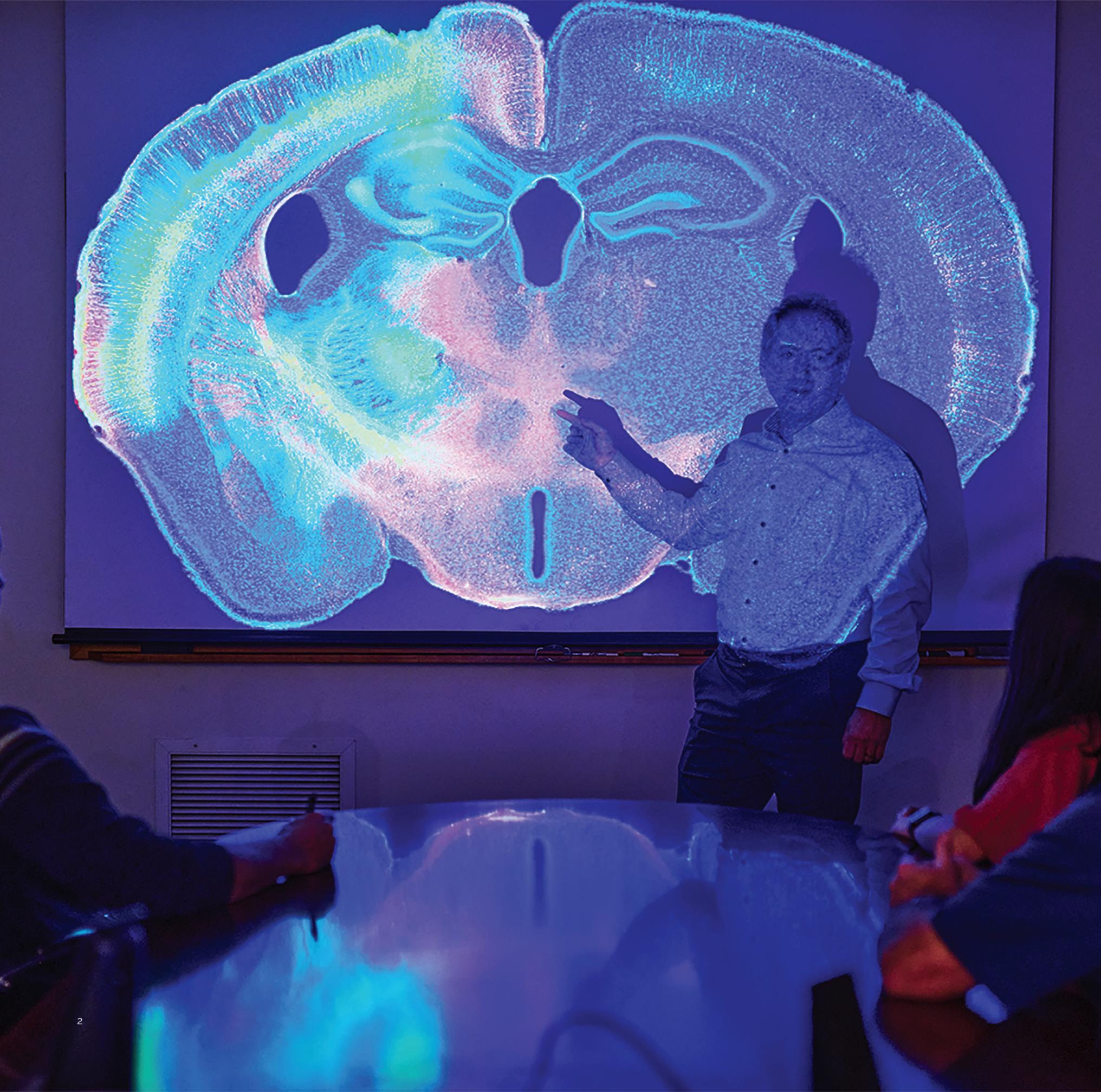




## Product Catalog

Solutions that provide life science researchers with tools for advanced microscopy, quantitative microscopy and big image data management.



