

Verification of Timed and Hybrid Systems

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Abstract

UPPAAL is a tool for modelling, simulating and verifying real-time and hybrid systems, developed collaboratively by BRICS at Aalborg University and Department of Computer Systems at Uppsala University since the beginning of 1995 (see www.uppaal.com). The theoretical foundation of UPPAAL is that of timed automata and the early decidability results provided by Alur and Dill in 1990.

The presentation will contain a description and demonstration of the main components of newest release of UPPAAL. Particular focus will be on the evolution of the algorithms and datastructures underlying the tool and their dramatic impact on performance. The presentation will include recent work on exact acceleration and other abstraction techniques for tackling the problem of fragmentation experienced during model checking of real-time systems with highly varying time-scales, e.g. in verification of the run-time behaviour of LEGO Mindstorms programs.