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# SELECTING HIGH-Z QSOs WITH MACHINE LEARNING

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The upcoming surveys from both Rubin/LSST and Euclid will uncover millions of previously unknown AGN. However, due to the massive amount of data collected each night, it is essential to develop reliable tools that can efficiently identify quasars among billions of stars and inactive galaxies. I will discuss the results of different machine-learning based selection algorithms, including probabilistic random forests, gradient boosting, convolutional neural networks (CNN) and AutoEncoders (AE). These algorithms were applied both to real (SDSS, PANSTARRS) and mock catalogs exploiting photometry, images and light curves. I will specifically focus on the selection of luminous and high-redshift ($z > 2.5$) QSOs. Given the low space density of these sources, it is critical to have a selection rate as complete as possible, to better constrain the high-z luminosity function and, in the case of the even rarer $z>6$ QSOs, to estimate their contribution to reionization. I will highlight how, thanks to ML algorithms we can make use of all the available information and outperform traditional selection criteria based on cuts in the color-color diagram and discuss how the number of available features affects the accuracy of the results.