

Spring Simulation Multiconference 2008

in collaboration with ACM/SIGSIM



April 14 - 17, 2008
Crowne Plaza Ottawa Hotel
Ottawa, Canada



Conference Symposia

- **Agent-Directed Simulation (ADS)**
- **41st Annual Simulation Symposium (ANSS)**
- **Business and Industry Symposium (BIS)**
- **11th Communications and Networking Simulation Symposium (CNS)**
- **DOD Architecture Framework Modeling (DODAF)**
- **High Performance Computing Symposium (HPCS)**
A joint symposium of DEVS Integrative M&S (DEVS) and High Performance Computing (HPC)
- **17th Annual International Conference on Health Sciences Simulation (ICHSS)**
- **Military Modeling and Simulation Symposium (MMS)**
- **Modeling & Simulation in Education (MSE)**
- **Symposium on Simulation Software Security (SSSS)**
- **Workshop on Conceptual Modeling (WCM)**
- **Poster Track**



Sponsored by The Society for Modeling and
Simulation International
<http://www.scs.org>



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Message from The Chairs

On behalf of the Organizing Committee we welcome you to the 2008 Spring Simulation Multiconference (SpringSim'08), sponsored by The Society for Modeling and Simulation International (SCS) in collaboration with ACM/SIGSIM. SpringSim'08 brings together ten Symposia, providing a forum for academia, industry, business, military, and government. It covers a wide variety of disciplines and domains that exploit Modeling and Simulation (M&S) to present their work in a unique setting.

SpringSim'08 has several new events. The conference is located for the first time in Canada, in the city of Ottawa. Canada's National Capital is a center of innovative high technology companies, Universities, research laboratories, and Government that recognize the importance of M&S in our society. The Canadian organizers have very active pursuing this occurrence and contributed significantly to the program. Second, a tutorial track is launched this year furnishing cutting edge and state-of-the-art technologies in M&S for the participants. A poster session for Ph.D. students is arranged for the Ph.D. candidates to share their latest findings with the conference audience. Modeling and Simulation in Education (MSE) is a new track devoted to current trends in training in the field. Last but not least, we are delighted to welcome for the first time in SpringSim the 17th Annual International Conference on Health Science Simulation (ICSHSS).

The SpringSim'08 program includes a wide selection of technical presentations and distinguished speakers. Professionals, Engineers, and Scientists who are committed, involved, or interested in M&S will find in this year's conference a world-class collection of state-of-the-art presentations and articles related to research, development, and applications of M&S.

We sincerely express our appreciation to the numerous technical reviewers and the various Review Committees for their thorough work in evaluating the papers accepted for publication, making the Conference Proceedings a high quality document. The efforts, diligence, and thoroughness of the reviewers and Review Committees are gratefully acknowledged.

We extend our gratitude to the conference Organizing Committee members, Keynote and Plenary Speakers, Program Chairs, Track and Session Chairs, as well as paper authors, and panel members for their contributions, efforts, and time. The dedication and diligence of these contributors is invaluable.

SpringSim'08 would not have been possible without the outstanding work of the Symposium Chairs, and their respective Organizing Committees. Our special thanks are extended to the following Symposia Chairs:

- Dr. Tuncer Oren - Agent-Directed Simulation (ADS)
- Dr. Taieb Znati - Annual Simulation Symposium (ANSS)
- Dr. Maurice Ades - Business and Industry Simulation Symposium (BIS)
- Dr. Aftab Ahmad - Communications and Networking Simulation Symposium (CNS)

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Message from The Chairs (continued)

- Dr. Drew Hamilton - DOD Architecture Framework Modeling (DODAF)
- Dr. Masha Sosonkina - High Performance Computing & Simulation Symposium (HPCS)
- Dr. James Anderson - International Conference on Health Science Simulation (ICHSS)
- Dr. Paul Roman - Military Modeling and Simulation Symposium (MMS)
- Dr. Chwan-Hwa Wu - Symposium on Simulation Software Security (SSSS)
- Dr. Catherine Banks - Modeling & Simulation in Education (MSE)

We also would like to acknowledge the following SpringSim'08 organizers for their outstanding support during the preparation of this conference:

- Dr. Drew Hamilton - President of SCS
- Prof. Dr. Axel Lehmann - Tutorial Chair
- Mr. David Long - Exhibits Chair
- Dr. Abdolreza Abhari - Poster Chair
- Dr. Hala ElAarag - CNS Program Chair
- Dr. Helen Karatza - ANSS Program Chair
- Dr. Cliff Shaffer - HPCS Program Chair

Finally, we look forward to seeing you again in SpringSim'09, to be held in San Diego, California.

On behalf of the SpringSim'08 Conference Committee and the Society for Modeling and Simulation International, we invite you all to enjoy the conference.

Hassan Rajaei
SpringSim'08 General Chair

Gabriel Wainer
SpringSim'08 Vice-General Chair

Michael J. Chinni
SpringSim'08 Program Chair

Information & Meetings

SpringSim'08 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. People are always welcome to benefit by taking an organizing role. SpringSim'08 offers many ways to promote simulation products and to enhance corporate images. You are invited to use SpringSim'08 in ways that best serve your interests.

Registration

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

Sunday	April 13	12:00 – 6:00
Monday	April 14	7:00 – 5:00
Tuesday	April 15	7:00 – 5:00
Wednesday	April 16	7:00 – 3:00

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. Breakfast will be in International Ballroom B.

Monday	April 14	7am - 8am
Tuesday	April 15	7am - 8am
Wednesday	April 16	7am - 8am

Conference Keynote Speech

Monday April 14 8:30am – 10:00am International Ballroom

Coffee Breaks

Refreshments will be served in the Exhibit Area in International Ballroom C at the 10am and 3pm session breaks. Mon. April 14 10am break will be in Foyer Ballroom Lobby.

Poster Sessions

Poster Sessions will be in the International Ballroom B on Tues. April 15 from 1pm – 2pm & 3pm – 4pm.

Exhibits Area

The exhibits area in International Ballroom C will open following the Conference Keynote Speech. The exhibits area will be open as follows:

Monday	April 14	7am - 8pm
Tuesday	April 15	7am - 8pm
Wednesday	April 16	7am - 8pm

Conference Reception

The reception will be Mon. April 14 in the exhibits area in International Ballroom C from 5pm – 8pm.

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Information & Meetings (continued)

SpringSim'08 Pre-Conference Meeting

The SpringSim'08 Pre-Conference Meeting will be held in the Chaudière room on Sun. April 13, from 5:30pm – 7pm. All symposia are expected to send a representative to this meeting.

SpringSim'09 Planning Meeting

The planning meeting for SpringSim'09 will be held in the Chaudière room on Tues. April 15, from 7:30pm – 9pm. Scientists, engineers, managers, educators, and business professionals who develop or use simulation tools are invited to participate. Proposals are invited for papers, panels, tutorials, workshops, seminars, exhibits, social activities and for other presentation, discussion and sponsorship formats. People are always welcome to take an organizing role.

Symposia Planning Meetings for 2009

All symposia planning meetings for 2009 will be held over lunch in the Pinnacle room on the Penthouse level from 12:15 – 1:15. Lunch will be provided. The planning meeting schedule is as follows:

Symposium	Date
ANSS	Monday, April 14
DODAF	Monday, April 14
ICHSS	Monday, April 14
SSSS	Monday, April 14
ADS	Tuesday, April 15
CNS	Tuesday, April 15
HPCS	Tuesday, April 15
MSE	Tuesday, April 15
BIS	Wednesday, April 16
MMS	Wednesday, April 16

Exhibits

Chair: David Long
SAGETEA Group

All exhibits will be in the International Ballroom C. Exhibits will be open Monday – Wednesday, 7am – 8pm.

Concurrent Computer Corporation is a worldwide provider of high-performance computer system solutions and software for time-critical applications. We offer customized hardware and software solutions based on COTS technology and open systems including Linux. Concurrent has delivered innovative, customized solutions for over forty years. Our real-time strength and experience support numerous mission-critical applications including those that train military personnel, monitor air traffic control, accelerate financial and medical systems, launch missiles, and enable television viewers to watch what they want when they want.

CM Labs is looking forward to presenting their new Vortex Simulation System. Vortex simulates the physical behavior of vehicles, robotics, heavy equipment and machinery in real time for operator training, mission planning and virtual testing. Vortex is for developers who build physics-based interactive environments for robust and accurate visual-simulation. It is a software development toolkit that easily integrates within a real-time simulator applications and scenegraph.

Vanguard Software Corporation.

