

Technology Offer

CSIC/AI/008

Software for noise and tilt removal in 3D images



Software that removes tilt distortions and stochastic noise in 3D image sequences. It enhances the precision of digital microscopy, enabling the quantification of nanometric fluctuations in biological systems and materials.

Intellectual Property

Registered Software

Stage of development

Validated Prototype

Intended Collaboration

Licensing and/or co-development

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Market need

High-sensitivity digital microscopy and other 3D imaging techniques are limited by the presence of stochastic noise and systematic tilt artefacts. These distortions prevent the precise measurement of dynamic phenomena at the nanoscale, such as intracellular fluctuations or the mechanical properties of materials. The lack of effective correction tools restricts progress in biomedical research and materials characterisation.



Proposed solution

Software that implements a correction algorithm using internal image references to quantify and remove tilt and stochastic noise at the pixel level.

The technology has been validated in digital holographic microscopy, where it enables the quantification of previously inaccessible intracellular fluctuations.

The method is adaptable to other imaging techniques requiring stabilisation or common noise removal.

Competitive advantages

- Correction of distortions at the individual pixel level.
- Increases the precision of digital microscopy to nanometric limits.
- Enables the quantification of intracellular fluctuations using non-invasive techniques.
- Versatile algorithm for image stabilisation and noise filtering.
- Technology validated in high-precision research environments.