

Kolloquium

Am Dienstag, dem **02. Juli 2013**, um **14:00 Uhr** hält

Dr. Shuling Wang
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einen Vortrag mit dem Titel

Deductive Verification of Hybrid Systems

Der Vortrag findet im OFFIS, Escherweg 2, D21 statt.

Abstract:

In order to establish a deductive method for verifying hybrid systems, a modeling language with compositionality and a logic with inductive proof system for the language are prerequisites. In our work, we choose Hybrid CSP (HCSP) as the formal modeling language for hybrid systems, which as an extension of CSP introduces differential equations for representing continuous evolution and a set of interruptions for discrete control. The interactions between different components are realized by communications and parallel compositions. To specify and verify properties of HCSP, we extend Hoare Logic to hybrid systems, and define Hybrid Hoare Logic (HHL). The logic is compositional, i.e., it reduces properties of HCSP processes to properties of their parts. Based on the proof system of HHL, we have implemented in Isabelle/HOL an HCSP prover, which given an HCSP model annotated with HHL assertions, checks whether the HCSP model conforms to the annotated property, by interactive theorem proving. We demonstrate our approach on a combined scenario originating from the Chinese High-speed Train Control System Level 3.

Eingeladen von: Prof. Dr. Martin Fränzle