



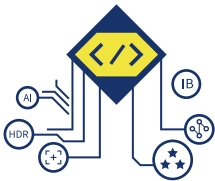
LPV

Leaper Vision Toolkit

Self-Developed Underlying Kernel Code for High-Level Applications

Completely self-developed by LEAPER, LPV is a comprehensive vision toolkit specifically for advanced vision system developers. It helps user build the widest range of machine vision applications with ultimate flexibility, and becoming a powerful "engine" for product R&D and project implementation.

Efficient and High-Precision Algorithm Module



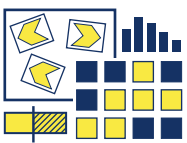
The HDR conserve an extensive range of image details, patterns matching expedite the identification of massive targets.

Ultimate Flexibility



LPV is capable to connect to IntelliBlink™(IB) seamlessly, helps you to make use of the easy-built IB tasks.

High-Performance in Image Processing



The basic image processing algorithms have excellent performance. Pattern matching is continuously optimized.

Supports 16-Bit and 32-Bit Images

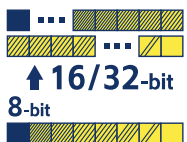
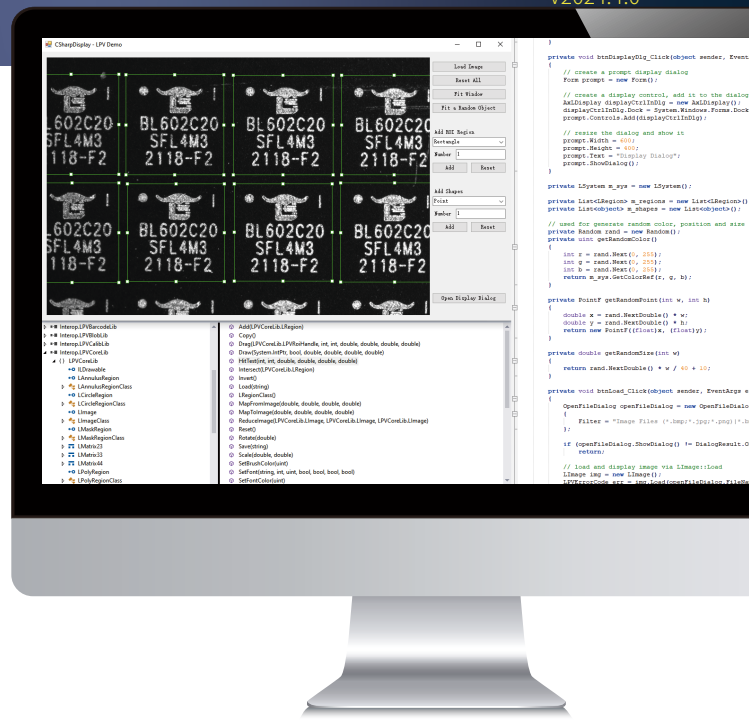


Image processing features such as image conversion, algorithm support and color mapping are supported for 16-bit and 32-bit images.

Edge Preserve Denoise Interface



Effectively filters noise in images while preserving fine details, especially around image edges.

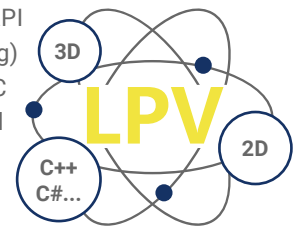


Full-Featured Tool Library for A Wide Range of Applications

High-performance library of Leaper vision toolkit covers over 100+ algorithm modules. The interfaces of the tool library are highly flexible and easy-to-use, allowing users to mix and match different interfaces at will, independently select algorithm modules and customize algorithm processes. Currently, LPV SDK has been widely applied in solar, laser processing, semiconductors, film, 3C electronics, automotive and other fields.

Performance Optimization

Efficient and simplified C # API (supporting .NET programming) and C++API (supporting MFC and Qt), enabling multilingual and multi-compiler shared unified algorithm library based on COM technology.



Cutting-edge design fully stretches the performance of multi-core processors and accelerates instruction set for Intel CPUs.

Basics IpvCore	Geometry IpvGeom	Geometry (Advanced) IpvGeomX	Image Process IpvImgProc
Feature Locating IpvLocate	Feature Locating (Advanced) IpvLocateX	Pattern Matching IpvPat	Blob Analysis IpvBlob
Gauging IpvGauge	Camera Calibration IpvCalib	Barcode Inspection IpvBarcode	Math & Data Analysis IpvMath
Machine Learning IpvML	Display Control IpvDisplay	Connect to IntelliBlink IpvIB	...