## Introduction to MBF Bioscience

### About Us

We're a family-run company that's a world leader in developing cutting edge technology and providing life science researchers with advanced software and hardware for microscopy. Each system we provide is configured based upon an individual researcher's needs and is fully supported by our team of scientists and technical specialists.

### A Family Commitment

Our CEO, Jack Glaser co-founded the business with his father, whose pioneering scientific work and vision for innovative engineering and rigorous quantification of microscopic structures, set the framework of the company's mission. This isn't just a business, it's a lifelong commitment on behalf of the Glaser family to helping scientists achieve new discoveries.

### Recognized in More Than 17,000 Scientific Citations

Our systems have helped scientists make discoveries for over 30 years. Recently, a reviewer at the NIH commented, "MBF Bioscience has been a source of major contributions to neuroscience for decades." Our proven track record shows you can trust us to help make a high impact with your research.

**We look forward to supporting future waves of life science research discoveries and insights.**

## Table of Contents

Our product line can be seen in six categories, as outlined below. Please browse through our brochure and use the QR codes to learn more information from our website.

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- 03.** Multi-Photon Microscopy Solutions **p.13**
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# 01. Software Applications Providing Quantitative Analysis for Advanced Bioscience Research

Our products are used across the globe by the most prestigious laboratories.



## NeuroLucida® 360

The most advanced software for automatic 3D neuron reconstruction

### Key Features

- ✓ Create accurate, quantifiable neuron reconstructions automatically
- ✓ Classify axons, dendrites, somas, dendritic spines, varicosities, putative synapses and types of puncta
- ✓ Use comprehensive editing tools on the most challenging specimens to create the most accurate reconstructions and ground truth data
- ✓ Work with the most advanced AI and algorithms for accurate detection and segmentation
- ✓ Perform dynamic 3D visualization and exploration
- ✓ Produce reliable, open, FAIR data with methods trusted by the neuroscience community



## NeuroInfo®

Performs brain-wide analyses that are standardized to reference brain atlases

### Key Features

- ✓ Works with 2D whole-slide images and 3D images of intact specimens from confocal and light sheet microscopes
- ✓ Automatically aligns image data to the Allen Mouse Brain atlas and the Waxholm Rat Brain Atlas
- ✓ Detect cells and objects using deep learning approaches
- ✓ Produces data that is standardized, documented, and repeatable
- ✓ Brings the approach of big science investigations to all neuroscience laboratories
- ✓ Automation and easy-to-use workflows greatly improve workflow efficiency, with no programming required. Set it and forget it.



## Vesselucida® 360

Automatically reconstruct microvascular networks

### Key Features

- ✓ Fully reconstruct complete microvascular structures quickly and accurately
- ✓ Quantify changes in vasculature across models and cohorts
- ✓ Use a wide array of imaging techniques including light sheet and micro-CT
- ✓ Use comprehensive editing tools on the most challenging specimens to create the most accurate reconstructions and ground truth data
- ✓ Work with the most advanced AI and algorithms for accurate detection and segmentation





### BrainMaker®

Automatically align serial sections to visualize brains in 3D

#### Key Features

- ✔ Create easy-to-visualize 3D image volumes from series of serial sections
- ✔ Control the reconstruction process as much or as little as desired using an intuitive workflow
- ✔ Start with almost any whole-slide image format; most are supported
- ✔ Dynamically visualize reconstructions as a 3D volume, sliced image, or multiple projections
- ✔ Save to an open and FAIR file format for easy collaboration



### Stereo Investigator®-Cleared Tissue Edition

The gold standard in unbiased stereology for use on cleared tissue

#### Key Features

- ✔ Perform accurate unbiased stereology on cleared tissue of intact specimens or thick slabs
- ✔ Use stereology probes specifically designed for analyzing cleared tissue
- ✔ Intuitive workflows make it easy to learn and use
- ✔ Unbiased quantification of cell number, fiber length, areas and volume of anatomic regions
- ✔ Compatible with all tissue clearing techniques
- ✔ Works with big image data from most light sheet and confocal microscope imaging systems



