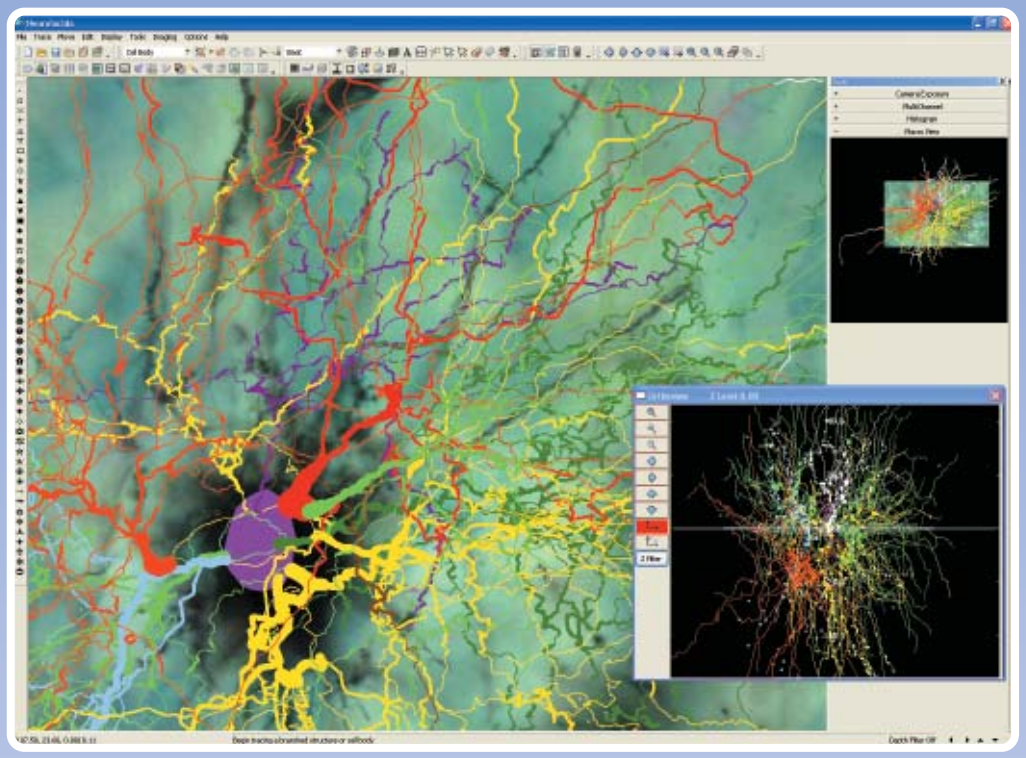
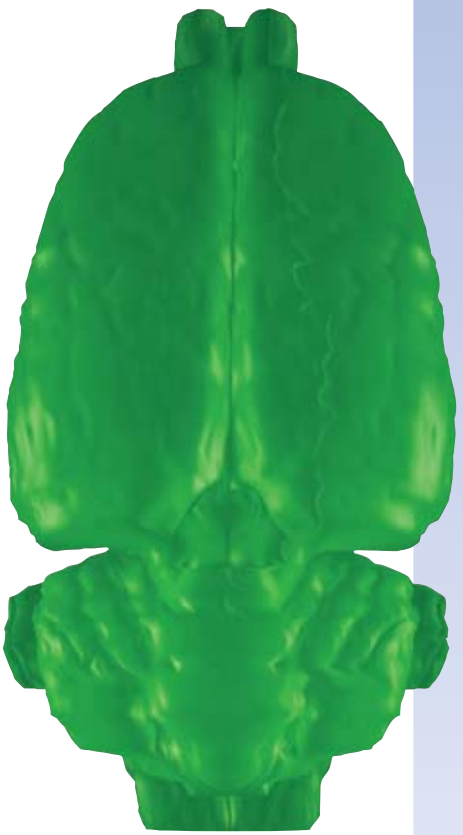
Neurolucida®

SYSTEM FOR NEUROANATOMICAL ANALYSIS

MicroBrightField, Inc.

Neuroanatomical analysis system for neuron tracing, 3D mapping, image analysis and morphometry





NEUROLUCIDA BENEFITS

Powerful analysis tools bring comprehensive quantitative morphometry to your lab, providing accuracy, efficiency, value, and results in a versatile sytem that can handle your research needs.

Precision: Easy to use interface for rapid results. Acquire data through multiple Z levels, capturing the full 3D extent of neurons and brain regions. Neurolucida automatically moves the microscope stage as you work, and records each data point in 3D space.

Full Morphometric Analysis: Neurolucida and Neurolucida Explorer, its companion program, provide automatic analysis of hundreds of quantitative parameters – complicated 3D anatomical features are thoroughly analyzed. Quickly export results to standard document formats for publication.

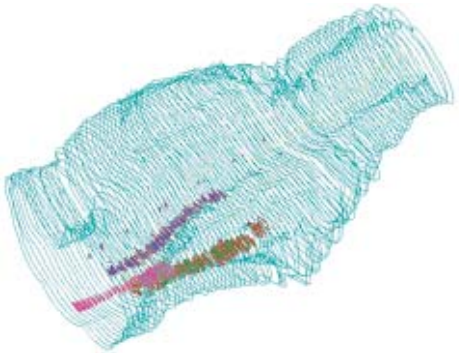
Versatility and Value: Neurolucida meets your research needs, no matter how diverse. Our systems support live digital video and acquired images from multiple image modalities, such as brightfield, fluorescence, confocal, and MRI. Neurolucida works with virtually any research microscope.

