MetroDHM

Digital Holographic Microscope

MetroLaser, Inc.

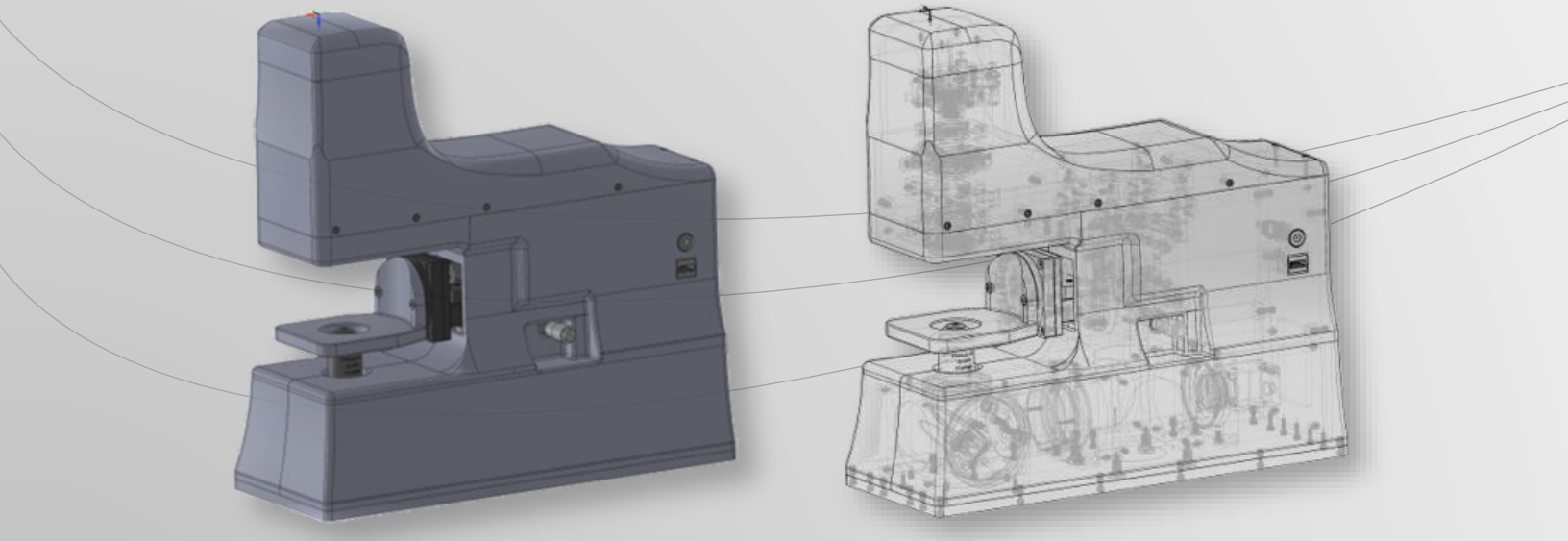
MetroDHM

A Robust Tool for 3D Microbial Motility and Particle Tracking Analysis

- Visualize trajectories in 3D
- Label-free & live-cell friendly
- Tracking at scale: trajectories for many bacteria simultaneously
- User-friendly software interface
- Best suited for biomedical and research applications
- Two imaging modes to accommodate different sample vessels (petri dishes and cuvettes)

