

Anomaly detection by means of unsupervised machine learning algorithms

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Registration Link

<https://forms.office.com/r/6fVqYyifcJ>

Abstract

An anomaly is an instance or vector that does not resemble the rest of the observations within a dataset. The identification of such anomalies is not only a challenging task, but also a highly relevance endeavour. Several algorithms have been developed to cope with the two main problems within anomaly detection: The comparison criteria for detecting anomalies, and the threshold that separates usual or expected vectors from the anomalies. Anomaly detection is an instance of unsupervised learning since there is no external label or class assigned to the data under study. In fact, anomaly detection algorithms aim to assign a label to the data under analysis, and that label is the class to which the vectors belong, which can be the class of expected or usual instances, or the anomaly class.

Target Audience

This tutorial is focused on undergrad students in the Computer Science, Mathematics, Biology or Engineering areas, that are coursing the second half of their careers. It is also meant for postgrad students.

Pre-requisites

Participants fluent in Python and its most common libraries dedicated to machine learning and data analysis are ideal for this tutorial. A great interests in the mathematics behind anomaly detection is a plus.

The tutorial is planned, if accepted, to be held on Tuesday, October 22nd, 2024.

Technical requirements

The requirements for this tutorial are: a laptop running over Linux, Python and the most common **libraries such as scipy, sklearn, TensorFlow, etc**