Data Science: Flight Adherence Software Development

Background

In 2018 the Data Science group developed a system RNAV Adherence Data Integration System (RADI) to determine how variables in the aviation domain impact adherence levels of aircraft flying area navigation arrivals with optimized profile descents (RNAV OPDs). Variables categories were: weather, aircraft, procedure, and traffic. Non-adherence events analyzed were: miss above, miss below, skip before merge, and skip after merge. The system merged sources of data from flight tracks, weather, and procedures to capture variables that can be correlated with non-adherence behavior for each procedure. The system utilizes aspects of big data including volume, veracity, and variety to capture these variables.

Reference RADI NASA-TM for context:
https://hsi.arc.nasa.gov/publications/NASA_TM_2018_219964.pdf

Job Description

The candidate will be tasked with updating the code base from Python 2.7 and external packages to be compatible with existing long term support software in Python 3X and corresponding packages. The code processing pipeline should run from end to end and generate the variable tables.

Required Skills and Traits

- Excellent general programming skills and fluency in Python.
- Familiar with XML parsing package.
- Familiar with large file parsing and timeseries analysis.
- Familiar with Linux environment and submitting parallel computing tasks.

Other Desired Skills

- Familiar with geospatial projection concepts and spatial computational packages such as geopandas and pyproj.

Responsibilities

- Modernize RADI software to work in current long term supported Python 3X.
- Compare output with previous output to ensure accuracy.
- Document code and pipeline.
- [Optional] Build in functionality to process flight data from Flight Operational Quality Assurance data sets.