



Thesis Title: Test-Case Generation for Timing Properties from EAST-ADL Models

Description: Testing is an important activity in assessing the quality of a software product, and generation of test cases is one way to introduce automation in testing and to make it more efficient. Models can serve as the main source of information to generate test cases from. In this thesis work, the goal is to generate test cases for the timing properties that are specified using EAST-ADL modeling language. To achieve this, for instance, a test-case generation algorithm can be designed and implemented as part of a model transformation which navigates the source model, identifies and extracts properties of interest, and creates as output test specifications.

In short, the following sub-tasks and challenges will be addressed in this thesis: 1) categorization of timing properties captured in an EAST-ADL model 2) defining appropriate test cases for each type of timing property 3) designing a test-case generation algorithm for the timing properties 4) implementation of the algorithm.

This thesis work is defined in the scope of the TOCSYC project (www.tocsyc.se). TOCSYC is a research project establishing an environment combining four Swedish groups in software testing research to advance the knowledge of testing critical characteristics of complex embedded systems. The overall goal of TOCSYC is to enable and support cost-effective testing for critical characteristics in embedded systems by providing Swedish industry with new and improved tools and techniques for efficient and effective testing as well as the decision-support procedures necessary to select the right testing tools or techniques for their context.

Competence: Good knowledge of model-driven engineering techniques is required. Being familiar with the principles of software testing and real-time systems is a plus.

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Misc: The thesis can also be taken as a joint-work by 2 students.

Application: To apply please send your CV along with the list of courses you have taken and their grades to mehrdad@sics.se. In your CV provide a short description of previous projects that you have done.

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