Tutorials

Chair: Prof. Axel Lehmann, Universitaet der
Bundeswehr Muenchen

The tutorials are open to SpringSim'08 paid conference attendees. Pre-registration through the SCS office is preferred as the class size is limited and they fill up fast. All tutorials are free of charge.

Mon. April 14, 3:30 - 5:00 Chaudière room

The Network Simulator NS3 (part 1: Introduction)

- George Riley, Georgia Tech

Tues. April 15, 8:30 - 10:00 Chaudière room

An Introduction to DEVS and Distributed DEVS

- Ming Zhang, University of Ottawa

This tutorial presents fundamental DEVS concepts and applications of DEVS-based modeling and simulation in industry and research. We will discuss how DEVS is well suited to modern software infrastructures and how it compares to non-DEVS modeling and simulation methodologies. In particular, this tutorial will focus on distributed DEVS tools for solving large-scale modeling and simulation problems.

Tues. April 15, 10:30 - 12:00 Chaudière room

The Network Simulator NS3 (part 2)

- George Riley, Georgia Tech

Tues. April 15, 1:30 - 5:00 Chaudière room

Debugging Parallel Applications with the TotalView Debugger

- Chris Gottbrath, TotalViewTechnologies

Wed. April 16, 8:30 - 12:00 Richelieu room

Modeling and Simulation with the BRAHMS Agent Environment

- Dr. Maarten Sierhuis, NASA Ames Research Center

Wed. April 16, 8:30 - 10:00 Joliet room

The Deterministic Global Optimization Algorithm DIRECT

- Layne T. Watson, Virginia Polytechnic and State University

The deterministic direct search algorithm DIRECT of D. Jones has proven surprisingly practical for engineering design, especially when coupled with a local pattern search algorithm such as MADS by Audet and Dennis. Massively parallel implementations of these algorithms, necessary for realistic engineering and scientific problems, are highly nontrivial. This tutorial will cover the serial DIRECT and MADS algorithms, their parallel implementations, place them in the context of global optimization, and describe recent applications in multidisciplinary design optimization and systems biology.

Conference Keynote Speaker

Dr. Chris M. Herdman

- **Professor: Department of Psychology and Institute of Cognitive Science**
- **Director: Advanced Cognitive Engineering (ACE) Lab**
- **Scientific Director: Centre for Advanced Studies in Visualization, Simulation and Modelling (VSIM)**



Simulation and Cognitive Engineering: The Use of Synthetic Environments to Design and Evaluate Human-In-The- Loop Systems

The Visualization and Simulation (VSIM) Centre at Carleton University supports multidisciplinary research that integrates research in the human sciences with engineering. In the VSIM Advanced Cognitive Engineering (ACE) Lab, synthetic environments of different fidelity are engineered to support the design and evaluation of human-in-the-loop systems. The synthetic environments at the ACE Lab include HLA-enabled helicopter (CF-146 Griffon), general aviation (Cessna 172 type) and Unmanned Air Vehicle (UAV) simulators as well as an automobile simulator. In this talk he will outline a Cognitive Systems framework that we use to guide our research in the ACE lab and I will draw upon specific examples from our aerospace and automotive research to illustrate how simulation plays a critical role in advancing human-in-the-loop systems.

Dr. Herdman has 25 years R&D experience in human factors, cognitive and systems modelling, cognitive task analysis, HCI, human attention, workload and situational awareness. He has published and presented over 150 research papers and has managed close to 300 R&D projects. Dr. Herdman was the Principal Investigator for the \$28 million VSIM Centre at Carleton University and a major collaborator for the Carleton University Human Computer Interaction (HCI) facility. Dr. Herdman's research has been funded by the Canadian Foundation for Innovation (CFI), Ontario Centres of Excellence, National Science and Engineering Research Council (NSERC), Social Science and Humanities Research Council (SSHRC), Ontario Innovation Trust (OIT), Centre for Research on Earth and Space Technologies (CRESTech), and Defence R&D Canada. Dr. Herdman has been an advocate for partnership between academia, industry and government and serves on the Board of Directors for the Society for the Advancement of Modelling and Simulation (SAMS) and for the Canadian Centre for Unmanned Vehicle Systems (CCUVS). Dr. Herdman and his team have worked with industry and government partners on a number of initiatives. Example include the development of a Night Vision Goggle (NVG) head-up display which is now installed in the CH146 Griffon helicopter and the design and assessment of a multi-information display for the CF18 fighter jet. Dr. Herdman's lab has been involved in a number of distributed simulation exercises including a joint exercise in which a CH146 Griffon helicopter simulator at Carleton University was linked via HLA to a UAV simulation at the Defence Canada, Future Forces Synthetic Environment (FFSE) facility.

Agent-Directed Simulation (ADS)

General Chair: Dr. Tuncer Ören, Ottawa University

Program Chairs:

- **Gregory Madey, University of Notre Dame**
- **Levent Yilmaz, Auburn University**
- **Dr. Maarten Sierhuis, NASA Ames Research Center**

Publicity Chair: Andreas Tolk, Old Dominion University

All ADS sessions are in the Richelieu room.

Monday, April 14; 10:30 - 12:00; Session 1

Session Chair: Dr. Tuncer Ören, University of Ottawa

- ***Validation of Two Distributed, Autonomous Self-Organisation Algorithms for 802.11 Mesh Networks by Simulation***
 - John Debenham and Ante Prodan; Faculty of IT, University of Technology, Sydney
- ***Agent Simulation of Collaborative Knowledge Processing in Wikipedia***
 - Jinsheng Xu; Department of Computer Science, North Carolina A&T State University;
 - Levent Yilmaz; Department of Computer Science and Software Engineering, Auburn University
 - Jinghua Zhang; Department of Computer Science, Winston-Salem State University
- ***An Agent-Based System for Simulating Dynamic Choice-Sets***
 - Qi han, Theo Arentze, Harry Timmermans, Davy Janssens and Geert Wets; Eindhoven University of Technology

Monday, April 14; 1:30 - 3:00; Session 2

Session Chair: Dr. Levent Yilmaz, Auburn University

- ***A Geosimulation Approach Involving Spatially-Aware Agents A Case Study on the Identification of Risky Areas for Trains***
 - Mehdi Mekni; Department of Computer Sciences and Software Engineering, Laval University
 - Nabil Sahli; Telematica Instituut
 - Bernard Moulin; Department of Computer Sciences and Software Engineering, Laval University
- ***Using GIS Vector Data to Build Virtual Environments For Agent Based Models***
 - Karl Liebert, David Earnest and Andreas Tolk; Old Dominion University
- ***An Agent-Based Geosimulation Multidisciplinary Approach to Support Scenarios Evaluation in Dynamic Virtual Geographic Environments***
 - Hedi Haddad and Bernard Moulin; Laval University

Monday, April 14; 3:30 - 5:00; Session 3

Session Chair: Dr. Andreas Tolk, Old Dominion University

- ***To BDI, or Not to BDI: Design Choices in an Agent-Based Traffic Flow Management Simulation***
 - Shawn Wolfe, Maarten Sierhuis and Peter Jarvis; NASA Ames Research Center

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ADS (continued)

- ***A Multi-Agent Simulation for Social Agents***
 - Yu Zhang, Phil Coleman, Mike Pellon and Jason Leezer; Department of Computer Science, Trinity University
- ***The Difficulties with Validating Agent Based Simulations of Social Systems***
 - Lisa Moya and Eric Weisel; WernerAnderson, Inc.

