mvIMPACT Base

- Comprehensive basic library with over 120 useful functions
- Free in combination with a MATRIX VISION hardware

The mvIMPACT Base Module is a comprehensive image processing software library from MATRIX VISION. The library contains over 120 useful functions for image acquisition and processing. In combination with hardware from MATRIX VISION, the software is free of charge.

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The mvIMPACT Base Module is a comprehensive library with about 120 useful functions for

- Image acquisition, acquisition of sequences
- Display of library objects like images, palettes (look-up-tables), profiles and histograms
- File handling, read or write images in uncompressed BMP and TIFF file formats as well as user defined formats
- Device handling for frame grabber, and camera
- Bandling of three-dimensional datasets
- Drag and draw of Area Of Interests (rectangles and lines))
- Handling of three-dimensional datasets
- A huge number of image processing functions

The advanced image processing functions include

- Point-to-point operations (arithmetic, binarization, etc.)
- Morphological operations (erosion, dilation, etc.)
- Geometric transformations (rotation, scaling, etc.)
- Spatial filtering operations (Sobel, Median filter, etc.)
- Statistical operations (histograms, profiles, etc.)
- Fast Fourier transformation

The mvIMPACT Base Module is the foundation framework of the MATRIX VISION Software Development Kit. This module addresses three issues:

- ways to drive acquisition of digital images from imaging devices,
- means to store digital images in the memory of a computer,
- image processing functions tailored to such stored images.

This module is for free. It is intended to allow anyone make a quick, yet substantial step toward the implementation of his machine vision project.

Image acquisition

Digital images can originate from various sources such as frame grabbers, digital cameras, flatbed scanners or disk files. mvIMPACT puts major emphasis on video sensors used in vision systems and allows tight control of industrial cameras: synchronous or asynchronous triggering, progressive or interlaced frames, area, line or variable scan, arbitrary resolution...

Image storage

mvIMPACT can process multidimensional images and video sequences, including the color, multi-channel, volume and animated cases, with a bit depth of 8 to 16 bit. Image planes can be processed in isolation or as a whole. Special importance has been put on the most common cases of single-plane gray-level and 24 bit true color.

Image processing

The main goal of the image processing toolset is to prepare pictures to later ease their analysis. The following sections give a brief overview of the capabilities of mvIMPACT.

1. Point to point transforms

The simplest operations one can think of handle every pixel in isolation. For instance, linear contrast stretching applies the same gain and an offset everywhere, while thresholding turns background and foreground pixels to black and white.

When several source images are combined, the full range of arithmetic operators can be used to achieve effects such as shading correction, adaptive thresholding, temporal noise reduction, masking...

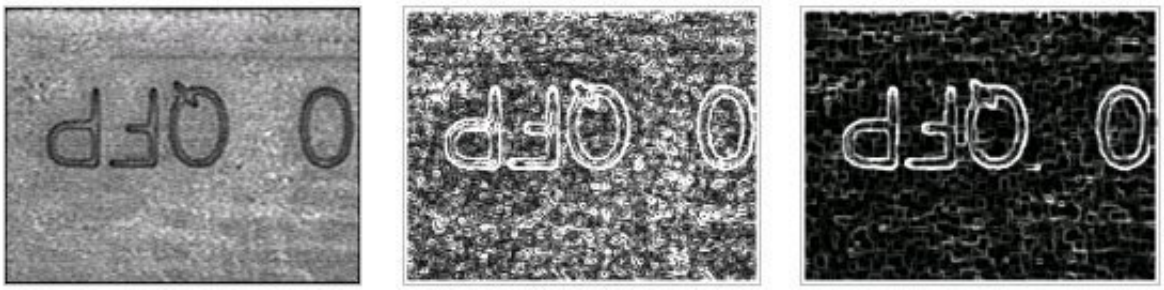
Contrast enhancement by equalization and thresholding

2. Spatial filtering

Filters are used to enhance specific image characteristics such as sharpness, smoothness or local contrast by combining gray-level values in a small sliding window around every pixel.

mvIMPACT Base supports a complete range of linear and non-linear neighborhood operators, including

general convolutions and rank filters.

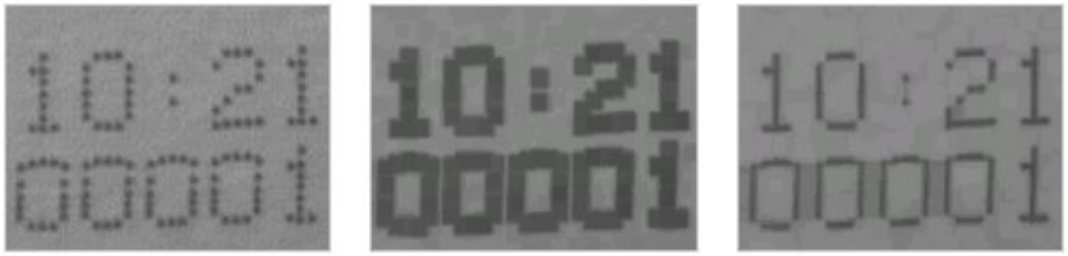


Edge detection in noisy conditions

3. Mathematical morphology

Further image transforms act on the shape of image features and help improve specific properties such as connectivity: erosion, dilation, opening, closing, thinning, thickening.

Other modifications are related to the segmentation of images to form regions: labeling, watershed, hole filling...



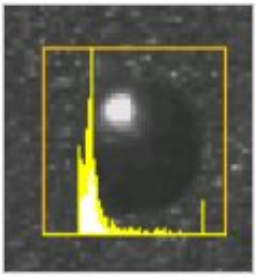
Connectivity improvement on dot printed characters

4. Global operations

At the other end of the spectrum, you will find yet many other possibilities such as

- **Gray-level statistics**: to achieve classification from histogram analysis,
- **Geometric transforms**: for realignment or unwarping purposes,
- **Frequency domain processing**: for sophisticated linear filtering.

