

2014 2nd International Conference on Model-Driven Engineering and Software Development

(MODELSWARD 2014)

**Lisbon, Portugal
7-9 January 2014**



**IEEE Catalog Number: CFP14YAX-POD
ISBN: 978-1-4799-4164-3**

CONTENTS

INVITED SPEAKERS

KEYNOTE SPEAKERS

Limitations of Model Repositories <i>Philippe Desfray</i>	IS-5
The Role of Foundational Ontologies in Deep Modeling <i>Colin Atkinson</i>	IS-7
Models in Software Architecture Derivation and Evaluation - Challenges and Opportunities <i>Silvia Abrahão</i>	IS-9
Verification and Performance Analysis of Embedded and Cyber-Physical Systems using UPPAAL <i>Kim G. Larsen</i>	IS-11
On Interaction in Data Mining <i>Andreas Holzinger</i>	IS-13

MODELING LANGUAGES, TOOLS AND ARCHITECTURES

FULL PAPERS

Using the Base Semantics given by fUML for Verification <i>Alessandro Gerlinger Romero, Klaus Schneider and Maurício Gonçalves Vieira Ferreira</i>	5
An Industrial Case Study on using Language Workbench Technology for Realizing Model-Driven Engineering <i>Xi Zhu, Congchi Phung, Lars Pareto, Staffan Ehnebo, Mikael Krekola, Magnus Christerson and Mats Helander</i>	17
An EMF-based Toolkit for Creation of Domain-specific Data Services <i>Andreas Bender, Stefan Bozic and Ivan Kondov</i>	30
A Graph-based Algorithm for Three-way Merging of Ordered Collections in EMF Models <i>Felix Schwägerl, Sabrina Uhrig and Bernhard Westfechtel</i>	41
Collaborative Editing of EMF/Ecore Meta-models and Models - Conflict Detection, Reconciliation, and Merging in DiCoMEF <i>Amanuel Koshima and Vincent Englebert</i>	55
A Domain Specific Language for Stepwise Design of Software Architectures <i>Fabian Gilson and Vincent Englebert</i>	67
Specifying Trace Directives for UML Attributes and State Machines <i>Hamoud Aljamaan, Timothy C. Lethbridge, Omar Badreddin, Geoffrey Guest and Andrew Forward</i>	79
What are the used Activity Diagram Constructs? - A Survey <i>Gianna Reggio, Maurizio Leotta, Filippo Ricca and Diego Clerissi</i>	87
Modeling of Tool Integration Resources with OSLC Support <i>Weiqing Zhang and Birger Møller-pedersen</i>	99
Typing and Subtyping of Metamodels <i>Henning Berg and Birger Møller-pedersen</i>	111

Signature Required - Making Simulink Data Flow and Interfaces Explicit <i>Marc Bender, Karen Laurin, Mark Lawford, Jeff Ong, Steven Postma and Vera Pantelic</i>	119
Short Seminars on MDE Technologies - International Experiences <i>Miłosz Marek and Plechawska-Wojcik Malgorzata</i>	132
An Aspect-Oriented Model Transformation to Weave Security using CVL <i>Jose-Miguel Horcas, Mónica Pinto and Lidia Fuentes</i>	138
SHORT PAPERS	
Parsing Abstract Syntax Graphs with ModelCC <i>Luis Quesada, Fernando Berzal and Juan-Carlos Cubero</i>	151
A Domain-Specific Language for Abstract Syntax Model to Concrete Syntax Model Mappings <i>Luis Quesada, Fernando Berzal and Juan-Carlos Cubero</i>	158
Model-Based Systems Engineering Tools - Developing the GUILTE System <i>Ana Luísa Ramos and José Vasconcelos Ferreira</i>	166
Model Matching for Model Transformation - A Meta-heuristic Approach <i>Hajer Saada, Marianne Huchard, Clémentine Nebut and Houari Sahraoui</i>	174
Towards a Systematic, Tool-Independent Methodology for Defining the Execution Semantics of UML Profiles with fUML <i>Jérémie Tatibouët, Arnaud Cuccuru, Sébastien Gérard and François Terrier</i>	182
Pattern-based Mapping of OCL Specifications to JML Contracts <i>Ali Hamie</i>	193
A Case Study of Combining Compositional and Object-oriented Software Development <i>Enn Tyugu, Mait Harf and Pavel Grigorenko</i>	201
Hardware In the Loop for VDM-Real Time Modeling of Embedded Systems <i>José Antonio Esparza Isasa, Peter Würtz Vinther Jørgensen and Peter Gorm Larsen</i>	209
Model Composition for Biological Mathematical Systems <i>Mandeep Gill, Steve McKeever and David Gavaghan</i>	217
A Test-Driven Approach for Developing Software Languages <i>Omar Badreddin, Andrew Forward and Timothy C. Lethbridge</i>	225
Enhanced Code Generation from UML Composite State Machines <i>Omar Badreddin, Timothy C. Lethbridge, Andrew Forward, Maged Elaasar, Hamoud Aljamaan and Miguel A. Garzon</i>	235
Defining Domain Specific Transformations in Human-Computer Interfaces Development <i>Jean-Sébastien Sottet and Alain Vagner</i>	246
A Novel Approach to Versioning and Merging Model and Code Uniformly <i>Omar Badreddin, Timothy C. Lethbridge and Andrew Forward</i>	254
Investigation and Evaluation of UML Action Languages <i>Omar Badreddin, Timothy C. Lethbridge and Andrew Forward</i>	264
Analysis and Validation of AUTOSAR Models <i>Julian Kienberger, Pascal Minnerup, Stefan Kuntz and Bernhard Bauer</i>	274