Tuesday, April 15; 8:30 - 10:00; Session 4

Session Chair: Dr. Maarten Sierhuis, NASA Ames Research Center

- ***The Landscape of Assumptions***
 - Robert King and Charles Turnitsa; Old Dominion University
- ***Simulating New Markets by Introducing New Accepting Policies for the Conventional Continuous Double Auction***
 - sina honari, mojtaba ebadi, amin foshati; Premier Ideas Support Center of the University of Shiraz
 - maziar gomrokchi, jamal bentahar; Computer Science and Software Engineering Department, Concordia University
- ***Epidemic Propagation of West Nile Virus Using a Multi-Agent Geo-Simulation under Various Short-term Climate Scenarios***
 - Mondher Bouden, Bernard Moulin and Pierre Gosselin; Laval University

Tuesday, April 15; 10:30 - 12:00; Session 5

Session Chair: Dr. Tuncer Ören, University of Ottawa

- ***Multi-Agent System and Traffic Simulation***
 - Michal Radecky and Petr Gajdos; Department of Computer Science, Technical University of Ostrava
- ***Data Parallel Execution Challenges and Runtime Performance of Agent Simulations on GPUs***
 - Kalyan Perumalla and Brandon Aaby; Oak Ridge National Laboratory
- ***A Survey on the Need and Use of AI in Game Agents***
 - Sule Yildirim and Sindre Stene; Computer Science Department, Hedmark University College

Tuesday, April 15; 1:30 - 3:00; Session 6

Session Chair: Dr. Levent Yilmaz, Auburn University

- ***Prelude to Cultural Software Agents: Cultural Backgrounds in Agent Simulation***
 - Zeinab Mazadi; Department of Computer Engineering, University of Isfahan
 - Nasser Ghasem-Aghaee; Department of Computer Engineering, University of Isfahan
 - Tuncer I Ören; University of Ottawa
- ***Modeling culture in trade: uncertainty avoidance***
 - Gert Jan Hofstede, Tim Verwaart; Wageningen University
 - Catholijn M. Jonker; Delft University of Technology

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- ***A Distributed Multi-Agent Architecture for Intelligent Navigation of Mobile Robots***
 - Amar Khoukhi; Department of Mechanical and Industrial Engineering, Concordia University

Tuesday, April 15; 3:30 - 5:00; Session 7**Session Chair: Dr. Maarten Sierhuis, NASA Ames Research Center**

- ***Granularity and the Validation of Agent-based Models***
 - Zaiyi Guo and Joc Cing Tay; Nanyang Technological University
- ***Predicting Hepatic Disposition Properties of Cationic Drugs Using a Physiologically Based, Agent-Oriented In Silico Liver***
 - Li Yan, Shahab Sheikh-Bahaei; The UCSF/UCB Joint Graduate Group in Bioengineering
 - Sunwoo Parks, Anthony Hunt; University of California, San Francisco
 - Glen E. P. Ropella; Tempus Dictum, Inc
- ***In Silico White Blood Cell: Mechanisms Underlying Leukocyte Rolling and Adhesion During Inflammation***
 - Jonathan Tang; The UCSF/UCB Joint Graduate Group in Bioengineering
 - C. Anthony Hunt; University of California, San Francisco

Wednesday, April 16; 8:30 - 12:00; Sessions 8,9**Tutorial**

- ***Modeling and Simulation with the Brahms Agent Environment***
 - Maarten Sierhuis, Ph.D., USRA/RIACS - NASA Ames Research Center

41st Annual Simulation Symposium (ANSS)
General Chair: Taieb Znati, University of Pittsburgh
Program Chair: Helen Karatza, Aristotle University of Thessaloniki

All ANSS sessions are in International Ballroom A.

Monday, April 14; 10:30 - 12:00: ANSS Keynote Address

- ***Service and Utility Oriented Distributed Computing Systems: Challenges and Opportunities for Modeling and Simulation Communities***
 - Dr. Rajkumar Buyya, The University of Melbourne, Australia

Monday, April 14; 1:30 - 3:00

Session 1: Network Modeling and Simulation I
Session Chair: Robert Simon, George Mason University, USA

- ***Prototyping and Analysis of an Ontology-Based Personalized Web Service Architecture***
 - Chatree Sangpachatanarukk and Taieb F. Znati, University of Pittsburgh, USA
- ***Cross-Layer Response Surface Methodology Applied to Wireless Mesh Network VoIP Call Capacity***
 - Vineet Kulkarni and Michael Devetsikiotis, NC State University, USA
- ***TRAILS, a Toolkit for Efficient, Realistic and Evolving Models of Mobility, Faults and Obstacles in Wireless Networks***
 - Ioannis Chatzigiannakis, Athanasios Kinalis, Georgios Mylonas, Sotiris Nikolettseas, Grigorios Prasinos, Christos Zaroliagis, University of Patras and CTI, Greece

Monday, April 14; 3:30 - 5:30

Session 2: Network Modeling and Simulation II
Session Chair: Helen Karatza, Aristotle University of Thessaloniki, Greece

- ***SCAR - Scattering, Concealing and Recovering Data within a DHT***
 - Bryan N. Mills and Taieb F. Znati, University of Pittsburgh, USA
- ***A Simulation Study of Common Mobility Models for Opportunistic Networks***
 - Muhammad Abdulla and Robert Simon, George Mason University, USA
- ***Simulation of Buffer Management Policies in Networks for Grids***
 - Agustin Caminero, Blanca Caminero, Carmen Carrion; Universidad de Castilla La Mancha, Spain
 - Anthony Sulistio, Rajkumar Buyya; The University of Melbourne, Australia
- ***An Efficient Approach for Location Updating in Mobile Ad-Hoc Networks***
 - Sanjay K. Dhurandher, Namit Nangia, Nitin Bhardwaj, Pankai Goyal, Sumit Aggarwal; Netaji Subhas Institute of Technology, University of Delhi, India
 - Sudip Misra; Yale University, USA
 - Mohammad S. Obaidat; Monmouth University, USA

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Tuesday, April 15; 8:30 - 10:00

Session 3: Simulation Languages, Tools, and Environments

Session Chair: Johannes Lessmann, University of Paderborn, Germany

- ***A primer for real-time simulation of large-scale networks***
 - Jason Liu, Florida International University, USA
- ***Executable Protocol Models as a Requirements Engineering Tool***
 - Ashley McNeile; Metamaxim Ltd, London
 - Ella Roubtsova; Open University of The Netherlands, The Netherlands
- ***CODES: An Integrated Approach to Composable Modeling and Simulation***
 - Yong Meng Teo and Claudia Szabo, National University of Singapore, Singapore

Tuesday, April 15; 10:30 - 12:30

Session 4: Performance Modeling

Session Chair: Yong Meng Teo, National University of Singapore, Singapore

- ***Fast Computation of Hyper-exponential Approximations of the Response Time Distribution of MMPP/M/1 Queues***
 - Paolo Romano, Bruno Ciciani, Andrea Santoro, Francesco Quaglia, Sapienza Universita di Roma, Italy
- ***Beyond the Model of Persistent TCP Flows: Open-Loop vs Closed-Loop Arrivals of Non-Persistent Flows***
 - Ravi S. Prasad and Constantine Dovrolis, Georgia Institute of Technology, USA
- ***An analytical model and performance evaluation of transport protocols for wireless ad-hoc networks***
 - Sirisha Medidi, Jin Ding, Ghayathri Garudapuram, Jiong Wang, and Muralidhar Medidi; Washington State University, Pullman, USA
- ***Using black-box modeling techniques for modern disk drives service time simulation***
 - Jose Daniel Garcia, Laura Prada, Javier Fernandez, Alberto Nuñez and Jesús Carretero; University Carlos III of Madrid, Spain

Tuesday, April 15; 1:30 - 3:00

Session 5: Dependability Simulation

Session Chair: Helen Karatza, Aristotle University of Thessaloniki, Greece

- ***Automatic Mutation Testing and Simulation on OWL-S Specified Web Services***
 - Shufang Lee, Xiaoying Bai, Tsinghua University, China, Yinong Chen, Arizona State University, Tempe, USA
- ***Resource Allocation Strategies in a 2-level Hierarchical Grid System***
 - S. Zikos and H.D. Karatza, Aristotle University of Thessaloniki, Greece
- ***SOA Simulation and Verification by Event-driven Policy Enforcement***
 - W. T. Tsai, Xinyu Zhou, Yinong Chen, Arizona State University, Tempe, USA

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Tuesday, April 15; 3:30 - 5:00

Session 6: Distributed Systems and Network Modeling and Simulation I

Session Chair: Helen Karatza, Aristotle University of Thessaloniki, Greece

- ***New Techniques for Modelling File Data Distribution on Storage Nodes***
 - Alberto Núñez, Javier Fernandez, Jose Daniel Garcia, Laura Prada and Jesús Carretero; Universidad Carlos III de Madrid, Spain
- ***Derivation of Fault Tolerance Measures of Self-Stabilizing Algorithms by Simulation***
 - Nils Müllner, Abhishek Dhama, Oliver Theel, Carl von Ossietzky University of Oldenburg, Germany
- ***An Efficient Weighted-Round-Robin Algorithm for Multiprocessor Architectures***
 - Soren Sonntag and Helmut Reinig, Infineon Technologies, Munich, Germany

Wednesday, April 16; 8:30 - 10:00

Session 7: Advances in Simulation Methodology and Practices - Distributed Simulation

Session Chair: Angelo Furfaro, University of Calabria, Italy

- ***A Conceptual Modeling Method for Critical Infrastructure Modeling***
 - John Sokolowski, Charles Turnitsa, Saikou Diallo; Virginia Modeling Analysis and Simulation Center, Old Dominion University, USA
- ***Towards Peer-to-Peer Based Distributed Simulation on Grid Infrastructure***
 - Azzedine Boukerche, Ming Zhang, University of Ottawa, Canada
- ***The Use of Device Simulation in Development of USB Storage Devices***
 - R. Brian Anderson, Mike Borowczak, Philip A. Wilsey, Clifton Labs, USA

