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Nota di contenuto

Preface -- Verification of Embedded Real-time Systems --
MARTE/CCSL for Modeling Cyber-Physical Systems -- An Introduction
to Hybrid Automata, Numerical Simulation and Reachability Analysis --
Model Checking and Model-Based Testing in the Railway Domain --
Modeling Unknown Values in Test and Verification -- Specification of
Parametric Monitors: Quantified Event Automata versus Rule Systems
-- Advances in Design Automation Techniques for Digital-Microfluidic
Biochips -- Intuitive Interaction with Robots: Technical Approaches and
Challenges -- Physical Safety in Robotics.

Sommario/riassunto

This book presents the lecture notes of the 1st Summer School on
Methods and Tools for the Design of Digital Systems, 2015, held in
Bremen, Germany. The topic of the summer school was devoted to
modeling and verification of cyber-physical systems. This covers
several aspects of the field, including hybrid systems and model
checking, as well as applications in robotics and aerospace systems.
The main chapters have been written by leading scientists, who present
their field of research, each providing references to introductory
material as well as latest scientific advances and future research
directions. This is complemented by short papers submitted by the
participating PhD students. The Contents - Preface
- Verification of Embedded Real-time Systems - MARTE/CCSL
for Modeling Cyber-Physical Systems - An Introduction to Hybrid
Automata, Numerical Simulation and Reachability Analysis - Model
Checking and Model-Based Testing in the Railway Domain
- Modeling Unknown Values in Test and Verification
- Specification of Parametric Monitors – Quantified Event Automata
versus Rule Systems - Advances in Design Automation Techniques
for Digital-Microfluidic Biochips - Intuitive Interaction with Robots –
Technical Approaches and Challenges - Physical Safety in Robotics
The Target Groups - Students and PhD students of computer
science - Scientists and lecturers in computer science The Editors
Rolf Drechsler is the head of the Group of Computer Architecture at the
University of Bremen, Germany. Since 2011 he is also the director of
the Cyber-Physical Systems group at the German Research Center for
Artificial Intelligence (DFKI). His research interests include the
development and design of data structures and algorithms with a focus
on circuit and system design. Ulrich Kühne is working as research
associate and scientific coordinator of the Graduate School System
Design at the University of Bremen. His research interests are in
hardware design and verification of hybrid systems.