A Framework for Model Recommenders - Requirements, Architecture and Tool Support <i>Andrej Dyck, Andreas Ganser and Horst Lichter</i>	282
On Designing Recommenders for Graphical Domain Modeling Environments <i>Andrej Dyck, Andreas Ganser and Horst Lichter</i>	291
A Recipe for Tool Interoperability <i>Andreas Baumgart and Christian Ellen</i>	300
A Bottom Up SPL Design Method <i>Jihen Maâzoun, Nadia Bouassida and Hanène Ben-abdallah</i>	309
A Formal Semantics for Sequence Diagrams and a Strategy for System Analysis <i>Lucas Lima, Juliano Iyoda and Augusto Sampaio</i>	317
A Language for Enabling Model-Driven Analysis of Business Processes <i>Paolo Bocciarelli, Andrea D'Ambrogio and Emiliano Paglia</i>	325
Validating the Functional Design of Embedded Systems against Stakeholder Intentions <i>Marian Daun, Thorsten Weyer and Klaus Pohl</i>	333
Semantic Approach to Automatically Defined Model Transformation <i>Tixin Wang, Sebastien Truptil and Frederick Benaben</i>	340
Verbalization of Business Rules - Application to OCL Constraints in the Utility Domain <i>Rayhana Baghli and Bruno Traverson</i>	348
Natural-language Scenario Descriptions for Testing Core Language Models of Domain-Specific Languages <i>Bernhard Hoisl, Stefan Sobernig and Mark Strembeck</i>	356
Architectural Specification and Analysis with XCD <i>Mert Ozkaya and Christos Kloukinas</i>	368
A New Flexible Method for Advising Metamodel Matching <i>Lamine Lafi, Jamel Feki and Slimane Hammoudi</i>	376
Automated Composition of Sequence Diagrams via Alloy <i>Mohammed Alwanain, Behzad Bordbar and Juliana K. F. Bowles</i>	384
The Eclipse Java Metamodel - Scaffolding Software Engineering Research on Java Projects with MDE Techniques <i>Pedro Janeiro Coimbra and Fernando Brito e Abreu</i>	392
Model-Driven GUI Generation and Navigation for Android BIS Apps <i>Luís Pires da Silva and Fernando Brito e Abreu</i>	400
A Pattern Language for Use Case Modeling <i>António Miguel Rosado da Cruz</i>	408
Compiling Graph Transformation Rules into a Procedural Language for Behavioral Modeling <i>Sabine Winetzhammer and Bernhard Westfechtel</i>	415
Transformation BPEL Processes to RECATNet for Analysing Web Services Compositions <i>Ahmed Kheldoun and Malika Ioualalen</i>	425
Survey of Graph Rewriting applied to Model Transformations <i>Francisco de la Parra and Thomas Dean</i>	431

iArch - An IDE for Supporting Abstraction-aware Design Traceability <i>Di Ai, Naoyasu Ubayashi, Peiyuan Li, Shintaro Hosoai and Yasutaka Kamei</i>	442
An Approach to Class Diagram Design <i>Chebanyuk Elena</i>	448
A Deployment-oriented Development Process based on Context Variability Modeling <i>Ka Chun Anthony Lee, Maria-Teresa Segarra and Stephane Guelec</i>	454
Resourcebus - A New Substrate for Model-driven Creations <i>Petr C. Smolik and Pavel Vitkovsky</i>	460
Towards Co-evolution in Model-Driven Development Via Bidirectional Higher-Order Transformation <i>Bernhard Hoisl, Zhenjiang Hu and Soichiro Hidaka</i>	466
Toward Evolution Models for Data Warehouses <i>Said Taktak, Jamel Feki and Gilles Zurfluh</i>	472
Runtime Assertion Checking and Theorem Proving for Concurrent and Distributed Systems <i>Crystal Chang Din, Olaf Owe and Richard Bubel</i>	480
Extending UML Testing Profile Towards Non-functional Test Modeling <i>Federico Toledo Rodríguez, Francesca Lonetti, Antonia Bertolino, Macario Polo Usaola and Beatriz Pérez Lamancha</i>	488
Domain-specific Languages as Tools for Teaching 3D Graphics <i>Kęsik Jacek, Nowakowski Kamil and Żyła Kamil</i>	498

