

FINAL PROGRAM FOR THE
**2002 ADVANCED SIMULATION
TECHNOLOGIES CONFERENCE**



**APRIL 14–18, 2002
SAN DIEGO, CALIFORNIA**

CONFERENCE SYMPOSIA:

- **BUSINESS AND INDUSTRY SYMPOSIUM**
- **35TH ANNUAL SIMULATION SYMPOSIUM**
- **HIGH-PERFORMANCE COMPUTING SYMPOSIUM**
- **APPLIED TELECOMMUNICATION SYMPOSIUM**
- **MILITARY, GOVERNMENT, AND AEROSPACE SIMULATION SYMPOSIUM**



The Society for Modeling and Simulation International
www.scs.org

ASTC 2002 INFO

REGISTRATION

The conference registration/information desk is open during the following hours:

Sun., April 14	2:00pm-6:00pm
Mon., April 15	7:00am-5:00pm
Tues., April 16	7:00am-5:00pm
Wed., April 17	7:00am-12:00pm

SPEAKER'S BREAKFAST

Breakfast is served for each speaker on the morning of his/her presentation. Presenters meet with Track/Session Chairs to discuss presentations of the day. Admittance with breakfast ticket only.

Mon., April 15	7:00am-8:00am	Kicks
Tues., April 16	7:00am-8:00am	Salon E
Wed., April 17	7:00am-8:00am	Kicks

GENERAL SESSION

Mon., April 15	8:30am-10:00am	Salon D&E
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Jacqueline G. Steele, U.S. Army Space and Missile Defense Command (*see page 5*)

COFFEE BREAKS

Refreshments will be served in the Exhibit Area at mid-morning and mid-afternoon session breaks according to the following schedule:

Mon., April 15	10:00am, 3:00pm	Rio Vista Pavilion
Tues., April 16	10:00am, 3:00pm	Rio Vista Pavilion
Wed., April 17	10:00am, 3:00pm	Rio Vista Pavilion

EXHIBITION AREA

The Exhibit area will be open immediately following the ASTC 2002 Keynote Speech according to the following schedule:

Mon., April 15	10:00am-7:30pm	Rio Vista Pavilion
Tues., April 16	10:00am-5:00pm	Rio Vista Pavilion
Wed., April 17	10:00am-12:00pm	Rio Vista Pavilion

EXHIBITOR RECEPTION

Mon., April 15	6:00pm-7:30pm	Rio Vista Pavilion
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SCS EXECUTIVE COMMITTEE MEETING

Sat., April 13	1:00pm-6:00pm	Sierra 6
Sun., April 14	8:00am-5:00pm	Balboa 2

This is a routine meeting of the SCS Executive Committee where an administrative review of SCS is conducted. All Members of the Executive Committee are expected to attend and members of the Board of Directors are welcome to observe.

ASTC 2002 PRE-CONFERENCE MEETING

Sun., April 14	3:00pm-4:00pm	Santa Fe 4
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A meeting of the ASTC 2002 Organizing Committee to discuss the events of the week.

HPC 2002 PRE-CONFERENCE MEETING

Sun., April 14	4:00pm-5:00pm	Santa Fe 4
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High Performance Computing Symposium Organizers use this opportunity to communicate final arrangements for the week.

ATS 2003 ORGANIZING COMMITTEE MEETING

Mon., April 15	12:00pm-1:30pm	Salon E
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Applied Telecommunication Symposium organizers should attend, prepared to discuss plans for 2003.

ANSS 2003 ORGANIZING COMMITTEE MEETING

Mon., April 15 12:00pm–1:30pm Salon E

Annual Simulation Symposium organizers should attend, prepared to discuss plans for 2003.

SCS CONFERENCE BOARD MEETING

Tues., April 16 10:30am–12:00pm Balboa 2

This is a meeting of the SCS Vice President of Conferences and the Conference Board to discuss topics and future venues for SCS conferences.

HPC 2003 ORGANIZING COMMITTEE MEETING

Tues., April 16 12:00pm–1:30pm Salon E

The primary activity of the HPC Committee is the Symposium. This is the time and place to coordinate program plans for Orlando in April 2003.

BUSINESS AND INDUSTRY 2003 ORGANIZING COMMITTEE MEETING

Tues., April 16 12:00pm–1:30pm Salon E

Business and Industry Symposium organizers should attend, prepared to discuss plans for 2003.

SENIOR VP MEETING

Tues., April 16 1:30pm–3:00pm Balboa 2

This is a meeting of the SCS Senior Vice President and related committees to discuss affiliations, policies and procedures of SCS International.

SCS 50TH ANNIVERSARY COMMITTEE MEETING

Tues., April 16 3:30pm–5:00pm Balboa 2

The 50th Anniversary Committee meets to finalize plans for The Society's Golden Anniversary.

ASTC 2003 ORGANIZING MEETING

Wed., April 17 8:30am–10:00am Balboa 2

Those with an active role in planning a 2003 conference should attend, prepared to discuss specific plans for Orlando.

MGA 2003 ORGANIZING COMMITTEE MEETING

Wed., April 17 12:00pm–1:30pm Salon E

MGA Program Committee members meet to discuss a 2003 conference in Orlando.

SCS WESTERN REGIONAL COUNCIL MEETING

Wed., April 17 3:30pm–5:00pm Balboa 2

Members of the Western Regional Council of the Society for Modeling and Simulation International will meet to re-establish the council as an active SCS organization serving member needs and the simulation community in the Northwest and Southwest region of the United States. All SCS members and any other interested conference attendees from that area are encouraged to attend. We will discuss strategic directions for the Western Council, election of council officials, develop a list of regional activities, and proposed calendar of regional events.

Wright Patterson Air Force Base Information Technology Directorate

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SAGE Science Press

Publishers of *SIMULATION*: Transactions of the Society for Modeling and Simulation International. SAGE Publications is an independent global publisher of journals, books and electronic media for scholarly, educational and professional markets.

The Society for Modeling and Simulation International

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Established in 1952, *The Society for Modeling and Simulation International* is the only technical society dedicated to advancing the use of computer-based modeling and simulation to solve real world problems. **SCS Membership** represents a worldwide network of professionals, organized by six regional member councils representing North America, the European Economic Community and Pacific Rim nations as well as six application-focused technical member councils, committed to guiding the growth and acceptance of modeling and simulation as a decision making tool. **SCS Conferences** present the opportunity to network, lead technical committees, organize technical sessions or publish a paper in your field of expertise. **SCS Publications** help to keep our members current with advancements in simulation technology, including the monthly journal *SIMULATION* and the new Quarterly membership publication *MODELING & SIMULATION* magazine.

Modeling and Simulation (M&S) Economics

Jacqueline G. Steele

Chief, Computer Resources Division

U.S. Army Space and Missile Defense Command

Monday, 8:30–10:00, Salon D&E

Modeling and Simulation (M&S) Economics: M & S are cost effective tools that impact testing processes and offer opportunities to do things better, cheaper, and faster. We are becoming increasingly reliant on M&S to support training, concept exploration, and material development. M&S is a critical enabler that can reduce cost and schedule risk for the Testing Community. But to obtain community acceptance, M&S cost and benefit trades have to be expressed as specific tools that produce an acceptable return on investment. We need to develop this business case to achieve decision maker acceptance.

Jacqueline G. “Jackie” Steele is chief of the Computer Resources Division, Space and Missile Defense Battle Lab, U.S. Army Space and Missile Defense Command (SMDC). Ms. Steele oversees the command’s primary distributed processing, high performance computing, and visualization centers—the Advanced Research Center and the Simulation Center. Ms. Steele’s role in the acquisition, operation, and maintenance of simulation supporting technologies and resources includes extensive coordination with other government agencies as users and sponsors of the ARC/SC. This enterprise-level approach to simulation asset management enables customers to enjoy economies of scale when acquiring new capacity and to cross-level workloads among multiple projects. Ms. Steele also manages the DOD High Performance Computing Management Program (HPCMP) Shared Resource Center located at SMDC and serves as one of four Army members to the HPCMP Users Advocacy Group.

