Transient classifiers in Fink: Lessons learned from the ELAsTiCC dataset in preparation for LSST

Monday, May 6, 2024 10:00 AM (25 minutes)

The upcoming Vera Rubin observatory and its Legacy Survey of Space and Time (LSST) are expected to detect of the order of ten million alerts per night, which are then distributed to community brokers whose task is to filter, classify and redistribute this data to selected scientific communities. Due to the sheer amount of data, machine learning (ML) algorithms are expected to play a key role in the classification of photometric light curves. We present the classifiers developed within Fink in preparation for LSST data, using the simulations from the Extended LSST Astronomical Time-series Classification Challenge (ELAsTiCC). They include tree-based models with tailored feature extraction and deep learning models, both for binary and multi-class classification. In Particular, the CBPF Alert Transient Search (CATS), based on state-of-the-art deep learning models combined with hyperparameter tuning, will be presented. Furthermore, we discuss how the different algorithms can be combined to form hierarchical classifiers, or to improve the general results.

Presenter: FRAGA, Bernardo (CBPF) **Session Classification:** Contributed