Wednesday, April 16; 10:30 - 12:30

Session 8: Parallel and Distributed Simulation

Session Chair: Yinong Chen, Arizona State University, USA

- ***Actor-based Simulation of PDEVS Systems over HLA***
 - F. Cicarelli, A. Furfaro, L. Nigro, University of Calabria, Italy
- ***Logical Process-based Sequential Simulation Cloning***
 - Patrick Peschlow, Martin Geuer, Peter Martini, University of Bonn, Germany
- ***Tuning a Distributed Simulator Using an Evolutionary Algorithm***
 - Donald O. Hamnes, Saint Cloud State University, USA
- ***State Causality Analysis of Conservative Parallel Network Simulation***
 - Siming Lin, Xueqi Cheng, Jianming Lv; Institute of Computing Technology, Chinese Academy of Sciences, Beijing

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Wednesday, April 16; 1:30 - 3:00

Session 9: Advances in Simulation Methodology and Practices

Session Chair: Philip A. Wilsey, Clifton Labs, USA

- ***A Collaborative Service-Oriented Simulation Framework with Microsoft Robot Studio***
 - W. T. Tsai, Qian Huang, Xin Sun, Arizona State University, Tempe, USA
- ***Dynamic Structure DEVS: Improving the Real-Time Embedded Systems Simulation and Design***
 - Hui Shang and Gabriel A. Wainer, Carleton University, Canada
- ***Modeling and Analysis of Real-life Job Shop Scheduling Problems by Petri nets***
 - Hehua Zhang, MingGu; Tsinghua University, China & Key Laboratory for Information System Security, Ministry of Education of China
 - Xiaoyu Song; Portland State University, USA

Wednesday, April 16; 3:30 - 5:00

Session 10: Distributed Systems and Network Modeling and Simulation II

Session Chair: Gabriel A. Wainer, Carleton University, Canada

- ***A Novel Optimized Caching Technique for Mobile Gnutella based Network to Support Large-Scale Collaborative Virtual Environment***
 - Azzedine Boukerche and Anis Zarrad, University of Ottawa, Canada
 - Regina Borges Araujo, Federal University of São Carlos, Brazil
- ***An Integrated Node Behavior Model for Office Scenarios***
 - Johannes Lessmann and Sascha Lutters, University of Paderborn, Germany
- ***A Multi-Level Fidelity-Preserving Bandwidth-Limited Worm Simulation Model and Its Application***
 - Yuewu Wang, Jiwu Jing, Graduate School of Chinese Academy of Sciences, Beijing, China
 - Peng Liu, Xiaoqi Jia, Pennsylvania State University, USA

Business and Industry Symposium (BIS)

General Chair: Dr. Maurice J. Ades, Westinghouse Savannah River Company, USA

Program Chair: Marek Zaluski, MSE Technology Applications Inc.

All BIS sessions are in the Confederation room.

Track 1: Industrial Simulation

Chairs:

- **M.H. Zaluski, MSE Technology Applications, USA**
- **T. Hang, Savannah River National Laboratory, USA**

Monday, April 14; 1:30 - 3:00

Session 1: Industrial Processes

Chairs:

- **A.G. Bruzzone, University of Genoa, Italy**
- **M.H. Zaluski, MSE Technology Applications, USA**
- ***OOPIC Simulation of a Cylindrical Magnetron Glow Discharge***
 - M. Johnson, F. Yee, M. Cipollo, K. Truszkowska, Benet Laboratories, USA
 - J. Verboncoeur, UC Berkeley, USA
- ***Improving Runway Capacity: An Integrated Approach using Modeling, Simulation, and Analysis***
 - R. Mukkamala, S. Lakkoju, V. Kamineni, S. Kamisetty, A. Polu, and J. Creedon, Old Dominion University, USA
- ***Modeling and Simulation of High Capacity Waterside Container Handling Systems at Deep-Sea Terminals***
 - F. Geldof, TU Eindhoven, Netherlands, B.C. van Haarlem, W. Lock, Iv Bouw & Industrie, Netherlands
 - E. Roubtsova, Open Universiteit Nederland, Netherlands

Monday, April 14; 3:30 - 5:00

Session 2: Environmental Technology

Chairs:

- **M.H. Zaluski, MSE Technology Applications, USA**
- **T. Hang, Savannah River National Laboratory, USA**
- ***Analytical Element Modeling of Groundwater Flow in Anisotropic Aquifer***
 - M.H. Zaluski, and M. Moe, MSE Technology Applications, USA
- ***Subsidence Study for Non-Crushable Containers in Slit Trenches at the Savannah River Site***
 - T. Hang, L.B. Collard, M.A. Phifer, Savannah River National Laboratory, USA

Tuesday, April 15; 8:30 - 10:00

Session 3: Optimization / Decision Analysis

Chairs:

- **A.G. Bruzzone, University of Genoa, Italy**
- **T. Hang, Savannah River National Laboratory, USA**
- ***Optimization of Satellite Link Design***
 - Nandra, George Washington University, USA
 - Jivesh Govil, University of Michigan, USA
 - Jivika Govil, Maharshi Dayanand University, India

(continued on next page)

- ***Simulation of Operating Processes and Infrastructural Changes in the Upper Mississippi Navigation System***
 - L.D. Smith, D.C. Sweeney, J.F. Campbell, and R.M. Nauss, University of Missouri-St Louis, USA
- ***Optimization in Water Systems: a PSO approach***
 - J. Izquierdo, I. Montalvo, R. Pérez, and M. Tavera, Universidad Politécnica de Valencia, Spain

Tuesday, April 15; 10:30 - 12:00

Session 4: Operations Technology

Chairs:

- **M.H. Zaluski, MSE Technology Applications, USA**
- **A.G. Bruzzone, University of Genoa, Italy**
- ***Modeling and Simulation of a Pacing Engine for Proactive Campaigns in Contact Center Environment***
 - N. Korolev, H. Ristock, and Nikolay Anisimov, Genesys Telecommunications Laboratories, USA
- ***Addressing soundness and efficiency issues in dynamic processes: a reflective PN-based modeling approach***
 - L. Capra, University of Milan, Italy
- ***Safety & Security in Retail: Modeling Value Chain Dynamics***
 - Bruzzone, University of Genoa, Italy, and A. Tremori, MAST, Italy

Tuesday, April 15; 1:30 - 3:00

Session 5: Model Analysis / Simulation Technology

Chairs:

- **L.T. Watson, Virginia Polytechnic Institute and State University, USA**
- **A.G. Bruzzone, University of Genoa, Italy**
- ***A Performance Comparison of Piecewise Linear Estimation Methods***
 - M.A. Iyer, M.M. Harris, L.T. Watson, Virginia Polytechnic Institute and State University, USA
 - M.W. Berry, University of Tennessee, USA
- ***System Dynamics and Regressive Meta-Modeling Applied Methodology for Improving Management Performances in Services Industry: a Case Study in Supply Chain and Highway Maintenance***
 - C. Forgia and Roberto Revetria, University of Genoa, Italy

Track 2: Business Simulation

Chair: M.J. Ades, Washington Savannah River Company, USA

Tuesday, April 15; 3:30 - 5:00

Session 1: Business Simulation

Chair: T. Hang, Savannah River National Laboratory, USA

- ***The Importance of Information Security Spending: An Economic Approach***
 - W.R. Conkling, and J.A. Hamilton, Jr., Auburn University, USA

(continued on next page)

- ***Money Supply, Oil, and Gold as Stock Market Index Predictors***
 - L.B. Collard, Savannah River National Laboratory, USA
 - M.J. Ades, Washington Savannah River Company, USA
- ***Data Management: Issues and Solutions for Workflow Efficiency***
 - Jivika Govil, Maharshi Dayanand University, India, and Jivesh Govil, University of Michigan, USA

Track 3: International Industrial Simulation
Chair: M.J. Ades, Washington Savannah River Company, USA

Wednesday, April 16; 10:30 - 12:00

Session 1: International Industrial Simulation Round Table Discussion

Chair: M.J. Ades, Washington Savannah River Company, USA

- ***Overview and Status of Selected Simulation Applications in the World***

11th Communications & Networking Simulation Symposium (CNS)

General Chairs:

- Dr. Aftab Ahmad, Norfolk State University, USA
- Arnold Bragg, RTI International

Program Chair: Hala ElAarag, Stetson University, USA

All CNS sessions, except tutorials, will be in the Frontenec room. Tutorials are in the Chaudière room.

