

# SpringSim'11 Final Program

SpringSim'11 is co-located with the Simulation Interoperability Standards Organization (SISO) Spring Interoperability Workshop (SIW). While this document does not contain any information on SISO sessions, all SpringSim'11 attendees are welcome to also attend any public SISO session. Check with the SISO registration desk at the conference for information on the various SISO sessions.

Note: this document is provided for planning purposes. There may be last-minute changes. Those will be in the errata sheet included as part of the registration packet you receive when you check-in / register at the SCS registration desk at the conference.

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## Registration, Get-Togethers, Meetings & Reception

- **Registration** opens Sunday April 3<sup>rd</sup> at 3pm and will be open until 6pm on Sunday and Monday – Wednesday 7am – 5pm.
- **Get-Togethers:**
  - **Spouses & Guests Get-Together**
    - **When:** Monday April 4<sup>th</sup> during the morning break (10-10:30am).
    - **Where:** Stop by the SCS registration desk to find out (location is still TBD).
    - **Who should attend?** Any spouse or guest of a SpringSim'11 attendee. Family members, children, etc. are all welcome.
    - **What is it?** This meeting will act as an informal place for spouses/guests to interact and introduce themselves to one another. We'll have Boston area information available as well: maps, discount coupon books, attraction guides, etc. Been to Boston before? Share your tips and recommendations! First time to the area? Make a new friend and discover the city together. The sky's the limit!
  - **SpringSim'11 Newcomers Get-Together/Meeting:**
    - **When:** Monday, April 4<sup>th</sup> at the afternoon break (3-3:30pm).
    - **Where:** Stop by the SCS registration desk to find out (location is still TBD).
    - **Who should attend?** Any first-time SpringSim attendee.
    - **What is it?** We'll have SpringSim "veterans" on hand to answer any and all conference-related questions. This meeting is also a great opportunity for first-timers to get to know and network with one another. Think of it as SpringSim orientation.
- **Meetings:**
  - **SpringSim'11 Pre-conference meeting:** Sunday April 3<sup>rd</sup> from 4-5pm. We'll go over any last minute program changes and address any last minute questions / issues any symposium may have. All symposia from SpringSim'11 are expected to have at least 1 representative at this meeting (preferably any/all of the general chair, vice general chair & program chair).
  - **SpringSim'12 Planning meeting:** Sunday April 3<sup>rd</sup> from 5-6pm. We'll do the initial stages of planning for SpringSim 2012. All symposia that plan on being part of SpringSim'12 should send a representative to this meeting (preferably any/all of the general chair, vice general chair & program chair). Anyone wanting to help in the planning of SpringSim'12 even if you're not associated with a specific symposium, is welcome to attend. If you want to help but can't make this meeting, contact the SpringSim'12 General Chair, [Dr. Hala ElAarag](#).
  - **SpringSim'12 symposia planning meetings:**

- All SpringSim'12 symposia planning meetings will be held over lunch. If you want to attend, contact one of the symposia chairs for SpringSim'11. They have the final say on who can attend since seating is very limited. They will also let you know where the lunch for your symposia will be.
- **Reception:**
  - There will be a reception in the Palm Garden exhibit area, open to all SpringSim'12 attendees, on Monday April 4<sup>th</sup> from 5-7pm.

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### Speakers Breakfasts

- Speakers breakfasts will be held Monday – Wednesday from 7am – 8am. This is a catered breakfast for all speakers for that day (i.e. Monday speakers can go to Monday's speakers' breakfast; Tuesday's speakers can go to Tuesday's speakers' breakfast; etc.). See the SCS personnel at the SCS registration desk to find out what room the breakfasts will be held in.

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### Best Paper Award

- The Award for the Best Paper of SpringSim'11 will be presented at the start of the Keynote session on Monday April 4<sup>th</sup> at 8:30. Everyone is encouraged to attend.

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### Keynotes

- See our [Keynotes page](#) for details on our Keynote Speakers.

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### Tutorial

- See our [Tutorial page](#) for details.

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ADS Quincy Rm.

Monday April 4<sup>th</sup>

- 1:30 Title: ADS1 Chair: Greg Madey
  - Dynamic Adaptive Disaster Simulation: Developing a Predictive Model of Emergency Behavior Using Cell Phone and GIS Data
    - *Francis Chen, Zhi Zhai and Greg Madey*
  - The effects of different interaction protocols in agent-based simulation of social activities
    - *Nicole Ronald, Theo Arentze and Harry Timmermans*
  - Identifying Norms of Behavior in Open Multi-agent Societies
    - *Wagdi Alrawagfeh, Edward Brwon and Manrique Mata-Mantero*
- 3:30 Title: ADS2 Chair: Anthony Hunt
  - Agent-Based Analysis of Asset Pricing under Ambiguous Information
    - *Ben-Alexander Cassell and Michael Wellman*
  - An Architecture to Tame Simulation Time Tardiness in ADS
    - *Pier Taranti, Ricardo Choren and Carlos Lucena*
  - Initial Formulation (proposal) of an Optimization Method Based on Stigmergic Construction
    - *Aditya Velivelli and Kenneth (Mark) Bryden*

