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Licensing Opportunity

TTO - Technology Transfer Office

# Parameter-free image resolution estimation



a, Cross-correlation of the image with its Fourier-filtered normalized version.

**b**, Cross-correlation coefficient as a function of the mask radius. r0, the radius with highest correlation, is related to the spatial frequency distribution of the input, thus to the resolution limit.

#### Description

The technology provides a new and objective way to quantify the effective resolution in super-resolution microscopy that, unlike other existing approaches, can work on a single image and that enables the optimization of image parameters both in real-time and post-processing.

The resolution estimator relies on decorrelation analysis (see Fig. a and b) of individual images without any user-defined parameters.

This new resolution estimate provides a powerful tool for expedited microscopy setup alignment, characterization and optimization as well as for automated microscopes. The software can also be used to quantify the performance of post-processing softwares.

### Advantages

- does not require any user-defined parameters.
- Short computation time

# Applications

- Super-resolution microscopy and Autonomous adaptive microscopy.
- 1D, 2D or 3D datasets: optical microscopes, atomic force microscopes, MRI, X-ray, TOF measurements, etc.

# Opportunity

Licensing of patent and software, collaboration

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Keywords

Automatic adaptive microscopy Decorrelation analysis Image resolution Imaging Super-resolution microscopy

Intellectual Property

Software + patent EP19180900.3

### Publications

Radenovic et al., 2019, « Parameter-free image resolution estimation based on decorrelation analysis», **Nature Methods**, 16:918-824.

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