Monday, April 14; 10:15 - 10:30

Opening Address

Aftab Ahmad, CNS'08 chair

Announcements of Best paper award and CNS'09 chairs

Monday, April 14; 10:30 - 12:00

Session 1: Modeling, Verification and Validation

Session Chair: Hala ElAarag, Stetson University, USA

- ***Interconnection Networks with Heterogeneous Activity or Finite Buffers: Beyond Jackson's Theorem***
 - Yelena Rykalova, Lev B. Levitin and Richard Brower; Boston University, USA
- ***Exact Planning of GMPLS-Based Transport Networks with Conversion and Regeneration Capabilities***
 - Nabil Naas and Hussein Mouftah; University of Ottawa, Canada
- ***Sniffing Out Correct Error Frame Model of ns-2 Simulator***
 - JengFarn Lee and MengChang Chen; National Chung Cheng University, Taiwan
- ***A Comparison of TCP Behaviour at High Speeds Using ns-2 and Linux***
 - Martin Bateman, Saleem Bhatti, Greg Bigwood, Devan Rehunathan, Colin Allison, Tristan Henderson; University of St Andrews, UK
 - Dimitrios Miras, University College London, UK

Monday, April 14; 1:30 - 3:00

Session 2: Simulation Methods

Session Chair: Hassan Rajaei, Bowling Green State University, USA

- ***Real time simulation model to test small scale fading effect for wideband systems***
 - Saqer Alhloul; Anglia Ruskin University, UK
- ***A Quantitative Study of Recency and Frequency based Web Cache Replacement Strategies***
 - Sam Romano and Hala ElAarag; Stetson University, USA
- ***Optimal Cache Partitioning in IPTV Network***
 - Lev Sofman, Bill Krogfoss and Anshul Agrawal; Alcatel-Lucent, USA

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Monday, April 14; 3:30 - 5:00

Tutorial

- ***The Network Simulator NS3, part I***
 - George Riley, Georgia Institute of Technology

Tuesday April 15; 8:30 - 10:00

Session 3: Sensor and Wireless Networks

Session Chair: Arnold Bragg; RTI International, USA

- ***A Simulation Framework for Camera Sensor Networks Research***
 - Faisal Qureshi; University of Toronto
 - Demetri Terzopoulos; University of California Los Angeles
- ***An Ad-hoc Network Based Framework for Monitoring Brain Function***
 - Salah Sharieh, Alexander Ferwon, Vladislav Toronov and Abdolreza Abhari; Ryerson University
- ***Multi-path Channel Estimation Methods for UMTS TDD***
 - HACHAICHI CHAIEB hela; Ecole Nationale d'Ingenieurs de Tunis, Tunisia

Tuesday April 15; 10:30 - 12:00

Tutorial

- ***The Network Simulator NS3, part II***
 - George Riley, Georgia Institute of Technology

Tuesday April 15; 1:30 - 3:00

Session 4: Quality of Service

Session Chair: Max Ehammer, University of Salzburg, Austria

- ***A pricing strategy for campus networks***
 - Hong Li; NYC College of Technology, CUNY
 - Hsinrong Wei; Baruch College, CUNY
 - Marcos Pinto; NYC College of Technology, USA
- ***Restoration Objectives for Internet Backbone Links***
 - Qiang Ye; University of Prince Edward Island, Canada
 - Mike MacGregor; University of Alberta, Canada
- ***QoS-LI: QoS Loss Inference in Disadvantaged Networks - Part II***
 - Vidyaraman Sankaranarayanan, Shambhu Upadhyaya, University at Buffalo, USA
 - Kevin Kwiat, Air Force Research Labs, USA

Tuesday April 15; 3:30 - 5:00

Session 5: Advanced Communication Methodologies

Session Chair: Kevin Kwiat, Air Force Research Lab, NY, USA

- ***Distributed Lightpath Control and Management Simulator for Survivable Wavelength-Routing Networks***
 - Emad Alsukhni and Hussein Mouftah; University of Ottawa, Canada
- ***First Response Communication Sandbox***
 - Dirk Bradler, Immanuel Schweizer, Kamill Panitzek and Max Mühlhäuser; University of Technology Darmstadt, Germany

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CNS (continued)

- ***A Testbed for Performance Analysis of 'See-What-I-See' Video Calls and Quality Feedback***
 - Omneya Issa and Jean-Charles Gregoire; IIT, Montreal, Canada

Wednesday April 16; 8:30 - 10:00

Session 6: Internet Modeling and Simulation

Session Chair: Abdolreza Abhari, Ryerson University, Canada

- ***Simulation and Performance Evaluation of AMR-WB with Adaptive Rate Control for VoIP on Wireless Ad Hoc Networks***
 - Hongqi Zhang, Jiying Zhao and Oliver Yang; University of Ottawa, Canada
- ***CPU dimensioning on performance of Asterisk VoIP PBX***
 - Mohiuddin Ahmed and Abdul Malik Mansor; International Islamic University, Malaysia
- ***A Shared- Edit & View Web-Based Simulation Framework***
 - Hassan Rajaei; Bowling Green State University, USA

Wednesday April 16; 10:30 - 12:00

Session 7: Advanced Networking Frameworks

Session Chair: Mohiuddin Ahmed, International Islamic University, Malaysia

- ***TraCI: An Interface for Coupling Road Traffic and Network Simulators***
 - Axel Wegener, Horst Hellbrück, Stefan Fischer; University of Luebeck, Germany
 - Michal Piorkowski, Maxim Raya, Jean-Pierre Hubaux; EPFL Lausanne, Switzerland
- ***Ov/Vis: Visualization of Peer-to-Peer networks in simulation and testbed environments***
 - Konrad Juenemann and Jochen Dinger; University of Karlsruhe (TH), Germany
- ***A Generic Framework for Measuring Performance Metrics of Network Protection Algorithms***
 - Sadrul Habib Chowdhury and Oliver W W Yang; University of Ottawa, Canada

Wednesday April 16; 1:30 - 3:00

Session 8: Wireless Networks

Session Chair: Lev Sofman, Alcatel-Lucent NA, USA

- ***Simulation Based Performance Evaluation of ICI Mitigation Schemes for Broadband Wireless Access Networks***
 - Xueqin Xiang; Tongji University, Shanghai, China
 - Yusheng Ji; The Graduate University for Advanced Studies, National Institute of Informatics, Tokyo, Japan
 - Fuqiang Liu; Tongji University, Shanghai, China
- ***Performance Analysis of Quality of Service in IEEE 802.11e Wireless LANs***
 - Fei Peng; University of British Columbia, Canada
- ***Applying SOA Concepts to the Simulation of Aeronautical Wireless Communication***
 - Max Ehammer, Thomas Graeupl and Carl Herbert Rokitansky; University of Salzburg, Austria

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Wednesday April 16; 3:30 - 5:00

Session 9: Performance Modeling

Session Chair: Yelena Rykalo, Boston University

- ***Delay Analysis of Real-Time Data Dissemination***
 - Gidon Gershinsky, Avi Harpaz, Nir Naaman, Harel Paz and Konstantin Shagin; IBM Haifa Research Laboratory
- ***Suboptimal Real Time Congestion Control of TCP Flows in Computer Networks***
 - NasirUddin Ahmed and Xuhua Ouyang; University of Ottawa, Canada
- ***Modeling Host-based Detection and Active Worm Containment***
 - Frank Akujobi, Ioannis Lambadaris and Evangelos Kranakis; Carleton University, Canada

DOD Architecture Framework Modeling (DODAF)

**General Chair: John A. Hamilton, Jr., Auburn
University**

The DODAF session will be in the Siegnary room.

Wednesday April 16, 08:30 – 10:00

- ***Building Executable Service-Oriented Architectures with the WS-Management Specification***
 - Mark Kuhr and Drew Hamilton
- ***Supporting A Service-Oriented Architecture***
 - Derek Sanders, Drew Hamilton and Richard MacDonald
- ***Understanding Security Architecture***
 - Suhair Amer and Drew Hamilton

High Performance Computing & Simulation Symposium (HPCS)

A joint symposium of DEVS Integrative M&S (DEVS) and High Performance Computing (HPC)

General Chair: Masha Sosonkina, USDOE Ames Laboratory

Vice-General Chair: Tomasz Haupt, Mississippi State University

Program Chair: Cliff Shaffer, Virginia Tech

Vice-Program Chair: Adrian Sandu, Virginia Tech

All HPCS sessions will be in the Joliet room.