Proven Results: Neurolucida is the recognized leader in neuroanatomical analysis tools. Hundreds of researchers trust Neurolucida for their research and publication needs – we are the proven source for neuroanatomical analysis.

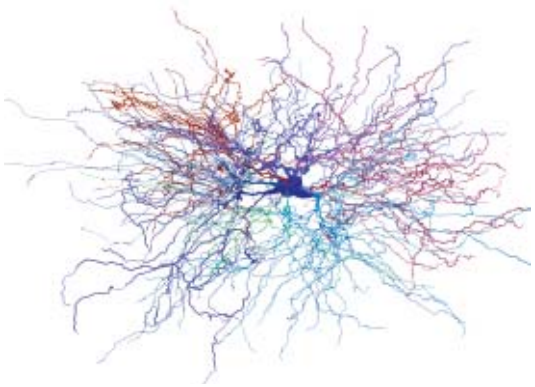
Outstanding Customer Support: MBF has been successfully providing our expertise, training, and support to researchers worldwide for over 18 years. Our Live Remote Control support is used to diagnose problems remotely and keep your system running smoothly.

tel 1.802.288.9290 **email** info@mbfbioscience.com **web** www.mbfbioscience.com

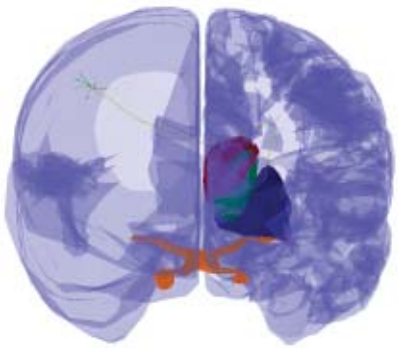
MBF offers systems fully-integrated with your research microscope



Reconstruction created from serial sections



A complex neuron reconstructed from multiple sections



3D representation and visualization of anatomical structures

ABOUT NEUROLUCIDA

Neurolucida is advanced scientific software for performing brain mapping, neuron tracing, anatomical mapping, and morphometry. Neurolucida has the flexibility to handle data in many formats: using live images from digital or video cameras; stored image sets from confocal microscopes, electron microscopes, and scanning tomographic sources, or through the microscope oculars using our patented Lucivid™. Neurolucida controls a motorized XYZ stage for integrated navigation through tissue sections, allowing for sophisticated analysis from many fields-of-view. Neurolucida's Serial Section Manager integrates unlimited sections into a single data file, maintaining each section in aligned 3D space for full quantitative analysis.

Neurolucida's neuron tracing capabilities include 3D measurement and reconstruction of branching processes. Neurolucida also features sophisticated tools for mapping — delineate and map anatomical regions for detailed morphometric analyses.

Neurolucida uses advanced computer-controlled microscopy techniques to obtain accurate results and speed your work. Plug-in modules are available for confocal and MRI analysis, 3D solid modeling, and virtual slide creation.

>> www.neurolucida.com

SELECTED FEATURES

Tracing Neurons

- Trace and classify spines, boutons and varicosities
- Use circular cursor to set branch diameter
- Automatic serial section alignment procedures
- Depth measurement automatically performed while focusing
- Automatic return to branch points assures complete tree tracing

Anatomical Mapping

- Fifty marker types for specifying distinctive objects
- Macro View window shows whole tracing for orientation and navigation
- Double, triple, and quadruple marker labeling
- Cytoarchitectonic atlasing
- Correct for tissue shrinkage

Image Processing and Analysis Features

- Images maintained in 3D space
- Background correction for illumination irregularities
- Convolution, transformation and edge detection filters
- Switch between live and stored images
- Adjust image transparency
- Automatic object detection
- View and analyze virtual slides over the internet

Editing

- Insert missed points, branch points and spines
- Create sets of anatomical objects

Morphometric Analysis

- Tree analysis, including length, number, volume, surface area, and spine distribution
- Perimeter, area, volume, and surface area of anatomical regions
- Branch order analysis
- Analysis by cellular layer
- Spine and bouton density distributions
- Enhanced Sholl analysis
- Dendrogram analysis

Hardware Integration

- Flexible hardware support for all research microscopes
- Use with brightfield, fluorescence, confocal, EM, and MRI
- Stage movement synchronized with tracing data
- Current focal depth always indicated
- Integration with fluorescence filterwheel
- Lens calibration system with automatic parcentric and parfocal correction
- Multiple digital and video cameras supported

Cell Analysis

- Distribution, size, shape, and more
- Nearest Neighbor analysis
- Double label analysis

Visualization Features

- Dynamic 3D visualization
- Publication quality output

"Our system worked almost every day for the last eight years with no major failure (we published more than 15 papers using Neurolucida). A terrific machine!"

— Ferdinando Rossi

Visit **www.neurolucida.com** for a complete list of more than 300 features.