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Neural Network Approaches for Quasar and Galaxy Continuum Estimation: A Comparative Study of Autoencoder and U-Net Architectures

Wednesday, 25 September 2024 17:00 (15 minutes)

The rise of new spectroscopic surveys, such as the WHT Enhanced Area Velocity Explorer (WEAVE), EUCLID, and the 4-metre Multi-Object Spectroscopic Telescope (4MOST), alongside the ongoing Dark Energy Spectroscopic Instrument (DESI), will significantly increase the volume of observed quasar and galaxy spectra. This surge necessitates the development of automated methods for accurate spectral continuum estimation. This study aims to evaluate the performance of two neural network (NN) architectures -—an autoencoder and a convolutional NN (CNN) known as U-Net -—in predicting quasar continua within the rest-frame wavelength range of 1020 Å to 2000 Å and galaxy continua within the range of 3500 Å to 5500 Å.

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