Tuesday April 5<sup>th</sup>

- 8:30 Title: ADS3 Chair: Joe Barjis
  - A Proposed Method for Dynamic Knowledge Representation via Agent-directed Composition from Biomedical and Simulation Ontologies: An Example Using Gut Mucus Layer Dynamics
    - *Scott Christley and Gary An*
  - Composite Cell Agent Model of Epithelial Culture in Vitro
    - *Sean H. J. Kim and C. Anthony Hunt*
  - A Robust in Silico Analogue of MDCK Cystogenesis Mimics Growth in Multiple Culture Conditions
    - *Jesse Engelberg*
- 10:30 Title: ADS4 Chair: Anthony Hunt
  - The Observation of Tolerance in a Social Network Model
    - *Kristen Lund and Yu Zhang*
  - An Agent-Based Genetically-Aware Entomological Model
    - *Regina McCormack, James E. Gentile and Samuel S.C. Rund*
  - Survival of Altruistic Preferences in the Ultimatum Game
    - *Zsombor Z. Meder*
- 1:30 Title: ADS5 Chair: Greg Madey
  - Medieval Military Logistics: An Agent-based Simulation of a Byzantine Army on the March
    - *Bart Craenen, Georgios Theodoropoulos, Vincent Gaffney, Philip Murgatroyd and John Haldon*
  - Price Rigidity and Strategic Uncertainty - An Agent-based Approach
    - *Robert Somogyi and Janos Vincze*
  - Informing Malaria Control Policy Using ABMS
    - *Gregory Davis and Geralyn Janke*
- 3:30 Title: ADS6 Chair: Joe Barjis
  - Modeling Space in an Agent-based Model of Malaria: Comparison between Non-Spatial and Spatial Models
    - *S. M. Niaz Arifin, Gregory J. Davis and Ying Zhou*
  - Animation of Open Multi-Agent Systems
    - *Jeremy Pitt, Brendan Neville, Sam Macbeth and Hugo Carr*

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ANSS Salon J  
Monday April 4<sup>th</sup>

- 1:30 Title: Networking Systems
  - Denoising of Time Domain Responses in Wireless Sensor Network for the Structural Health Monitoring of Transportation Infrastructure
    - *Tzu-Yang Yu, Honggang Wang and Hong Liu*
  - Enhancement of 802.11 Modules in ns-2 for Wireless Access on Vehicular Environments and Performance Evaluation
    - *Kyohong Jin, Sungjin Lee, Daehoon Kang, Sangjun An and Jihyun Cha*
  - Latency Modeling and Minimization for Large-scale Scientific Workflows in Distributed Network Environments
    - *Qishi Wu, Yi Gu, Yuchen Liao, Xukang Lu, Yunyue Lin and Nageswara Rao*
- 3:30 Title: Environmental Systems
  - Towards Parameter Estimation in Wildfire Spread Simulation Based on Sequential Monte Carlo Methods
    - *Fan Bai, Song Guo and Xiaolin Hu*
  - A System Dynamics Model to Evaluate Sustainability of Water Supply in a Watershed.
    - *Roberto de la*
  - Estimation of New Ignited Fires Using Particle Filters in Wildfire Spread Simulation
    - *Haidong Xue and Xiaolin Hu*

ANSS Salon K  
Monday April 4<sup>th</sup>

- 1:30 Title: Wireless Networks: Scheduling and Performance
  - An Energy-Balanced Coding Redundancy Scheduling Approach to Support Quality of Service in Battery-Powered Multi-Hop Wireless Networks
    - *Lin Xing, Wei Wang, Shaoen Wu, Kun Hua and Honggang Wang*
  - Performance Analysis and Simulation of Packet Scheduling Algorithms in Femtocell Environment

- *Volkan Sevindik, Oguz Bayat and Jay Weitzen*
- TapRouter: An Emulating Framework to Run Real Applications on Simulated Mobile Ad hoc Network
  - *Jinxue Zhang and Zheng Qi*
- 3:30 Title: Complex System
  - Statistical Modeling of Optical Neural Transduction
    - *Jennifer Byrne*
  - A Game Theoretical Approach to Broadcast Information Diffusion in Social Networks
    - *Dmitry Zinoviev and Vy Duong*
  - Feasibility Study for Automatic Calibration of Transportation Simulation Models
    - *Hong Liu, Qian Yu, Wei Ding, Daiheng Ni, Honggang Wang and Stephen Shannon*

Tuesday April 5<sup>th</sup>

ANSS Quincy Rm.