Monday April 14; 10:30 - 12:00

HPCS 2008 Keynote Presentation

- ***The Need for Diversity in HPC***
 - Paul Lu, University of Alberta
For both hardware and software in high-performance computing (HPC), there are strong trends towards homogeneity. Although there are strong economic, technological, and social reasons behind consolidation in HPC, the lack of a diverse toolbox has some potential, long-term risks. With only a single kind of hammer, will everything look like a nail? If the tools to tackle the hard problems are no longer available, will only the easy problems be solved? We examine some of the trends in HPC hardware and software, the tangible benefits that have resulted from consolidation, but also the risks that come from a monoculture.

Monday April 14; 1:30 - 3:00

Session 1: Geophysical Applications

Session Chair: Adrian Sandu, Virginia Tech

- ***Towards Validation of DEVS-FIRE Wildfire Simulation Model***
 - Feng Gu (Georgia State University), Xiaolin Hu (Georgia State University) and Lewis Ntamo (Texas A&M University)
- ***Solution of the Implicit Formulation of High Order Diffusion for the Canadian Atmospheric GEM model***
 - Abdessamad Qaddouri and Vivian Lee (Environment Canada)
- ***Optimizing Large Scale Chemical Transport Models for Multicore Platforms***
 - John Linford and Adrian Sandu (Virginia Tech)

Monday April 14; 3:30 - 5:00

Session 2: High Performance Computing and Simulation Applications

Session Chair: Will Thacker, Winthrop College

- ***Porting a 3D image registration application to multi-core environment***
 - Karoly Sandor, Miklos Kozlovszky; Budapest Tech
 - Viktor Kamaras, Levente Ficsor, Viktor Sebestyen Varga; 3DHitech Ltd.
 - Bela Molnar; Semmelweis University
- ***Converting Macromolecular Regulatory Models from Deterministic to Stochastic Formulation***
 - Pengyuan Wang, Ranjit Randhawa, Clifford A. Shaffer, Yang Cao and William Baumann; Virginia Tech

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- **Constructing a Performance Database for Large-Scale Quantum Chemistry Packages**
 - Meng-Shiou Wu, Masha Sosonkina; Ames Lab
 - Hirotohi Mori, Theresa Windus, Heather Netzloff, Mark S. Gordon; Iowa State University
 - Jonathan Bentz; Cray, Inc.

Tuesday, April 15; 10:30 - 12:00

Session 3: DEVS Session 1

Session Chair: Trevor Pearce, Carleton University

- **RMobiGen: A Trace Generation, Visualization, and Performance Analysis Tool for Random Mobility Models**
 - Alex Aravind and Xiang Cui; University of Northern British Columbia
- **Performance Analysis of Web-based Distributed Simulation in DCD++: A Case Study across the Atlantic Ocean**
 - Julien Chazal, Loic Quinet, Qi Liu, Mamadou K. Traoré & Gabriel Wainer; Carleton University
- **A Formal Framework for Stochastic DEVS Modeling and Simulation**
 - Rodrigo Castro, Ernesto Kofman and Gabriel Wainer; Carleton University

Tuesday, April 15; 1:30 - 3:00 Paper Session 4: DEVS

Session 2

Session Chair: Ming Zhang, University of Ottawa

- **An Approach for Simulation Based Structure Optimisation of Discrete Event Systems**
 - Olaf Hagendorf and Thorsten Pawletta; University Wismar
- **Parallel simulation of DEVS and Cell-DEVS models on Windows-based PC cluster systems**
 - Bo Feng, Qi Liu and Gabriel Wainer; Carleton University
- **Experiences with the DEVStone Benchmark**
 - Gabriel Wainer; Carleton University

Tuesday, April 15; 3:30 - 5:00

Panel Session: Large Scale Scientific Computing in Canada

Moderator: Jim Nutaro; Oak Ridge National Lab)

- **Participants:**
 - Eric Aubanel; University of New Brunswick
 - Gabriel A. Wainer; Carleton University
 - Ming Zhang; University of Ottawa

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Wednesday, April 16; 10:30 - 12:00

Session 5: High Performance Computing and Simulation Algorithms

Session Chair: Alex Aravind, University of Northern British Columbia

- ***A Shared Memory Parallel Algorithm for Data Reduction Using the Singular Value Decomposition***
 - Rhonda Phillips, Layne Watson and Randolph Wynne; Virginia Tech
- ***Improving the Performance of Read-only Transactions through Asynchronous Speculation***
 - Rangunathan Thirumalaisamy and Polepalli Krishna Reddy; IIT, Hyderabad
- ***Fault-Tolerance and Reconfiguration of Circulant Graphs and Hypercubes***
 - A. Farrag, S. Lou and Y. Qi; Dalhousie

17th Annual International Conference on Health Sciences Simulation (ICHSS)

General Co-Chairs:

James G. Anderson, Purdue University

Godefridus G. van Merode, Universiteit Maastricht

All ICHSS sessions will be in the York room.

Monday April 14 1:30 - 3:00

Session 1: Health Policy

- ***Technology and the Health Care Quadrilemma: A Test***
 - George Pasdirtz
- ***Combining Two Forms of Simulation to Predict the Potential Impact of Interface Design Upon Technology-Induced Error in Healthcare***
 - Andre Kushniruk, Elizabeth Borcki, James G. Anderson, Marilyn M. Anderson

Monday April 14; 3:30 - 5:00

Session 2: Health Services I

Chair: George W. Pasdirtz, Ph.D., University of Wisconsin, Madison

- ***Using Simulation to Improve Outpatient Appointment System with Minimum Change***
 - Jiahua LI, Yue ZHOU and Fukuya ISHINO
- ***Maximizing Cardiac Surgery Throughput at a Major Hospital***
 - Carter Price, Timothy Babineau, Bruce Golden, Bartley Griffith and Edward Wasil

Tuesday April 15; 8:30 - 10:00

Session 3: Health Services II

- ***Modeling Implementation Strategies By Simulation***
 - Sabrina Ramwadhoebe, Godefridus Van Merode, Ralph Sackers and Erik Buskens
- ***Conflict and Burnout among Nursing Staff in the Long Term Care Setting***
 - Kathleen Abrahamson, James G. Anderson, Marilyn M. Anderson, Jill Sutter

Tuesday April 15; 10:30 - 12:00

Session 4: Health Services III

- ***Case Mix and Acute Care System Design***
 - Johanna J.W. Molema and Godefridus G. Van Merode
- ***Developing a Reusable Simulation to Improve Access to Diagnostic Imaging Clinics in Nova Scotia***
 - Sean Sangster and John T. Blake

Tuesday April 15; 1:30 - 3:00

Session 5: Modeling Epidemics

Chair: K. Krishnan, Universite de Montreal

- ***Modeling and Simulating a Disease Outbreak by Learning a Contagion Parameter-based Model***
 - John B Oommen and Dragos Calitioiu
- ***EpiSimS Simulation of a Multi-Component Strategy for Pandemic Influenza***
 - Susan Mniszewski, Sara Del Valle, Phillip Stroud, Jane Riese and Stephen Sydoriak

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Tuesday April 15; 3:30 - 5:00

Session 6: Biomedical Applications

Chair: Mailen Kootsey

- ***Evaluation of Competing Windkessel Models for Assessing Vascular Characteristics from Non-invasive Blood Pressure Recordings***
 - Karl Thomaseth
- ***Patient-specific Modelling and Simulation of Coronary Haemodynamics***
 - Bernhard Quatember

Wednesday April 16; 8:30 - 10:00

Session 7: Pharmacometric Applications

Chair: Karl Thomaseth, National Research Council, Padua, Italy

- ***A physiologically-based algorithm for predicting internal dose of inhaled toluene: applications for high dose to low dose and rodent to human extrapolations***
 - Sastry Isukapalli, Karine Price, Panos Georgopoulos and Kannan Krishnan
- ***Markov Chain Monte Carlo Simulation of Biomonitoring in Humans: Application to Biomarkers of Chronic Exposure to Alkyl Benzenes in the Environment***
 - Thomas Peyret and Kannan Krishnan

Wednesday April 16; 10:30 - 12:00

Session 8: Biomedical Applications

Chair: Bernhard Quatember

- ***Large Scale Modeling of the Piriform Cortex for Analyzing Antiepileptic Effects***
 - Dragos Calitoiu, Doron Nussbaum and B. John Oommen
- ***Rapid Construction of Simulation Driven Animations in Web Pages Using NLX***
 - Mailen Kootsey

**Military Modeling & Simulation Symposium
(MMS)**
**General Chair: Dr. Paul Roman, Royal Military College
of Canada**

MMS sessions on Mon. will be in the International Ballroom B.
MMS sessions on Tues. & Wed., except tutorials & the MMS
keynote, will be in the Siegnary room.