Ms. Steele’s 24 years of academic, government and industry experience began as a Research Engineer at Auburn University investigating computerized energy audits. In 1980, she entered government service with the U.S. Forestry Service, and joined the Metrology Directorate of the U. S. Army Test, Measurement and Diagnostic Equipment Support Group in 1981. In 1985, Ms. Steele transferred to U. S. Army Missile Command (MICOM) where she worked in the Systems Engineering Analysis Division. Since joining the Strategic Defense Command in 1987, Ms. Steele expanded her knowledge and expertise performing engineering and management duties in the High Endo-atmospheric Defense Interceptor Project Office Project Engineering Division, and the Mission Analysis Office and Simulation Branch of the Systems Analysis/Battle Management (SABM) Directorate. Ms. Steele led the Simulation Development Division for 2 years before moving to the Computer Resources Division of the Simulations Directorate.

Born in Pell City, Alabama, Ms. Steele earned bachelor degrees in Mechanical Engineering and Textile Engineering in 1978 from Auburn University and a Master of Science in Management in 1995 from the University of Alabama in Huntsville.

Ms. Steele was inducted into the U.S. Army Acquisition Corps in 1994.

Business and Industry Symposium

CHAIR: MAURICE J. ADES, *WESTINGHOUSE SAVANNAH RIVER COMPANY*

Track 1: Industrial Simulation

CHAIRS: LARRY M. DESCHAINE, *SAIC*

MAURICE J. ADES, *WESTINGHOUSE SAVANNAH RIVER COMPANY*

Sunday

2:00–4:00

Sierra 5

Tutorial

An Introduction to Linear Genetic Programming and Evolution Strategies – Theory, Case Histories, and Software Training.

Larry M. Deschaine, *SAIC, Chalmers University of Technology, USA*

Linear Genetic Programming is becoming a widely used method to auto-design simulation models from data as well as to simulate simulators to accelerate functional analysis and optimization. Evolution strategies is a powerful optimization technique. Together, they pack a one-two punch to enable solutions to problems that were heretofore either impractical or intractable. Attendees of this tutorial will learn the basics of linear genetic programming and evolution strategies, what it is, how it works, and what it has solved on real world applications. Attendees will also receive training on a commercial software product (LGP) that is proven robust and successful at solving a wide range of challenges. The tutorial will be presented by Mr. Larry M. Deschaine, PE, of Science Applications International Corporation.

Pre-registration is requested, but not required.

Monday

10:30–12:00

Salon C

Session 1: Environmental Technology I/Simulation

Chairs: Thong Hang, Len Collard, *Westinghouse Savannah River Company*

Effects of Using Laboratory-Measured Distribution Coefficients for High-Concentration I-129 Wastes to be Disposed in Trenches

Leonard B. Collard, *Westinghouse Savannah River Company, USA*

Sensitivity Analysis of Parameters Affecting Protection of Water Resources at Hanford, Washington

Jerry D. Davis, *Fluor Hanford, Inc., USA*

Melvin G. Piepho, *Fluor Federal Services, USA*

An Optimal Ion Exchange Design for Removal of Cesium from Hanford Waste

L.L. Hamm, T. Hang, D.J. McCabe, W.D. King, *Westinghouse Savannah River Company, USA*

An Open Source Approach to Environmental Data Management, Analysis, and Visualization

Michael E. Klausmeier, Larry M. Deschaine, *SAIC, USA*

Lee A. Belfore, II, *Old Dominion University, USA*

Monday

1:30–3:00

Salon C

Keynote Address

Dr. Linda A. Riley of New Mexico State University will open the track with a discussion of the state-of-the-art/practice of the evolutionary computation and optimization field. Dr. Runchal, developer of the Poreflow simulation model, will follow with a discussion of designing and applying software to simulate complex physical systems with sparse data sets.

Monday

3:30–5:00

Salon C

Session 2: Environmental Technology II/SimulationChairs: Len Collard, Thong Hang, *Westinghouse Savannah River Company***The Impact of Climatological Conditions on LEU Loading Station Operations for the HEU Blend Down Project**Bob Chang, Chuck Hunter, *Westinghouse Savannah River Company, USA***A Formal Sitewide Environmental Impact Remedial Design Optimization System – Description, Capabilities, and Results**Larry M. Deschaine, *SAIC & Chalmers University of Technology, USA*Richard C. Cronce, Janardan J. Patel, *SAIC, USA*Ashok K. Kaytal, *RASI, USA*Peter Nordin, *Chalmers University of Technology, USA*Maurice J. Ades, *Consultant, USA***Technical Review of Innovative Environmental Technologies**M.J. Ades, *Consultant, USA*Larry M. Deschaine, *SAIC, USA*

Tuesday

8:30–10:00

Salon C

Session 3: Genetic Programming and ModelingChair: L.M. Deschaine, *SAIC***Median Confidence Intervals – Grouping Data into Batches and Comparison with Other Techniques**Johann Christoph Strelen, *Universität Bonn, Germany***Using Machine Learning to Complement and Extend the Accuracy of UXO Discrimination Beyond the Best Reported Results of the Jefferson Proving Ground Technology Demonstration**Larry M. Deschaine, *SAIC & Chalmers University of Technology, USA*Richard A. Hoover, Joseph N. Skibinski, Janardan J. Patel, *SAIC, USA*Frank Francone, Peter Nordin, *Chalmers Univ. of Technology & RMLT, USA*M.J. Ades, *Consultant - USA***Processing Pashto for Data Extraction**Pradip Peter Dey, Saeed Hashemi, *National University, USA***An Intelligent Simulation Model**R. Sawhney, D. Kim, H. Ligget, J. North, *The University of Tennessee, USA*

Tuesday

10:30–12:00

Salon C

Session 4: System Optimization IChair: Linda A. Riley, *New Mexico State University***A Tabu Search Simulation Experiment for Optimizing the Location of Inspection Sites**Gloria M. Fragoso-Diaz, *New Mexico State University, USA***Effectiveness of Dynamic Simulation Supporting and Optimizing Design and Management of Warehouse Facilities**Emilio Ferrari, Mauro Gamberi, Riccardo Manzini, Arrigo Pareschi, Alberto Regattieri, *University of Bologna, Italy*Alessandro Persona, *University of Padova, Italy***LAMA: Optimization Procedure for Computing the Minimum Facility Design Cost**Carmen X. Flores-Mendoza, Linda A. Riley, *New Mexico State Univ., USA***Neural Networks Approach for Prediction Parameter Settings in Injection Molding**Delia J. Valles-Rosales, *Instituto Tecnológico de Cd Juárez, Mexico*Edward Pines, *New Mexico State University, USA*

Tuesday

1:30–3:00

Salon C

Session 5: System Optimization II

Chair: Linda A. Riley, *New Mexico State University*

Scheduling Algorithms Using Event Graph Constructs

Charalambos A. Marangos, Robert H. Storer, *Lehigh University, USA*

Optimizing the Job Shop Scheduling Problem with Neuro-Genetic Modeling

Thomas E. Salais-Fierro, Linda Ann Riley, *New Mexico State University, USA*

Genetic Algorithms with Dynamic Structures: A New Approach for Solving Network Problems

Miguel A. Gomez-Sanchez, Linda A. Riley, *New Mexico State University, USA*

Tuesday

3:30–5:00

Salon C

Session 6: System Simulation I

Chairs: Janos-Sebestyen Janosy, *KFKI*

Larry M. Deschaine, *SAIC*

Gate to Gate Simulation for Validating Collaborative Decision Making Applications

Martin Adelantado, Romaric I'Hernault, *ONERA-CT/DPRS/SAE, France*

Manufacturing Planning for a Batch Process Industry

Dinesh Kumar, *Siemens Information Systems Ltd., India*

A Design Method and Implementation Techniques for Reusable Simulation Models

Hu Xiaohui, Ai Kewu, Ge Hanyi, Li Ya, *Beijing Institute of System Engineering, P.R. China*

Wednesday

8:30–10:00

Salon C

Session 7: System Simulation II

Chairs: Agostino Bruzzone, *University of Genoa*

Larry M. Deschaine, *SAIC*

Reliability Analysis by Using Simulation for Complex Automated Plants

Agostino G. Bruzzone, Roberto Revetria, *University of Genoa, Italy*

Artifact Meta-Models for Composable Simulation

Li Han, Christiaan J.J. Paredis, *Carnegie Mellon University, USA*

Three Dimensional Modelling Approach for the Order Picking Problem in a Highly Automated Warehouse

