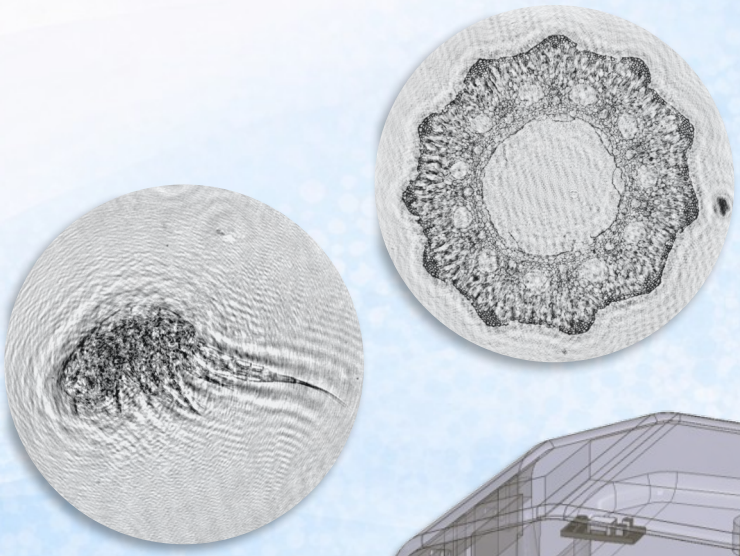
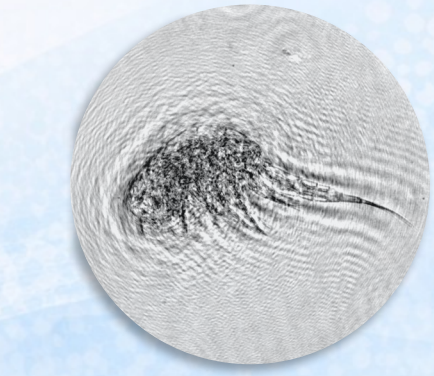
HOLOSCOPE

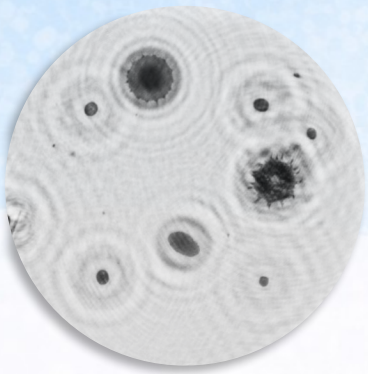
MetroLaser, Inc.

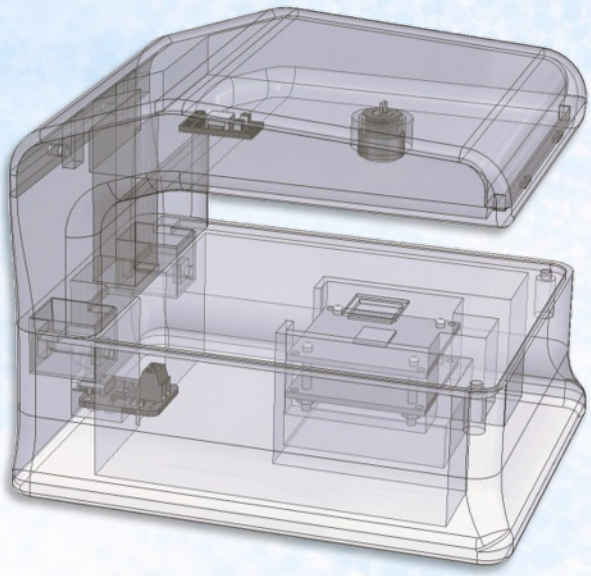
Bring 3D Microscopy to Your Classroom

The Holoscope is an affordable **digital holographic microscope** designed for education and hand-on STEM learning.









Perfect for:

- ✔ Physics classes
- ✔ Biology labs
- ✔ STEM programs
- ✔ Engineering clubs
- ✔ Science fairs

- ✔ No mechanical focusing
- ✔ See moving microorganisms in 3D
- ✔ USB connection to laptop
- ✔ Classroom-safe design

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Made for teaching

The Holoscope is a digital holographic microscope that gives students **real-time 3D views of tiny specimens without manual focusing**. Teachers can easily bring cutting-edge holography and 3D microscopy into physics, biology, and STEM classes without complex setup or alignment.

