2010 IEEE/ACM 14th International Symposium on Distributed Simulation and Real Time Applications

(DS-RT 2010)

Fairfax, Virginia, USA
17 – 20 October 2010

Editors:

Stephen John Turner  Abulmotaleb El Saddik
David Roberts  Michael Lees
Wentong Cai

IEEE Catalog Number: CFP10186-PRT
2010 14th IEEE/ACM Symposium on Distributed Simulation and Real-Time Applications

DS-RT 2010

Table of Contents

Message from the Chairs.................................................................................................................ix
Organizing Committee.....................................................................................................................xi
Program Committee......................................................................................................................xiii
Steering and Advisory Board Committees.....................................................................................xv
Reviewers........................................................................................................................................xvi

Session 1: Keynote

Getting from Here to There: Locomotion in Virtual Environments ................................................3
  Mary Whitton

Session 2: Large Scale Simulation

CommPar: A Community-Based Model Partitioning Approach for Large-Scale Networked Social Dynamics Simulation ........................................................................................................7
  Bonan Hou and Yiping Yao
Self-Adaptive Dynamic Load Balancing for Large-Scale HLA-Based Simulations .......................14
  Robson Eduardo De Grande and Azzeddine Boukerche
Supporting the Decentralized Development of Large-Scale Distributed Real-Time LVC Simulation Systems with TENA (The Test and Training Enabling Architecture) ..................................................22
  J. Russell Noseworthy

Session 3: Virtual Reality and Virtual Worlds

QoS-Enabled ANFIS Dead Reckoning Algorithm for Distributed Interactive Simulation ........................33
  Akram Hakiri, Pascal Berthou, and Thierry Gayraud
Scale Virtual Worlds through Dynamic Load Balancing ................................................................43
  Huaiyu Liu and Mic Bowman
<table>
<thead>
<tr>
<th>Session 4: Algorithms and Languages for Simulation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supporting Multi-dimensional Range Query in HD Tree</td>
</tr>
<tr>
<td>Synchronised Range Queries in Distributed Simulations of Multi-agent Systems</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Session 5: Invited Talk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Battle Management Language Enables Rapid Integration of Command &amp; Control with Simulation</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Session 6: Simulation Studies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scenario Based Modeling for Very Large Scale Simulations</td>
</tr>
<tr>
<td>Ami Technology Helps to Sustain Speed While Merging - A Data Driven Simulation Study on Madrid Motorway Ring M30</td>
</tr>
<tr>
<td>Understanding and Building Interoperable, Integrable and Composable Distributed Training Simulations</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Session 8: Performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Performance Evaluation of PDES on Multi-core Clusters</td>
</tr>
<tr>
<td>Global Lookahead Management (GLM) Protocol for Conservative DEVS Simulation</td>
</tr>
</tbody>
</table>
A Three-Phases Byzantine Fault Tolerance Mechanism for HLA-Based Simulation
Zengxiang Li, Wentong Cai, Stephen John Turner, and Ke Pan

Session 9: Mobile and Sensor Networks
An Evolutionary Dynamic Approach for Designing Wireless Sensor Networks for Real Time Monitoring
Flávio V. C. Martins, Eduardo G. Carrano, Elizabeth F. Wanner, Ricardo H. C. Takahashi, and Geraldo R. Mateus

Multilevel Predictions for the Aggregation of Data in Global Sensor Networks
Andreas Benzing, Boris Koldehofe, Marco Völz, and Kurt Rothermel

SOAMANET: A Tool for Evaluating Service-Oriented Architectures on Mobile Ad-Hoc Networks
Himanshu Neema, Anand Kashyap, Robert Kereskenyi, Yuan Xue, and Gabor Karsai

Location Aware Question Answering Based Product Searching in Mobile Handheld Devices
SK Alamgir Hossain, A. S. M. Mahfujur Rahman, Thomas T. Tran, and Abdulmotaleb El Saddik

Short Papers
Distributed and Interactive Simulations Operating at Large Scale for Transcontinental Expeimentation
Thomas D. Gottschalk, Ke-Thia Yao, Gene Wagenbreth, Robert F. Lucas, and Dan M. Davis

Augmented Rendering of Makeup Features in a Smart Interactive Mirror System for Decision Support in Cosmetic Products Selection
A. S. M. Mahfujur Rahman, Thomas T. Tran, SK Alamgir Hossain, and Abdulmotaleb El Saddik

From DEVS to RTA-DEVS
Hesham Saadawi and Gabriel Wainer

Semantics in Course of Action Modeling and Simulation
Henrique C. Marques, José M. P. de Oliveira, and Paulo Cesar G. da Costa

Studying Characteristics of an Emulab Testbed for Scientifically Rigorous Experiments
Andres Perez-Garcia, Christos Siataterlis, and Marcelo Masera

Parallel Simulation of Multi-agent Systems Using Terracotta
Franco Cicirelli, Angelo Furfaro, Andrea Giordano, and Libero Nigro

Hierarchical Federation Composition for Information Hiding in HLA-Based Distributed Simulation
Jung Hyun Ahn, Moon Gi Seok, Chang Ho Sung, and Tag Gon Kim

New Contributions for Simulating Large Distributed Systems
Alberto Núñez, Javier Fernández, and Jesús Carretero