



MACHINE LEARNING FOR ASTROPHYSICS

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Signatures to help interpretability of anomalies in astronomical data

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Machine learning is often viewed as a black box when it comes to understanding its output, be it a decision or a score. Automatic anomaly detection is no exception to this rule, and quite often the astronomer is left to independently analyze the data in order to understand why a given event is tagged as an anomaly. Worst, the expert may end up scrutinizing over and over the same kind of rare phenomena which all share a high anomaly score (quite often due to noisy or bad quality data), while missing anomalies of astrophysical interest. In this presentation, I'll introduce the idea of anomaly signature, whose aim is to help the interpretability of anomalies by highlighting which features contributed to the decision. I'll present concrete applications to the search of anomalies in time domain astrophysics within the framework of the SNAD team.

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