High-Performance in Image Processing

Basic Image Processing Algorithms



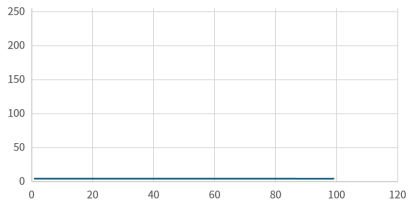
Pattern Matching Algorithm



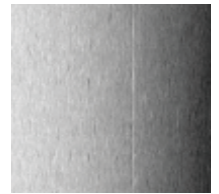
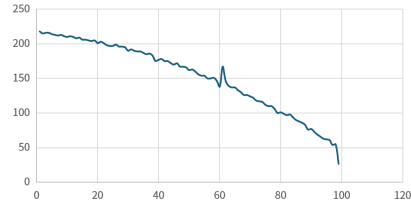
- ◆ Significant Improvement in performance of basic algorithms such as matrix operations, image filtering, morphology, image transformation, and histogram computation.
- ◆ Optimization of parallelism and thread control for each algorithm.
- ◆ Supports algorithm acceleration by AVX/AVX2 in x86 CPU.

Supports 16-Bit and 32-Bit Images

Original 32-bit floating-point data :



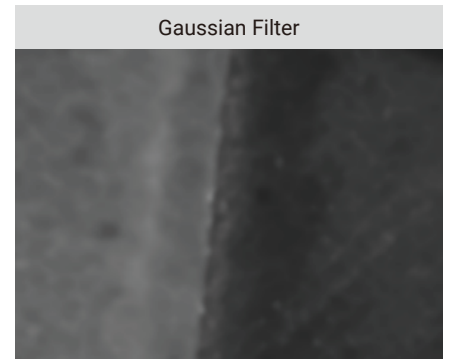
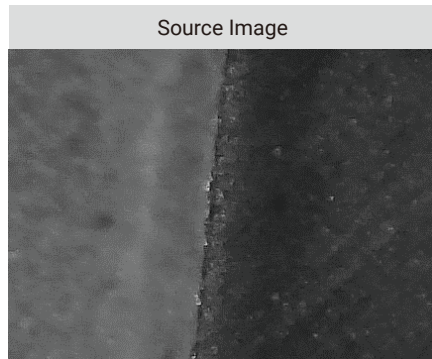
Converted to 8-bit integer data :



- ◆ The image data structure of LImage supports loading, saving, editing, and displaying 16-bit and 32-bit images.
 - ◆ Most algorithms in LpvlmgProc (the image processing module) support both 16-bit and 32-bit images.
 - ◆ New interfaces in LImageConvert (the image conversion module):
- Depth16To8/Depth8To16 Enables continuous bit depth

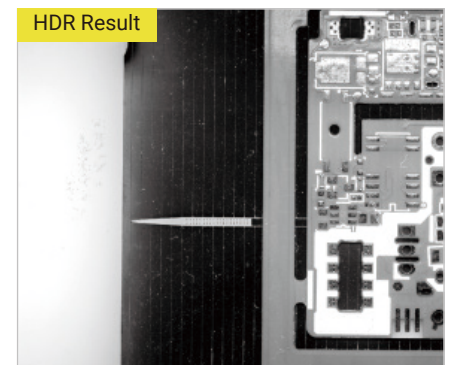
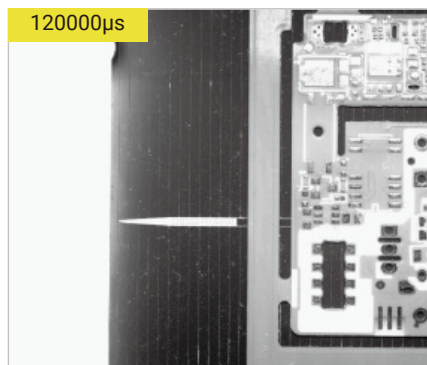
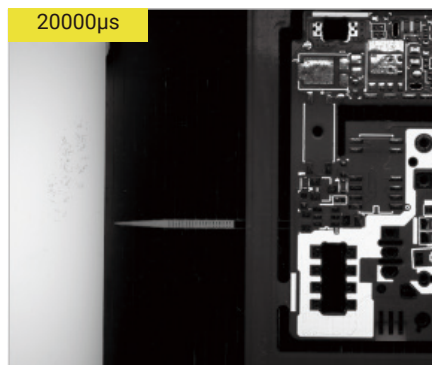
- conversion between 8-bit and 16/32-bit images.
- NormalizeTo8** Normalizes 16-bit and 32-bit images to 8-bit images.
- ColorMap** Generates pseudocolor images using a specified color mapping table for data visualization of 8-bit and 16/32-bit grayscale images.

