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Real vs. bogus classifier in time-domain surveys

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Time-domain surveys are designed to study astrophysical transient phenomena appearing in the night sky. The improvements in instrumentation and data analysis are allowing the new generation of surveys to discover several thousand (and soon to be millions) of events per night. However, some of such discoveries are associated with spurious detections related to spikes from bright stars, parasitic optical reflections, cosmic rays, or defects in the detectors, just to name a few. These spurious or "bogus" detections complicate the arduous task of finding interesting real events in such a big "stream" of events. To help human scientists, several time-domain surveys have implemented Machine Learning approaches designed to automatically classify the detections as "real" or "bogus". I have contributed to the creation of real-bogus classifiers for two different time-domain surveys. In my talk, I will describe the challenge, the main algorithms used by each survey, and the main lessons learned from our efforts to compile a meaningful training set.

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