- 8:30 Title: Wireless Networks: Routing
  - A Symbolic Model to Traffic Engineering in Wireless Mesh Networks
    - *Edgard Jamhour*
  - A Bottleneck Aware Routing Metric for Wireless Mesh Networks
    - *Bing Qi*
  - Study of the Impact of Link Availability on the Performance of DTN Routing Protocols
    - *Fuad Alnajjar*

ANSS Salon I

- 10:30 Title: Multimedia and QoS
  - Controlled Stochastic Petri Net Model for End-to-End Network QoS Provisioning in Middleware-based Multimedia and Real-Time Systems
    - *Hakiri Akram, Berthou Pascal and Gayraud Thierry*
  - Cognitive Cross-layer Design with QoS Provisioning for Cooperative Wireless Networking
    - *Kun Hua, Shaoen Wu, Honggang Wang and Wei Wang*
  - On Traffic Locality and QoE in Hybrid CDN-P2P Networks
    - *Moisés Rodrigues, Josilene Moreira, Arthur Callado, Márcio Neves, Djamel Sadok, Per Karlsson and Victor Souza*

Wednesday April 6<sup>th</sup>

ANSS Salon J

- 8:30 Title: Wireless II: Physical Layer Modeling
  - A Correlation Model for Shadow Fading in Multi-hop Wireless Networks
    - *Wen Qin and Bo Yang*
  - Towards Realistic Mobility Modeling for Vehicular Ad Hoc Networks
    - *Aifeng Wu, Jianqing Ma and Shiyong Zhang*
  - Simulations of a New MIMO Zero-Forcing Detector for Correlated and Estimated Rician Fading
    - *Xiaonan Shi*
- 10:30 Title: Simulation Methods
  - A (lumped) Markov process for a class of dynamic Petri nets
    - *Lorenzo Capra*
  - Simulation of Routing in Nano-manipulation for creating pattern with Atomic Force Microscopy using hybrid PSO-AS
    - *Ahmad Naebi*
  - Component-Oriented Interoperation of Real-Time DEVS Engines
    - *Mohammad Moallemi, Gabriel Wainer, Federico Bergero and Rodrigo Castro*
- 1:30 Title: Computer Architectures
  - A Latency Simulator for Many-core Systems
    - *Sunil Kumar, Tommaso Cucinotta and Giuseppe Lipari*
  - Comparative Analysis of OpenMP and MPI on Multi-Core Architecture
    - *Michael Chan and Lan Yang*
  - Stationary Solution Approximation using a Memory-Efficient Perfect Sampling Technique
    - *Ricardo M. Czekster, Paulo Fernandes, Afonso Sales and Thais Webber*
- 3:30 Title: Simulation and Software
  - SimSaaS: Simulation Software as a Service
    - *Wei-Tek Tsai, Wu Li, Hessam Sarjoughian and Qihong Shao*

- Mapping of Software Model to Simulation Model for Performance Requirement Verification
  - *Ronaldo Arias and Celso Massaki Hirata*
- Developing High-Speed Real-Time Simulations
  - *Roy Crosbie, John Zenor, Richard Bednar, Dale Word and Narain Hingorani*

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CNS Haymarket Rm.  
Monday April 4<sup>th</sup>

- 1:30 Title: Network performance Chair: Dr. Aftab Ahmad
  - Puzzle Solving- Based Authentication Method for Enhanced Security in SPINS and Its Performance Evaluation
    - *Sanjay Dhurandher, Mohammad S. Obaidat, Ankit Mahendru, Lakshaya Agnani*
  - Modeling the Energy Consumption for Concurrent Executions of Parallel Tasks
    - *Thomas Rauber and Gudula Rünger*
  - How Secure is WiFi MAC Layer in Comparison with IPsec for Classified Environments?
    - *Stanley Cebula III and Aftab Ahmad*
- 3:30 Title: Network modeling and Simulation Tools Chair: Dr. Hassan Rajaei
  - HMNToolSuite: Tool Support for Mobility Management of Mobile Devices in Heterogeneous Mobile Networks
    - *Joon-Myung Kang, Sin-seok Seo, John Strassner, James Won-Ki Hong*
  - JSimPlus: a Tool for Teaching Simulation Techniques
    - *Hassan Rajaei, Erick Eid, Divy Kanungo, Jordan Ringenberg*
  - Mobile Medical Application Model for Heterogeneous Networks
    - *Salah Sharieh*