### Stereo Investigator®-Whole Slide Edition

Unbiased stereology for whole-slide images

#### Key Features

- ✔ Gold standard in unbiased stereology
- ✔ Quantifies number, length, volume and area of cells, structures and regions
- ✔ Specifically designed for analyzing large whole-slide images
- ✔ Integrates seamlessly with Biolumina, our cloud image serving platform
- ✔ Intuitive design makes it easy to learn and use
- ✔ Compatible with 2D whole slide images from most slide scanners and image acquisition systems



### MicroDynamix®

Tracking and analysis of dendritic spine motility in high resolution repeated imaging experiments

#### Key Features

- ✔ Automatically detects morphological changes in dendrites and spines in complex 3D images
- ✔ Provides robust quantitative information about the dynamics of dendritic spines
- ✔ Aligns 3D images from different time points, even with different spatial orientations
- ✔ Visualize multiple time points using 4D display techniques
- ✔ Comprehensive manual editing tools to accurately analyze even the most complex images



### TissueMaker®

Automatically align serial sections and visualize an entire 3D organ

#### Key Features

- ✔ Create easy-to-visualize 3D volumes from series of sections
- ✔ Control the reconstruction process as much or as little as desired using an intuitive workflow
- ✔ Start with almost any whole-slide image format; most are supported
- ✔ Visualize reconstructions as a 3D volume, sliced image, or multiple projections
- ✔ Save to an open and FAIR file format for easy collaboration



### Tissue Mapper®

Comprehensive annotation and delineation tool used for mapping tissue structures

#### Key Features

- ✔ Populate custom anatomy lists for comprehensive annotation
- ✔ Quickly delineate and annotate histological sections
- ✔ Automatically outline periphery of histological sections
- ✔ Map anatomical features
- ✔ Visualize completed annotations in 3D
- ✔ File format is open and FAIR allowing for easy collaboration





### Cellairus®

Automatic, accurate, unbiased, high-throughput cell quantification in histological specimens

#### Key Features

- ✔ Deep learning algorithms provide accurate, unbiased, and robust results
- ✔ Work with single and multi-channel fluorescence microscopy
- ✔ Detect co-localized labels using cellular and sub-cellular markers
- ✔ Substantially faster than manual stereology – do more work in less time
- ✔ More accurate than ad hoc 3D detection methods



### NeuroLucida® Explorer

The analytical companion for NeuroLucida and NeuroLucida 360 designed to perform extensive morphometric analysis

#### Key Features

- ✔ Sophisticated tool for neuroanatomical morphometric analyses
- ✔ Trusted, validated, accurate, reliable, and reproducible results
- ✔ Easily generate and export quantitative data
- ✔ Graphical 3D displays for dynamic visualization
- ✔ Generate publication-ready figures
- ✔ Multi-file processing with batch analysis tools



### Vesselucida® Explorer

The analytical companion for Vesselucida 360 designed to perform extensive morphometric analysis

#### Key Features

- ✔ Sophisticated tools for vascular morphometric analyses
- ✔ Trusted, validated accurate, reliable, and reproducible results
- ✔ Easily generate and export quantitative data
- ✔ Graphical 3D displays for dynamic visualization
- ✔ Generate publication-ready figures of vascular models
- ✔ Multi-file processing with batch analysis tools



## 02. Integrated Systems of Software and Microscope Hardware for Quantitative Analysis and Advanced Microscopy

Our products are used across the globe by the most prestigious laboratories.



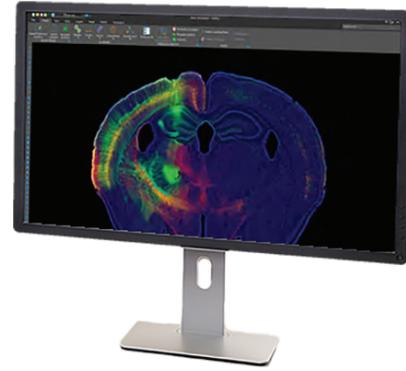


### NeuroLucida®

Neuron tracing & analysis directly on the microscope. The gold standard for neuron tracing

