Deep Learning Approaches in Microscopy with VisiView® Imaging Software

Deep learning using convolutional neural networks in microscopy applications opens up a new dimension in pattern recognition, image enhancement and object segmentation where classical methods come to their limits.
We are excited to share this new VisiView feature with scientists in life science research. Even where the human eye reaches its detection limits, the AI technology outperforms the traditional image analysis by improving resolution and segmentation.

VisiView® App

AI - Artifical Intelligence Options

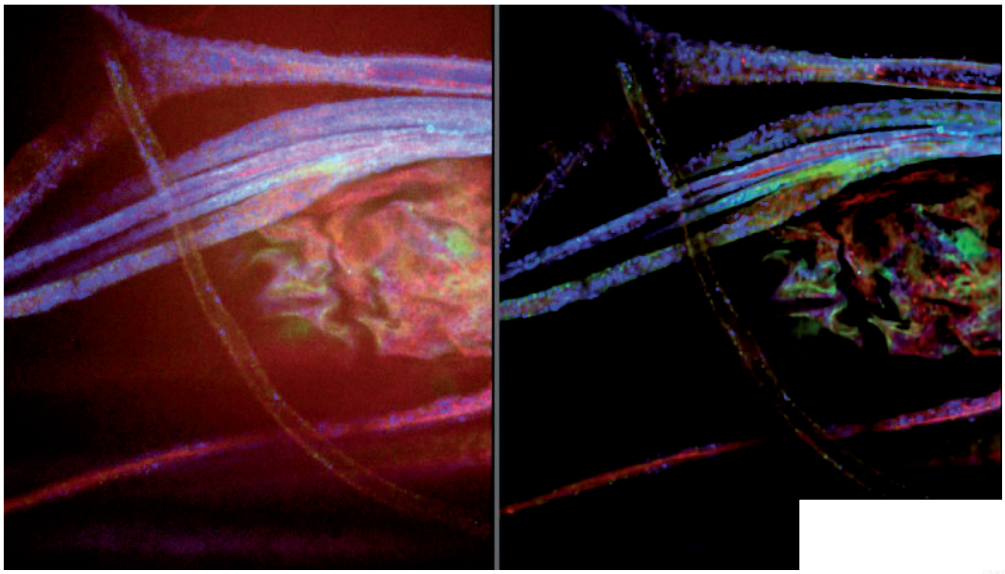
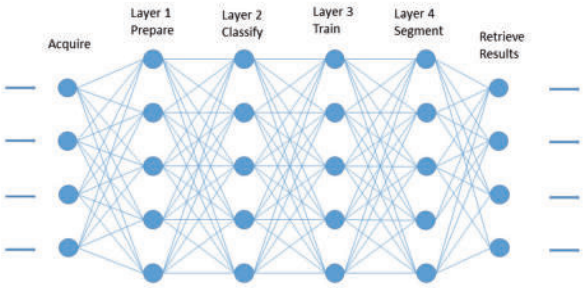


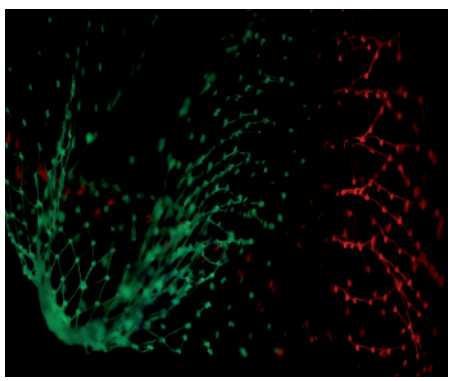
Figure 1: Multicolor Drosophila Embryo



VisiView® AI Artifical Intelligence Filter Option

Pre-trained neuronal models for image enhancement:

- Denoise - removes noise from fluorescent images
- Restore details from underexposed images
- Accurate and Efficient
- GPU acceleration



Typical problems in quantitative image analysis are variations in background, contrast, labelling, brightness, resolution etc.. The VisiView AI filters and segmentation options facilitates improving your quantification, accuracy and efficiency.

