

NeuroDeblur™



The highest performance deconvolution software – at a reasonable price

NeuroDeblur is the premier deconvolution and artifact removal software for improving the visual quality of large 3D microscopy datasets. It supports a wide range of microscopy modalities, including light sheet, laser scanning confocal, spinning disc confocal, two-photon, widefield fluorescence, and brightfield. NeuroDeblur uses the most advanced algorithms and GPU acceleration to produce images that are clearer than the raw images obtained by the microscope.

Key Benefits

- GPU-accelerated deconvolution produces clear images on large light sheet images in minutes rather than hours, and works with most NVIDIA graphics cards, even on the largest light sheet data sets.
- Statistically rigorous image restoration at an affordable price, supporting popular imaging modalities like light sheet, confocal, spinning disk, and widefield microscopy.
- Excellent deconvolution results without the need to measure the imaging system's point spread function (PSF), along with sophisticated adaptive image background removal and stripe-artifact removal for light-sheet microscopy data.

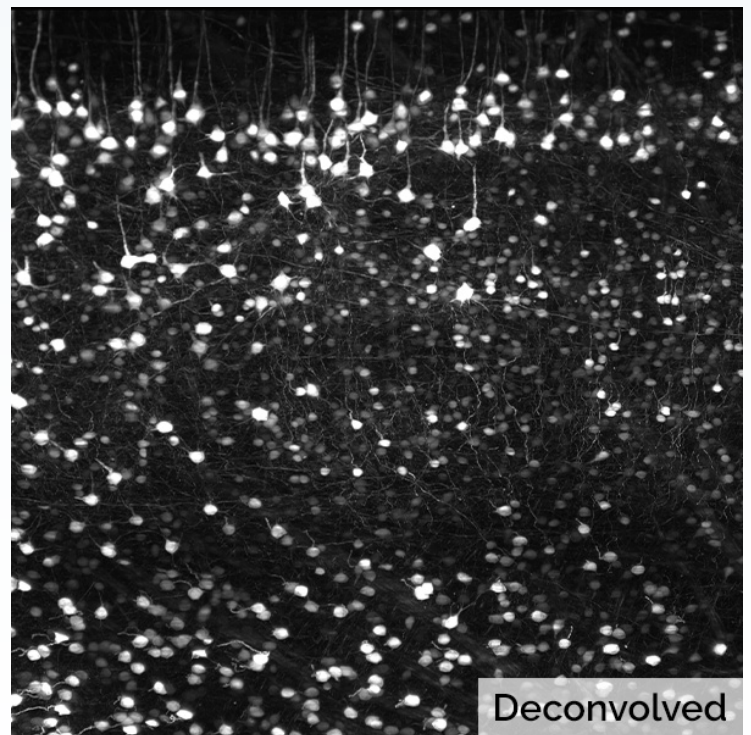
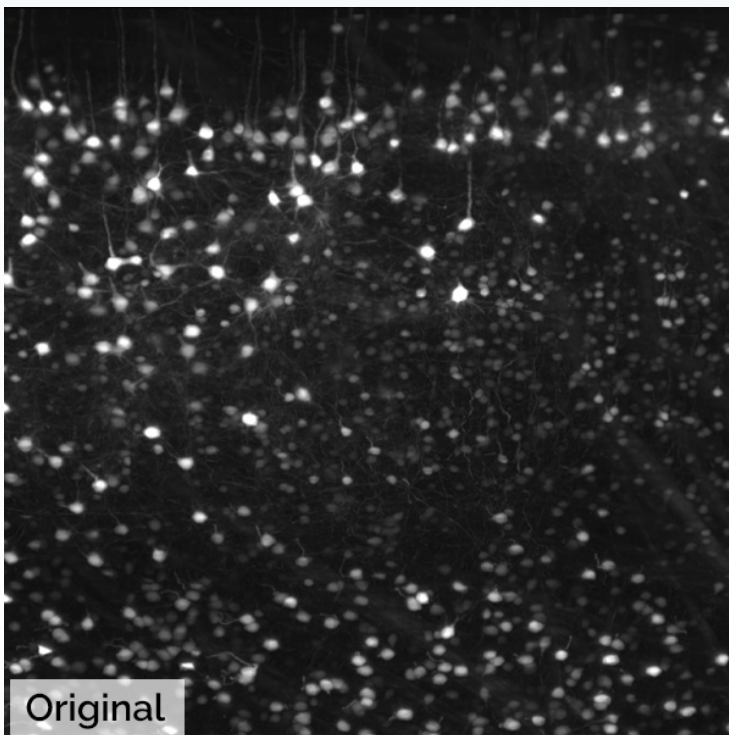


Image on left acquired on ClearScope light sheet microscope. Image on right deconvolved using NeuroDeblur. Transgenic mouse brain expressing eGFP under control of the Thy-1 promoter show in a maximum intensity projection. The brain was cleared using Binnere Rapid Tissue Clearing; the 3D image was acquired at 10x magnification using 488 nm excitation lasers.

NeuroDeblur significantly enhances the visibility of intricate details of cells such as neurons, glia and subcellular structures, such as axons and dendritic spines. The software offers non-blind deconvolution with a synthetic point spread function (PSF) optimized for each imaging mode, as well as the option to use a measured PSF.

By leveraging parallelization and optional GPU acceleration on NVIDIA graphics cards, NeuroDeblur achieves remarkable processing speeds. A 3D stack containing 1 billion voxels can be deconvolved in under 5 minutes. This powerful combination of advanced features and efficient performance makes NeuroDeblur an indispensable tool for researchers seeking to unravel the intricacies of microscopic structures with unprecedented clarity and speed.

NeuroDeblur is engineered by experts in microscopy and deconvolution to produce optimal results from a wide array of microscopes. Even images from the best microscopes can be further improved using NeuroDeblur.

NeuroDeblur contains the following important features:

- Excellent deconvolution results with light sheet and confocal microscopy without or without PSF measurements
- Powerful adaptive background artifact correction
- Fast multiprocessor aware deconvolution with excellent regularizing for noise minimization
- Ultra-fast GPU based processing with modern Nvidia graphic cards (> 200 million voxels/min)
- Automatic block-wise processing of large data sets, even on computers with limited RAM
- Process select ROIs and color channels of proprietary 4D- or 5D-input formats (e.g. Zeiss, Evident, Leica, etc)
- Optimize the display of deconvolved results via additive and subtractive color channel mixing
- Image post-processing by adaptive histogram equalization (CLAHE) and unsharp masking
- Stripe-artifact removal for light-sheet microscopy data
- Sophisticated adaptive image background removal algorithm
- Easy to use GUI with 3D visualization
- Batch deconvolution for building an automated imaging workflow pipelines

Learn more at: mbfbioscience.com/products/neurodeblur



About MBF Bioscience

A rich history of creating the future of neuroscience.

MBF Bioscience is a leader in neuroscience research technology. We develop cutting-edge tools that enable scientists to collect and analyze data from fixed tissue and living organisms with high precision and accuracy. This data helps scientists understand brain diseases and processes at the system, cellular, and subcellular levels.

Our products have been used in over 17,000 peer-reviewed papers.

What our customers say

“ We’ve been very happy for many years with MBF products and the course of upgrades and improvements. Your service department is outstanding.
William E. Armstrong, Ph.D.
University of Tennessee

“ MBF Bioscience is extremely responsive to the needs of scientists and is genuinely interested in helping all of us in science do the best job we can.
Sigrid Veasey, M.D.
University of Pennsylvania