Flight Simulator Desktop Application

Introduction to the Anomaly Detection Analyzer

The Anomaly Detection Analyzer component of the flight simulator desktop application uses dll files to run different anomaly detection algorithms. The application comes with two dlls that can be used for this purpose.

The first file is LinearAnomalyDetectionAlgorithm.dll file which allows the flight inspector to find flight anomalies based on linear regression.

The second file is CircularAnomalyDetectionAlgorithm.dll which allows the inspector to find anomalies based on minimum enclosing circle (MEC).

Both algorithms require the user to insert a threshold input between 0 and 1. However the circular algorithm does not use this input.

Using other anomaly detection algorithms

To use other anomaly detection algorithms, you can create the desired algorithm using other programming language (preferred C, C++, or C#) and create a dynamic-linking-library (dll) out of it. In order to make the dll fit the application, it must contain (in its C\C++\C# form) an external function named **runAnomalyDetectionAlgorithm** which gets **one float** input for the threshold and returns **void**.

Here is an example of the function signature in C++:

```
extern "C" __declspec(dllexport) void runAnomalyDetectionAlgorithm(float t);
```

Note that c application looks for a function with that signature so if the dll won't contain a function from this form, the algorithm will no be run.