
Robust Software Engineering

AUTOMATED TEST CASE GENERATION APPLIED TO PADABORT-1 MODELS

HIGHLIGHT: Model analysis and test capabilities have been implemented in the Java PathFinder verification framework and have been applied to selected Simulink, Stateflow, and Embedded Matlab models of PadAbort-1 (Guidance & Navigation subsystem), resulting in test suites that guarantee full path, transition, and state coverage. A report has been written describing the work. A comparison with T-VEC commercial testing tool has also been performed. The techniques have been demonstrated to Crew Exploration Vehicle (CEV) clients from Johnson Space Center.

BACKGROUND: The PathFinder tool, in conjunction with Translation tools from collaborators at Vanderbilt University, is able to automatically analyze complex models that have features not handled currently by commercial tools. This is an important step towards automated analysis of integrated models that need to be built for CEV software.

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