#### Key Features

- ✓ Creates highly accurate 3D neuron reconstructions
- ✓ Trace directly on a microscope without the need for acquiring large image files
- ✓ Get started quickly with the intuitive, easy-to-use NeuroLucida interface
- ✓ Seamlessly controls dedicated microscope hardware for efficient neuroanatomical data and image acquisition using brightfield, darkfield and multi-channel fluorescence



### Stereo Investigator®

The complete stereology solution. The world's most widely cited system for unbiased cell counting

#### Key Features

- ✓ Perform accurate, unbiased quantification of cells, fibers, capillaries, and any large or small biological structures
- ✓ Work directly on a microscope or acquire images for off-line analysis
- ✓ Use software workflows that simplify the use of complex stereological probes
- ✓ Cover all your research microscopy needs, including brightfield, darkfield and fluorescence microscopy using one of our flexible systems



### Vesselucida®

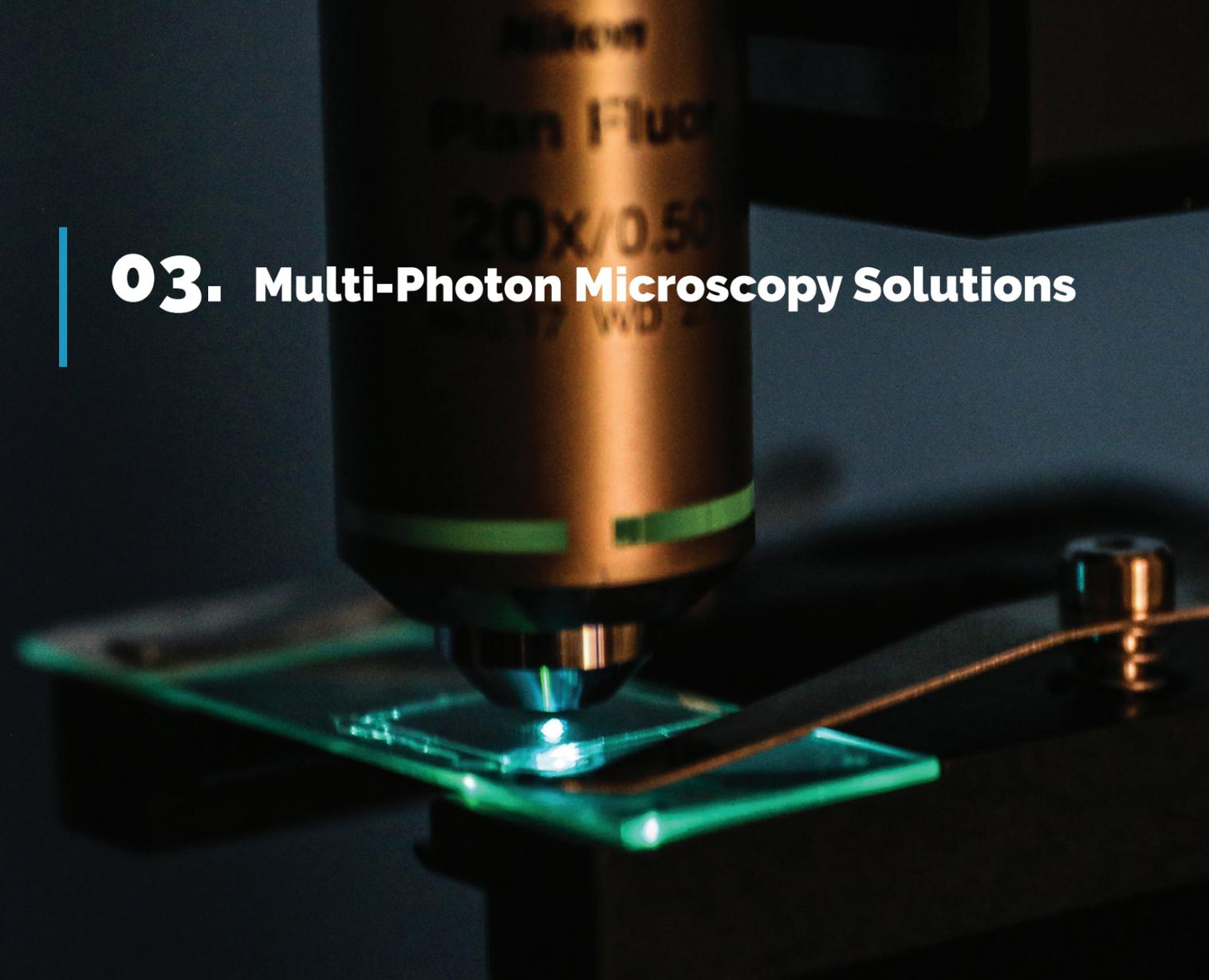
Reconstruct and analyze microvascular networks

