Interdisciplinary Project

Decoding Flight Data Recordings without Schema

Flight Safety – Flight Data Analysis

Motivation

The Flight Safety team at the Institute of Flight System Dynamics is dealing with recordings of flights, taken directly from the aircraft on-board recorders. These files contain tabular data from many sensors in the aircraft in the binary format ARINC717. The format only describes structure, not the actual position of parameters in the binary stream. To read these files, airlines or manufacturers usually have to provide a schema. Instead, applying methods from knowledge discovery and data mining, it should be possible to essentially “guess” the most important parameters from the binary stream.

Your task

- Familiarizing with the ARINC717 standard and the state-of-the-art decoding procedure written in Python, introduction given.
- Finding a way to read as many parameters as possible from a set of binary flight data recordings without using a schema. A schema can be provided for validation though.

Your profile

- Interest in commercial aviation
- Having fun experimenting with unknown data
- Experience with MATLAB, Python or C++
- Independent worker

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