



Bachelor-, Master- und Doktorandenseminar
des Instituts für Informatik

Validating FMI Compliance of Simulation Tools

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To improve interoperability between suppliers and Original Equipment Manufacturers, OEMs, there is a high demand for model exchange. For this end, Functional Mockup Interface, FMI, is a promising solution. FMI is an independent standard for model exchange and co-simulation, in which models are exchanged in a common definition called Functional Mockup Unit, FMU. Since the first release, a lot of simulation tools took the initiative to support FMI. However, there have been many complains received from users stating that exchanging models via FMI does not work as stable as expected. The reason is that tool vendors sometimes implement FMI in a wrong way, and do not fully follow the FMI standard.

In this research, the FMI standard has been investigated carefully in order to find the best solution to test FMI compliance of importing simulation tools. The standard defines the implementation of FMI functions calling sequence in a state machine. Therefore, conformance testing (also called fault detection) from automata theory fits to our problem, in which the optimal (and the hardest) solution is to find typical test data. Since there's no valid test data could be used to test the FMI compliance of simulation tools, the aim of this thesis is to create a suite of reference FMUs as test data. Example reference FMUs have been created and the implementation steps are discussed. Several simulation tools have been chosen to check the effectiveness of reference FMUs. The results show how important the reference FMUs are to improve FMI compliance of simulation tools.

Freitag, den 14.07.2017, 15 Uhr s.t. im
Besprechungsraum 106, IfI, Julius-Albert-Straße 4