Planning Coverage Campaigns for Mission Design and Analysis: CLASP for DESDynl

NASA's Jet Propulsion Laboratory, Pasadena, California

Mission design and analysis presents challenges in that almost all variables are in constant flux, yet the goal is to achieve an acceptable level of performance against a concept of operations, which might also be in flux. To increase responsiveness, automated planning tools are used that allow for the continual modification of spacecraft, ground system, staffing, and concept of operations, while returning metrics that are important to mission evaluation, such as area covered, peak memory usage, and peak data throughput. This approach was applied to the DESDynl mission design using the CLASP planning system, but since this adaptation, many techniques have changed under the hood for CLASP, and the DESDynl mission concept has undergone drastic changes.

The software produces mission evaluation products, such as memory high-water marks, coverage percentages, given a mission design in the form of coverage targets, concept of operations, spacecraft parameters, and orbital parameters. It tries to overcome the lack of fidelity and timeliness of mission requirements coverage analysis during mission design.

Previous techniques primarily use Excel in ad hoc fashion to approximate key factors in mission performance, often falling victim to overgeneralizations necessary in such an adaptation. The new program allows designers to faithfully represent their mission designs quickly, and get more accurate results just as quickly.

This work was done by Russell L. Knight, David A. McLaren, and Steven Hu of Caltech for NASA's Jet Propulsion Laboratory. For more information, contact iaoffice@jpl.nasa.gov.

This software is available for commercial licensing. Please contact Dan Broderick at Daniel.F.Broderick@jpl.nasa.gov. Refer to NPO-48598.

Space Place Prime

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Space Place Prime is public engagement and education software for use on iPad. It targets a multi-generational audience with news, images, videos, and educational articles from the Space Place Web site and other NASA sources.

New content is downloaded daily (or whenever the user accesses the app) via the wireless connection. In addition to the Space Place Web site, several NASA RSS feeds are tapped to provide new content. Content is retained for the previous several days, or some number of editions of each feed. All content is controlled on the server side, so features about the latest news, or changes to any content, can be made without updating the app in the Apple Store. It gathers many popular NASA features into one app.

The interface is a boundless, slidable-in-any-direction grid of images, unique for each feature, and iconized as image, video, or article. A tap opens the feature. An alternate list mode presents menus of images, videos, and articles separately. Favorites can be tagged for permanent archive. Facebook, Twitter, and e-mail connections make any feature shareable.

This work was done by Austin J. Fitzpatrick, Alexander Novati, Diane K. Fisher, and Nancy J. Leon of Caltech, and Ruth Netting of NASA HQ for NASA's Jet Propulsion Laboratory. For more information, contact iaoffice@jpl.nasa.gov.

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