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Project Specification: CERN is currently investigating the usage of data analysis technologies to study the behaviour of the industrial control systems. An activity related to these analysis is using Complex Event Processing (CEP) tools to classify a real abnormal behaviour from one generated by a human intervention on the system. In this study the Complex Event Processing classification is run over signals produced by variety of sensors and simulators. The selected tools is Esper. Presented here work consists of installing chosen tool, and developing the classification system with it to address given above merit. Abstract: This project aims at building a tool to process live streams of data produced by various sensors and artificial generators. To this end, a Java code is written, which uses Esper Complex Event Processing package to: receive data feeds, apply user defined rules and filters, and pass the resulting information to a clustering framework. The last step employs Affinity Propagation based clustering algorithm, which choice is motivated by its dynamic adaptation to number of clusters in the data. This is key feature in data streaming scenario as the number of clusters can evolve with time. Furthermore, [Zhang et al., 2013] have documented overall good performance of Affinity Propagation in cases of live data analysis. Finally, presented here approach is compared and contrasted against static clustering algorithms applied to data gathered from streams incoming over one run of the program, followed by in-depth results analysis.

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