Tuesday April 5<sup>th</sup>

- 10:30 Title: Wireless/mobile network Chair: Dr. Mohiuddin Ahmed
  - Framework for the Integration of Body Sensor Networks and Social Networks to Improve Healthcare
    - *David Bauschlicher, Steven Bauschlicher, Hala ElAarag*
  - An Energy Aware Routing Protocol for Mixed Static and Mobile Nodes in Wireless Sensor Networks
    - *Adel Gaafar A.Elrahim, Hussein A.Elsayed, Salwa El Ramly, Magdy M. Ibrahim*
  - Performance Analysis of a Highly Available Home Agent in Mobile Networks
    - *Abdelgadir Abdelgadir, Mohiuddin Ahmed, Al-Sakib Pathan, Ariff Abdullah, Shariq Haseeb, Omar Al-Mushayt*
- 1:30 Title: Network performance Chair: Dr. Yelena Rykalova
  - Latency and Saturation in Networks with Finite Buffers
    - *Yelena Rykalova and Lev B. Levitin*
  - Evaluating Network Simulators as extensions of real network testbeds
    - *Daniel Günther, Michel Steichen, Nathan Kerr, Paul Müller*
  - Multi Standard System Level Simulation Framework for Evaluation of Mobile Broadband Networks
    - *Alexey Khoryaev, Andrey Chervyakov, Mikhail Shilov, Sergey Panteleev, Apostolos Papathanassiou, Alexander Maltsev*
- 3:30 Title: Network simulation Chair: Dr. Hassan Rajaei
  - Advances in Virtual Learning Environments and Classrooms
    - *Hassan Rajaei and Arwa Aldhalaan*
  - An Application of High Performance Computing to Improve Linear Acoustic Simulation
    - *Fouad Butt, Abdolreza Abhari, Jahan Tavakkoli*
  - A Generic Optimized Time Management Algorithms (OTMA) Framework for Simulating Large-Scale Overlay Networks
    - *Syed Rizvi*

Wednesday April 6<sup>th</sup>

- 8:30 Title: Network security Chair: Dr. Hala ElAarag
  - Security in Wireless Sensor Networks: Key Intrusion Detection Module in SOOAWSN
    - *Mohammed Abuhelaleh and Khaled Elleithy*
  - Enhancing Broadcast Authentication in Sensor Networks (Arayeh Norouzi, Abdolreza Abhari, Truman Yang)
    - *Ryerson University*
  - Location-Based Security for ID Document and ID Card Enrollment Stations
    - *Eugene Gerety and Khaled Elleithy*
- 10:30 Title: Grid and clouds computing Chair: Dr. Abdolreza Abhari
  - Resource Management on Clouds and Grids: Challenges and Answers

- *Shikharesh Majumdar*
- Clouds & Grids: A Network and Simulation Perspective
  - *Hassan Rajaei*
- Discussion

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TMS/DEVS

Monday April 4<sup>th</sup> Faneuil Rm.

- 1:30 Title: Formalisms
  - Developing Discrete Event Simulations From Rigorous Process Definitions
    - *Mohammad Raunak, Leon Osterweil, Alexander Wise*
  - A BPMN Extension for Modeling Non Functional Properties of Business Processes
    - *Paolo Bocciarelli and Andrea D'Ambrogio*
  - Extended Coloured Petri Nets with Structured Tokens - Formal Method for Distributed Systems
    - *Khaoula Al Ali, Wolfgang Fengler, Bernd Däne, Alexander Pacholik*
- 3:30 Title: Validation & Verification Chair: Hans Vangelhuwe
  - Graded CTL Model Checking for Test Generation
    - *Margherita Napoli and Mimmo Parente*
  - On-The-Fly Verification of Discrete Event Simulations by Means of Simulation Purposes
    - *Paulo Salem da Silva and Ana Cristina Viera de Melo*
  - A Formal Approach to the Quantification of Sustainability and Dependability Metrics on Data Center Infrastructures
    - *Gustavo Callou, Erica Sousa, Paulo Maciel, Eduardo Tavares, Bruno Silva, Jair Figueirêdo, Carlos Araujo, Fabio Magnani, Francisco Neves*

Tuesday April 5<sup>th</sup> Salon G

- 10:30 Title: Joint session - SimAUD and TMS/DEVS Chair: Ramtin Attar
- 1:30 Title: Formalisms (DEVS) Chair: Hessam Sarjoughian
  - Observations in DEVS framework
    - *Gauthier Quesnel, Ronan Trépos, Patrick Chabrier, Jennifer Baudet, Raphael Duboz, Eric Ramat*
  - Transforming UML2.0 Class Diagrams and Statecharts to Atomic DEVS
    - *Reehan Shaikh and Hans Vangheluwe*
  - I-DEVS: Imprecise Real-Time and Embedded DEVS Modeling
    - *Mohammad Moallemi and Gabriel Wainer*
- 3:30 Title: Short – Applications Chair: Xiaolin Hu
  - Constructing DEVS Models Based on Experts' Knowledge: Application to STMicroelectronics' Large Scale Manufacturing Processes
    - *Pamela Viale, Claudia Frydman, Jacques Pinaton*
  - Interfacing DEVS and Visualization Models for Emergency Management
    - *Mohammad Moallemi, Shafagh Jafer, Ahmed Sayed Ahmed, Gabriel Wainer*
  - NoC Simulation Modeling in DEVS-Suite
    - *Hoda Ahmadinejad, Fatemeh Refan, Hessam Sarjoughian*
- 6:00 Title: DEVS Award Chair: Doohwan Kim

Wednesday April 6<sup>th</sup> Faneuil Rm.