VisiView® App

AI - Artifical Intelligence Options

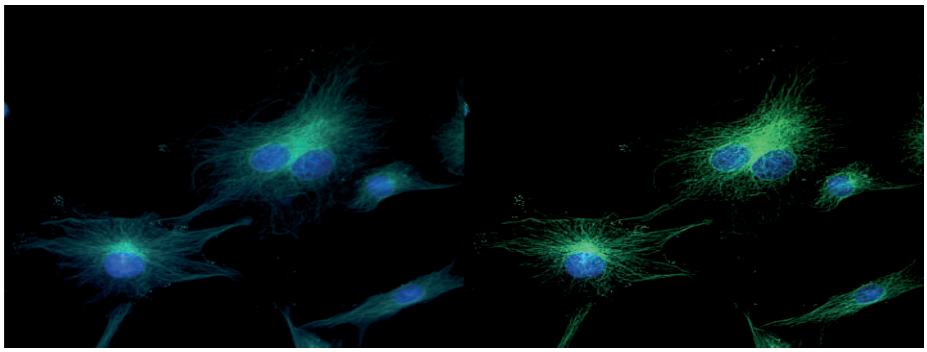
VisiView® AI Artifical Intelligence Option

The VisiView AI is imbedded in the multidimensional processing and object analysis module.

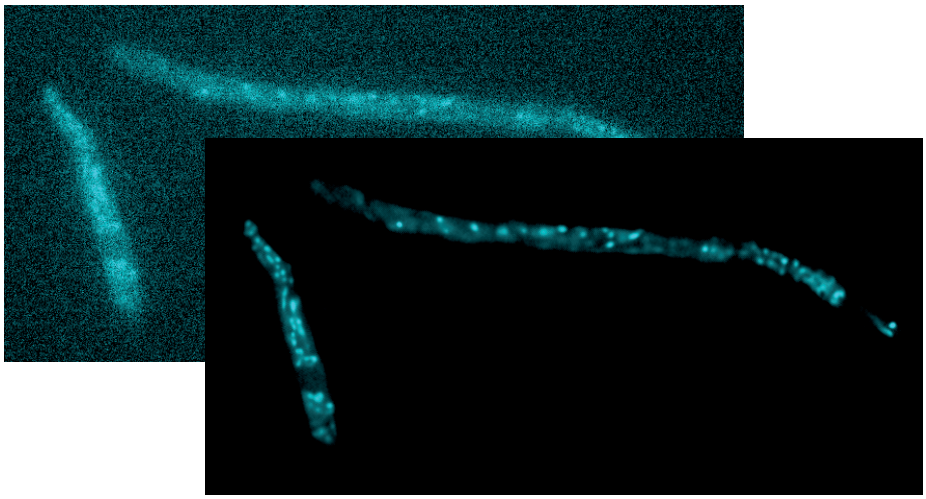
„AI Image Restoration“:

Pre-trained AI Image Filters for Denoising, Debluring and Image Enhancement.

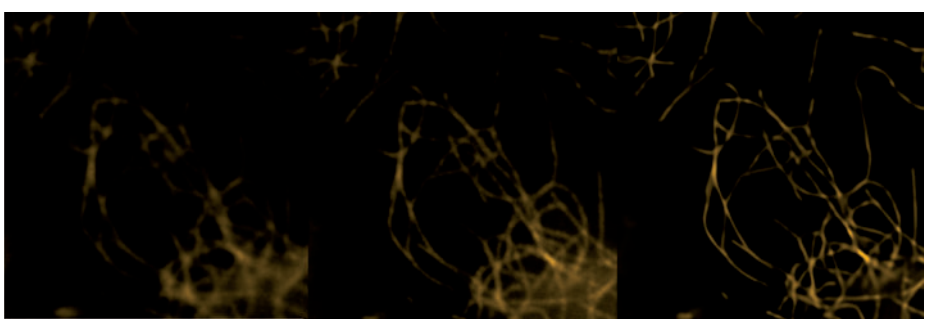
Enhance
- restore details from image



Denoise
- remove noise from image



Increase resolution



Easily train your own models that do segmentation for object analysis

- » Segment some images of your series manually to train the network
- » Run a training phase with some evaluation images
- » Apply the trained neuronal model to your data set.

