

Improve Live Video & Fast

ProHawk Vision™ Software Developers Kit (SDK) is a library that can dramatically improve the quality of images and videos. The ProHawk Vision SDK Application Programming Interfaces (API's) improves noisy, obscured, or unclear images or live video into sharper, clear imagery, or video with intricate details. This makes images and live video more intelligible and useful for humans, video analysis, and computer vision.

There are many problems that obstruct capturing good live video. When live video is subject to difficult conditions, these problems generally fall into two categories: issues with light or lack of it; and issues with various sizes of suspended obstructive particles in the air or water called particulates.

Particulate Problems

Rain Snow Dirt Fog Sand Water

Light Problems

Backlight Low Light Night Headlight Bright Overcast Sun Glare Shadows



ProHawk Vision SDK 5.0 solves the problems that cause poor live video with a variety of new features, enhancements and upgrades to support a wider range of platforms, formats, and conditions. While continuing to offer the world's first true live video improvement solution with unprecedented imagery details. Some new features in 5.0 include:

Live Video Requires Low Latency

Live video and computer vision requires industry leading 2-10ms low latency leveraging NVIDIA GPU's or 16.6µs Xilinx FPGA's to ensure there is no video lag or frame skipping for a camera or VMS. This enables ProHawk Vision to be embedded in devices such as: NVIDIA Jetson TX2 and AGX Xavier; Xilinx UltraScale+ MPSoC CG, EG, or EV devices.

Expose Fine Details

Clearly see fine details to identify specific objects, situations, vehicles, and people. The powerful detail improvement algorithm exposes fine details to detect small objects and see details that were not visible, even with good video. Faces, people, animals, objects, weapons, vehicles, and license plates can all be easily identified and exposed.

Sensor Coverage

ProHawk Vision API's improve more than poor color optical cameras, we improve the coverage range and accuracy of thermal sensors 3X and infrared cameras 5X. Humid climates cause problems due to excessive amounts of rain and fog which limit sensor range and accuracy paired with sun glare.

Broad Difficult Conditions

A wider range of improvement parameters can be defined and programmed that quickly improves imagery in an efficient method. This help reach actionable results fast for a wide range of difficult live video conditions, such as: Low contrast imagery caused by fog, rain, snow, dirt, and sand; and High contrast imagery created by the suns glare, backlight, headlight, low light, night, and even tinted windows. The ProHawk Vision SDK can improve poor low or high resolution live video interpreted by operators, video analysis or computer vision (CV).

Eliminate Effects of Motion

ProHawk Vision has a unique patented motion adaptation algorithm, which eliminates the adverse effects of objects in motion and moving cameras. This controls the residual image effect artifacts cause by movement or motion that eliminates annoying ghosting imagery.

Natural Color

ProHawk Vision's effective color adjustment algorithm restores and improves natural color representations caused by difficult conditions. This restores natural full color recognition in low contrast situations, while eliminating color oversaturation situations. See naturally in low contrast fog, rain, and snow or high contrast lighting situations.

Edge Improvement

The edge sharpening improvement algorithm gives clearer uniform contrast details reducing noise and delivering natural image representations. This precise edge sharpening rises the accuracy of object detection and tracking while increasing analysis efficiency. Recognition is substantially improved for the most critical detailed unique identifiers including faces, people, masks, weapons, vehicles, license plates, animals, tattoos, and clothing brands.

Feature	Description	Benefit
Live Video/Low Latency	Industry Leading Low Latency, Compact High-Performance Algorithms Enables Embeddable Live Video Improvement	Dramatically Improve Live Video with No Video Lag, or Frame Skipping That Enables Decisive Decisions
Expose Fine Details	See Intricate Details, Even with Good Quality Video	Accurately Identify Objects, Weapons, Vehicles, License Plates, Faces, People, Animals, and Problems
Sensor Coverage	Eliminate Humid Climate Differentiation Struggles Between Body Heat and Ambient Surroundings	Improve Range and Accuracy of Thermal Sensors by 300% and Infrared Cameras by 500%
Broad Difficult Conditions	Programmatic Parameters Quickly Improves Imagery Cause by Fog, Rain, Snow, Dirt, Sand, Smoke, Backlight, Lowlight, Sun Glare, Headlight, and Tinted Windows	Neutralize and Improve Imagery Due to Light and Particulate Problems
Eliminate Effects of Motion	Patented Motion Adaptation Algorithm Controls Residual Image Effect Artifacts	Removes Annoying Ghosting Imagery, and Improves Recognition Substantially
Natural Color	Color Algorithm Eliminates Color Oversaturation and Improves Color in High or Low Contrast Video	Restores and Improves Natural Color Representations
Edge Improvement	Edge Sharpening Algorithm Improve Outlines and Reduces Non-Uniform Imagery Noise	Imagery Fine Details Enable Unique Identification of People, Places, or Things

Clear Value

- Integrate or Embed in Devices, Cameras and CV Systems
- Reduce Costs of Poor Imagery
- Improve Visual Details and Quality to Uniquely Identify
- Raise Accuracy of Monitoring, Analysis, and AI Systems
- Alleviate Camera and Object Motion Problems
- Dramatically Improve Effectiveness of Applications
- Visibility in Any Challenging Condition
- Improve Recognition for Operators, Analysis and CV



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System Requirements
Operating System
Windows Server 2012-2019
Ubuntu 18.04.5 LTS, 20.04.1 LTS
NVIDIA GPU
Maxwell, Kepler, Pascal,
Volta, Turing, Ampere