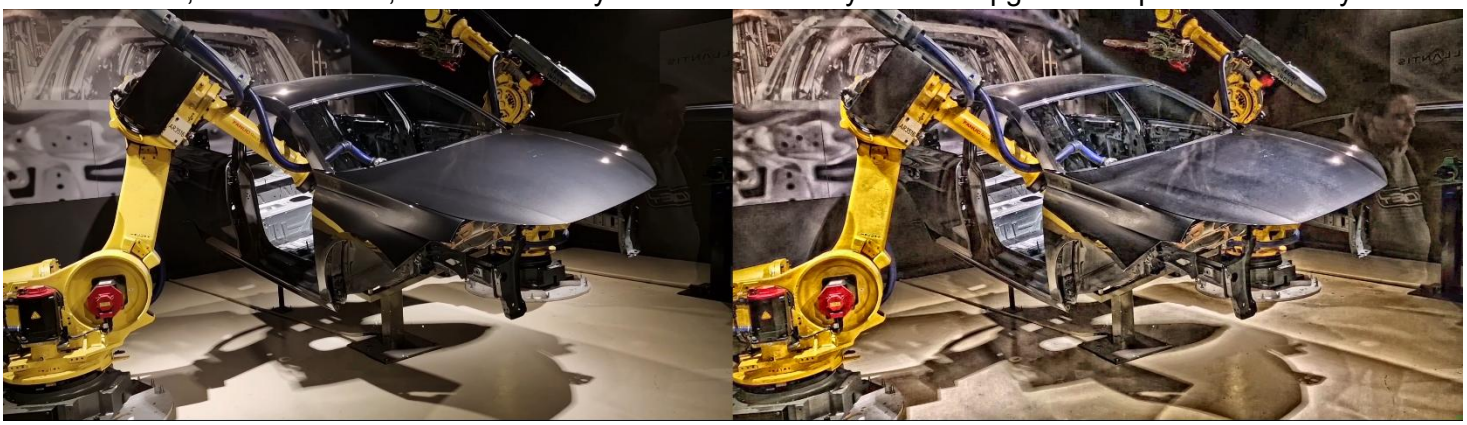
Key Benefits and Outcomes

ProHawk AI enables smarter, faster, and more accurate defect detection by restoring video clarity at pixel—ensuring AI-enabled computer vision systems perform reliably in real-time production environments. Whether used in assembly lines, inspection stations, or predictive maintenance setups, ProHawk AI improves image quality without requiring camera replacements. It empowers manufacturers to reduce waste, catch defects earlier, and maintain high-throughput operations while maximizing their existing infrastructure investment.

- **Advanced Defect Detection**
  Restored clarity improves AI model performance in identifying micro-defects, alignment issues, and surface irregularities.
- **Higher Product Quality**
  Early and accurate detection reduces scrap, rework, & field failures—ensuring consistent output standards.
- **Improved Process Efficiency**
  Real-time visual input reduces bottlenecks and supports high-speed inspection without slowing production.
- **Extended Equipment Life**
  Pixel-level visibility helps monitor wear and tear, supporting predictive maintenance and reducing downtime.
- **Cost Savings & ROI**
  Avoids expensive camera upgrades by unlocking full value from existing systems—delivering measurable ROI in months.

AI-Enabled Visual Inspection for Faster, Smarter, Zero-Defect Manufacturing

ProHawk AI's defect analysis solution restores degraded video in real time using patented pixel-level computer vision and NVIDIA GPU accelerated computing—delivering crisp, high-contrast imagery even under glare, vibration, poor lighting, or dust. By improving existing cameras, ProHawk AI boosts the accuracy of any NVIDIA DeepStream-supported model for defect detection, assembly verification, and surface inspection. As a pipeline platform, it integrates into production lines, quality control stations, and edge devices to help manufacturers catch defects earlier, reduce rework, and maximize yield—without costly camera upgrades or production delays.



As a GPU-accelerated solution powered by NVIDIA, ProHawk AI transforms degraded or low-quality video streams, pixel-by-pixel, into clear, actionable footage in real-time—enabling manufacturing teams to detect defects earlier, inspect with greater accuracy, & maintain high-speed production lines without compromise. Integrated with the NVIDIA Metropolis Vision AI stack, it delivers sub-3 millisecond latency and up to 30× faster image restoration, ensuring precise visual input even under glare, poor lighting, vibration, or dust. ProHawk AI eliminates the need for costly upgrades or specialty optics—reducing hardware expenses by up to 60%. Manufacturers benefit from improved AI model performance, fewer false rejects, reduced defects, and faster ROI—while achieving greater quality assurance at scale.

Use Case	Result
Surface Defect Detection	Identify micro-scratches, dents, or coating inconsistencies on metals, plastics, or glass with restored visual clarity.
Assembly Line Inspection	Verify alignment, completeness, or part placement in fast-paced production stations.
Low-Contrast OCR	Improve character visibility on etched, embossed, or printed codes for accurate traceability and compliance.
Weld and Joint Analysis	Feed high-fidelity video to AI models for identifying fine cracks, voids, or structural defects in real-time.
Tool Wear Monitoring	Track equipment condition visually to support predictive maintenance and reduce unplanned downtime.

Feature	Requirement
Compatible NVIDIA Hardware	NVIDIA Jetson Orin™ & NVIDIA RTX™ Pro – Blackwell, Ada Lovelace
Supported Input Formats	Image & Video Files, RTSP Camera Stream
Supported Operating Systems	MS Windows Server 2019/2022/2025 & Ubuntu 20.04/22.04

ProHawk AI brings clarity, precision, and automation to modern manufacturing by delivering AI-enabled computer vision powered by patented pixel-level restoration at the edge on NVIDIA Jetson™ and scaling up to data center-class NVIDIA GPUs. Experience real-time visibility across all production stages so manufacturers can detect defects earlier, reduce waste, and maintain the highest quality standards—without overhauling their infrastructure. From surface inspection to final QA, ProHawk AI helps manufacturers see more, catch more, and deliver more.

www.ProHawk.ai

ProHawk AI
255 Primera Blvd., Suite #160
Lake Mary, FL 32746
(800) 902-6972