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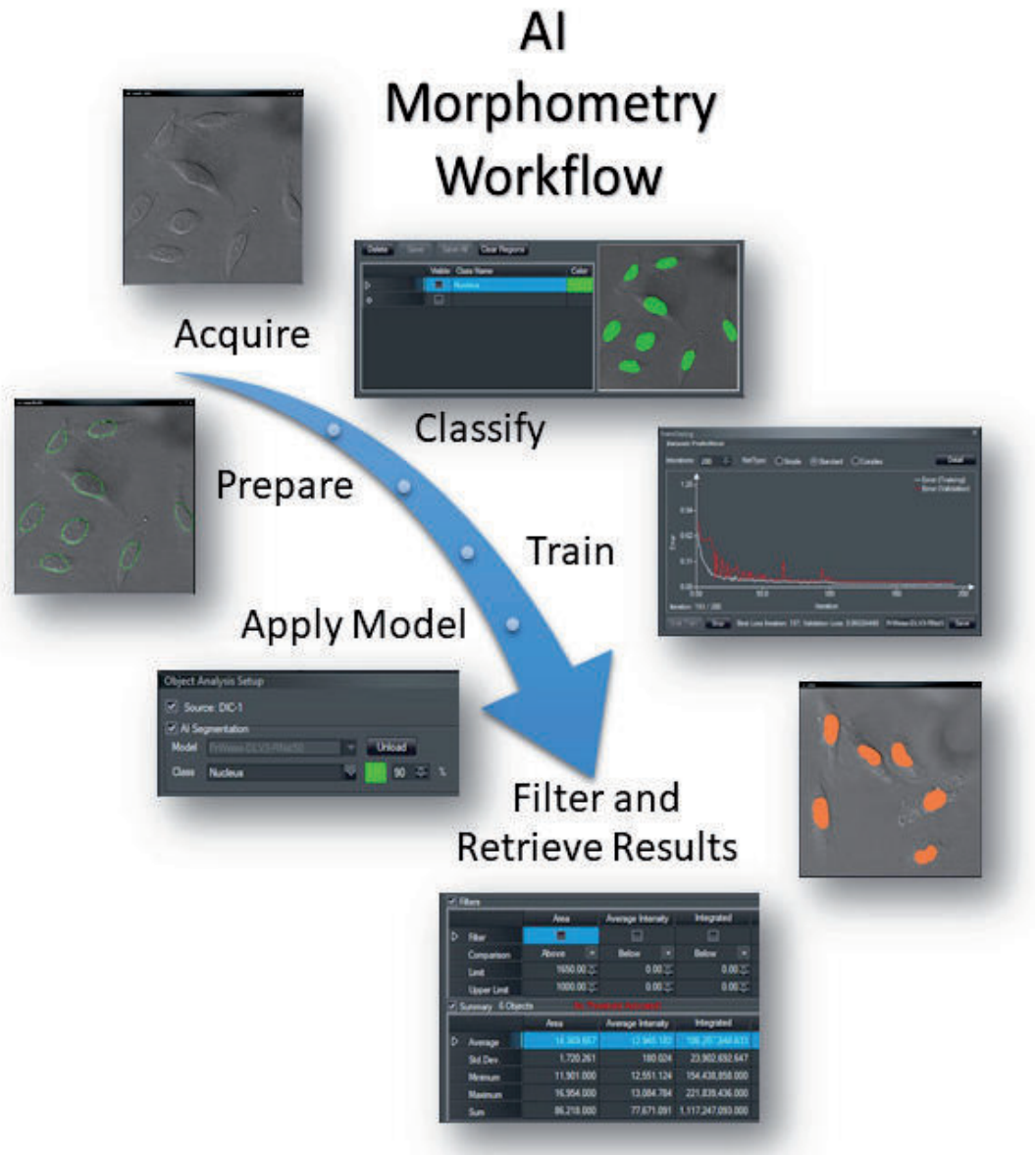

New VisiView 6.0 Features

„AI Morphometry“:

- trainable AI moduls for automated segmentation and morphometry, requires the object analysis option.

“Sample Scanner”:

- large scale sample preview and graphical stage navigation. Pre-selection of custom regions for tile scanning. High scan speed and precision thanks to “ViFoc-Adapt” focusing technology. It requires the Scan Slide option.

“Connection Windows”:

- clear arrangement of connected images. Simplified and advanced Image Overlay.

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AI - Artifical Intelligence Options

VisiView® AI Artifical Intelligence Option

VisiView® dialog AI filters, training funtions and graph with learning curve.