

International Symposium on Model-driven Approaches for Simulation Engineering (Mod4Sim'17)

2017 Spring Simulation Multi-Conference (SpringSim'17)

Simulation Series Volume 49 Number 7

Virginia Beach, Virginia, USA
23 – 26 April 2017

Editors:

**Andrea D'Ambrogio
Umut Durak**

Deniz Cetinkaya

ISBN: 978-1-5108-3826-0

Printed from e-media with permission by:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571
www.proceedings.com



Some format issues inherent in the e-media version may also appear in this print version.

© 2017 SIMULATION COUNCILS, INC.

Responsibility for the accuracy of all statement in each paper rests solely with the author(s). Statements are not necessarily representative of, nor endorsed by, The Society for Modeling and Simulation International.

Printed by Curran Associates, Inc. (2017)

Permission is granted to photocopy portions of this publication for personal use and for the use of students provided credit is given to the conference and publication. Permission does not extend to other types of reproduction nor to copying for incorporation into commercial advertising nor for any other profit-making purpose. Other publications are encouraged to include 300- to 500-word abstracts or excerpts from any paper contained in this book, provided credits are given to the author and the conference. For permission to publish a complete paper write: The Society for Modeling and Simulation International (SCS), 2598 Fortune Way, Suite I, San Diego, CA 92081, USA.

Additional copies of the Proceedings are available from:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571
curran@proceedings.com
www.proceedings.com/0128.html

or

The Society for Modeling
and Simulation International
2598 Fortune Way, Ste I
Vista, CA 92081 USA
www.scs.org

ISBN: 978-1-5108-3826-0
PRINTED IN THE UNITED STATES

TABLE OF CONTENTS

| | |
|---|------------|
| SYSTEM ENTITY STRUCTURE AND MODEL BASE FRAMEWORK IN MODEL BASED ENGINEERING OF SIMULATIONS FOR TECHNICAL SYSTEMS | 1 |
| <i>U. Durak, H. Oguztuzun, T. Pawletta, B. Zeigler</i> | |
| SEMI-AUTOMATIC PARALLELIZATION OF SIMULATIONS WITH MODEL TRANSFORMATION TECHNIQUES | 11 |
| <i>B. Gorur, A. Calli</i> | |
| OWL ONTOLOGY TO ECORE METAMODEL TRANSFORMATION FOR DESIGNING A DOMAIN SPECIFIC LANGUAGE TO DEVELOP AVIATION SCENARIOS..... | 23 |
| <i>S. Jafer, U. Durak, B. Chhaya</i> | |
| DERIVING ARCHITECTURE DESIGN VARIANTS FOR SYSTEM OPTIMIZATION FROM DESIGN SPACE DESCRIPTIONS EXPRESSED USING A UML PROFILE | 34 |
| <i>A. Wichmann, F. Bedini, R. Maschotta, A. Zimmermann</i> | |
| AN FUML EXTENSION SIMPLIFYING EXECUTABLE UML MODELS IMPLEMENTED FOR A C++ EXECUTION ENGINE | 46 |
| <i>F. Bedini, R. Maschotta, A. Wichmann, A. Zimmermann</i> | |
| CYBER PHYSICAL SYSTEMS BASED MODEL-DRIVEN DEVELOPMENT FOR PRECISION AGRICULTURE | 57 |
| <i>M. Moisescu, I. Dumitache, I. Sacala, D. Repta</i> | |
| SAVESOC - SAFETY AWARE VIRTUAL PROTOTYPE GENERATION AND EVALUATION OF A SYSTEM ON CHIP | 68 |
| <i>R. Weissnegger, M. Schachner, C. Kreiner, K. Romer, M. Pistauer, C. Steger</i> | |
| AUTOMATED DEVELOPMENT OF WEB-BASED MODELING SERVICES FOR MSAAS PLATFORMS | 80 |
| <i>P. Bocciarelli, A. D'Ambrogio, A. Mastromattei, A. Giglio</i> | |
| DEVS SPECIFICATION FOR MODELING AND SIMULATION OF THE UML ACTIVITIES..... | 92 |
| <i>A. Alshareef, H. Sarjoughian</i> | |
| FAULT TOLERANT SENSING MODEL FOR CYBER-PHYSICAL SYSTEMS | 104 |
| <i>S. Ghimire, C. Agostinho, J. Sarraipa, R. Jardim-Goncalves</i> | |
| RECONFIGURABLE AND UPDATABLE PRODUCT-SERVICE SYSTEMS: THE PATH FOR SUSTAINABILITY AND PERSONALIZATION | 113 |
| <i>M. Marques, G. Zacharewicz, C. Agostinho, R. Jardim-Goncalves</i> | |
| INTEGRATED MODELING AND SIMULATION FOR CYBERPHYSICAL SYSTEMS EXTENDING MULTI-DOMAIN M&S TO THE DESIGN COMMUNITY | 125 |
| <i>T. Bapty, S. Neema, J. Scott, R. Owens</i> | |
| Author Index | |