Stefano Saetta, Lorenzo Tiacci, Andrea Coccia, *University of Perugia, Italy*

Wednesday

10:30–12:00

Salon C

Session 8: System Simulation III

Chairs: Janos-Sebestyen Janosy, *KFKI*

Stefano Saetta, *University of Perugia*

Simulation of an Industrial Coating Process: Atmospheric Plasma Spraying

N. Papenfuß-Janzen, E. Lugscheider, *Aachen University of Technology, Germany*

Simulation and Optimization of Acrylonitrile Reactors for Pollution Prevention

Atheri Al-Mahmeed, Ali Elkamel, *Kuwait University, Kuwait*

Erdogen Alper, *Hacettepe University, Turkey*

Simulation in an Environment Monitoring System Reconstruction Project

Janos-Sebestyen Janosy, *KFKI, Hungary*

Wednesday

1:30–3:00

Salon C

Session 9: System Simulation IVChairs: Stefano Saetta, *University of Perugia*Larry M. Deschaine, *SAIC***Optimization of Aircraft-based Meteorological Data Collection with a GIS-based Simulation Model**Erol Ozan, Paul Kauffmann, Yesim Sireli, *Old Dominion University, USA***Predicting System Accidents with Model Analysis During Hybrid Simulation**Jane T. Malin, Land D. Fleming, *NASA, USA*David R. Throop, *The Boeing Company, USA***Characterizing the Gain Flattening Filter for Erbium Doped Fiber Amplifier**Anubhuti K. Shrivastava, *GEC – Bhopal, India*R.P. Singh, *MACT BHOPAL, India***The Design and Implementation of Multi-Resolution Federal with Air Force Federate as an Example**L. BaoHong, *National University of Science and Technology, China*

Monday

10:30–12:00

Salon G&H

Session 10: Mathematical Models/Simulation**Methodology**Chairs: M. Burgin, *UCLA*Larry M. Deschaine, *SAIC***Mathematical Models for Simulating Technological Process**Mark Burgin, *UCLA, USA***Speed Prior and Optimal Simulation of the Future**Jürgen Schmidhuber, *IDSIA, Switzerland***Abstract Automata as a Tool for Developing Simulation Software**Mark Burgin, Shelia Greibach, *UCLA, USA*

Wednesday

8:30–10:00

Salon B

Session 11: Virtual RealityChairs: D.H. Ambrose, *NIOSH*O. Volberg, *Palladium Associates***Motion Editing and Reuse Techniques and Their Role in Studying Events Between a Machine and its Operator**Ovsei Volberg, *Palladium Associates, USA*Dean H. Ambrose, *NIOSH, USA***Lower Back Analysis of Roof Bolter Machine Operators using Motion Capture and Simulation**Dean H. Ambrose, *NIOSH, USA***Component Based 3D Visualization of Simulation Results**Jochen Manfred Quick, *Nanyang Technological University, Singapore*

Track 2: Business Simulation

CHAIR: CHARLES R. CRAIN, *MIAMI UNIVERSITY*

CO-CHAIR: MAURICE J. ADES, *WESTINGHOUSE SAVANNAH RIVER COMPANY*

Tuesday

10:30–12:00

Salon H

Session 1: Business Simulation I

Chair: Charles R. Crain, *Miami University*

Analytical Method for Modeling Trade Repair by Using Option Strategies

M.J. Ades, *Consultant, USA*

Larry M. Deschaine, *SAIC, USA*

Examining the Human Behavior Variables in Agent-Based Supply-Chain Simulation Experiments

Charles R. Crain, *Miami University, USA*

Analytical Model for Covered Call Option Strategies

M.J. Ades, *Consultant, USA*

Larry M. Deschaine, *SAIC, USA*

Track 3: International Industrial Simulation

CHAIRS: MAURICE J. ADES, *WESTINGHOUSE SAVANNAH RIVER COMPANY*

LARRY M. DESCHAINE, *SAIC*

Wednesday

3:30–5:00

Salon C

Session 1: International Industrial Simulation Round

Table Discussion

Chairs: Maurice J. Ades, *Westinghouse Savannah River Company*

Larry M. Deschaine, *SAIC*

35th Annual Simulation Symposium 2002

GENERAL CHAIR: TAIEB ZNATI, *UNIVERSITY OF PITTSBURGH*

PROGRAM CO-CHAIRS: AZZEDINE BOUKERCHE, *UNIV. OF NORTH TEXAS*

HELEN KARATZA, *ARISTOTLE UNIVERSITY OF THESSALONIKI*

Monday

10:30–11:30

Sierra 5&6

Keynote Address

Coping with Complexity: Abstractions, Models and Data

Dr. Herbert D. Schwetman, *Mesquite Software, Inc., USA*

Monday

11:30–12:30

Sierra 5&6

Invited Talk

Cloning Parallel Simulation Programs

Professor Richard Fujimoto, *Georgia Tech, USA*

Monday

1:30–3:10

Sierra 5&6

Session 1: Network Modeling and Simulation I

Chair: Helen Karatza, *Aristotle University of Thessaloniki*

On the Performance of STAR: An Efficient Delay-Bound, Low-Cost Multicast Algorithm

S. Li, R. Melhem, T.F. Znati, *University of Pittsburgh, USA*

A Route Discovery Optimization Scheme Using GPS System

A. Boukerche, Sheetal Vaidya, *University of North Texas, USA*

Myongsu Choe, *Samsung Electronics Company, LTD, Texas, USA*

A Bandwidth-Reservation Mechanism for On-Demand Ad Hoc Path Finding

Irina Gerasimov, Robert Simon, *George Mason University, USA*

Design and Performance Modeling & Simulation of Self-Healing Mechanisms for Wireless Communication Networks

Latha Kant, *Telcordia Technologies, NJ, USA*

Monday

3:30–5:35

Sierra 5&6

Session 2: Parallel and Distributed Simulation IChair: Azzedine Boukerche, *University of North Texas***Integrating Multiple Parallel Simulation Engines for Mixed-Technology Parallel Simulation**Dale E. Martin, Philip A. Wilsey, *Clifton Labs, Inc, USA*Robert J. Hoekstra, Eric R. Keiter, Scott A. Hutchinson, T.V. Russo, Lon J. Waters, *Sandia National Labs, USA***Controlling Buffer Usage in Critical Channel Traversing**Rob Simmonds, Cameron Kiddle, Kitty Wong, Brian Unger, *University of Calgary, Canada***The ABELS Brokering System**Anush Kumar, Linda F. Wilson, Thomas B. Stephens, Jeanne Sucharitaves, *Dartmouth College, USA***Temporal Uncertainty Time Warp: An Agent-Based Implementation**R. Beraldi, L. Nigro, A. Orlando, F. Pupo, *Universita' della Calabria, Italy***Simulation-Based VV&A Methodology for HLA Federations: An Example from the Aerospace Industry**A.G. Bruzzone, R. Mosca, A. Orsoni, R. Revetria, *University of Genoa, Italy*

Tuesday

8:30–10:10

Sierra 5&6

Session 3: Simulation Based Performance AnalysisChair: Taieb Znati, *University of Pittsburgh***Statistical Simulation of Symmetric Multiprocessor Systems**Sebastien Nussbaum, *Sun Microsystems, USA*James E. Smith, *University of Wisconsin-Madison, USA***A Statistical Mechanical Approach to a Framework for Modeling Irregular Programs on Distributed or Cluster Computers**Shean T. McMahon, Isaac D. Scherson, *University of California-Irvine, USA***Approximate Simulation of Distributed-Memory Multithreaded Multiprocessors**Wlodek Zuberek, *Memorial University of Newfoundland, Canada***Scheduling a Job Mix in a Partitionable Parallel System**Helen Karatza, *Aristotle University of Thessaloniki, Greece*Ralph C. Hilzer, *California State University – Chico, USA*

Tuesday

10:30–12:35

Sierra 5&6

Session 4: Simulation Languages, Tools, and Environments IChair: Wlodek M. Zuberek, *Memorial University of Newfoundland***A Modular Client-Server Discrete Event Simulator for Networked Computers**

David Wangerin, Chris DeCoro, Luis M. Campos, Hugo Coyote, Isaac D.

