

Computational imaging

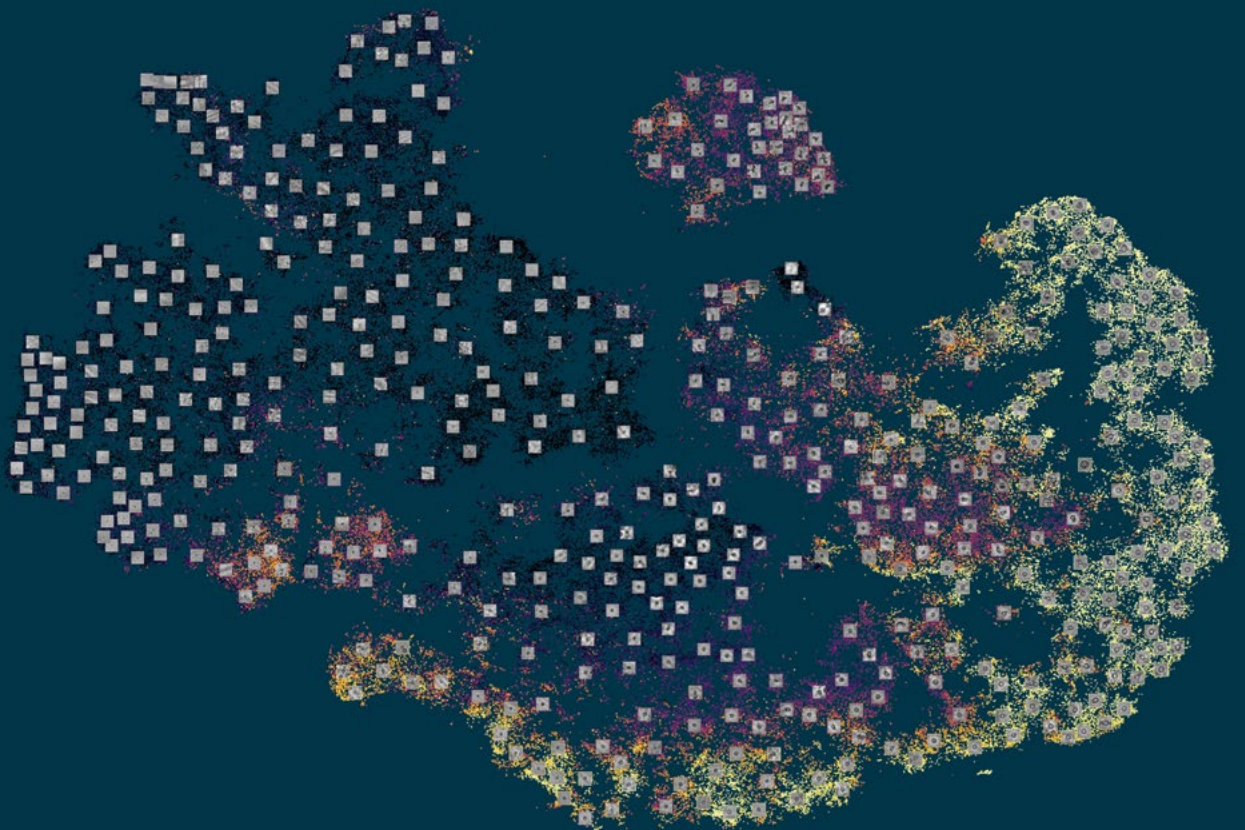
Artificial intelligence

Microfluidics

Quantitative phase imaging

Digital Holographic **Microscopy (DHM)**

The future of rapid and accessible diagnostics



THE CHALLENGE

More samples, less time

Today's demands

- Increasing testing volumes
- Shortage of skilled personnel
- Demand for decentralized diagnostics
- Need for faster and more accessible results

These challenges require diagnostic technologies that are faster, simpler and easier to deploy.



The solution

Digital holographic microscopy combines compact hardware, label-free imaging and AI-powered analysis to deliver clinically meaningful results within seconds.



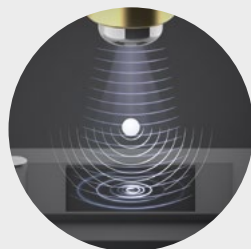
HOW DHM WORKS

1. Illumination



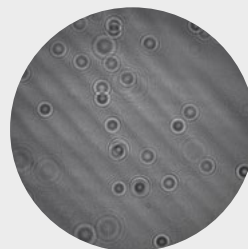
A coherent light source illuminates the sample. Microscopic objects in the optical path scatter the light.

2. Hologram



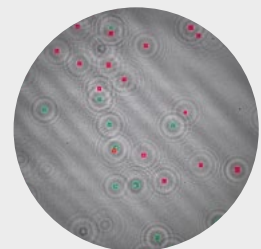
The scattered light interacts with the original wavefront, forming an interference pattern – the hologram.

