ODIN AD: a framework supporting the life-cycle of time series anomaly detection applications

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INTRODUCTION

ODIN is an open source framework*, developed in Python, that aims at integrating into a unique solution the approaches to black-box error diagnosis: error categorization and performance disaggregation, models comparison and qualitative visualizations. ODIN AD is a module of the framework supporting the development of Anomaly Detection applications on time series data.

* https://github.com/rnt-pmi/odin

ANNOTATOR

ODIN AD lets the user define the ground truth labels with the anomaly annotator GUI. Moreover, the anomalies can be annotated with user-defined meta-data. Anomalies and their annotations can be deleted, updated and exported to a .csv file.
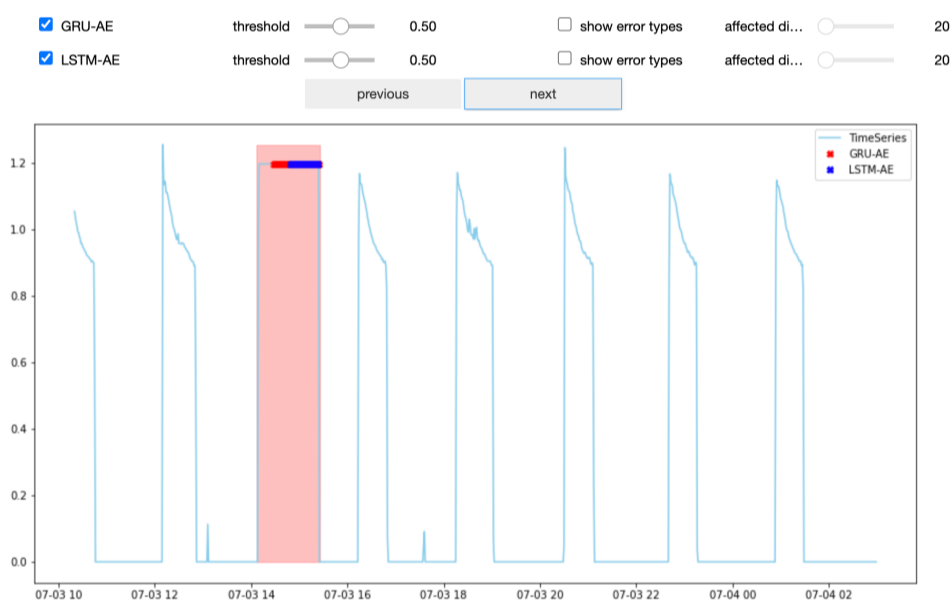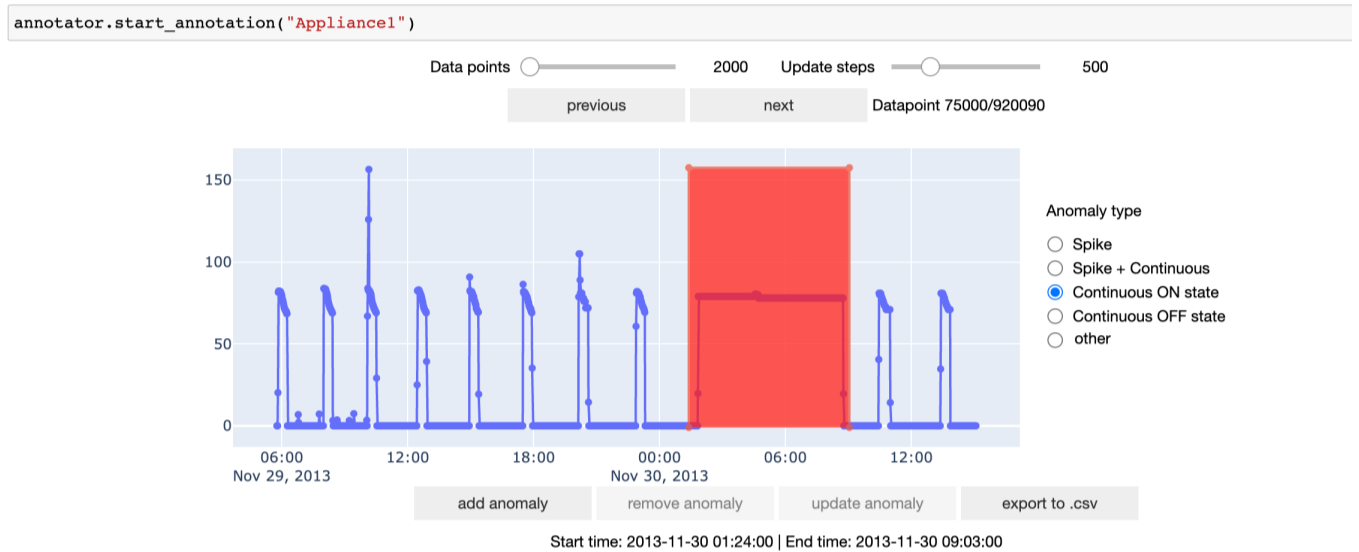
VISUALIZER

ODIN AD visualizer shows the point-wise predictions of one or more models vs. the ground truth. A scrollable window lets the user browse the time series and the threshold value used by the anomaly definition strategy can be adjusted, and then the identified anomalies are updated.

ANALYZER

ODIN AD analyzer lets the user perform a quantitative analysis of the performance of the model. The analyzer provides a wide range of anomaly detection evaluation metrics and several diagnosis analyses, such as the error categorization and impact, and the per-property ones. The analysis can be performed under different configuration settings, indeed the user can choose an anomaly definition strategy, according to the nature of the model, which indicates how to compare the predicted/reconstructed values of the input time series to identify an anomaly, and also the anomaly matching strategy, which specifies how an identified anomaly is compared to the ground truth.