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A family tree of galaxies

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In my talk, I will present work on identifying mergers of galaxies using astronomical data in optical bands. The current models of galaxy formation and evolution, in the context of the Lambda-CDM cosmological model, are based on dark matter haloes that host a galaxy. Merging galaxies are one crucial aspect of the galactic life-time whose effect is still not fully understood. Identifying them is therefore the research first step. Two projects will be presented: first the use of image recognition methods with a Convolutional Neural Network (CNN) together with morphological parameters on the North Ecliptic Pole (Pearson, Suelves et al. 2022). This provided the community with a catalogue of mergers in one region of the sky with a wealth of data across the electromagnetic spectrum. The second is the application of a Neural Network (NN) applied on photometric information (Suelves, Pearson \& Pollo 2022). This NN provided us with a previously unknown tracer of merging processes, the error in the sky background calculation. With it, we aim to make merger finding techniques more efficient and less prone to mistakes due to the complexity of the night sky.

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