

Static Value Range Analysis for Matlab/Simulink-Models

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Abstract: In this paper we present a static value range analysis of signals within function block diagrams developed with Matlab/Simulink. We analyse signals with respect to their data type and compute an approximation of the possible value range of each signal represented by a set of intervals. In addition the analysis reports potential problems within the model, like occurrences of NaN (Not-a-Number) and divisions by zero or infinity. We show the applicability of our analysis on a viscosity model from Matlab Central and a model from the set of automotive example models that is contained within Matlab/Simulink.

Keywords: Automotive software engineering, static analysis, Matlab/Simulink

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