
Detecting galaxies from the Multi Unit Spectroscopic Explorer (MUSE) by means of robust hyperspectral anomaly detectors

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Résumé

Anomaly detection methods are used for target detection whenever no a priori information about the spectra of the targets of interest is available. Most of these techniques are based on Gaussian assumptions about the background distribution. We propose ways to extend them to a non-Gaussian framework. For this purpose, elliptical distributions and M-estimators are considered for background statistical characterization. Through this assumption, we describe robust estimation procedures more suitable for non-Gaussian environments. We show that using them as plug-in estimators in anomaly detectors leads to improvements in the detection process. We apply the proposed robust hyperspectral anomaly detectors to detect galaxies in images captured by the Multi Unit Spectroscopic Explorer (MUSE) hyperspectral sensor.

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