Edge Preserve Denoise Interface



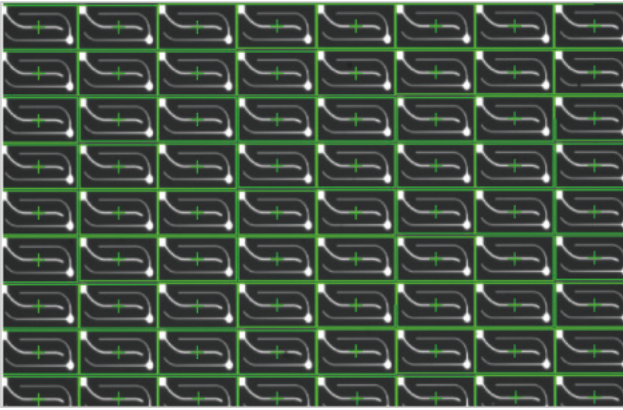
The Edge Preserve Denoise interface effectively filters noise in images while preserving fine details, especially around image edges.

HDR



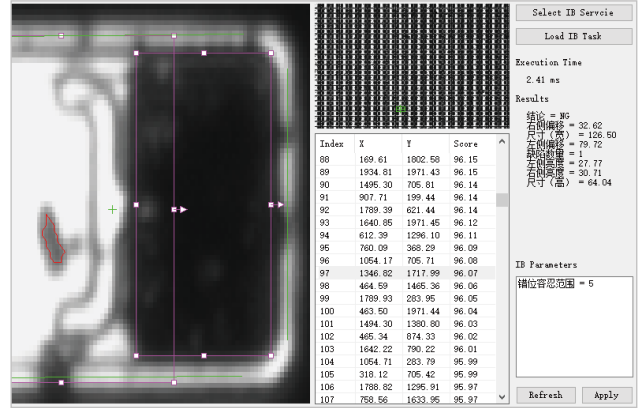
Integrate multi-frame images under different exposures into one frame while retaining all details of regions with varied brightness.

Patterns



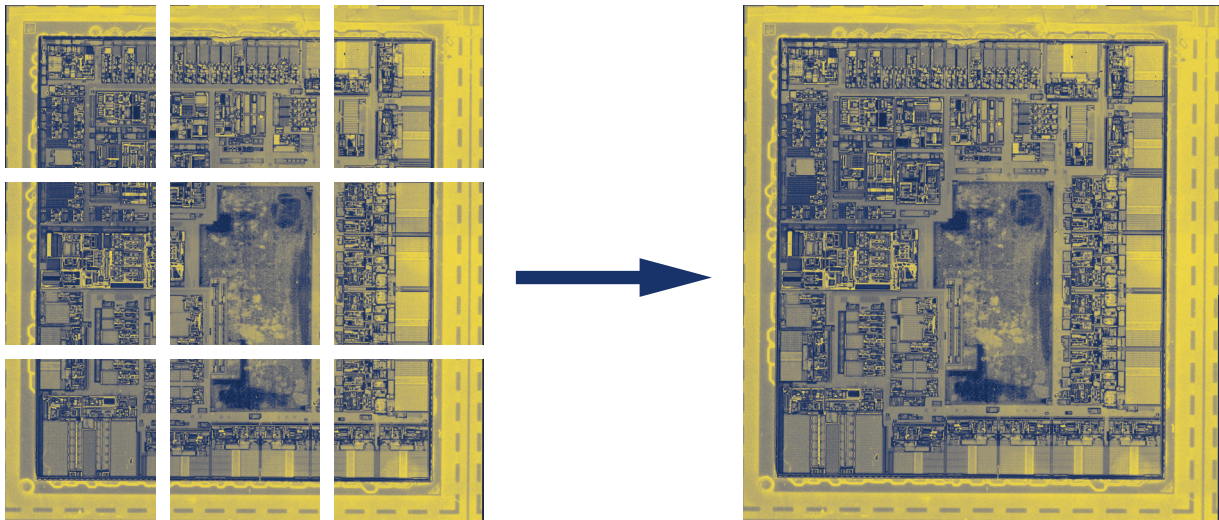
High-speed and high-precision recognition and positioning of thousands of targets in a single field of vision, with a repeat accuracy of up to 0.1 pixels, while the processing time is only around 100 ms.

IB Service



LPV seamlessly connects to low code visual development platform - IntelliBlink™(IB), empowering users to directly invoke machine vision solutions developed on IB, significantly reducing the amount of code.

Image Stitching



Through joint calibration, multiple images are precisely stitched together into a single image, offering a cost-effective solution for high-precision location, measurement, and defect inspection across ultra-large fields of view. Ideal for large-size inspections that existing equipment may struggle to cover, high-precision detection using small FOV optical solutions, and image stitching tailored to user-specific visualization requirements.



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LPV Website



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