- 8:30 Title: Software & Performance Chair: Jan Himmelspach
  - GATLAS: Google Earth Visualization for ATLAS
    - *Gabriel Wainer and Ken Edwards*
  - Performance of a Multi-Agent System over a Multi-Core Cluster managed by Terracotta
    - *Franco Cicirelli, Angelo Furfaro, Andrea Giordano, Libero Nigro*
  - A Performance Evaluation of the Conservative DEVS Protocol in Parallel Simulation of DEVS-based Models
    - *Shafagh Jafer and Gabriel Wainer*
- 10:30 Applications
  - Common simulation methods for heat conduction from the perspective of Cellular Automata
    - *Michael Mueller and Georg-Peter Ostermeyer*
  - Net-centric ACT-R Based Cognitive Architecture with DEVS Unified Process
    - *Saurabh Mittal and Scott Douglass*

- DEVS for AUTOSAR platform modeling
  - *Joachim Denil, Hans Vangheluwe, Pieter Ramaekers, Paul De Meulenaere, Serge Demeyer*
- 1:30 Title: WIP – Software Chair: Jan Himmelspach
  - ScipySim: Towards Distributed Heterogeneous System Simulation for the SciPy Platform
    - *Allan McInnes and Brian Thorne*
  - The Simulation-based Multi-objective Evolutionary Optimization (SIMEON) Framework
    - *Ronald Apriliyanto Halim and Mamadou Diouf Seck*
  - Automating DEVS over Data Distribution Service for High Performance and Interoperability
    - *Ki-Jeong Kwon, Chungman Seo, Bernard P. Zeigler*
  - Towards a Testing Framework for DEVS Formalism implementation
    - *Xiaobo Li, Hans Vangheluwe, Yonglin Lei, Hongyan Song, Weiping Wang*
- 3:30 Title: WIP/Short – Modeling and computation Chair: Andrea D'Ambrogio
  - Synchronizing Sequences On Not Strongly Connected Petri Nets
    - *Marco Poggi, Isabel Demongodin, Norbert Giambiasi, Alessandro Giua*
  - The Rationale for Shaped Simulation
    - *Jeff Buzen*
  - Clocked Transition System as an OPM Formalism with Application to Systems Biology
    - *Valeria Perelman, Dov Dori, Judith Somekh*
  - ISTSM: Incompletely Specified Timed Sequential Machines
    - *Norbert Giambiasi*

TMS/DEVS Constitution Rm.

Tuesday April 5<sup>th</sup>

- 10:30 Title: Mod4Sim – Tools Chair: Andrea D'Ambrogio
  - Simulating Layered Queueing Networks with Passive Resources
    - *Greg Franks*
  - A Model-Driven Software Environment for Modeling, Simulation and Analysis of Complex Systems
    - *Luc Touraille, Mamadou Kaba Traoré, David Hill*
- 1:30 Title: Mod4Sim – Domain-specific languages Chair: Hans Vangheluwe
  - The SimTG Simulation Modeling Framework a domain specific language for space simulation
    - *Olivier Zanon*
  - From Domain Specific Languages to DEVS Components: Application to Cognitive M&S
    - *Saurabh Mittal and Scott A. Douglass*
  - Using Specification and Description Language to represent users' profiles in OMNET++ simulations
    - *Pau Fonsecai Casas, Miquel Ramo Niñerola, Angel A. Juan*
- 3:30 Title: Mod4Sim – Model-driven development Chair: Greg Franks
  - Harmonized and Reversible development framework for HLA based interoperable application
    - *Zhiying Tu, Gregory Zacharewicz, David Chen*
  - HiLeS2: Model Driven Embedded System Virtual Prototype generation
    - *Horacio Hoyos, Rubby Casallas, Fernando Jiménez, Darío Correal*
  - Model-driven Development of Simulation Solution based on SysML starting with the Simulation Core
    - *Pascal Weyprecht and Oliver Rose*

Wednesday April 6<sup>th</sup>

- 10:30 Title: DEVS – Standardization Chair: Xiaolin Hu
  - Taxonomy of DEVS Subclasses for DEVS Standardization
  - Moon Ho Hwang
  - Some Desired Features for the DEVS Architecture Description Language
  - Olivier Dalle and Judicael Ribault
  - Standardizing DEVS Models: An Endogenous Standpoint
  - Hessam Sarjoughian and Yu Chen
- 1:30 Title: DEVS - Standardization - Standardizing DEVS Models Chair: Hessam Sarjoughian
- 3:30 Title: DEVS - Standardization - Standardizing DEVS Simulator Interoperability Chair: Gabriel Wainer
- 6:30 Title: Model competition Chair: Hessam Sarjoughian

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EAIA Quincy Rm.