#### Key Features

- ✓ Reconstruct accurate 3D microvascular structures quickly
- ✓ Conduct dozens of quantitative morphometric analyses using built-in tools--no programming or supplementary scripts needed
- ✓ Count segments and nodes counts, determine the frequency of anastomoses, measure vessel surface and volume, and more



## 03. Multi-Photon Microscopy Solutions



Our products are used across the globe by the most prestigious laboratories.





## ScanImage®

The most advanced software for controlling laser scanning microscopes. Don't let the microscope control you!

### Key Features

- ✔ Perform even the most complex microscopic imaging using a flexible user interface that controls a large collection of the devices and components of advanced microscopes
- ✔ Write customizable scripts to perform even the most sophisticated microscopic scanning experiments
- ✔ Supports resonant and linear scanning
- ✔ Perform online motion correction
- ✔ Create functions that will be triggered in response to acquisition events to customize your experiments
- ✔ Customization can be provided as a service by ScanImage engineers
- ✔ Perform multi-region of interest (mROI) and arbitrary line scanning
- ✔ Advanced Photostimulation



## RMR Scanner®

The Rapid Multi Region Scanner for Fast and flexible 2 photon imaging. Powered by ScanImage

### Key Features

- ✔ Increases your microscope's imaging rate
- ✔ Allows scanning of multiple regions of interest - so no time is wasted in empty areas of the field of view
- ✔ Performs arbitrary line scanning - to sample individual neurons along a predefined scan path for maximum speed
- ✔ Performs photostimulation to rapidly stimulate neurons in sequence



## vDAQ™

The next-generation all in one data acquisition and controller for your microscope. It controls Galvos, Pockels Cells, Fast Z devices, shutters, and much more

### Key Features

- ✔ Handles even the highest-performance demanding applications of microscope control, including real-time image processing, photon counting and closed loop experiments
- ✔ Full software integration with ScanImage for optimal performance and flexibility
- ✔ Perform 2P and 3P imaging, even in conjunction with complex behavioral experiments
- ✔ Straightforward and simplified wiring using a single breakout box for analog and digital IO's
- ✔ Incredibly cost effective



## SLAP2 - Two Photon Microscope Kit

A kit for the revolutionary new microscope based on a technological breakthrough called Scanned Line Angular Projection (SLAP2) two photon laser scanning microscopy

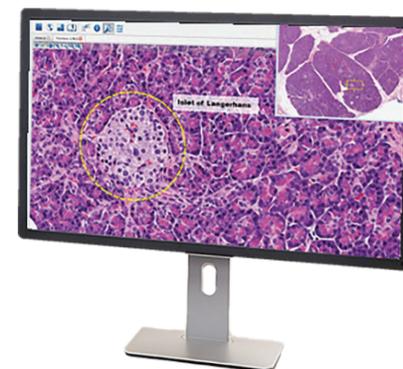
### Key Features

- ✔ Perform unparalleled optical imaging of neuronal activity in populations of neurons at subcellular spatial resolution and temporal resolution in the millisecond range
- ✔ Temporal resolution in the millisecond range (1000 Hz and higher) both in vivo and in vitro using a variety of fluorescent indicators (e.g. voltage, neurotransmitter).
- ✔ Capable of performing activity imaging at subcellular spatial resolution



# 04. Big Image Data Viewing & Management Solutions

Our products are used across the globe by the most prestigious laboratories.



