

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 - Artificial Intelligence Options

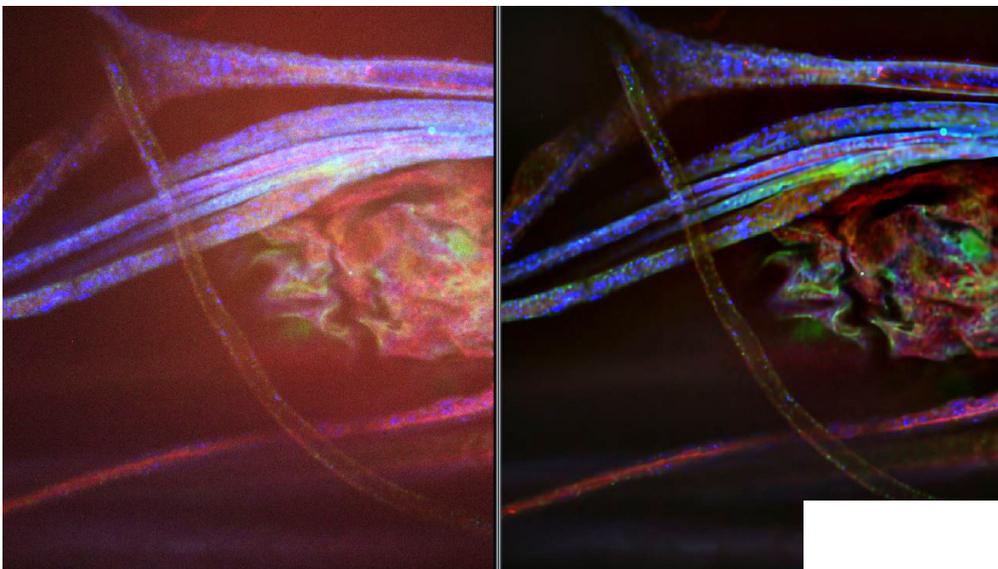


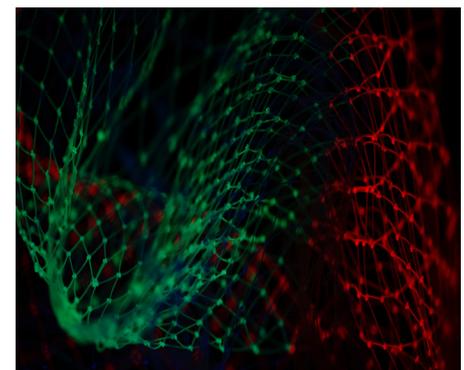
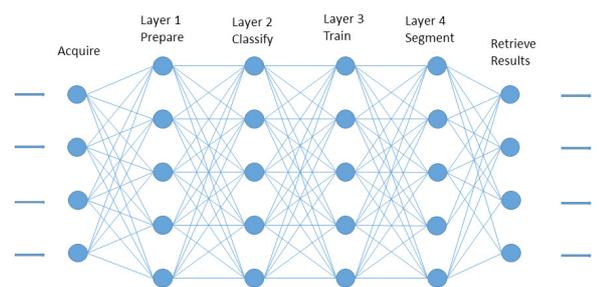
Figure 1: Multicolor Drosophila Embryo

VisiView® AI Artificial 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 - Artificial Intelligence Options

VisiView[®] AI Artificial Intelligence Option

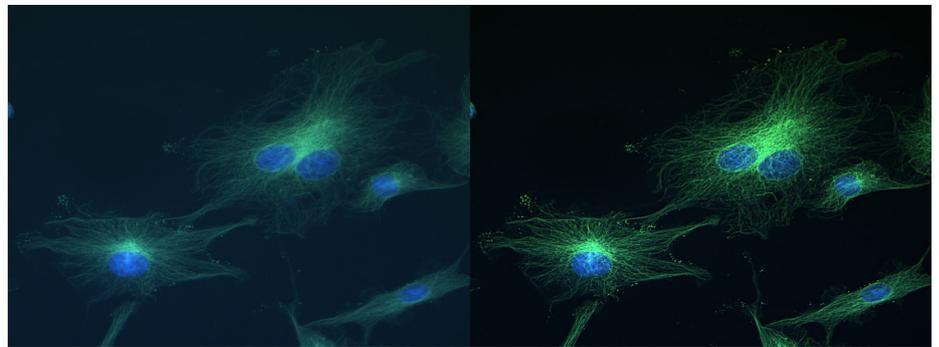
The VisiView AI is imbedded in the multidimensional processing and object analysis module.

„AI Image Restoration“:

