2012 IEEE 14th International Symposium on High-Assurance Systems Engineering

HASE 2012

Table of Contents

Preface viii
Committees ix
Program Committee x

Session 1A
Diagnostic Fusion for Time-Triggered Automotive Networks .................................................. 1
   Utsav Drolia, Soila P. Kavulya, Kunal Mankodiya, Priya Narasimhan, and Thomas E. Fuhrman
Incremental Symbolic Conformance Testing from UML MARTE Sequence Diagrams: Railway Use Case ................................................................. 9
   Boutheina Bannour, Christophe Gaston, Arnauld Lapitre, and Jose Pablo Escobedo
GPS and Electronic Fence Data Fusion for Positioning within Railway Worksite Scenarios .................. 17
   João Figueiras, Jesper Grønbaek, Andrea Ceccarelli, and Hans-Peter Schwefel

Session 1B
IDAMC: A Many-Core Platform with Run-Time Monitoring for Mixed-Criticality ...................................... 24
   Boris Motruk, Jonas Diemer, Rainer Buchty, Rolf Ernst, and Mladen Berekovic
Real-Time Anomaly Detection in Streams of Execution Traces .................................................... 32
   Wenke Zhang, Fayyen Bastani, I-Ling Yen, Kevin Hulin, Farokh Bastani, and Latifur Khan
Information-Theoretic Detection of SQL Injection Attacks .......................................................... 40
   Hossain Shahriar and Mohammad Zulkernine

Session 2A
A Resilient Architecture for Forensic Storage of Events in Critical Infrastructures .......................... 48
   Muhammad Afzoul, Cesario Di Sarno, Luigi Coppolino, Salvatore D’Antonio, and Luigi Romano
An Autonomic Reliability Improvement System for Cyber-Physical Systems ................................... 56
   Leon Wu and Gail Kaiser
   Piergiuseppe Bettassa Copet, Alfredo Pironti, Davide Pozza, Riccardo Sisto, and Pietro Vivoli
Session 2B

Device Mechanism: A Structured Device Driver Development Approach ................................................. Raul Schmidlin Fajardo Silva and Guillermo Marcus

Automated Duplicate Bug Report Classification Using Subsequence Matching ........................................... Sean Banerjee, Bojan Cukic, and Donald Adjeroh

Towards Adaptable Middleware to Support Service Delivery Validation in i-DSML Execution Engines ................................................................. Karl A. Morris, Jinpeng Wei, Peter J. Clarke, and Fábio M. Costa

Session 3A

Exception Handling Defects: An Empirical Study ......................................................................................... Puntitra Sawadpong, Edward B. Allen, and Byron J. Williams

Using Stochastic Model Checking to Provision Complex Business Services .............................................. Luke Herbert and Robin Sharp

Online Verification of Value-Passing Choreographies through Property-Oriented Passive Testing ............... Huu Nghia Nguyen, Pascal Poizat, and Fatiha Zaïdi

Session 3B

A Framework for Generating Integrated Component Fault Trees from Architectural Views ........................ Kavyashree Jamboti and Peter Liggesmeyer

Linking Syntactic and Semantic Models of Java Source Code within a Program Transformation System ................................................................. Victor L. Winter, Jonathan Guerrero, Alexander James, and Carl Reinke

Automated Verification of AADL-Specifications Using UPPAAL ............................................................... Andreas Johnsen, Kristina Lundqvist, Paul Pettersson, and Omar Jaradat

Session 4A

Evaluating the Dependability of Dynamic Binding in Web Services .......................................................... Anthony Sargeant, Paul Townend, Jie Xu, and Karim Djemame

Design and Implementation of Real-Time Wearable Devices for a Safety-Critical Track Warning System ................................................................. Andrea Ceccarelli, Andrea Bondavalli, Joao Figueiras, Boris Malinowsky, Jurij Wakula, Francesco Brancati, Carlo Dambra, and Andrea Seminatore

A MDA-based Approach for Developing Simulation-Oriented Combat Flows .......................................... Hong Lu, Li Zhang, and Zhao Liu
Session 4B

Using Tool-Supported Model Based Safety Analysis—Progress and Experiences in SAML Development ................................................................. 159

Michael Lipaczewski, Simon Struck, and Frank Ortmeier

Proving the Absence Property Pattern Using the B Method ................................................................. 167

Amel Mammar, Marc Frappier, and Raphael Chane-Yack-Fa

Session 5A

Fast Abstract: Software Selection Based on Quantitative Security Risk Assessment ......................................................... 171

Ruma Das, Shahram Sarkani, and Thomas A. Mazzuchi

Communication Efficient Oblivious Transfer Using Elliptic Curves ................................................................. 173

Abhishek Parakh

Certifying Services in Cloud: The Case for a Hybrid, Incremental and Multi-layer Approach ......................................................... 175

George Spanoudakis, Ernesto Damiani, and Antonio Maña

Supporting Security Assurance in the Context of Evolution: Modular Modeling and Analysis with UMLsec ................................................................. 177

Thomas Ruhroth and Jan Jürgens

Towards Reliable Smart Microgrid Behavior Using Runtime Model Synthesis ......................................................... 185

Mark Allison, Karl A. Morris, Zhenyu Yang, Peter J. Clarke, and Fábio M. Costa

Session 5B

Model Checking Software Architecture Design ................................................................. 193

Jiexin Zhang, Yang Liu, Jing Sun, Jin Song Dong, and Jun Sun

Multi-objective Optimization of Formal Specifications ................................................................. 201

Simon Struck, Michael Lipaczewski, Frank Ortmeier, and Matthias Güdemann

How to Reduce the Cost of Passive Testing ................................................................. 209

César Andrés and Ana Cavalli

Author Index ........................................................................... 217