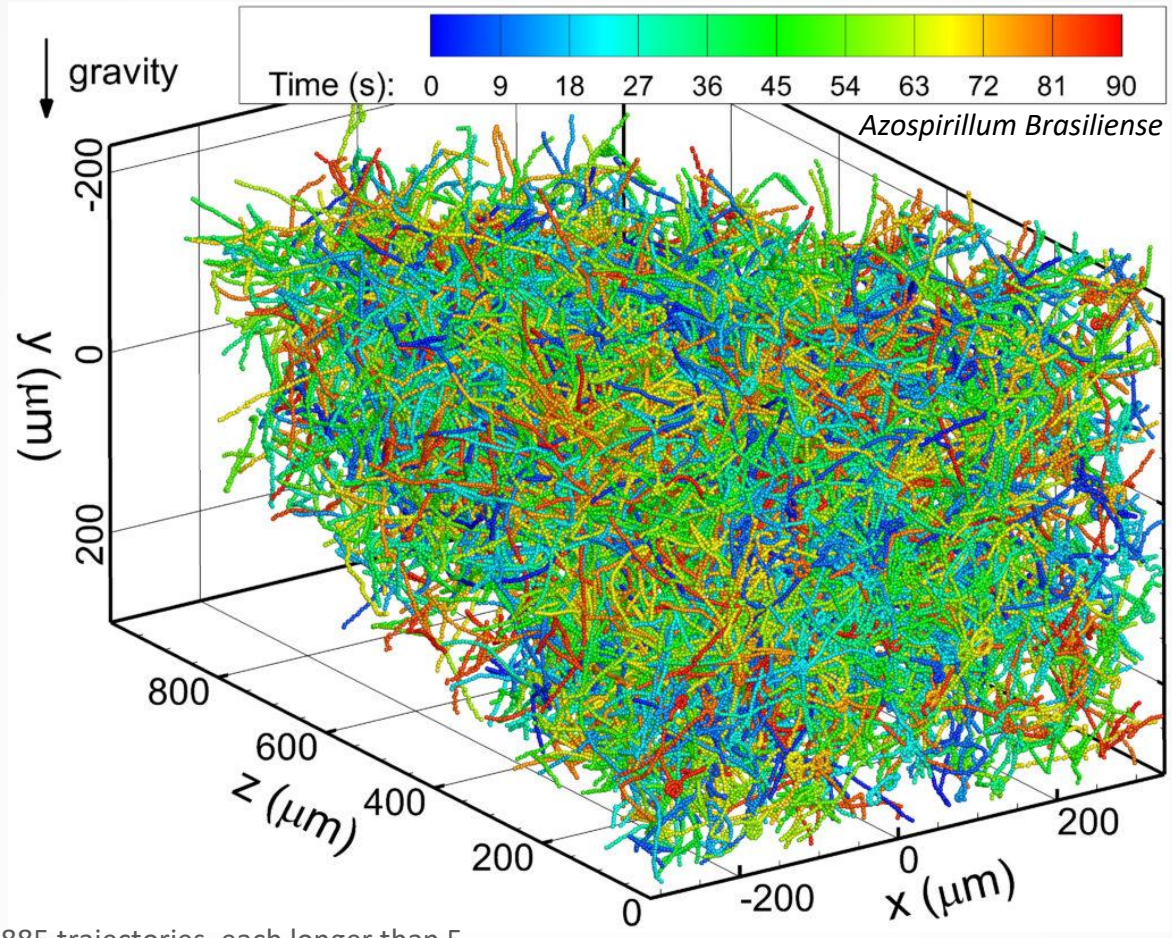
Specifications:

Measurement modes:	**Single wavelength (650 nm)**
Lateral resolution:	**0.69 µm**
Field of view:	**700 µm × 600 µm**
Vertical measuring range:	**800 µm**
Depth resolution:	**1.83 µm**
Image size:	**5320 × 4600 pixels**
Max. frame rate:	**15 Hz**
Weight:	**~4 Kg**
Processing:	**GPU accelerated**



Volumetric Motility Analysis

Numerically refocuses bacteria in a 3D volume using GPU accelerated wavefront reconstruction algorithms to obtain their sizes, locations, velocities and trajectories.