## Biolucida®

View, manage and share image stacks, 2D & 3D whole-slide images, and image stacks

### Key Features

- ✓ Robust, high-performance slide viewing for large and small classes
- ✓ Use annotations & bookmarks to highlight and navigate to specific structures within slides and external educational content
- ✓ Flexible configuration for cloud-based or local network deployments
- ✓ Can easily be directly integrated in most educational platforms, including Blackboard, Moodle, and Canvas for a seamless, fully-functioned testing experience
- ✓ Supports slides acquired with most commercial slide scanners and microscopes so you can use your entire collection



## MicroFile+®

Makes it easy to view, analyze, and share big image data from many sources

### Key Features

- ✓ Convert nearly any type of image to the jpeg2000 standard or to the OME tiff format
- ✓ Compresses files for efficient storage and web streaming
- ✓ Easily add and edit metadata pertaining to your files
- ✓ Efficiently and accurately convert 2D and 3D images from almost any source and format into manageable, standardized file formats
- ✓ Compile individual images, such as serial sections or cleared tissue, into 3D volumes
- ✓ Optimized to work with multi-terabyte 3D images from lightsheet microscopes



# 05. *C.elegans* Behavioral Analysis Solutions



Our products are used across the globe by the most prestigious laboratories.



## WormLab®

A complete system for imaging, tracking, and analyzing *C. elegans*

### Key Features

- ✓ Accurately quantify *C. elegans* behavior — fully automatically
- ✓ Analyze phenotype with precision—identify even subtle differences easily and efficiently
- ✓ Start collecting meaningful data quickly thanks to user-friendly WormLab workflows
- ✓ Integrate behavior assessment with stimulus delivery, including optogenetics, chemotaxis and mechanosensation



# 06. Microscopy Imaging Systems

Our products are used across the globe by the most prestigious laboratories.



## ClearScope®

Light sheet microscope system for imaging cleared specimens of nearly any size at subcellular resolution

### Key Features

- ✓ Work with specimens that are too large for traditional light sheet imaging, such as human, non-human primates, and tissue from expansion microscopy
- ✓ Also, works with small-specimens – the most adaptable system for imaging intact specimens
- ✓ Accelerate your research using rapid, high resolution 3D imaging & low photobleaching
- ✓ Flexible configurations to work with various objective lenses and up to 7 laser wavelengths
- ✓ Choose the optimal clearing method for your research – compatible with all clearing methods and refractive indexes
- ✓ Perform sophisticated imaging workflows easily using an intuitive software interface





## TissueScope®

A fast, and versatile whole slide scanner for quantitative analysis

### Key Features

- ✓ Easy to use
- ✓ Fast: <1 minute per slide, 15mm x 15mm @20X
- ✓ Sharp, clear image quality up to 40X magnification
- ✓ Scan up to twelve standard 1" x 3" slides, or any size up to 6" x 8" for unmatched versatility
- ✓ Z-Stack scanning
- ✓ Big Data Handling: File format optimized for streaming with Biolumucida image server and for analysis



## Vesalius®

A versatile spinning disk confocal microscope system ideal for fast, large-scale, multichannel 2D and 3D whole slide imaging

### Key Features

- ✓ Create high-quality large-scale 3D images: from single stacks - up to whole slides
- ✓ Use a wide range of objective lenses – from 4x up to 100x
- ✓ More than 10x faster than a traditional confocal microscope
- ✓ Custom designed and configured systems for the most cost-effective confocal solution
- ✓ Powered by our easy-to-use image acquisition software to handle big image data and confocal stereology



## Microlucida®

Create 2D and 3D whole-slide images on your brightfield or fluorescence microscope

### Key Features

- ✓ Capture high resolution whole slide images for research and education
- ✓ Microlucida can save large amounts of disk space with its high-quality JPEG 2000 compression of images and stacks
- ✓ Supports microscopes from Zeiss, Olympus, Nikon, and Leica. Microlucida is custom-designed for seamless integration with the world's leading motorized stages and cameras
- ✓ Use your existing microscope to scan slides at high power in 2D or 3D, using air, oil or water immersion objective lenses



## Robust Professional Support

Our service sets us apart, with a team that includes Ph.D. neuroscientists, experts in microscopy, stereology, reconstruction, artificial intelligence and image processing. We've also developed a host of helpful additional support services.