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

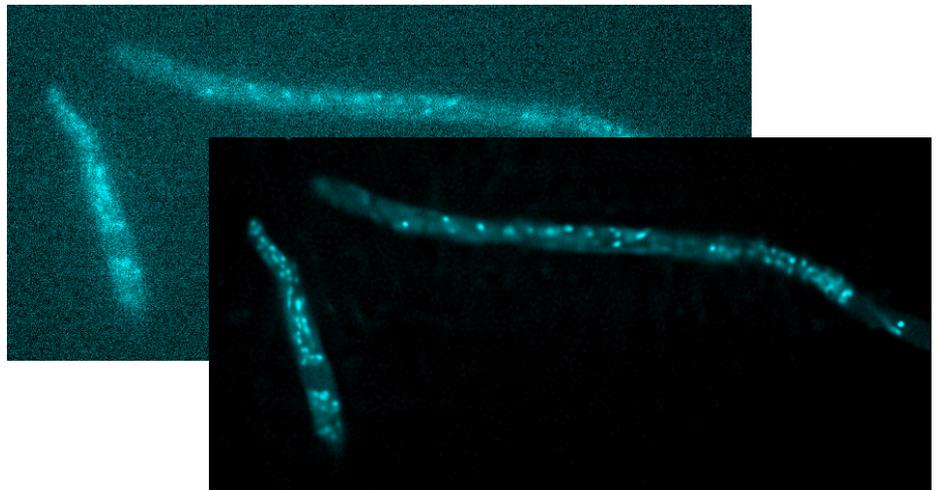
Enhance

- restore details from image

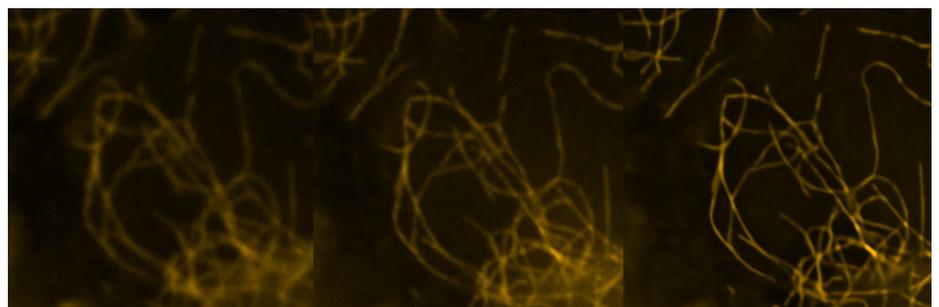


Denoise

- remove noise from image



Increase resolution

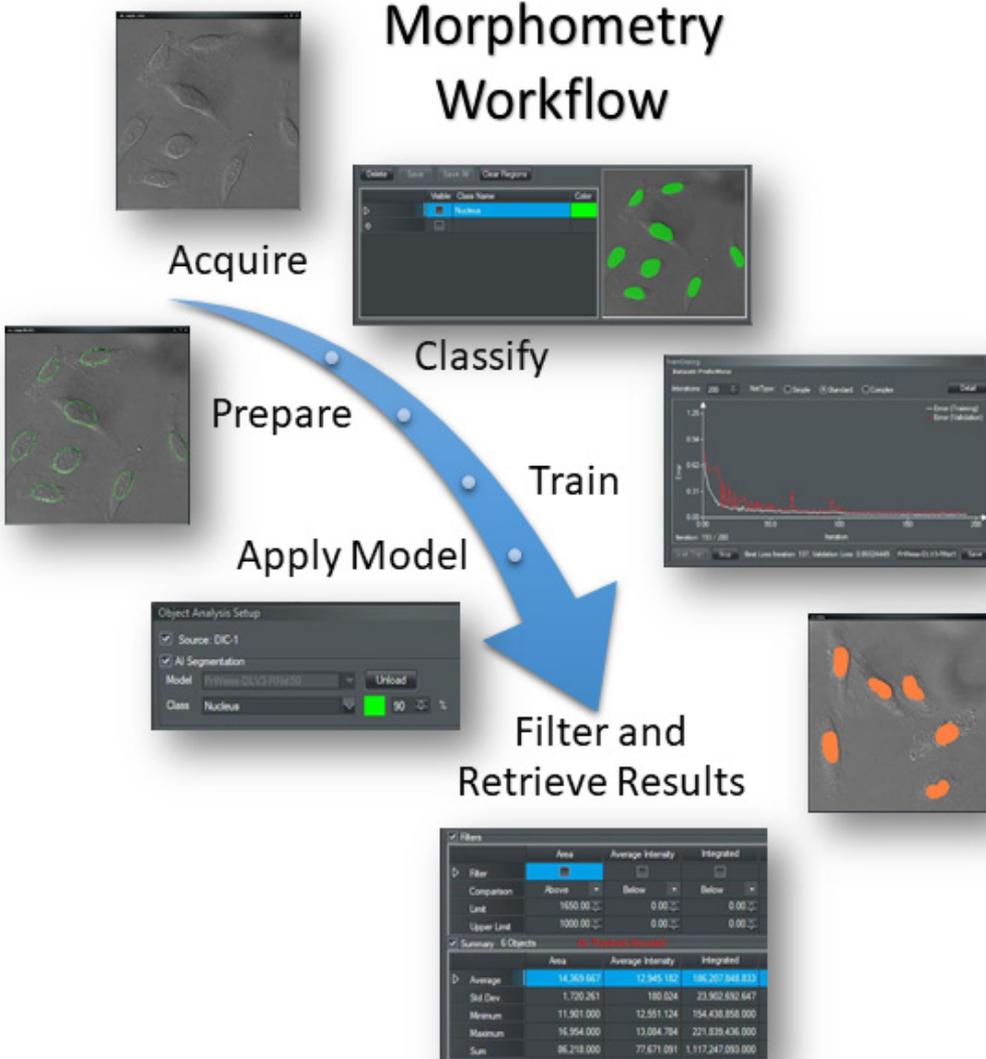


Easily train your own models that do segmentation for object analysis

- » 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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AI Morphometry Workflow



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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VisiView® AI Artificial Intelligence Option

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