3. Reconstruction



Algorithms reconstruct phase and amplitudes to create quantitative 3D images.

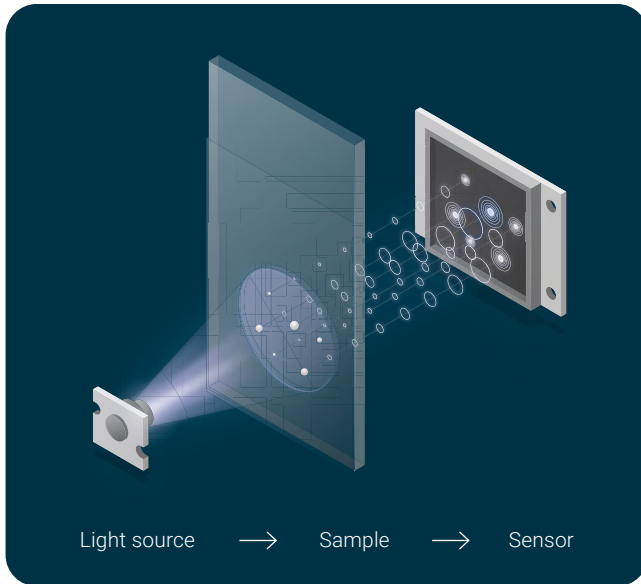
4. Classification



Machine learning models detect and classify cells and particles for the specific application.

WHY DHM?

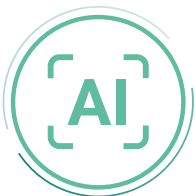
Designed for modern diagnostics



DHM miniaturizes analysis. Unlike conventional microscopy, DHM does not require complex optical lens systems to generate images. Instead, it records the interference pattern of an object with the light beam and reconstructs the image digitally creating a solution **that fits the palm of your hand.**

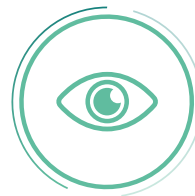
DHM simplifies sample preparation. DHM enables label-free analysis because each holographic image contains quantitative information that conventional microscopy often does not provide. Digital focusing further enables rapid imaging, turning microscopy into a quantitative data platform for automated analysis.

Key advantages at a glance



SMART

AI-powered on-device classification and quantification in seconds.



LABEL-FREE

Analyze cells in their native state without artefacts from labels or reagents.



COMPACT

Maintenance-free design with no moving parts or calibration.



OEM-READY

Flexible, scalable, and easy to integrate into diagnostic solutions.

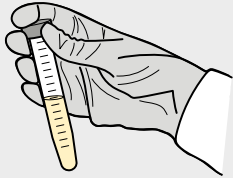
Explore the potential of **DHM**

Discover how digital holographic microscopy (DHM) can support your diagnostic application. ↗



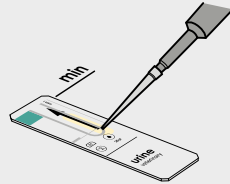
WORKFLOW

From sample to result in three steps



1. Prepare

Minimal preparation.
No staining, no fixation.



2. Load

Apply the sample to the
ready-to-use sample carrier.



3. Analyze

Insert the sample carrier and
receive results in seconds.

One technology. Multiple applications.

Cell culture

Blood

Liquor

Urine

And beyond

OEM & INTEGRATION

Built for partners. Designed for impact.

Bring DHM to your platform, integrate compact, AI-powered digital holographic microscopy into diagnostic devices, laboratory systems and point-of-care solutions.



OEM partnerships



Technology integration



Application-specific solutions

DHM vs other methods

Parameter	Digital holographic microscopy (DHM)	Light microscopy	Flow cytometry
Hardware set-up	Sensor and light source with computing module	Requires optical lenses and precise focusing	Complex optical systems with lasers, lenses, filters and detectors
Size	Compact – fits the palm of your hand	Moderate size benchtop devices	Large benchtop instruments
Label-free imaging	Yes	Sometimes	Sometimes
Sample preparation	Minimal	Staining or fixation required	Extensive filtering, staining, washing
Possibility to combine with AI analysis	Very high	Moderate – manual review required	High – depending on the complexity of the staining
Costs	Low	Moderate to high	High
Maintenance effort	Low	Moderate	High
Information on cell size	Yes	Yes	Yes
Information on cell shape	Yes	Yes	Limited
Information on cell granularity	Yes	Possible, but requires staining or contrast techniques	Yes
Overall diagnostic value	Compact, label-free, AI-ready platform for rapid and affordable diagnostics	Established and widely accepted method, but often slower and observer dependent	Powerful high-throughput method, but complex, costly, and reagent-dependent

No lab. No prep. **Instant results.**



CONNECT WITH ANVAJO

Let's explore the future of
diagnostics together



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