BSc/MSc thesis available

with the topic

Development of a C++ library for aircraft performance computation and visualization

In collaboration between the Flight Experiments Facility and the Institute of Atmospheric Physics at DLR Oberpfaffenhofen (Deutsches Zentrum für Luft- und Raumfahrt) and the Computer Graphics and Visualization Group at TU Munich this thesis project aims at developing a cross-platform C++ library capable of computing and visualizing flight performance parameters for the DLR research aircraft HALO and FALCON. This is required for an accurate planning of atmospheric research flights during aircraft-based field campaigns.

Building upon two Diploma thesis (Bauer, 2010, and Wolf, 2013), you will implement a library that allows the computation of aircraft performance (fuel consumption, possible flight manoeuvres, required time) in real-time. The library will provide interfaces to two pieces of software used for flight planning during field campaigns; the “Mission Support System” and “Met.3D”. The goal is to replace the prototypical implementations in these systems with a faster and more generalized module that provides direct visual feedback to the user about the feasibility of a currently planned flight track and about possible flight manoeuvres. More information about the Mission Support System (MSS) can be found at http://www.geosci-model-dev.net/5/55/2012/gmd-5-55-2012.html.

Requirements for the thesis are good programming skills in C++ and Python and interest in the application. Graphics can be implemented in Python (MSS interface) or OpenGL (Met.3D). In the latter case, knowledge of computer graphics and experience with a graphics API is required.

If you are interested, please contact:

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