General-Purpose Front End for Real-Time Data Processing

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FRONTIER is a computer program that functions as a front end for any of a variety of other software of both the artificial intelligence (AI) and conventional data-processing types. As used here, "front end" signifies interface software needed for acquiring and pre-processing data and making the data available for analysis by the other software. FRONTIER is reusable in that it can be rapidly tailored to any such other software with minimum effort. Each component of FRONTIER is programmable and is executed in an embedded virtual machine. Each component can be reconfigured during execution. The virtual-machine implementation making FRONTIER independent of the type of computing hardware on which it is executed.

The top-level elements of FRONTIER are written in the C language for real-time performance. However, configuration-setup, preprocessing, conversion, advanced analysis (AI) algorithms and noise-source definitions are written in a virtual language that can be downloaded to each of its components while they are running to provide hot swaps of software. FRONTIER is composed of one non-reusable component and seven reusable ones. The non-reusable component is the one that interfaces to the external world to acquire the data.

This program was written by Mark James of Caltech for NASA's Jet Propulsion Laboratory. Further information is contained in a TSP (see page 1).

This software is available for commercial licensing. Please contact Karina Edmonds of the California Institute of Technology at (626) 395-2322. Refer to NPO-42087.