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Reconstructing the Universe properties

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"In the absence of a fundamental and well defined theory, several parameterizations of cosmological functions have been suggested to get insights of the general DE behaviour and hence to look for possible deviations from the cosmological constant. Even though these parametric forms usually provide a better fit to the data, they have the limitation of assuming an a priori functional form which may lead to some bias or misleading model-dependent results, regardless of the DE nature. In this talk, to avoid these possible issues, non-parametric and model-independent techniques are presented, i.e. Gaussian process and Artificial Neural Networks. They allow us to extract information directly from the data to detect features within cosmological functions, for instance a decrease in the dark energy density component at early times and a transition to the phantom divide-line in the EoS."

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