Scherson, *University of California – Irvine, USA***REMOTE: A Tool for Automatic Remote Execution of CSIM Simulation Models**Kenneth J. Christensen, *University of South Florida, USA***Simulating Group Communication Protocols through an Object-Oriented Framework**Hisham H. Muhammad, Marinho P. Barcellos, *Universidade do Vale do Rio dos Sinos, Brazil*

Ranking a List of Discrete-Event Models

Henk de Swaan Arons, Csaba Attila Boer, *Erasmus University, The Netherlands*

A Distributed Graphical Environment for Interactive Fault Simulation and Analysis

Shu Chen, Paul Olson, Stephen A. Morrison, *Tufts University, USA*

Tuesday

1:30–3:10

Sierra 5&6

Session 5: Web-Based Modeling and Simulation

Chair: Robert Simon, *George Mason University*

An Architecture and Implementation to Support Large-Scale Data Access in Scientific Simulation Environments

Victor P. Holmes, Stephen D. Kleban, David J. Miller, Constantine Pavlakos, Clark A. Poore, Ruthe L. Vandewart, *Sandia National Laboratories, USA*
Charles P. Crowley, *University of New Mexico, USA*

Using Simulation to Facilitate Effective Workflow Adaptation

John A. Miller, Jorge Cardoso, Gregory Silver, *University of Georgia, USA*

GroupGraph: A Collaborative Hierarchical Graph Editor Based on the Internet

Helio A.S. Lima Filho, Celso M. Hirata, *Instituto Tecnológico de Aeronautica, Brazil*

Performance Simulation of the Jambala Platform

Maria Toeroe, *Ericsson Research, Canada*

Tuesday

3:30–5:35

Sierra 5&6

Session 6: Network Modeling and Simulation II

Chair: Gabriel Wainer, *Carleton University*

Traffic Monitoring Techniques for Measurement Based Flow Acceptance Control

Ali Maqousi, Shalini Tater, Frank Ball, *Oxford Brookes University, UK*

Evaluating the Performance of Photonic Interconnection Networks

Roger Chamberlain, Ch'ng Shi Baw, Mark Franklin, Christopher Hackmann, Praveen Krishnamurthy, Abhijit Mahajan, Michael Wrighton, *Washington University – St. Louis, USA*

Performance Evaluation and Analysis of Protocols for IP Mobility Support: A Quantitative Study

Peng Sun, Sam Yuan Sung, Zhao Li, *National University of Singapore, Singapore*
Stephen Huang, *University of Houston, USA*

Performance Analysis for Data Service in Third Generation Mobile Telecommunication Networks

Aloizio Pereira da Silva, Geraldo R. Mateus, *Universidade Federal de Minas Gerais, Brazil*

Gang Scheduling Performance on a Cluster of Non-Dedicated Workstations

Helen Karatza, *Aristotle University of Thessaloniki, Greece*

Wednesday

8:30–10:10

Sierra 5&6

Session 7: Parallel and Distributed Simulation IIChair: John R. Clymer, *California State University – Fullerton***SPaDES/Java: Object-Oriented Parallel Discrete-Event Simulation**Yong Meng TEO, Yew Kwong NG, *National University of Singapore, Singapore***Middleware for a Distributed Reconfigurable Simulator**Song Hun Kim, William H. Tranter, S.F. Midkiff, *Virginia Tech, USA***Developing An Object Exchange Model Template for GRIDS Distributed Supply Chain Simulations**Gary Tan, Wee Ngee Ng, *National University of Singapore, Singapore*
Simon J.E. Taylor, *Brunel University, UK***Dynamic Load-Balancing for BSP Time Warp**Malcolm Yoke Hean Low, *University of Oxford, UK*

Wednesday

10:30–12:35

Sierra 5&6

Session 8: Advances in Simulation Methodology and PracticesChair: Simon J.E. Taylor, *Brunel University***Simulation of a Vehicle Traffic Control Network Using a Fuzzy Classifier System**John R. Clymer, *California State University - Fullerton, USA***A Flow Injection Model using Cell-DEVS**Alejandro Troccoli, Javier Ameghino, Fernando Inon, *Universidad de Buenos Aires, Argentina*Gabriel Wainer, *Carleton University, Canada***Faster than Real-Time Machine Learning within High Fidelity Simulations**Ethan E. Danahy, Stephen A. Morrison, *Tufts University, USA***Behavioral Model Composition in Simulation-Based Design**Rajarishi Sinha, Christiaan J.J. Paredis, Pradeep K. Khosla, *Carnegie Mellon University, USA***Stochastic Optimization in Computing Multiple Headways for a Single Bus Line**Huiifen Chen, *Chung Yuan Christian University, Taiwan*

Wednesday

1:30–3:10

Sierra 5

Session 9: Network Modeling and Simulation IIIChair: Frank Ball, *Oxford Brookes University***A Simulation Based Performance Analysis of a TCP Extension for Best-Effort Multimedia Applications**Karl-Johan Grinnemo, *Ericsson Infotech AB, Sweden*Anna Brunstrom, *Karlstad University, Sweden***Graph-Based Mobility Model for Mobile Ad Hoc Network Simulation**Jing Tian, Jorg Hahner, Christian Becker, Ilya Stepanov, Kurt Rothermel, *University of Stuttgart, Germany***A Simulation Study of the Predictive p-persistent CSMA Protocol**Xiaoming Chen, Geok-Soon Hong, *National University of Singapore, Singapore***Breaking the Memory Bottleneck with an Optical Data Path**Jason E. Fritts, Roger D. Chamberlain, *Washington University, USA*

Wednesday

3:30–5:10

Sierra 5

Session 10: Simulation Languages, Tools, and Environments IIChair: Stephen Morrison, *Tufts University***MODELICA - A General Object-Oriented Language for Continuous and Discrete-Event System Modeling and Simulation**Peter Fritzson, Peter Bunus, *Linkoping University, Sweden***A Comprehensive 3G Link Level Simulator**Ernesto Luiz Andrade Neto, Michel Daoud Yacoub, *DECOM-FEEC/UNICAMP, Brazil*Ailton Akira Shinoda, *DEEL-CTU/UUEL, Brazil*Marcelo Eduardo Pellenz, *PPGIA - PUCPR, Brazil***Simulator for E-LOTOS Specifications**Francisco Isidro Massetto, Wanderley Lopes de Souza, Sergio Donizetti Zorzo, *UFSCar - Federal University of Sao Carlos, Brazil***Animating 3D Facial Models with the MPEG-4 FaceDefTables**Dalong Jiang, Zhiguo Li, Zhaoqi Wang, *Institute of Computing Technology, Chinese Academy of Sciences, China*Wen Gao, *ICT, CAS, and Harbin Institute of Technology, China*

Wednesday

1:30–3:00

Sierra 6

Poster Session**A Discussion on Model Validation Issues and Techniques in FRTS**Dimosthenis Anagnostopoulos, *Harokopion University of Athens, Greece*
Mara Nikolaidou, *University of Athens, Greece***Employing Real-Time System Development Techniques For A High-Level Description of Real-Time Simulators**Dimosthenis Anagnostopoulos, *Harokopion University of Athens, Greece*
Vassilios Dalakas, Mara Nikolaidou, *University of Athens, Greece***Constraint-based, Multilevel, Mixed-Signal Simulation Under the SHADOW System**Stephen A. Morrison, *Tufts University, USA***Use Multilevel-coding To Simplify the Performance Evaluation with Protocols for IP Mobility Support.**Peng Sun, Sam Yuan Sung, Zhao Li, Chew Lim Tan, *National University of Singapore, Singapore*

Wednesday

3:30–5:00

Sierra 6

Poster Session**A Tool for Real Time Simulations of TCP/IP over Wireless Fading Channels**Anna Ewerlid, Nilo Casimiro Ericsson, *Uppsala University, Sweden***E-Cacheability: A Quantitative Measure for the Effectiveness of Caching Web Objects**Chi-Hung Chi, Luwei Zhang, *National University of Singapore, Singapore***Specificaton of Software Components to Construct Simulation Tools**Juliana Camboim Lopes de Andrade Lula, Maria Izabel Cavalcanti Cabral, *Federal University of Paraiba, Brazil***A Mixed-Mode Simulation Methodology for High Speed Designs**Karen Panetta, Steve Morrison, Paul Schwab, Shawn Bawell, Andrew Forbes, *Tufts University, USA***A Web Based Simulation Package for Evaluating Routing Algorithms on Optical Omega Networks**Hong Miao, James P. Buckley, Jennifer Seitzer, *University of Dayton, USA*
Yi Pan, *Georgia State University, USA*

