
Proceedings
***22nd Workshop on Principles of Advanced
and Distributed Simulation***

PADS 2008

*3-6 June 2008
Roma, Italy*



Los Alamitos, California
Washington • Tokyo



Table of Contents

22nd Workshop on Principles of Advanced and Distributed Simulation

PADS 2008

Message from the General Chair	viii
Message from the Program Chair	ix
Organizing Committee	xi

Keynote Presentation

Mobility Models for Wireless Networks: Challenges, Pitfalls, and Successes	3
<i>Don Towsley</i>	

Network Emulation

Time Jails: A Hybrid Approach to Scalable Network Emulation	7
<i>Andreas Grau, Steffen Maier, Klaus Herrmann, and Kurt Rothermel</i>	
Adaptive Model Update Algorithms for Remote Network Emulation	15
<i>Yan Gu and Richard Fujimoto</i>	
Toward Scalable Routing Experiments with Real-Time Network Simulation	23
<i>Yue Li, Jason Liu, and Raju Rangaswami</i>	

Applications

Parallel Vehicular Traffic Simulation Using Reverse Computation-Based Optimistic Execution.....	33
<i>Srikanth B. Yeginath and Kalyan S. Perumalla</i>	
Modelling and Simulation of Pedestrian Behaviours	43
<i>Wee Lit Koh, Lin Lin, and Suiping Zhou</i>	
Parallel and Distributed Spatial Simulation of Chemical Reactions.....	51
<i>Matthias Jeschke, Alfred Park, Roland Ewald, Richard Fujimoto, and Adelinde M. Uhrmacher</i>	

Modeling and Performance Evaluation

Secure Referee Selection for Fair and Responsive Peer-to-Peer Gaming	63
<i>Steven Daniel Webb, Sieteng Soh, and Jerry L. Trahan</i>	
Stochastic Process Models for Packet/Analytic-Based Network Simulations	72
<i>Robert G. Cole, George Riley, Derya Cansever, and William Yurcik</i>	
Performance Analysis of Real Traffic Carried with Encrypted Cover Flows.....	80
<i>Nabil Shear and David M. Nicol</i>	

Simulation Techniques

An Algorithm Selection Approach for Simulation Systems	91
<i>Roland Ewald, Jan Himmelspach, and Adelinde M. Uhrmacher</i>	
Interval Branching	99
<i>Patrick Peschlow, Peter Martini, and Jason Liu</i>	
Symbiotic Simulation Systems: An Extended Definition Motivated by Symbiosis in Biology	109
<i>Heiko Ayd, Stephen John Turner, Wentong Cai, and Malcolm Yoke Hean Low</i>	

Network Simulation, Emulation, and Testbeds

Evaluating the Performance of Real Time Videoconferencing in Ad Hoc Networks through Emulation..	119
<i>Jorge Hortelano, Juan-Carlos Cano, Carlos T. Calafate, and Pietro Manzoni</i>	
Scalable versus Accurate Physical Layer Modeling in Wireless Network Simulations.....	127
<i>Elyes Ben Hamida, Guillaume Chelius, and Jean Marie Gorce</i>	
Hybrid Testbed Enabling Run-Time Operations for Wireless Applications	135
<i>Kumiko Maeda, Keisuke Nakata, Takaaki Umedu, Hirozumi Yamaguchi, Keiichi Yasumoto, and Teruo Higashino</i>	

Work In Progress

Federated Agent Based Modeling and Simulation: An Approach for Complex Critical Systems Analysis	147
<i>Emiliano Casalicchio and Emanuele Galli</i>	
Parallel and Distributed Simulation of Coalition Structure Generation in Cooperative Multi-agent Systems.....	148
<i>Gabriele D'Angelo and Giovanni Rossi</i>	
A Formal Definition of Dynamic Structure Hybrid Simulation Model	149
<i>Fernando J. Barros</i>	
A Dynamic Publish-Subscribe Network for Distributed Simulation	150
<i>Patrick Crowley</i>	
Managing Computational Complexity of Large-Scale Traffic Micro-simulations Using Application- and Simulation-Specific Characteristics.....	151
<i>Tom Holvoet and Rutger Claes</i>	
A Parallel Simulator for Quantum Fault Tolerance in the Presence of Correlated Errors	152
<i>Dan C. Marinescu and Gabriela M. Marinescu</i>	
Clarifying Interoperability: The SISO CSPI PDG Standard for Commercial Off-the-Shelf Simulation Package Interoperability Reference Models	153
<i>Simon J.E. Taylor, Stephen J. Turner, and Steffen Strassburger</i>	
Efficient Execution on GPUs of Field-Based Vehicular Mobility Models	154
<i>Kalyan S. Perumalla</i>	

Optimistic Simulation

A Comparison of Interest Manager Mechanisms for Agent-Based Simulation Using
a Time Warp Executive 157
Tianhao He and Maria Hybinette

DyMeLoR: Dynamic Memory Logger and Restorer Library for Optimistic Simulation
Objects with Generic Memory Layout 163
Roberto Toccaceli and Francesco Quaglia

Agent-Based Simulation

An Agent-Based Environment for Simulation Model Composition..... 175
Farshad Moradi, Rassul Ayani, and Imran Mahmood

Advancing the Layered Approach to Agent-Based Crowd Simulation 185
Bikramjit Banerjee, Ahmed Abukmail, and Landon Kraemer

Conservative Simulation and HLA

Micro-synchronization in Conservative Parallel Network Simulations 195
Siming Lin, Xueqi Cheng, and Jianming Lv

A Hybrid HLA Time Management Algorithm Based on Both Conditional and Unconditional
Information 203
Ke Pan, Stephen John Turner, Wentong Cai, and Zengxiang Li

Author Index..... 212