Usually, processing applies to whole images. The Base module supports processing on smaller areas called Objects Of Interest, such as rectangles, line segments, freehand curves, isolated points...



Pin one detection and realignment

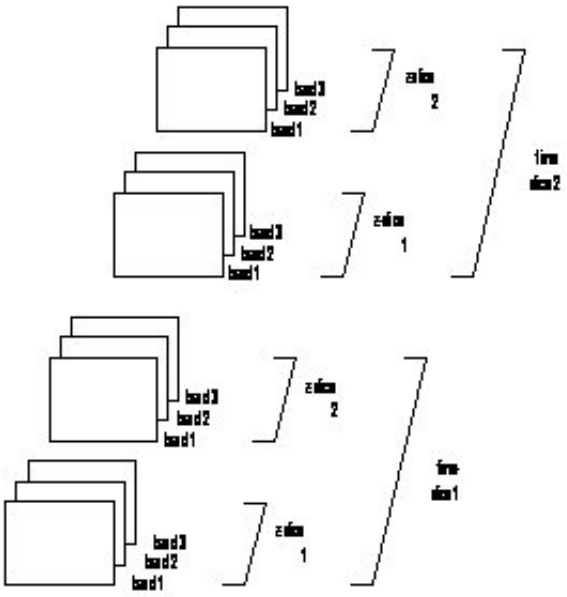
Technical issues

Image Storage organization

All common file formats as well as user-defined ones are supported.

Other data structures such as sub-images, profiles, lookup tables or histograms are also managed by mvIMPACT Base and have corresponding display utilities. Multithread-safe operation with appropriate memory access arbitration is provided, as well as event-driven interaction with the GUI.

All acquisition modes supported by the hardware such as live sequence recording, frame integration, on-the-fly shading correction, background subtraction, and the like can be driven by the software.



Integration of proprietary functions

Proprietary image processing functions integrate seamlessly with mvIMPACT. Full access to the image buffers are provided through appropriate pointers.

In addition, proprietary mvIMPACT extension modules can be produced. An example project for this is provided.

Debugging support

All mvIMPACT functions generate status messages, which can be traced, filtered or stored in a file. A specific tracing utility is provided.

Datasheets

mvIMPACT 3D Display | 46.8 kB

Datenblatt / Datasheet mvIMPACT 3D Display

mvIMPACT Barcode | 101.8 kB

Datenblatt / Datasheet mvIMPACT Barcode

mvIMPACT Base | 277.5 kB

Datenblatt / Datasheet mvIMPACT Base

mvIMPACT Blob | 103.9 kB

Datenblatt / Datasheet mvIMPACT Blob

mvIMPACT Color | 75.6 kB

Datenblatt / Datasheet mvIMPACT Color

mvIMPACT Data Matrix | 56.2 kB

Datenblatt / Datasheet mvIMPACT Data Matrix

mvIMPACT Focus | 126.4 kB

Datenblatt / Datasheet mvIMPACT Focus

mvIMPACT GMM | 85.5 kB

Datenblatt / Datasheet mvIMPACT Geometric Model Matcher

mvIMPACT Match | 145.9 kB

Datenblatt / Datasheet mvIMPACT Match

mvIMPACT Measure | 60.5 kB

Datenblatt / Datasheet mvIMPACT Measure

mvIMPACT OCR | 93.2 kB

Datenblatt / Datasheet mvIMPACT OCR

mvIMPACT e 2012-04 MR | 509.7 kB

Datenblatt / Datasheet mvIMPACT

Manuals

To be able to watch or download the manuals, you have to be registered or logged in.

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mvIMPACT Release / Beta for Windows XP, Vista, 7

You can evaluate mvIMPACT SDK for 30 days free of charge once. Afterwards, you will need a licence! If you are using a dongle for licensing mvIMPACT, you have to use the latest USB dongle in combination with the 64bit version!

mvIMPACT-6.8.461.6555-19823-x64 | 136,196.0 kB

mvIMPACT SDK 64 Bit **Release** Windows (XP, Vista, 7 / .NET 4.0 compliant, MSI, SDK Version 6.8.461.6555)

mvIMPACT-6.8.461.6555-19823-x86 | 131,760.0 kB

mvIMPACT SDK 32 Bit **Release** Windows (XP, Vista, 7 / .NET 4.0 compliant, MSI, SDK Version 6.8.461.6555)

mvIMPACT Nightly Builds for Windows XP, Vista, 7

Nightly builds are tested exemplarily and should be tested by oneself before use!

mvIMPACT-6.8.1148.7242-20516-x64 | 125,276.0 kB

mvIMPACT SDK **Nightly Build** (64 Bit, Build , Windows XP, Vista, 7)

mvIMPACT-6.8.1148.7242-20516-x86 | 121,328.0 kB

mvIMPACT SDK **Nightly Build** (32 Bit, Build , Windows XP, Vista, 7)

mvIMPACT packages for mvBlueLYNX-X

mvIMPACT-6.8.461.6555-19823-armv7a.tgz | 24,012.6 kB

mvIMPACT (SDK Version 6.8.461.6555)

mvIMPACT Release Notes | 52.8 kB

Stable feed:

- http://beta.matrix-vision.com/mvblx-feed/stable/ipk/glibc/armv7a/base/

mvIMPACT IPK packages for mvBlueLYNX

- http://beta.matrix-vision.com/nightly_builds/
- Description of the packages

USB dongle driver for Windows XP, Vista, 7

- HASP driver (new dongle; external link)
- Hardlock driver (old dongle; external link)

Subject to change without notice, Date 11/2011

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