High Performance Computing Grand Challenges in Computer Simulation

CHAIR: ADRIAN TENTNER, *ARGONNE NATIONAL LABORATORY*

Monday **10:30–12:00**

Salon A, B&D

HPC Plenary Session

Chair: Adrian Tentner, *Argonne National Laboratory*

Genomes to Life Initiative

Gary Johnson, *USDOE, USA*

Tuesday **10:30–12:00**

Salon D

HPC Panel Session

Chair: Charles Nietubicz, *Army Research Laboratory*

HPC Centers Past, Present, Future

ARLMSRC - Charles Nietubicz

NASA NAS - Bill Fereisen

NERSC - Bill Cramer

NSF - Pittsburgh Supercomputing Center

Track 1: High Performance Computing Applications

Monday **1:30–3:00**

Salon D

Session 1.1 Computational Fluid Dynamics Applications

Chair: Yves Lecointe, *University of Nantes*

**Parallelization of a MultiDimensional Code for the Simulation of
Flows in Engines: Performance with OpenMP Programming Model**

Kannan N. Premnath, John Abraham, *Purdue University, USA*

Vinicio Magi, *University of Basilicata, Italy*

**A Multilevel Parallelization Scheme Based on MPI Communicators
for Solving Groundwater Inverse Problems**

Mohamed Sayeed, G. Mahinthakumar, *North Carolina State University, USA*

**Parallel Finite Element Simulation of Dispersion with Buoyency
Forces**

J. Abedi, S. Aliabadi, A. Abatan, *Clark Atlanta University, USA*

Tuesday **8:30–10:00**

Salon D

Session 1.2 Bio-Informatics Applications I

Chair: Allan Dickerman, *Virginia Polytechnic and State University*

**High Performance Computing for Biochemical Network
Simulations**

Stefan Hoops, Dingjun Chen, Pedro Mendes, *Virginia Polytechnic and State
University, USA*

**Phylogenomics: Making Sense of Genome-scale Data Sets Using the
Principle of Common Descent**

Allan Dickerman, *Virginia Polytechnic and State University, USA*

Tuesday

1:30–3:00

Salon D

Session 1.3 Advances in Computational Solid Mechanics

Chair: David Littlefield, *University of Texas – Austin*

Developments for Large-Scale Parallel Finite Element Computation of Three-Dimensional Structural Blast Problems

Kent T. Danielson, *Army High Performance Computing Research Center/ Network Computing Services, USA*

Stephen A. Akers, Mark D. Adley, *U.S. Army Engineer Research and Development Center, Waterways Experiment Station, USA*

Computational Modeling of Impact and Penetration

David J. Gee, *University of Texas – Austin, USA*

Structural Retrofit for Blast Using Computational Structural Mechanics

Photios P. Papados, *U.S. Army Research Laboratory, USA*

James T. Baylot, James L. O'Daniel, *U.S. Army Engineer Research and Development Center, USA*

Coupled Lagrangian/Eulerian Simulation of Blast/Structure Interaction with Large-scale Parallel Computing

David L. Littlefield, *University of Texas – Austin, USA*

Tuesday

3:30–5:00

Santa Fe 3&4

Session 1.4: HPC Scientific Visualization from the Desktop

Chair: Charles Nietubicz, *Army Research Laboratory*

HPC Interaction from the Desktop

Stephen Wilkerson, *ARL, MD, USA*

Rendering Methodologies

Mark Bolstad, *Raytheon-ARL, MD, USA*

“Presto” Distributed Visualization

Andrew Johnson, *Army High Performance Computing Research Center, USA*

“VisIt,” A Case Study of a Distributed Visualization Tool for Parallel Computing

Hank Childs, *Lawrence Livermore National Lab, USA*

Visualization of a Changing Dose Field

Terry M. Helm, Drew E. Kornreich, *Los Alamos National Laboratory, USA*

Wednesday

8:30–10:00

Salon D

Session 1.5 Lattice Boltzmann and Molecular Dynamics Applications

Chair: Adrian Tentner, *Argonne National Laboratory*

A Novel Lattice Boltzmann Model for Liquid Crystal Hydrodynamics

Junya Onishi, Yu Chen, Hirota Ohashi, *University of Tokyo, Japan*

Parallel Molecular Dynamics for Short-Ranged Many-Body Potentials Using MPI

C.F. Cornwell, *High Performance Technologies, USA*

L.T. Willie, *Florida Atlantic University, USA*

Lattice Boltzmann Simulations of Incompressible Jets on Parallel Computers

Kannan N. Premnath, John Abraham, *Purdue University, USA*

Modeling of Liquid Fuel Jet Breakup Using the Lattice Boltzmann Method

Xiaobo Nie, Shiyi Chen, *Johns Hopkins University, USA*

Adrian Tentner, *Argonne National Laboratory, USA*

Wednesday

10:30–12:00

Salon D

Session 1.6 Bio-Informatics Applications IIChair: Layne Watson, *Virginia Polytechnic Institute***A Reconfigurable Architecture for Immunodiagnostics Using Biosensors**Abel Guilhermino S. Filho, Manoel Eusebio de Lima, José L. Lima Filho, Rosa F. Dutra, *LIKA/UFPE, Brazil***Parameter Estimation in a Cell Cycle Model for Frog Egg Extracts**Jason W. Zwolak, John J. Tyson, Layne T. Watson, *Virginia Polytechnic Institute and State University, USA***Computational Approaches to Combining Predictive Biological Models**Douglas J. Slotta, Lenwood S. Heath, Naren Ramakrishnan, Rich Helm, Malcolm Potts, *Virginia Polytechnic and State University, USA*

Wednesday

3:30–5:00

Salon A

Session 1.7 Solid and Fluid Dynamics Applications

Chair: TBA

The Use of Modeling & Simulation in Ground Vehicle AnalysisMichael D. Letherwood, David D. Gunter, *U.S. Army NAC/TARDEC, USA***High Performance Computing Simulations for a Subsonic Projectile with Jets**Jubaraj Sahu, *U.S. Army Research Laboratory, USA***Parallel Numerical Algorithm for Simulation of Mooring Forces on Floating Objects**S. Aliabadi, J. Abedi, B. Zellars, *Clark Atlanta University, USA***A Dynamic Data Binding Framework for High Performance Object-Oriented Propulsion System Simulation**Risheng Lin, Abdollah A. Afjeh, *University of Toledo, USA***Numerical Simulations of Temperature Distribution and Strain In a Cylinder Subjected Alternately to Heating and Cooling**Frank Chen, *University of Southern Colorado, USA***Track 2: HPC Environments, Algorithms and Performance**

Monday

1:30–3:00

Salon A&B

Session 2.1 HPC Parallel System Architecture and Performance IChair: Graham Carey, *University of Texas – Austin***A Big Iron Resource Management Simulation System**Stepen D. Kleban, Scott H. Clearwater, *Sandia National Laboratories, USA***An Open-source Simulation Tool for Evaluating Different Scheduling Policies in a Network of Workstations**Xavier Molero, Vicente Santonja, *Technical University of Valencia, Spain***Clustering and System Management**Joshua Harr, *Linux NetworX, USA*

Tuesday

8:30–10:00

Salon A&B

Session 2.2 HPC Parallel System Architecture and Performance II

Chair: Ioana Banicescu, *Mississippi State University*

Performance Balancing of Fine-Grain Multithreaded Distributed-Memory Systems

W.M. Zuberek, *Memorial University of Newfoundland, Canada*

Load Balancing with Variable Number of Processors on Commodity Clusters

Saeed Iqbal, Graham F. Carey, *University of Texas – Austin, USA*

M.A. Padron, J.P. Suarez, A. Plaza, *University of Las Palmas de Gran Canaria, Spain*

A Multi-Agent Data Collection Architecture for Distributed Simulations

Yijia Xu, Suvrajeet Sen, Frank W. Ciarallo, *The University of Arizona, USA*

LBsim: A Load Balancing Simulator for Data Parallel Applications

Manojkumar Krishnan, Sheikh K. Ghafoor, Ioana Banicescu, *Mississippi State University, USA*

Tuesday

3:30–5:00

Salon A&B

Session 2.3 Algorithms and Strategies for Multi-Processor Computing I

Chair: Yuefang Deng, *University of New York – Stony Brook*

The Generic Local Agent: Gateway to the ABELS System

Jeanne Suchariaves, Linda F. Wilson, Anush Kumar, *Dartmouth College, USA*

A Study of Error Propagation in the Winograd Variant of Strassen's Matrix Multiplication Algorithm Using Interval Arithmetic