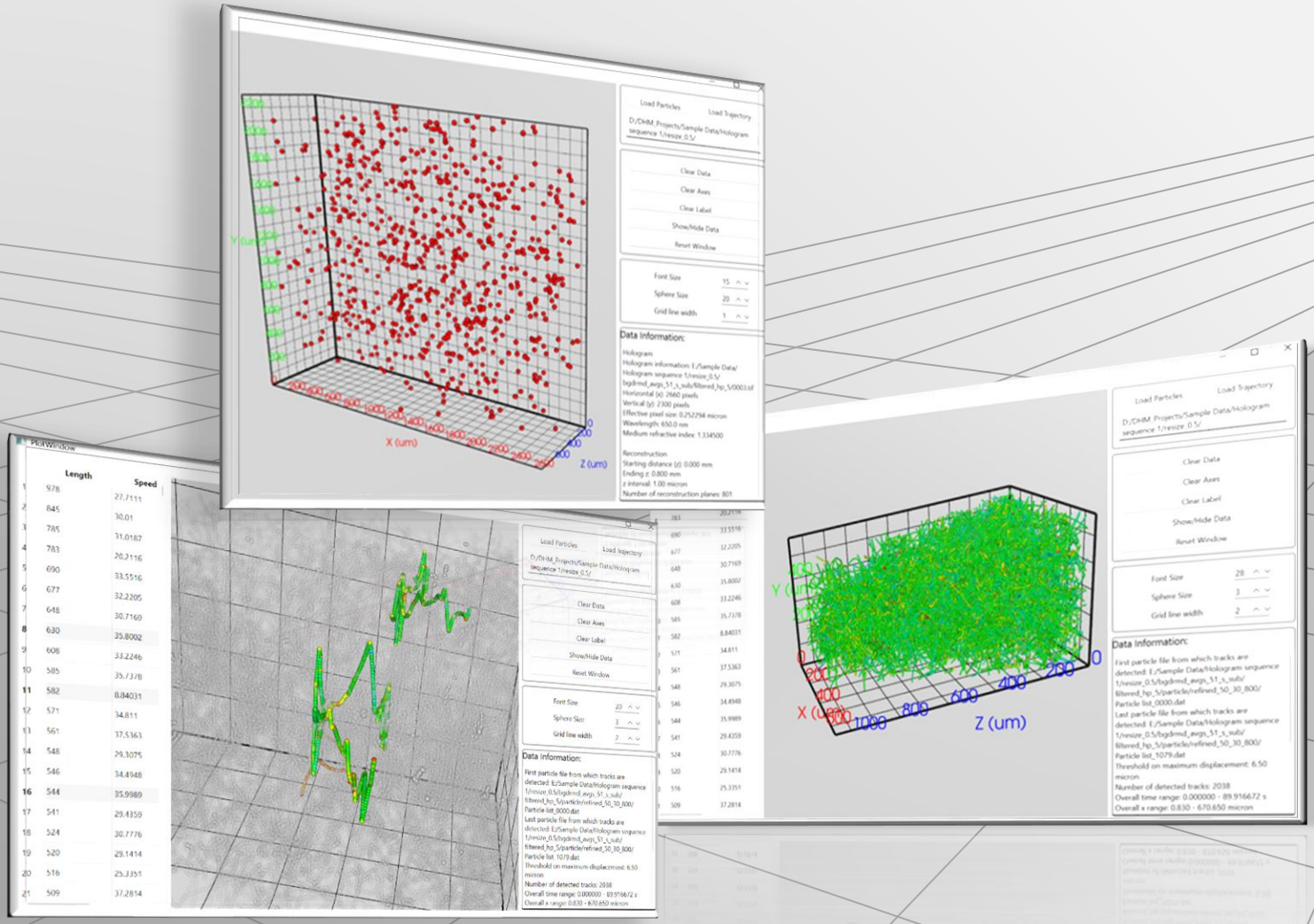
1885 trajectories, each longer than 5 seconds, determined from a 90-second hologram sequence acquired at 12 FPS.

- Potential to observe colony-level behaviors (aggregation, confluence, biofilm onset)
- Obtain and filter trajectories based on length and speed characteristics
- Download data and trajectory images to import or analyze with other means

HoloPro Software

An all-in-one solution for holographic imaging and particle tracking

- Visualize in 3-dimensions
- Variety of 3D tracking algorithms with GPU acceleration
- Zoom, rotate, and select a region of interest (ROI)
- Obtain three-dimensional location, trajectory length and speed metrics



Hardware specifications	
Configurations	Inverted, Upright
Measurement modes	Single wavelength (650 nm) *
Lateral resolution	0.69 µm*
Field of view	700 µm × 600 µm*
Vertical measuring range	800 µm*
Depth resolution	1.83 µm*
Image size	5320 × 4600 pixels*
Max Imaging rate	15 Hz*
Weight	~4 Kg
Program specifications	
Hologram types	In-line
Background removal	Subtraction, Division
Propagation methods	Angular Spectrum
Pre-propagation features	Down-sampling, Hi-pass filtering
Particle detection	Signal-to-noise ratio (SNR)-based, Deep-learning-based
Particle refinement	Depth range, Particle sizes, Particle brightness
Particle tracking	Particle speed, Number of instances per track, Start and end time
Track refinement	Minimum and Maximum Number of instances of tacks
Measurements	Amplitude, Phase, 3D particle trajectories, Mean velocities, Instantaneous velocities, Sizes, Turning angles
Reconstruction	Single or batch processing
PC specifications	
Operating system	Windows 10 (64 bit)
CPU	Intel Core i5 or faster
GPU	NVIDIA graphics card with a compute capability of 3.5 and above
Memory	8 GB or more
Screen size	1600 × 900 or larger
Connection Port	USB 3.0
License	USB dongle (2.27” × 0.75” × 0.42”)

*Customizable based on user needs

To customize systems based on user needs and for sales or technical services, please contact:

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