mesh to the fine mesh uses bilinear interpolation; and prolongation of the coarse grid solution uses bicubic interpolation.

This program was written by Raymond E. Mineck, James L. Thomas, and Robert T. Biedron of Langley Research Center and Boris Diskin of the National Institute of Aerospace. Further information is contained in a TSP (see page 1).

LAR-16608-1

Doclet To Synthesize UML

The RoseDoclet computer program extends the capability of Java doclet software to automatically synthesize Unified Modeling Language (UML) content from Java language source code. [Doclets are Java-language programs that use the doclet application programming interface (API) to specify the content and format of the output of Javadoc. Javadoc is a program, originally designed to generate API documentation from Java source code, now also useful as an extensible engine for processing Java source code.] RoseDoclet takes advantage of Javadoc comments and tags already in the source code to produce a UML model of that code. RoseDoclet applies the doclet API to create a doclet passed to Javadoc. The Javadoc engine applies the doclet to the source code, emitting the output format specified by the doclet. RoseDoclet emits a Rose model file and populates it with fully documented packages, classes, methods, variables, and class diagrams identified in the source code. The way in which UML models are generated can be controlled by use of new Javadoc comment tags that RoseDoclet provides. The advantage of using RoseDoclet is that Javadoc documentation becomes leveraged for two purposes: documenting the as-built API and keeping the design documentation up to date.

This program was written by Matthew R. Barry and Richard N. Osborne of United Space Alliance for Johnson Space Center. For further information, contact the Johnson Technology Transfer Office at (281) 483-3809.

MSC-23580

GUI for Computational Simulation of a Propellant Mixer

Control Panel is a computer program that generates a graphical user interface (GUI) for computational simulation of a rocket-test-stand propellant mixer in which gaseous hydrogen (GH₂) is injected into flowing liquid hydrogen (LH₂) to obtain a combined flow having desired thermodynamic properties. The GUI is used in conjunction with software that models the mixer as a system having three inputs (the positions of the GH₂ and LH₂ inlet valves and an outlet valve) and three outputs (the pressure inside the mixer and the outlet flow temperature and flow rate). The user can specify valve characteristics and thermodynamic properties of the input fluids via user-friendly dialog boxes. The user can enter temporally varying input values or temporally varying desired output values. The GUI provides (1) a set-point calculator function for determining fixed valve positions that yield desired output values and (2) simulation functions that predict the response of the mixer to variations in the properties of the LH₂ and GH₂ and manual- or feedback-control variations in valve positions. The GUI enables scheduling of a sequence of operations that includes switching from manual to feedback control when a certain event occurs.

This program was written by Fernando Figueroa of Stennis Space Center, Hanz Richter of the National Research Council, and Enrique Barbieri and Jamie Granger Austin of Tulane University.

Inquiries concerning rights for the commercial use of this invention should be addressed to the Intellectual Property Manager, Stennis Space Center, (228) 688-1929. Refer to SSC-00213.

SQL-RAMS

SQL-RAMS (where “SQL” signifies Structured Query Language and “RAMS” signifies Rocketdyne Automated Management System) is a succes-