Rick R. Castrapel, John L. Gustafson, *Sun Microsystems, Inc., USA*

Distributed QMC Algorithms: New Strategies and Performance Evaluation

Laurentiu Cucos, Elise de Doncker, *Western Michigan University, USA*

Wednesday

8:30–10:00

Salon A

Session 2.4 Algorithms and Strategies for Multi-Processor Computing II

High Performance Cluster Computing Using Component-Oriented Distributed Systems

V.K. Murthy, *University of South Wales, Australia*

Utilizing DAG Scheduling Algorithms for Entity-Level Simulations

Alan Su, Henri Casanova, Fran Berman, *Univ. of California–San Diego, USA*

Intrusion Detection Using Support Vector Machines

Srinivas Mukkamala, Guadalupe I. Janoski, Andrew H. Sung, *New Mexico Institute of Mining and Technology, USA*

Wednesday

1:30–3:00

Salon A

Session 2.5 Algorithms and Strategies for Multi-Processor Computing III**Improving Load Balancing and Data Locality in N-Body Simulations via Adaptive Weighted Fractiling**Honghai Zheng, Johnny Devaprasad, Manojkumar Krishnan, Ioana Banicescu, Jianping Zhu, *Mississippi State University, USA***HPC Federated Cluster Administration with C3 v3.0**Brian Luethke, Stephen L. Scott, Thomas Naughton, Al Geist, *Oakridge National Laboratory, USA***Cmeta: A Cluster Management Enabling Toolbox for Administrators**Hsi-Ya Chang, Kuo-Chan Huang, Min Chen, *National Center for High Performance Computing, Taiwan*Chia-Hsin Hou, Guo-Xin Hong, *National Tsing Hua University, Taiwan*

Wednesday

3:30–5:00

Salon B

Session 2.6 HPC Parallel System Architecture and Performance III**The Quest for a Self-Organizing All-Optical Routing System**Edward E.E. Frietman, *Delft University of Technology, the Netherlands*
Roy Crosbie, *California State University – Chico, USA*
George Balogh, *Spectra-Physics Lasers Inc., USA***Learning Decision Component in Simulation Models: Cooperating Probabilistic Optimizers**Mufit Ozden, *Miami University, USA***A Performance Management Methodology for Oracle RDBMS on HP-UX**Sanhita Sarkar, *Oracle Corporation, USA***Track 3: Innovative Internet Computing Systems**

Monday

3:30–5:00

Salon A&B

Session 3.1 Technologies for Building the Large-Scale GridsChair: John R. Boisseau, *Texas Advanced Computing Center/University of Texas-Austin***Building Clusters for Terascale Computing on the Grid**Mason Katz, *San Diego Supercomputer Center / University of California San Diego, USA***Data Management in the Globus Toolkit**Ann Chervenak, *Information Sciences Institute / University of Southern California, USA***SRB & SrbRack - Components of a Virtual Data Grid Architecture**Arcot Rajasekar, *San Diego Supercomputer Center / University of California San Diego, USA***Developing Computational Grid Portals Based on the GridPort Toolkit**Mary P. Thomas, *Texas Advanced Computing Center / University of Texas-Austin, USA*

Tuesday

1:30–3:00

Salon A&B

Session 3.2: Information Management on the Web

Chair: Herwig Unger, *University of Rostock*

Implementation of Multimedia Email Based on Streaming Media and Sender-Side Storage

Qingsheng Zhu, Zhongfu Wu, Zhengyu Zhu, Qian Wang, *University of Illinois at Chicago, USA & Chongqing University, P.R. China*

Simulation of Replicated Services in Jini

Vasil Georgiev, Vladimir Getov, *University of Westminster, UK*

A Local-Area Distributed Associative Storage System

Thomas Lucke, Djamshid Tavangarian, *University of Rostock, Germany*

Resource Warehouses: A Distributed Information Management Infrastructure

Simon Khoury, Peter Kropf, *University of Montreal, Canada*

Gilbert Babin, *HEC –Montreal, Canada*

Wednesday

10:30–12:00

Salon A

Session 3.3: Simulation of Large Distributed Systems

Chair: Peter Kropf, *University of Montreal*

Structuring of Decentralized Computer Communities

Herwig Unger, Helena Unger, Nita Titova, *University of Rostock, Germany*

WWW Simulator Validation

Diane T. Lark, Martha Evens, William Lidinsky, *Illinois Institute of Technology, USA*

Husky: A Multi-Agent System for Adaptive Scheduling of Grid Aware Applications

M.A. Kerasha, Ian Greenshields, *University of Connecticut, USA*

Simulation Study of Atomic Commitment of Global Transactions in Distributed Database Systems

Maher Mouradi, *AOL Time Warner Inc., USA*

Lan Yang, *California State Polytechnic University, USA*

Wednesday

1:30–3:00

Session 3.4 Panel Discussion

Salon D

Analysis of Complex Networked Systems: Modeling, Simulation and Experimentation

Peter Kropf, *University of Montreal, Canada*

Herwig Unger, *University of Rostock, Germany*

Dietmar Tutsch, *Technical University of Berlin, Germany*

David Abramson, *Monash University, Australia*

Track 4: Petri Nets and Performance Evaluation in HPC**Monday****3:30–5:00****Salon D****Session 4.1 Data-Dependency and Time Distribution**Chair: Dietmar Tutsch, *Technical University of Berlin***Data-Dependency Analysis: An Approach Based on Petri Nets**Paulo Maciel, Tomaz Barros, Edna Barros, Renata Cavalcanti, Mauro Silva, *Federal University of Pernambuco, Brazil***Improving Accuracy in Modeling Multistage Interconnection Networks**Marcus Brenner, *Technical University of Berlin, Germany***Approximate Computation of Response Time Distribution in Workflows**Loucif Zerguini, *Eindhoven University of Technology, The Netherlands***Transformation of Hammock Type Processes**Peter Raulefs, *Intel Corporation, USA*Samvel Shoukourian, Armen Grigoryan, *Yerevan State University, Armenia***Tuesday****3:30–5:00****Salon D****Session 4.2 Switching**Chair: Jorn Janneck, *University of California – Berkeley***Analysis of Discrete-Time Buffers with Geometric Service Times and Multiple Servers**Peixa Gao, Sabine Wittevrongel, Herwig Bruneel, *Ghent University, Belgium***Comparing Switch and Buffer Sizes of Multistage Interconnection Networks in Case of Multicast Traffic**Dietmar Tutsch, Günter Hommel, *Technical University of Berlin, Germany***A Reconfigurable Codesign Methodology for Switching Context Applications Based on Petri Net**Manoel E. Lima, Abel G.S. Filho, Paulo Sérgio B. Nascimento, Paulo Maciel, *Cin/UFPE, Brazil***Wednesday****3:30–5:00****Salon D****Session 4.3 Wireless Applications and PN Semantics**Chair: Paulo Maciel, *University of Pernambuco***Operational Semantics for PBC with Asynchronous Communication**R. Devillers, *Université Libre de Bruxelles, Belgium*H. Klaudel, E. Pelz, F. Pommereau, *Université Paris, France*M. Koutny, *University of Newcastle upon Tyne, U.K.***Higher-Order Modeling and Automated Design-Space Exploration**Jörn W. Janneck, *University of California - Berkeley, USA*Robert Esser, *Adelaide University, Australia***Global Optimization of Transmitter Placement in Wireless Communication Systems**

J. He, A. Verstak, L.T. Watson, T.S. Rappaport, C.R. Anderson, N.

Ramakrishnana, C.A. Shaffer, W.H. Tranter, K. Bae, J. Jiang, *Virginia**Polytechnic Institute and State University, USA*

Applied Telecommunication Symposium

CHAIR: BOHDAN BODNAR, *MOTOROLA, INC.*

Monday

10:30–12:00

Santa Fe 3&4

Session 1: Network Management and Security/Business

How to Combine Edge Pricing and End-to-End Performance Management Efficiently

Peter Reichl, *Telecommunications Research Center (FTW), Austria*
Wolfgang Haidegger, *Siemens AG Österreich, Austria*

Efficiency and Performance Issues in Distributed Intrusion Detection Systems

G. Koutepas, F. Stamatelopoulos¹, B. Maglaris, *National Technical University of Athens, Greece*

Securing Log-Based Rollback-Recovery Data

Phoebe Weidmann, *University of Texas-Austin, USA*

A Simulation Model for the Cumulus Pricing Scheme

Hongguang Ma, *Hi-Tech Institute of Xi'an, P.R. China*
David Hausheer, Burkhard Stiller, *TIK, ETH Zurich, Switzerland*
Peter Reichl, *FTW, Austria*

Monday

1:30–3:00

Santa Fe 3&4

Session 2: Wireless

QoS-Based Call Control in IP-RANs

KiSeon Kim, SuWon Lee, *KwangJu Institute of Science and Technology, Korea*
Jee-Hwan Ahn, *ETRI, RoK, Korea*
Aftab Ahmad, Felicia Zhang, *DePaul University, USA*

