

ASSESSING ACCURACY AND SPOTTING ARTIFACTS IN LOCALISATION MICROSCOPY

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Super-resolution microscopy is a powerful tool for imaging structures at a lengthscale of tens of nm, and it has become widely used. However, it relies heavily on image analysis, and it can be very difficult to identify which features of the image are real and which are artifactual. In this tutorial I will discuss the different parts of the data analysis pipeline, and the properties of the data which can lead to errors or artifacts. A number of assessment techniques have been developed to assess the quality of the image: some rely on using test data to evaluate algorithm performance, while others attempt to assess analysed data without knowing what the structure of the sample is. I will give an overview of different approaches and show how they can be applied.