Wednesday April 6<sup>th</sup>

- 8:30 Title: Business and Industry Simulation I Chair: Agostino Bruzzone
  - Energy Portfolio Simulation Considering Environmental and Public Health Impacts
  - Modeling and Simulating the Economic and Demographic Impact of Transport Infrastructure Investment
- 10:30 Title: Business and Industry Simulation II Chair: Francesco Longo
  - Intelligent Agents for Pandemic Modeling
  - A Component-based Approach for Manufacturing Simulation
  - An Effect of Failure Distribution of Machine to the Manufacturing System Performance of Engine Shop
- 1:30 Title: Emerging Applications I Chair: Rafael Diaz
  - A Model for Simulating Impacts of Seismic Events on Large Power Systems
  - A DEVS Library for Rail Operations Simulation
  - KoProV- A learning Approach for Coordinated Learning of Modeling and Simulation Based on Knowledge Modules
- 3:30 Title: Emerging Applications II Chair: Andreas Tolk
  - Understanding Interoperability
  - Emerging M&S Application in Risk Management

EAIA Haymarket Rm.

- 1:30 Title: M&S and Engineering Chair: Patrick Hester
  - Modeling and Simulation Driven Software Development
  - Wave-Pattern Processing Towards Inverse Reliability Problems
  - Short Term Wind Power Forecasting Using Time Series Neural Networks

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HPC Faneuil Rm.

Monday April 4<sup>th</sup>

- 1:30 Title: HPC'11 Best Paper I & Invited Speaker I
  - A Multi-Core Numerical Framework for Characterizing Flow in Oil Reservoirs,
    - *Christopher Leonardi, David Holmes, John Williams and Peter Tilke*
  - Marketplace and the HPC Innovation
    - *Niraj Srivastava*
- 3:30 Title: HPC'11 Best Paper II & Tutorial
  - An SMP Soft Classification Algorithm for Remote Sensing,
    - *Rhonda Phillips, Layne Watson and Randolph Wynne*
  - Introduction to Parallel Computing with MATLAB
    - *Jiro Doke*

Tuesday April 5<sup>th</sup>

- 10:30 Title: Biology Applications & Invited Speaker II
  - The Virtual Parasite Project: in silico HPC Simulation of Trypanasoma cruzi Host-Parasite Dynamics to Model Chagas Disease,
    - *Tarynn Witten, Samuel Sieg and Patricio Manque*
  - Microsoft Technical Computing: Modeling the world with greater fidelity,
    - *Dr. Ronnie Hoogerwerf*
- 1:30 Title: Numerical Methods
  - FATODE: A Library for Forward, Adjoint, and Tangent Linear Integration of Stiff Systems,
    - *Hong Zhang and Adrian Sandu*
  - Shared Memory "Wide or Tall" and Sparse Matrix Dense Matrix Multiplications,
    - *Gary Howell*
  - Fully Implicit Tau-Leaping Methods for the Stochastic Simulation of Chemical Kinetics,
    - *Tae-Hyuk Ahn and Adrian Sandu*
- 3:30 Title: GPU and Multicore
  - Accelerating the Smoldyn Spatial Stochastic Biochemical Reaction Network Simulator Using GPUs,
    - *Denis Gladkov, Samuel Alberts, Steven Andrews and Roshan D'Souza*
  - Lattice Boltzmann Methods Simulations on Massively Parallel Multi-core Architectures,



- *Luca Biferale, Mauro Sbragaglia, Andrea Scagliarini, Filippo Mantovani, Marcello Pivanti, Fabio Pozzati, Sebastiano Fabio Schifano, Raffaele Tripiccione and Federico Toschi*
- Parallel GMRES implementation for solving sparse linear systems on GPU clusters,
  - *Jacques Bahi, Raphaël Couturier and Lilia Ziane Khodja*
- Implementing Random Indexing on GPU
  - *Lukas Polok*