Metamorph – Changing the Wireless Access Network to CG

Jiapeng Zhou, Steinar Andresen, *Norwegian University of Science and Technology, Norway*

Performance Study of a Randomized Destination-Sequenced Distance Vector (R-DSDV) Protocol for Congestion Control in Ad Hoc Wireless Networks

Wook Choi, Sajal K. Das, *University of Texas – Arlington, USA*

Monday

3:30–5:00

Santa Fe 3&4

Session 3: Infrastructure Protection/Emergency Management

On Integrating Human In-the-Loop Supervision Into Critical Infrastructure Process Control Systems

Alex Korzyk, *University of Idaho, USA*
William Yurcik, *Illinois State University, USA*

Identifying the Information Requirements of Civilian Decision-Makers Who Manage Terrorist-Targeted Critical Infrastructure: EIS Versus C4I

William Yurcik, Kent Walstrom, *Illinois State University, USA*

Tuesday

8:30–10:00

Santa Fe 3&4

Session 4: Networks and Multimedia

An Automated Traffic Engineering Algorithm for MPLS-Diffserv DomainJunaid Ahmed Zubairi, *State University of New York – Fredonia, USA***A Simulation Study of the Feasibility of Differentiated Services Framework for QoS in Mobile Ad Hoc Networks**Harpreet Arora, Harish Sethu, *Drexel University, USA***A Simulation Study of the Impact of Mobility on Performance in Mobile Ad Hoc Networks**Harpreet Arora, Harish Sethu, *Drexel University, USA***An OPNET Specification of a Flexible Wired Link**Nadir Hakem, Michel Misson, *Equipe Réseaux et Protocoles du LIMOS associé CNRS, France*

Tuesday

10:30–12:00

Santa Fe 3&4

Session 5: Measurements

An Empirical Study of Keep-alive Connections in HTTPHyoung-Kee Choi, *Lancope Corporation, USA*John O. Limb, *Broadcom Corporation, USA*John A. Copeland, *Georgia Institute of Technology, USA***Verification of Communication's Behavior in Parallel Numerical Benchmarks**Basel Mahafzah, Eyas El-Qawasmeh, *Jordan University of Science and Technology, Jordan*

Tuesday

1:30–3:00

Santa Fe 3&4

Session 6: Modeling Techniques

Performance Analysis of the ATM Adaption Layer 2 (AAL2)Gwangzeen Ko, Younsuk Ko, Sungdon Moon, Kiseon Kim, *KJIST, Korea*Aftab Ahmad, *DePaul University, USA***Time-Network Partitioning For Large-Scale Parallel Network Simulation under SSFNET**Boleslaw K. Szymanski, Qiuju Gu, Yu Liu, *RPI, USA***Behavior of Pareto/M/1/K Queue and Numerical Approximation for Self-Similar Traffic Engineering**Yoonsuk Koh, Kiseon Kim, *KJIST, Korea***A Simple Analysis of Heterogeneous Multi-Server Threshold Queues with Hysteresis**L.M. Le, B. Tuffin, *IRISA, France*

Military, Government, and Aerospace Simulation

CHAIR: MICHAEL J. CHINNI, *U.S. ARMY-TACOM-ARDEC*

Wednesday

8:00–10:00

Salon G&H

Plenary Panel: Business Needs for M&S in Operational Testing

Chair: Ms. Simone Youngblood, *DMSO*

Panellists: Mr. Peter Christensen, *MCOTEA*

Dr. Marion Williams, *AFOTEC*

Mr. Wayland Smith, *OTC*

Mr. Steven Whitehead, *COMOPTEVFOR*

Abstract: The Operational Test community with the DoD has a significant history with the Modeling and Simulation community. The need to supplement data to add depth and scope to the analysis of developmental systems has never been greater. With that greater need, comes greater emphasis to ensure more responsible use of M&S data. Each OTA will present urgent needs for their service from the M&S community. After the presentations, industry and academia will have the opportunity to further discuss and develop these business needs, identifying the path to development of solutions.

Group 1: Human Factors

CHAIR: SUE ARCHER, *MICRO ANALYSIS AND DESIGN*

Tuesday

8:30–10:00

Salon G

Session 1: Methods and Applications

Chair: Rick Archer, *Micro Analysis and Design, Inc.*

Human Performance Modeling – Art or Science?

Jody Wojciechowski, *US Army Research Lab, USA*

Susan Archer, *Micro Analysis and Design, USA*

Increasing Aviation Safety Using Human Performance Modeling Tools: An Air Man-machine Integration Analysis System Application

Kevin M. Corker, Brian Gore, *San Jose State University/NASA Ames Research Center, USA*

An Information Taxonomy Combining Military Course of Action Development, Crew Factors and Information Perception

A. Marquis Gacy, David Dahn, *Micro Analysis and Design, Inc., USA*

Tuesday

10:30–12:00

Salon G

Session 2: Human Performance Modeling Tools

Chair: Jody Wojciechowski, *US Army Research Lab, Human Research and Engineering Directorate*

IMPRINT/ACT-R; Integration of a Task Network Modeling Architecture with a Cognitive Architecture and its Application to Human Error Modeling

Christian Lebiere, Eric Biefeld, *Carnegie Mellon University, USA*

Rick Archer, Sue Archer, *Micro Analysis and Design, USA*

Laurel Allender, Troy Kelley, *Aberdeen Proving Grounds, USA*

SMART Build 3 - A Simulation Tool for Assessing Job Skill Requirements

Beth Plott, Susan Archer, *Micro Analysis and Design, USA*

Dennis White, *NAVSEA Dahlgren Division, USA*

Incorporating Training and Stressors into Computer Generated Force Behaviors

Rick Archer, Alia Oster, Brett Walters, *Micro Analysis and Design, USA*

Tuesday

1:30–3:00

Salon G

Session 3: Human Performance EvaluationChair: Sue Archer, *Micro Analysis and Design, Inc.***Using A Simulator Facilitating Evolutionary Prototyping Lifecycle to Support Simulation Based Acquisition**T.C. Lin, Jerry Novak, Lawrence Lee, *United Defense L.P., USA***The CERTT-UAV Task: A Synthetic Task Environment to Facilitate Team Research**Nancy J. Cooke, *New Mexico State University USA*Steven M. Shope, *US Positioning LLC, USA***The Mission Readiness Measurement Aide (MIRMAID): Automated Performance Assessment for Naval Platforms**Tim Bowden, *Micro Analysis and Design, USA*Ed Brambaugh, *Basic Commerce and Industries, Inc., USA*

Tuesday

3:30–5:00

Salon G

Session 4: Simulation ApplicationsChair: Tim Bowden, *Micro Analysis and Design***Introduction of Context in a Human Performance Model to Predict Performance for New Air Traffic Management Initiatives**Savita Arora Verma, Kevin M. Corker, *San Jose State University/NASA, USA***Simulation of Cooperative Ad-hoc Tactical Networks**Khalil Shujae, Peter Molnár, Sriprakash Sarathy, *Clark Atlanta University, USA***Simulation Framework for Cooperative Network of Large Scale Unmanned Aerial Vehicles**S. Sarathy, K. Shujae, P. Molnár, *Clark Atlanta University, USA*K. Cannon, *Georgia Institute of Technology, USA***Group 2: Decision Support**CHAIR: JOHN SURDU, *US MILITARY ACADEMY*

Monday

1:30–3:00

Salon G&H

Session 1: Decision Support 1Chair: Kevin Huggins, *USMA***Simulations in Command Posts of the Future**John Surdu, John Hill, *United States Military Academy, USA***Information Overload at the Tactical Level**David M. Sanders, William B. Carlton, *United States Military Academy, USA***Multi-Agent Approach To Decision Support in Advanced Tactical Architecture for Combat Knowledge System (ATAKS)**Jerzy Rozenblit, Liana Suantak, *University of Arizona, USA*Michael Barns, *US Army Research Laboratory, USA*

Monday

3:30–5:00

Salon G

Session 2: Decision Support 2

Chair: John Surdu, *US Military Academy*

Rapid Deployment of VRML Worlds for Military Planning Purposes

Lee A. Belfore, II, *Old Dominion University, USA*

Alton Chavis, *ACC/CEVP, USA*

Walt Baskin, *Sparta, Inc., USA*

Kent Stevens, *Loyola Enterprises, USA*

Concept-Level Anticipatory Planning

Kevin Huggins, Rusl Flowers, John Hill, John Surdu, *United States Military Academy, USA*

A Decision Support System for Security Planning at the United States Military Academy

Patrick Magras, James Buckingham, Willie J. McFadden II, Michael

Nowatkowski, Timothy E. Trainor, *United States Military Academy, USA*

Monday

3:30–5:00

Salon H

Tutorial

What is a Missile Hardware-in-the-Loop Simulation?