Monday April 14; 10:30 - 12:00

MMS Keynote

Chair: Paul Roman

- Col John (Buck) Surdu, PhD.

Monday April 14; 1:30 - 3:00

Session 1: Simulation Future

Session Chair: LCol Rusty Bassarab, Director Land

Synthetic Environments

- ***The Deep Green Concept***
 - John Surdu and Kevin Kittka
- ***Striving for Interoperability: Synthetic Environment Core (SECore)***
 - D.R. Elliott, R.G. Brown, A.J. Masys and B.M. Dillman

Monday April 14; 3:30 - 5:00; Special Event 1

Session Chair: Dr. Paul Roman

- ***The Acquisition Maze - Harnessing Academia, Industry and Government***
 - LCol Rick Thompson, The Canadian Advanced Synthetic Environment Project

Monday April 14; 3:30 - 5:00

Tutorial of Interest

- ***The Network Simulator NS3 (Introduction)***
 - George Riley

Tuesday April 15; 8:30 - 10:00

Session 2: Synthetic Natural Environments

Session Chair: Mr. Doug Brown, Directorate of Land

Synthetic Environments

- ***Texture Management in View Dependent Application for Large 3D Terrain Visualization***
 - Renato Okamoto, Flávio Mello and Claudio Esperança
- ***Integrating Simulation and Geographic Information System***
 - Haluk Akin, Yanshen Zhu, Maria Bull, Luis Rabelo and Jose Sepulveda

Tuesday April 15; 10:30 - 12:00

Session 3: Distributed Simulation

Session Chair: Jérôme Levesque, Land Capability

Development OR Team

- ***HLA and Human Behavior Models***
 - Agostino Bruzzone, Matteo Brandolini and Marina Massei
- ***Quadtree-Based Approach to Data Distribution Management for Distributed Simulations***
 - Omer Eroglu, H.Ali Mantar and Fatih Erdogan Sevilgen

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MMS (continued)

- **Theoretical and Experimental Analysis of MSES and Kshemkalyani-Singhal Algorithms Under Distributed Simulation Environment**
 - Inanc Tahrali, Tolga Basturk and Fatih Erdogan Sevilgen

Tuesday April 15; 10:30 - 12:00

Tutorial of Interest

- **The Network Simulator NS3 (Part 2)**
 - George Riley

Tuesday April 15; 1:30 - 3:00

Session 4: Innovative Simulation Applications

- **Development of the Virtual Flight Deck (VFD) Simulation Environment**
 - Kin Wing Tsui and Rob Langlois
- **Case Study: Closing the Training Gap with 3D Interactive Simulations**
 - Gabe Batstone and Harvey Jackson
- **Using Simulation to Evaluate Traffic Engineering Management Services in Maritime Networks**
 - David Kidston and Thomas Kunz

Tuesday April 15; 3:30 - 5:00

Special Event 2

Session Chair: Paul Roman

- **The Application of Gaming Technology at Canada's Combat Training Centre**
 - Captain Jeremy MacDonald, Warrant Officer Sandy Hill, Combat Training Centre

Wednesday April 16; 8:30 - 10:00

Tutorial of Interest

- **Modeling and Simulation with the BRAHMS Agent Environment (Introduction)**
 - Maarten Sierhuis

Wednesday April 16; 10:30 - 12:00

Session 5: Physical System Modeling

Session Chair: Rick Brown, DND Synthetic Environment Coordination Office

- **Modeling and Simulation of Skid-equipped Shipboard Rotorcraft**
 - Rob Langlois, Zheng Zhu and Michael LaRosa
- **Terminal Ballistics of Intercept Ammunition Against Mortar Targets**
 - Markus Graswald and Hendrik Rothe
- **Simulation of Impact and Penetration with Hydrocodes**
 - Akhilesh Sharma, Bhupinder Sewak and Dr Manjit Singh

Wednesday April 16; 10:30 - 12:00

Tutorial of Interest

- **Modeling and Simulation with the BRAHMS Agent Environment (Part 2)**
 - Maarten Sierhuis

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Wednesday April 16; 1:30 - 3:00

Session 6: Agent Based Solutions

Session Chair: Lcol Rusty Bassarab, Director Land Synthetic Environments

- ***CAMiCS: Civilian Activity Modelling in Military Constructive Simulation***
 - Jérôme Levesque, Jimmy Perron, Jimmy Hogan, Tony Garneau and Bernard Moulin
- ***Realistic Agent Populations for Large-Scale Virtual Training Environments***
 - John Surdu, Art Pope and Peter Selfridge

Wednesday April 16; 3:30 - 5:00

Special Event 3

Chair: Paul Roman

- ***One Semi Automated Forces (OneSAF) - The next generation CGF***
 - John Logsdon, Deputy Product Manager OneSAF

Modeling & Simulation in Education (MSE)

General Chairs:

- **Dr. Catherine M. Banks, Virginia Modeling, Analysis and Simulation Center (VMASC) / Old Dominion University**
- **Dr. John Sokolowski, Virginia Modeling, Analysis and Simulation Center (VMASC) / Old Dominion University**

All MSE sessions will be in the Victoria room.

Monday April 14, 10:30 - 12:00

Session 1: MSE Plenary

Chair: Dr. John Sokolowski, Virginia Modeling, Analysis and Simulation Center (VMASC) / Old Dominion University

- ***The Future of Simulation***
 - R. Bowen Loftin; VP & CEO - Maritime Systems Engineering, Texas A&M University at Galveston

Monday April 14, 1:30 - 3:00

Session 2: The Continuity of M&S Education

Chair: Dr. Catherine M. Banks, Virginia Modeling, Analysis and Simulation Center (VMASC) / Old Dominion University

Invited Papers

- ***An Institutional Model for the Administration and Support of Multidisciplinary M&S Graduate Programs***
 - Phil Langlais; Vice Provost Graduate Studies and Research, Old Dominion University
- ***A Multidisciplinary Model for M&S Graduate Education***
 - Roland Mielke, et al.; M&S Graduate Program Director, Old Dominion University

Monday April 14, 3:30 - 5:00

Session 3: Panel: Building the M&S Research Agenda

Chair: Dr. Catherine M. Banks, Virginia Modeling, Analysis and Simulation Center (VMASC) / Old Dominion University

- **Dr. John Sokolowski, Virginia Modeling, Analysis and Simulation Center (VMASC) / Old Dominion University**
- **Mikel Petty; Director Center for Modeling, Simulation, and Analysis - University of Alabama, Huntsville**
- **Bowen Loftin; VP & CEO - Maritime Systems Engineering - Texas A&M University/Galveston**

Tuesday April 15, 10:30 - 12:00

Session 5: The Education Continuum

Chair: Dr. John Sokolowski, Virginia Modeling, Analysis and Simulation Center (VMASC) / Old Dominion University

- ***Compelling Challenges and Recommended Solutions: Developing a Continuity of M&S Education from Public School to Graduate Studies***
 - Dr. Catherine M. Banks, Virginia Modeling, Analysis and Simulation Center (VMASC) / Old Dominion University
- ***A Soft Computing Decision Support Framework to Improve the e-Learning Experience***
 - F. Castro, A. Nebot; University of Catalonia
 - F. Mugica; Latin American Institute of Edu.Comm.
- ***Mechatronic and Bond Graph in Education***
 - Naamane - Laboratory of Science and Information Systems (LSIS)

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Tuesday April 15, 1:30 - 3:00

Session 6: Game-based Learning: The Future of Education

Chair: Dr. Catherine M. Banks, Virginia Modeling, Analysis and Simulation Center (VMASC) / Old Dominion University

- ***The Design of An Electronic Notebook for the Development of Meta-Cognitive Strategies and Self-Assessment In Game-Based Learning***
 - Adcock, G. Watson, G. Morrison, L. Belfore; Old Dominion University
- ***Review of Simulation and Gaming Curricula in U.S. Instructional Design & Technology Programs***
 - G. Watson, G. Morrison, A. Adcock; Old Dominion University

Tuesday April 15, 3:30 - 5:00

Session 7: Unique Uses in the Classroom

Chair: Dr. John Sokolowski, Virginia Modeling, Analysis and Simulation Center (VMASC) / Old Dominion University

- ***Thunder Run in the Classroom***
 - S. Gauthier, M. Kwinn; US Military Academy - West Point
- ***Simulation Across the Spectrum of Submarine Training***
 - M. Jones - Ph.D. candidate, Old Dominion University
- ***A Blackjack Simulation for Teaching the Use of Scientific Method***
 - L. Tichenor; Western Illinois University

Symposium on Simulation of Systems Security (SSSS)

General Chair: Chwan-Hwa "John" Wu, Auburn University

All SSSS sessions will be in International Ballroom B.

