Colombian Conference on Computing
CCC 2018: Advances in Computing pp 113-127 | Cite as

REAL-T: Time Modularization in Reactive Distributed Applications

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Conference paper
First Online: 19 August 2018

Part of the Communications in Computer and Information Science book series (CCIS, volume 885)

Abstract

In this paper, we propose REAL-T, a distributed event-based language with explicit support for time manipulation. The language introduces automata for operational time manipulation, causality constructs and Linear Temporal Logic for declarative time predicates, and a distributed-time aware event model. We have developed a compiler for the language and a dynamic run-time framework. To validate the proposal we study detection of complex patterns of security vulnerabilities in IoT scenarios.

Keywords

Distributed programming | Event oriented programming | Explicit and implicit time management