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Title

"DASH: Deep Learning for the Automated Spectral Classification of Supernovae"

Abstract:

We have reached a new era of 'big data' in astronomy with surveys now recording an unprecedented number of spectra. In particular, new telescopes such as LSST will soon incease the spectral catalogue by a few orders of magnitude. Moreover, the Australian sector of the Dark Energy Survey (DES) is currently in the process of spectroscopically measuring several thousands of supernovae. To meet this new demand, novel approaches that are able to automate and speed up the classification process of these spectra is essential. To this end, I have developed a software package, "DASH" that uses deep learning to classify supernova spectra. The difficulties in this classification lie in the contamination from the host galaxies, and the degeneracies with type, age, and redshift of each supernovae. DASH minimises the human-time involved in supernova classification, while also limiting human-bias and error so that any spectrum can be objectively, quickly, and accurately classified. It is over 100 times faster than other classification alternatives, being able to classify hundreds of spectra within seconds to minutes. DASH has achieved this by employing a deep neural network built with Tensorflow to train a matching algorithm. It is available as an easy to use graphical interface, and as an importable python library on GitHub and PyPI with 'pip install astrodash'.

Viernes 27 de Enero a las 16:00 hrs, Sala de Seminarios John Von Neumann CMM.

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