Supports STEM Learning

Engaging Lessons

Easy to Use

Why Teachers Love it

- ✔ See real 3D images
- ✔ No manual focusing
- ✔ Record hologram videos
- ✔ Observe moving organisms
- ✔ Works with slides or cuvettes
- ✔ Compact and portable

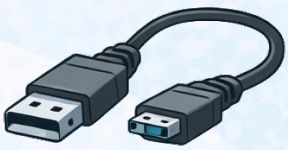
Classroom Safe

- ✔ Low-power laser
- ✔ Enclosed optical system
- ✔ No chemical processing
- ✔ No scanning mechanism

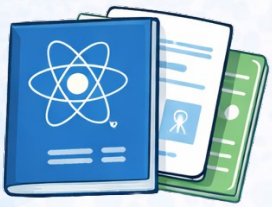
What's Included

Holoscope

Software



USB Cable



Guide

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Working principle

1 Illumination

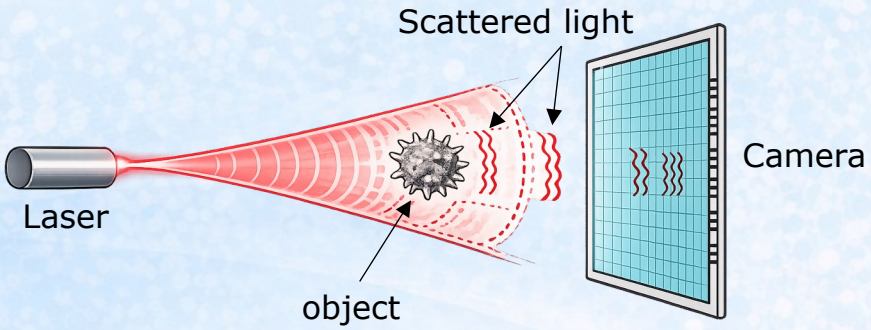
A coherent laser beam illuminates the sample. As the light passes through or reflects from the object, part of the beam is scattered while the remaining light continues unperturbed.

2 Interferance

The scattered light (object wave) combines with the unscattered light (reference wave). Their interaction creates an interference pattern that encodes both amplitude and phase information of the optical field.

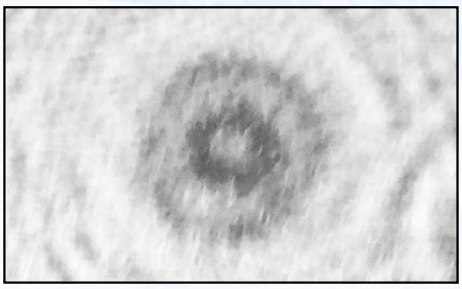
3 Recording

A digital sensor records this interference pattern in a single exposure. This recorded hologram contains the full three-dimensional optical information of the sample.

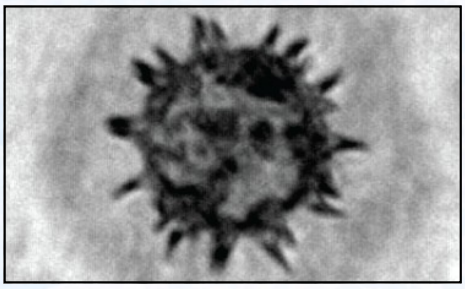


4 Reconstruction

Advanced computational algorithms numerically reconstruct the optical field from the hologram. Image planes can then be digitally refocused at any depth, producing sharp 3D images without mechanical scanning.



Hologram



Digitally focused

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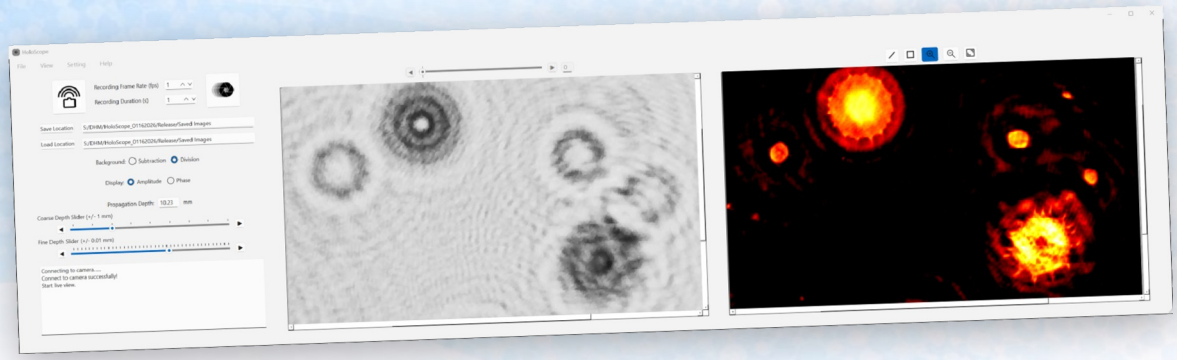
Specifications

Optical	
Wavelength	650 nm
Lateral resolution*	1.17 – 1.40 µm
Magnification**	1X – 1.3X
Field of view (1X)***	7.564 mm x 5.476 mm
Imaging rate*	60 Hz
Sensor	
Pixel size*	1.55 µm
Pixel resolution*	4056 x 3040
Mechanical	
Dimension (LxWxH)	110 mm x 111 mm x 137.5 mm
Weight	510 g

*: Sensor dependent
**: object distance dependent
***: sensor and object distance dependent



✔ Real-time visualization
Live hologram recording and instant digital refocusing

✔ Intuitive Interface
Streamlined workflow and easy-to-use software interface for data capture and analysis

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