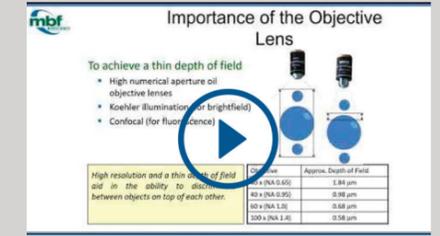
### On Site Installation & Training

We've conducted over 750 remote software installations.



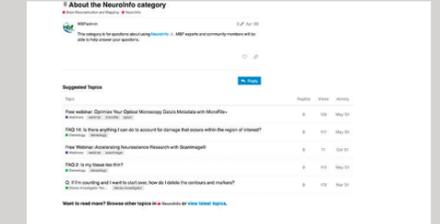
### Support Ticketing

Our web portal allows you to access timely, qualified help.



### Webinars

We've created over 55 webinars that demonstrate our products & their uses.



### Forums

We have over 25 active forums where open discussions take place.

## Request an Expert Demonstration

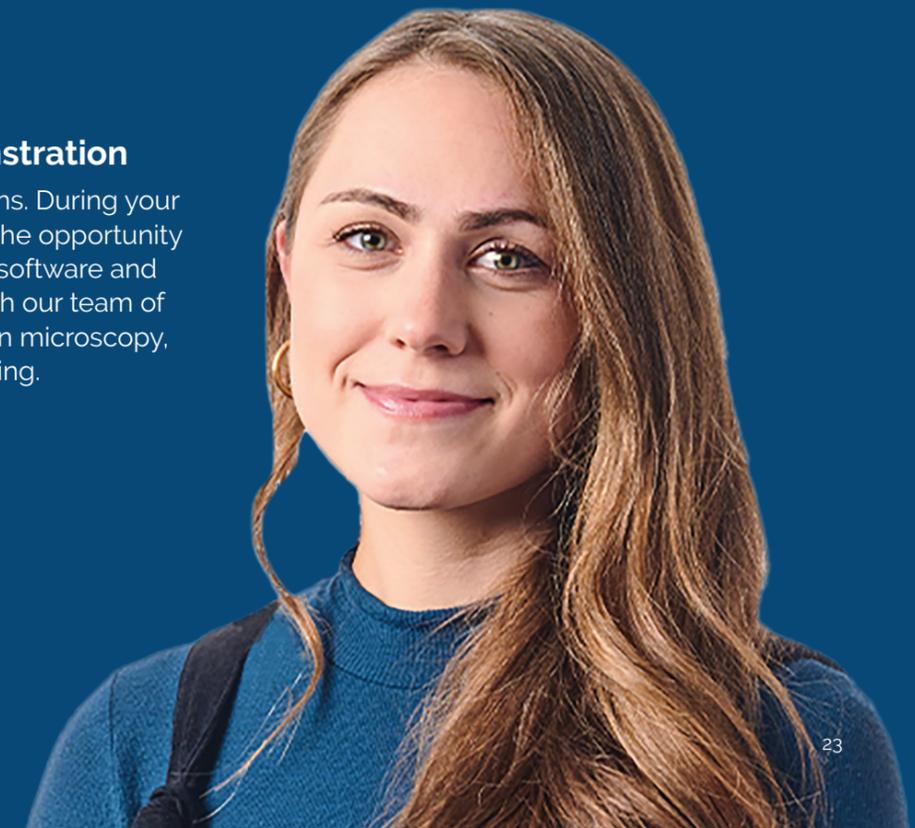
We offer free expert demonstrations. During your personal session, you'll also have the opportunity to talk to us about your hardware, software and experimental design questions with our team of Ph.D. neuroscientists and experts in microscopy, worm tracking and image processing.

### Contact

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