HPC Salon K

Wednesday April 6<sup>th</sup>

- 8:30 Title: Invited Speaker III & Component Based Programming
  - Convey ThreadSim: A Simulation Framework for Latency-Tolerant Architectures
    - *John Leidel, Convey Computer Corporation*
  - Component-Based Programming Techniques for Coarse-grained Parallelism
    - *Jörg Dümmler, Thomas Rauber and Gudula Rünger*
- 10:30 Title: HPC Applications
  - Asynchronous Invocation of Adaptations in Electronic Structure Calculations
    - *Sai Kiran Talamudupula, Masha Sosonkina and Mike Schmidt*
  - Direct Search Versus Simulated Annealing on Two High Dimensional Problems
    - *David Easterling, Layne Watson and Michael Madigan*
  - A Highly Parallel Implementation of K-Means for Multithreaded Architecture
    - *Patrick Mackey, John Feo, Pak Chung Wong and Yousu Chen*
  - Fault-tolerant Data Aggregation Scheme for Monitoring of Critical Events in Grid based Healthcare Sensor Networks
    - *Ather Saeed, Andrew Stranieri and Richard Dazeley*
- 1:30 Title: Scheduling and Performance
  - Fast Approximation Algorithms for Scheduling Independent Multiprocessor Tasks
    - *Kai Baumgarten and Thomas Rauber*
  - Communication with Spawned Processes
    - *Nicholas Radcliffe, Masha Sosonkina and Layne Watson*
  - Corrected Model for "Predicting the Relative Performance of CPU"
    - *Jayanta Choudhury*
- 3:30 Title: Software and Environments
  - A Data Management System for Ab-Initio Nuclear Physics Applications
    - *Fang Liu, Ritu Mundhe, Masha Sosonkina, Chase Cockrell, Miles Aronnax, Pieter Maris and James Vary*
  - PetClaw: A Scalable Parallel Nonlinear Wave Propagation Solver for Python
    - *Amal Alghamdi, Aron Ahmadi, David Ketcheson, Matthew Knepley, Kyle Mandli and Lisandro Dalcin*
  - Adaptive Runtime Selection of Parallel Schedules in the Polytope Model
    - *Benoît Pradelle, Philippe Clauss and Vincent Loechner*
  - A Framework for an Automatic Hybrid MPI+ OpenMP code generation
    - *Khaled Hamidouche, Joel Falcou and Daniel Etienne*

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MMS Salon I

Monday April 4<sup>th</sup>

- 1:30 Title: MMS-C Chair: Karen Cooper
  - Command and Control: A low cost framework to remotely monitor military training
  - Organizational Adoption of Innovation - Background, Programs & a Descriptive Modeling Approach
  - Fuzzy Logic Injury Design for Crowd Modeling
- 3:30 Title: MMS-B Chair: Toni Scribner
  - Using a Constructive Simulation to Select a Camouflage Pattern for Use in OEF
  - Task Degradation in Agent-based Simulation
  - The Modeling and Simulation of Non-lethal Weapons in Constructive Simulation

Tuesday April 5<sup>th</sup>

- 1:30 Title: MMS-A Chair: Andrew Stricker
  - Third-space Architecture for Learning in 3D
  - A Methodology for Evaluating Shared Leadership in a Game Simulation Kit

- Virtual Reality as a Theme-Based Game Tool for Homeland Security Applications
- 3:30 Title: MMS-E Chair: Curtis Blais
  - The Application of MTWS in the Simulation of Non-Kinetic Environment
  - Using a text analysis and categorization tool to generate Bayesian belief networks for use in cognitive social simulation from a document corpus
  - Manual Wargaming as a Method for Training: An Analysis of the Commercial Wargame "Battle for Baghdad"

Wednesday April 6<sup>th</sup>

- 8:30 Title: MMS-D Chair: Cynthia Calongne
  - Taxonomy of Cyber Attacks and Simulation of Their Effects
  - Development of a Training Effects Algorithm for Modeling the Impact of Training in IMPRINT for 21st Century Air Force Needs
  - An Overview of Cyber Attack and Computer Network Operations Simulation
- 1:30 Title: MMS-F Chair: Dan Novak
  - Balancing Exploration and Exploitation Ratio in Reinforcement Learning
  - Coalition Battle Management Language Extensions for Simulation Interoperability
  - Measuring the Performance of Network Virtualization Tool N2N in the Design of a Cyber Warfare Training and Education Platform

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SimAUD Harbor Rm.

Monday April 4<sup>th</sup>

- 1:30 Title: Welcome
  - Designing With Deformation - Sketching Material and Aggregate Behaviour
    - *Anders Holden Deleuran*
  - Analysis of Sustainable Manufacturing Using Simulation for Integration of Production and Building Service of Actively Deforming Material Systems
    - *John Michaloski, Jorge Arinez, Guodong Shao, Swee Leong, Kevin Lyons and Frank Riddick*
- 3:30 Title: Data Sensing
  - Real-Time Occupancy Detection Using Decision Trees With Multiple Sensor Types
    - *Ebenezer Hailemariam, Rhys Goldstein, Ramtin Attar and Azam Khan*
  - Sensor Placement Tool for Rapid Development of Video Sensor Layouts
    - *Tyler Garaas*
  - A New System Dynamics Framework for Modeling Behavior of Vehicle Sharing Systems
    - *Dimitris Papanikolaou*
- **Tour of MIT Media Lab; gather at 5pm. Due to space limitations this tour is restricted to SimAUD authors & chairs only.**

