

Deep Learning for morphological classification of galaxies.

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Abstract

Galaxies exhibit a wide variety of morphologies which are strongly related to their star formation histories. Having large samples of morphologically classified galaxies is fundamental to understand their formation and evolution. Morphological classification of galaxies based on visual inspection is extremely time consuming: an impossible task when dealing with the immense number of galaxy images (billions!) that future Big Data surveys such as LSST or EUCLID will release. Deep Learning algorithms (DL), which automatically extract high-level features at the pixel level, have been proven very successful in the last years for many different image recognition purposes. Here we show the excellent performance of DL algorithms to reproduce (or even improve) visual classification of galaxies for SDSS-DR7 images. The main results of this poster and the morphological catalogue with classifications for 670,000 SDSS-DR7 galaxies are presented in Domínguez Sánchez et al. (2018a). (See poster).