Helmut Snyder, *Raytheon Company, USA*

Group 3: Simulation Methodology

CHAIR: JOHN “DREW” HAMILTON, JR., *AUBURN UNIVERSITY*

Tuesday

8:30–10:00

Salon H

Session 1: Simulation Methodology I

Chair: John “Drew” Hamilton, Jr., *Auburn University*

Modeling a Concurrent Theory of Combat: A Parallel Processing Approach

John A. “Drew” Hamilton, Jr., *Auburn University, USA*

Formal V&V Methods and Non-Linearity

Lynce D. Murray, *NAVSEA NUWC DIV Newport, USA*

An Architecture Supporting Live Updates and Dynamic Content in VRML Based Virtual Worlds

Lee A. Belfore, II, *Old Dominion University, USA*

Tuesday

1:30–3:00

Salon H

Session 2: Simulation Methodology II

Chair: John “Drew” Hamilton, Jr., *Auburn University*

The State Evolution and Simulation of Distributed Systems

Wane J. Davis, *University of Illinois at Urbana-Champaign, USA*

Distributed Simulation Of Helicopter Recovery Operations At Sea

Hakan Savasan, *Turkish Navy Research Center, Turkey*

Halit Oguztüzün, *Middle East Technical University, Turkey*

Integrating a Unit Test Framework into a Real-Time Software Simulation Development Process

Tom Kreitsberg, Adam Miller, Jan Rizzutom, *Johns Hopkins University, USA*

Tuesday

3:30–5:00

Salon H

Session 3: Simulation Methodology IIIChair: John “Drew” Hamilton, Jr., *Auburn University***Satellite and Payload Availability Simulation Environment**Randy Crawford, *The Aerospace Corporation, USA***Implementation of GPS Models within Joint MEASURE's Complex Environmental Modeling**Steven B. Hall, Shankar M. Venkatesan, Donald B. Wood, *Lockheed Martin Space Systems, USA***Improving the Design of a Distributed, High Performance and Flexible Simulator-to-GUI Interface**Steven B. Hall, Shankar M. Venkatesan, *Lockheed Martin Space Systems, USA***Group 4: Hardware Simulation**CHAIRS: ANTHONY VAMIVAKAS, RONALD JACKSON, *RAYTHEON CORPORATION*

Wednesday

10:30–12:00

Salon G&H

Session 1: Simulation and ModelingChairs: Anthony Vamivakas, Ronald Jackson, *Raytheon Corporation***Terrain Bounce Jammer Model for Hardware-in-the-Loop Simulation**Anthony Vamivakas, Ronald Jackson, *Raytheon Corporation, USA***Efficient Modeling of Nonlinear RF Signal Processing Systems**Vernon K. Handley, *Dynetics Inc., USA***Simulation of Fragmentation Characteristics of Explosive Fragmentation Munitions.**Vladimir Gold, *US Army, USA*

Wednesday

1:30–3:00

Salon G&H

Session 2: Simulation ApplicationChairs: Anthony Vamivakas, Ronald Jackson, *Raytheon Corporation***Optimal Design of a Functionally Graded Elastic Strip Subjected to Transient Loading**Ani P. Velo, George A. Gazonas, Michael J. Scheidler, *U.S. Army Research Laboratory, USA***Optimal Design of Gradient Fields with Applications to Electrostatics**Ani Velo, *United States Military Academy, USA*Robert Lipton, *Louisiana State University, USA*

ADVANCED SIMULATION TECHNOLOGIES CONFERENCE (ASTC 2003)

**Hyatt Orlando • Orlando, Florida
March 30–April 3, 2003**

The Advanced Simulation Technologies Conference (ASTC) is an annual conference sponsored by The Society for Modeling and Simulation International which covers state-of-the-art developments in computer simulation technologies, as well as scientific, industrial, and business applications. Areas covered include high-performance computing technologies, models and algorithms, GUI visualization technologies, communications and much more. Application disciplines covered include advanced telecommunication; computer systems; military, government & aerospace; energy, and other industries. The conference includes keynote speeches presented by technology and industry leaders, technical sessions, professional development courses and seminars, as well as vendor exhibits. Scientists, engineers, managers, educators, and business professionals who develop or use simulation tools are invited to participate and present original papers. Proposals are solicited for papers, panels, tutorials, workshops, seminars, exhibits, social activities and for other presentation, discussion and sponsorship formats. People are always welcome to benefit by taking an organizing role. The ASTC offers many ways to promote simulation products and to enhance corporate images. You are invited to use the Advanced Simulation Technologies Conference in ways that best serve your interests. **The deadline for submission of abstracts is October 31, 2002.** For more information contact the SCS office or go to our web site at www.scs.org.

CONFERENCES

- **Business and Industry Symposium**
- **High Performance Computing Symposium**
- **36th Annual Simulation Symposium**
- **Military, Government, & Aerospace Simulation**
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		Business		ANSS		HPC 1		HPC 2		ATS		MGA		MGA	
		Salon C	Sierra 5&6	Salon D	Salon A&B	Santa Fe 3&4	Salon G	Salon H							
8:30– 10:00		GENERAL SESSION - Rio Vista Ballroom, Salon D&E (Page 5)													
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1:30– 3:00	Keynote Address pg. 6	Network Modeling and Simulation I 1:30-3:10 pg. 10	Computational Fluid Dynamics Applications pg. 15	Parallel System Architecture I pg. 17	Decision Support 1 pg. 25										
3:30– 5:00	Environmental Technology II pg. 7	Parallel and Distributed Simulation I 3:30-5:35 pg. 11	Data-Dependency and Time Distribution pg. 21	Technologies for Building the Large-Scale Grids pg. 19	Decision Support 2 pg. 26	Infrastructure Protection/Emergency Management pg. 22	Tutorial pg. 26								

		Business		ANSS		HPC 1		HPC 2		ATS		MGA		MGA	
		Salon C	Salon D	Salon A&B	Salon E	Salon F	Salon G	Salon H	Salon I	Salon J	Salon K	Salon L	Salon M	Salon N	Salon O
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10:30– 12:00		System Optimization I pg. 7	HPC Panel Session pg. 15	Information Management on the Web pg. 20	Languages, Tools and Environments I 10:30-12:35 pg. 11	Measurements pg. 23	Human Performance Modeling Tools pg. 24	Business and Industry Business Simulation I pg. 10							
1:30– 3:00		System Optimization II pg. 8	Advances in Computational Solid Mechanics pg. 16	Algorithms and Strategies for Multi-Processor Computing I pg. 18	Web-Based Modeling and Simulation 1:30-3:10 pg. 12	Modeling Techniques pg. 23	Human Performance Evaluation pg. 25	Simulation Methodology II pg. 26							
3:30– 5:00		System Simulation I pg. 8	Switching pg. 21		Network Modeling and Simulation II 3:30-5:35 pg. 12	HPC Scientific Visualization pg. 16	Simulation Applications pg. 25	Simulation Methodology III pg. 27							

	Business		ANSS		ANSS		HPC 1		HPC 2		HPC 3		MGA	
	Salon C	Salon D	Sierra 5	Sierra 6	Salon D	Salon A	Salon B	Salon G&H						
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10:30– 12:00	System Simulation III pg. 8	Bio-Informatics Applications II pg. 17	Advances in Simulation Methodology 10:30-12:35 pg. 13			Simulation of Large Distributed Systems pg. 20		Simulation and Modeling pg. 27						
1:30– 3:00	System Simulation IV pg. 8	Panel Discussion pg. 20	Network Modeling and Simulation III 1:30-3:10 pg. 13	Poster Session pg. 14		Algorithms and Strategies for Multi-Processor Computing III pg. 19		Simulation Application pg. 27						
3:30– 5:00	Round Table Discussion pg. 10	Wireless Applications and PN Semantics pg. 21	Languages, Tools and Environments II 3:30-5:10 pg. 14	Poster Session pg. 14		Solid and Fluid Aynamics Applications pg. 17	Parallel System Architecture and Performance III pg. 19							

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