Tuesday April 5<sup>th</sup>

- 10:30 Title: Workshop
  - Introducing DEVS for Collaborative Building Simulation Development
    - *Rhys Goldstein*
  - System Entity Structure and DEVS for Collaborative Building Simulation Development
    - *Bernard P. Zeigler*
  - DEVS Standardization: Introduction and Current Status
    - *Gabriel Wainer*
- 1:30 Title: Implementation
  - Grape: A Parametric Shape Grammar Implementation
    - *Thomas Grasl and Athanassios Economou*
  - Automated Energy Model Creation for Conceptual Design
    - *Lillian Smith, Kyle Bernhardt and Matt Jezyk*
  - An Integrated Approach To Algorithmic Design and Environmental Analysis
    - *Robert Aish and Andrew Marsh*
- 3:30 Title: Generative Design
  - Generative Fluid Dynamics: Integration of Fast Fluid Dynamics and Genetic Algorithms for Wind Loading Optimization of a Free Form Surface
    - *Angelos Chronis and Alasdair Turner*

- Use of Sub-Division Surfaces Architectural Form-Finding and Procedural Modelling
  - *Shajay Bhooshan and Mostafa El Sayed*
- Leveraging Cloud Computing and High Performance Computing Advances for Next-Generation Architecture and Urban Design Projects
  - *Francesco Iorio and Jane L. Snowdon*
- **7:30 SimAUD Dinner**

Wednesday April 6<sup>th</sup>

- 8:30 Title: Education
  - SimAUD Invited Talk 1
    - *Christoph Reinhart*
  - SimAUD Invited Talk 2
    - *Christoph Reinhart*
  - Solar Zoning and Energy in Detached Residential Dwellings
    - *Jeffrey Niemasz, Jon Sargent and Christoph Reinhart*
- 10:30 Title: Design & Analysis
  - A Simple Method To Consider Energy Data in the Architectural Conception of Dwelling Buildings
    - *Laëtitia Arantes, Olivier Baverel, Pascal Rollet and Daniel Quenard*
  - Integrating Daylight and Thermal Performance Across the Urban and Building Scales. A Methodological Study of Environmental Simulation in Architecture and Engineering
    - *Peter Andreas Sattrup and Jakob Strømmand-Andersen*
  - Design and Simulation for Architectural Geometry
    - *Yoshihiro Kobayashi and Peter Wonka*
- 1:30 Title: Augmented Reality
  - Lifecycle Building Card Towards Paperless and Visual Lifecycle Management Tools
    - *Holger Graf, Souheil Soubra, Guillaume Picinbono, Ian Keough, Alex Tessier and Azam Khan*
  - 3D Scans of As-Built Street Scenes for Virtual Environments
    - *Naai-Jung Shih, Chia-Yu Lee and Tzu-Ying Chan*
  - Urban Affects: Urban Systems and Social Ecologies
    - *Chris Kroner, Phu Duong, Liz Barry and Mike Szivos*
- 3:30 Title: Parametric Urbanism
  - City of Love and Hate
    - *Adnan Ihsan, Amirali Merati, Eva Pouloupoulou and Foteinos Soulos*
  - Components for Parametric Urban Design in Grasshopper. From Street Network To Building Geometry
    - *Christian Schneider and Anastasia Koltsova*
  - Multi-Objective Optimization in Urban Design
    - *Michele Bruno, Kerri Henderson and Hong Min Kim*

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Posters/Works-In-Progress Palm Garden Exhibit Area

Monday 2:30-3:30 & 5:00-7:00

Tuesday & Wednesday 9:00-12:00 & 1:00-5:00

- A Proposal to Modify MASK Protocol for Anonymous Communication in MANETs
  - *Avisa Tehrani, Hamid Shahnasser and Abdolreza Abhari*
- Adaptive Clustering for Energy Optimization of Variant Base Station in Wireless Sensor Networks
  - *Negin Behboudi and Abdolreza Abhari*
- Automatic Performance Model Construction of a Parallel Distributed Software System
  - *Ahmad Mizan and Greg. Franks*
- Customer-Telecommunications Company's Relationship Simulation Model (RSM), Based on Non-Monotonic Business Rules Approach and Formal Concept Analysis Method
  - *Victor Romanov, Roman Veynberg and Alina Polujektova*
- Development of Scheduler Using Simulation in a Weapon Industry
  - *Dug Hee Moon, Jun Seok Lee and Kyeong Wook Shin*
- SMDS: Simulation and Stimulation of Army Medical Business Systems
  - *Ryan Johnson, William Young, Brian Baldwin, Sheilagh O'Hare, Aubrey White, Aaron Lawyer, John Gentle and John Duncanson*

- Toward a Hybrid Packet-Complex Systems Model of the Internet
  - *Adam Cornachione, David Newman and Brian Hay*
- Use of Model Sets with Differential Inputs for Chesapeake Bay Management
  - *Ping Wang, Lewis Linker and Richard Batiuk*
- Web Server Benchmark Tools for httperf
  - *Samuel Fonseca and Juan Sola-Sloan*

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