Monday April 14; 10:30 - 12:00

Invited Talk

- ***I'm in Information Security, So What Do I Do First?***
 - Dennis McCallam, Chief Security Architect and Technical Fellow, Northrop Grumman Corporation

Monday April 14; 1:30 - 2:30

Plenary Talk

- ***A Hypervisor-Based System for Protecting Software Runtime Memory and Persistent Storage***
 - Prashant Dewan, David Durham, Hormuzd Khosravi, Men Long; Communications Technology Lab, Intel Corporation
 - Gayathri Nagabhushan; Software Solutions Group, Intel Corporation

Monday April 14; 2:30 - 3:00

Invited Paper

- ***Malicious Node Detection in Wireless Sensor Networks using Weighted Trust Evaluation***
 - Idris M. Atakli, Hongbing Hu, Yu Chen; SUNY - Binghamton, Binghamton, NY 13902, USA
 - Wei-Shinn Ku; Auburn University, Auburn, AL 36849, USA

Monday April 14; 3:30 - 4:30

Invited Talk

- ***Performance Analysis of Real Traffic Carried with Encrypted Cover Flows***
 - David Nicol; University of Illinois at Urbana-Champaign, Coordinated Science Laboratory

Monday April 14; 4:30 - 5:00

- ***Simulation for Intrusion-Resilient, DDoS-Resistant Authentication System (IDAS)***
 - Chwan-Hwa "John" Wu and Tong Liu; Electrical and Computer Engineering Department, Auburn University

The WCM session will be in the Victoria room.

Wednesday, April 16, 08:30 - 12:00

The development of a conceptual model for the system being investigated in a Modeling and simulation project is widely acknowledged as a key preliminary stage for the project's success. Its purpose is to provide a bridge between the generalities of the project description and the precision required for the simulation program development. It serves as the discussion vehicle for all the project's stakeholders. In spite of this vital role, the activity of conceptual Modeling is poorly understood and effective techniques to support it are by no means well established. This Workshop will explore the conceptual Modeling landscape and endeavor to move forward its boundaries.

- ***Conceptual Modeling: Definitions, Concepts and Future Research***
Stewart Robinson, Warwick Business School, University of Warwick, UK
 - **Conceptual modeling is generally seen as the most vital part of any simulation study, but it is also the least understood. There has been only limited research in this field. In order to generate a coherent research program in conceptual modeling, it is important to define the nature of the field and to identify topics for future research. This talk will provide a definition of conceptual modeling, place it within the life-cycle of a simulation study and suggest research topics.**

- ***Knowledge Acquisition for Conceptual Modeling***
Cathal Heavey, Enterprise Research Centre, University of Limerick, Ireland
 - **The requirements gathering phase of a simulation project is a key aspect of conceptual Modeling because it establishes project goals and hence is of fundamental importance. This process can be viewed as knowledge capture and possible methods for carrying out this task will be explored. Several simulation projects carried out in manufacturing companies will be used to illustrate the essential points.**

- ***Desirable Features of a Conceptual Modeling Environment***
Gilbert Arbez, School of Information Technology and Engineering, University of Ottawa, Canada
 - **A conceptual model should clearly reveal to all team members of a Modeling and simulation project the project's relevant details. The collective expertise of the members of the project team necessarily covers a broad range of specializations. To ensure that all team members can effectively communicate and contribute to the model formulation process the model building environment should have various desirable features. These are identified in the presentation and illustrated using a particular environment called the ABCmod framework.**

- ***The Role of Conceptual Modeling in Finding the Right Representation.***
David Gross, Associate Technical Fellow, The Boeing Company, USA
 - **A major purpose for developing a conceptual model is to decide just what aspects of the simuland shall be represented in the design and implementation of the model or simulation to be built. Therefore the process by which conceptual models are constructed, and the form in which they are expressed are both crucial if the conceptual model is to accomplish its purpose. This presentation explores current issues with the process by which conceptual models are formed and the format in which they are captured.**

- ***Overview of the NATO RTA MSG-058 Task Group on Conceptual Modeling for Military M&S***
Nathalie Harrison, Defence Scientist, Defence R&D Canada - Valcartier, Canada
 - **The NATO Research and Technology Agency has set up a task group to produce a guidance on conceptual Modeling usage in the military M&S context. This presentation will introduce the group mandate and review the state of the art as collected by the participating nations. Preliminary results including the scope and the work plan will be presented.**

- ***The Relationship Between Software Requirements Engineering and Conceptual Modeling***
Michael Weiss, Department of Systems and Computer Engineering, Carleton University, Canada

Poster Track

General Chair: Abdolreza Abhari, Ryerson University,
Toronto, Ontario, Canada

All Posters will be in the International Ballroom B.

Tuesday April 15, 1:00 - 2:00 & 3:00 - 4:00

- ***A methodological framework for the analysis of agent-based supply chain planning simulations***
 - Luis Antonio Santa-Eulalia, Sophie D'Amours and Jean-Marc Frayret
- ***A New Mathematical Model for Optimizing the Performance of Parallel and Discrete Event Simulation Systems***
 - Syed Rizvi, Aasia Riasat and Khaled Elleithy
- ***A Simple Scheme for Routing and Wavelength Assignment in WDM Networks***
 - Khaled Maamoun and Hussein Mouftah
- ***Agents with Personality and Emotional Filters for an E-learning Environment***
 - Nasser Ghasem-Aghaee, Somayeh Fatahi and Tuncer Ören
- ***An Agent-based Framework For Dynamic Web Service Selection***
 - Yijun Chen and Abdolreza Abhari
- ***Architectural Model for Grid Resources Discovery***
 - Saadat Bokhari, Syed, Alex Ferwon and Abdolreza Abhari
- ***Calibrating Agent-Based Models Using Behavioral Experiments***
 - Scott Heckbert
- ***CD++Modeler: a graphical toolkit to develop DEVS models***
 - Kiril Kidisyuk and Gabriel Wainer
- ***City Agent-Based Model***
 - Nikolay Begunov, Ilya Moskalev and Boris Klebanov
- ***Definition of Dynamic DEVS Models- Dynamic Structure CD++***
 - Monageng Kgwadi, Hui Shang and Gabriel Wainer
- ***Design of Persian Tapestry in CD++***
 - Mohammad Moallemi and Gabriel Wainer
- ***ECD++ A DEVS based Real-Time Simulator for Embedded Systems***
 - Mohammad Moallemi, J. Marcelo Gutierrez-Alcaraz and Gabriel Wainer

(continued on next page)

- ***Event Behavior of Discrete Event Simulations in CD++ vs. NS-2***
 - Shafagh Jafer, Gabriel Wainer, Juan-Carlos Maureira Bravo and Olivier Dalle
- ***Implementing Priority Task Management in JACK Intelligent Agents***
 - Tania E. Randall and Briand J. Gaudet
- ***Implementing the SCIDDICA Landslide Model in Cell-DEVS***
 - Brian Webb and Gabriel A. Wainer
- ***Load and Capacity Simulation for Design of Combined Wired and Wireless LAN***
 - Dietbert Guetter, Andriy Luntovskyy, Stefan Uhlig and Alexander Schill
- ***Modeling Privacy Compromise: Visibility of Individuals via DRM and RFID in Ubiquitous Computing***
 - Nhan Tran and Vijay Somers
- ***Modeling quantum dot devices in Cell-DEVS environment***
 - Yuri Boiko and Gabriel Wainer
- ***Modeling Spiking Neural Terminals in DEVS***
 - Yuri Boiko and Gabriel Wainer
- ***RCP Throughput Modeling and Performance Improvement***
 - Kai Shi, Yantai Shu, Oliver Yang and Xin Wang
- ***Simulating a file sharing system based on BitTorrent***
 - Ricardo Salmon, Jimmy Tran and Abdolreza Abhari
- ***Synthesizing scenarios to DEVS models***
 - Mamoun Sqali, Lucile Torres and Claudia Frydman
- ***The Stochastic Fleet Estimation (SaFE) Model***
 - Slawomir Wesolkowski and Andrew Billyard
- ***YetiSim: A C++ Simulation Library with Execution Graphs Instead of Coroutines***
 - Adrien Guillon and Deborah Loach

Handouts

See the SpringSim'08 handout packet for:

- Hotel maps
- Conference at-a-glance layouts
- Last minute changes