

## INFORMATION BOUNDS AND POISSON INFERENCE

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### ABSTRACT

A wide range of problems in classification and imaging rely on Poisson data with mean linearly related to underlying quantities of interest. In imaging, these include optical, hyperspectral, scatter tomography, and positron emission tomography. Classification problems use such indirect measurements to as the basis for decisions. The performance of both classification and imaging problems using Poisson data can be addressed using a unified framework. The performance degradation relative to direct measurement is determined by a combination of the object being measured and the point spread function. This same framework provides a way to quantify the impact of errors in the model on system performance.