

Anjitha Jon Williams (CFT), Photometric redshifts for Kilo-Degree Survey quasars with deep learning

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Redshift is the key quantity in cosmology. In modern wide-angle deep surveys, most of the redshifts are derived indirectly from photometry rather than spectroscopy. In this talk, I will discuss the use of Convolutional Neural Networks (CNN) for photometric redshift (photo-z) estimation of Quasars of the Kilo-Degree Survey (KiDS) DR4. CNNs have recently shown promise in accurately estimating photometric redshifts, leveraging the ability of deep learning algorithms to capture complex patterns in large datasets. I propose a new architecture based on CNN to estimate the photometric redshift of Quasars by training the network with images supplemented with magnitudes. In this talk, I will describe the architecture of our deep learning model and the training process, the effect of model hyperparameters and data preprocessing on photo-z estimation and highlight the advantages of using a CNN over traditional machine learning algorithms. I will present the results of experiments, comparing the performance of the model to other state-of-the-art photometric redshift estimation methods.

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