METHODOLOGIES, PROCESSES AND PLATFORMS

FULL PAPER

Staged Model-Driven Generators - Shifting Responsibility for Code Emission to Embedded Metaprograms <i>Yannis Lilis, Anthony Savidis and Yannis Valsamakis</i>	509
---	-----

SHORT PAPERS

SWB Process - A Business Process Management System driven by Semantic Technologies <i>Hasdai Pacheco, Karen Najera, Hugo Estrada and Javier Solis</i>	525
A Model-based Tool for Generating Software Process Model Tailoring Transformations <i>Luis Silvestre, María Cecilia Bastarrica and Sergio F. Ochoa</i>	533
Key Features for a Successful Model-Driven Development Tool <i>Beatriz Marín, Andrés Salinas, Juan Morandé, Giovanni Giachetti and Jose De la Vara</i>	541
On the Support of Multi-perspective Process Models Variability for Smart Environments <i>Aitor Murguzur, Xabier De Carlos, Salvador Trujillo and Goiuria Sagardui</i>	549
An Approach based on SysML and SystemC to Simulate Complex Systems <i>Abbas Abdulhameed, Ahmed Hammad, Hassan Mountassir and Bruno Tatibouet</i>	555
Integrating Testing into Agile Software Development Processes <i>R. van den Broek, M. M. Bonsangue, M. Chaudron and H. van Merode</i>	561

APPLICATIONS AND SOFTWARE DEVELOPMENT

FULL PAPER

- The MDArte Experience - Organizational Aspects Acquired from a Successful Partnership between Government and Academia using Model-Driven Development 575
Rodrigo Salvador Monteiro, Roque Elias Assumpção Pinel, Geraldo Zimbrão and Jano Moreira de Souza

SHORT PAPER

- Supporting Concurrent Development of Requirements and Architecture - A Model-based Approach 587
Andreas Vogelsang, Sebastian Eder, Georg Hackenberg, Maximilian Junker and Sabine Teufl

SPECIAL SESSION ON MODEL-BASED ANALYSIS AND TESTING OF EMBEDDED SYSTEMS

FULL PAPERS

- The ETSI Test Description Language TDL and its Application 601
Andreas Ulrich, Sylvia Jell, Anjelika Votintseva and Andres Kull
- Towards a Method for Combined Model-based Testing and Analysis 609
Brian Nielsen
- Integrating Model-based Formal Timing Analysis in the Industrial Development Process of Satellite On-Board Software 619
Rafik Henia, Laurent Rioux, Nicolas Sordon, Gerald-Emmanuel Garcia and Marco Panunzio
- Formal Test-Driven Development with Verified Test Cases 626
Bernhard K. Aichernig, Florian Lorber and Stefan Tiran
- Combining Test and Proof in MBAT - An Aerospace Case Study 636
Michael Dierkes
- Creating a Reference Technology Platform - Performing Model-based Safety Analysis in a Heterogeneous Development Environment 645
Omar Kacimi, Christian Ellen, Markus Oertel and Daniel Sojka

SPECIAL SESSION ON MODEL-DRIVEN SERVICE ENGINEERING: NEW PARADIGMS FOR SERVICES DEVELOPMENT IN THE MANUFACTURING DOMAIN

FULL PAPERS

- Information Models and Transformation Principles Applied to Servitization of Manufacturing and Service Systems Design 657
Carlos Agostinho, Hassan Bazoun, Gregory Zacharewicz, Yves Ducq and Hadrien Boye
- SLMToolBox - A Tool Set for Service Engineering 666
H. Boyé, H. Bazoun and K. Belkhelladi
- Toward a Unified Intercloud Interoperability Conceptual Model for IaaS Cloud Service 673
Tahereh Nodehi, Sudeep Ghimire and Ricardo Jardim-Gonçalves
- Modelling Services for Interoperability Negotiation 682
Carlos Coutinho, Adina Cretan and Ricardo Jardim-Gonçalves

AUTHOR INDEX