THE SOCIETY FOR
MODELING & SIMULATION
INTERNATIONAL

PROUDLY PRESENTS

AUTUMNSIM

Autumn Simulation Multiconference 2012

OCTOBER 28-31, 2012

Hyatt Regency Mission Bay, San Diego, CA

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The Society for Modeling & Simulation International (SCS)

2012 Autumn Simulation

PROGRAM BOOK

October 28-31, 2012
San Diego, CA, USA

Sponsored by SCS

General Chair
Dr. Jerry Couretas

Program Chair
Hamid Vakilzadian

VP of Conferences
Gabriel Wainer

General Chairs Message

We wish to express our warmest welcome to all the participants and organizers who made this inaugural year of the Autumn Simulation Multiconference possible. This year we feature five conferences in three parallel tracks, leveraging domain knowledge from emerging problems in Defense, Homeland Security, Medicine, Energy and Education to further the theory and practice of modeling and simulation.

AutumnSim offers a great forum for worldwide researchers and practitioners from academia, industry, business, and government to share their expertise and research findings in all areas of M&S, This year's edition includes a strong technical program, distinguished keynote speakers, and insightful tutorials.

In fact, we are proud to host the very first Autumn Simulation Conference in San Diego, the place of the SCS' founding 60 years ago by a group of scientists working at Point Mugu. San Diego is a unique city which encompasses the spirit of the Autumn Simulation Multiconference's themes. Founded by a US Naval expedition in 1846, San Diego remains a key location for the US Navy and is central to border-related homeland security issues. Energy, a recent "hot topic," is key to the California economy, with oil being one of the major exports over the last 100 years. This may be a surprise to folks who think of California as synonymous with Hollywood's celluloid simulations or the new, biomedical technology cluster that makes San Diego famous. SCS is proud to both represent and be a part of the rich history that surrounds AutumnSim.

The features of the singular conferences composing AutumnSim 2012 will be highlighted in the respective Keynote speeches. Here we wish to thank the many individuals whose dedicated efforts contributed to the success of the event. Many thanks are due to our distinguished keynote speakers, Dr. Bill Swartout, Dr. Jerzy Rozenblit, Dr. Anthony Hunt, Mrs. Beverly Seay, Dr. Michael Orosz and Dr. Michael Orey.

We would also like to thank Dr. Abdolreza Abhari and Dr. Maryam Davoudpour of Ryerson University for the organization of Education and Training Modeling & Simulation, Dr. Mike McGinnis, University of Nebraska, for the organization of Defense and Military Modeling & Simulation, Dr. Jim Nutaro for the organization of Energy, Climate & Environment Modeling & Simulation, CDR Rick Gay of the US Coast Guard for the organization of Homeland Security Modeling & Simulation, Mr. Richard J. Severinghaus, The AEgis Technologies Group, Inc., for the organization of Medical Processes Modeling & Simulation, and Ms. Oletha Darensburg, Ms. Aleah Hockridge, and Mr. Yen-Trang Tran of the SCS office for their support of this conference. Many thanks also to Dr. Gabriel Wainer, SCS VP of Conferences for his guidance and vision for the Autumn Simulation Conference.

Sincerely,

Jerry M. Couretas and Hamid Vakilzadian, General Co-Chairs, AutumnSim 2012

Welcome to AutumnSim'12

General Chairs: **Jerry M. Couretas**
Booz, Allen and Hamilton

Hamid Valkizadian
University of Nebraska

We wish to express our warmest welcome to all participants and organizers of the conferences making up this 2012 Autumn Simulation Conference (AutumnSim'12). All attendees are welcome to attend all the sessions and activities of the constituent events (ETMS, DMMS, ECEMS, HLSMS, and MPMS).

AutumnSim offers a great forum for worldwide researchers and practitioners from academia, industry, business, and government to share their expertise, results and research findings in all areas of M&S. This year's edition includes a strong technical program, distinguished speakers, and insightful tutorials. The location we have chosen for all events is the Hyatt Regency Mission Bay Spa and Marina, which is situated just north of downtown San Diego.

In fact, we are proud to host this year's edition of AutumnSim in San Diego, CA, USA. With its sandy beaches and major attractions, San Diego is known worldwide as a major tourist destinations. Visitors will have the opportunity to enjoy the world famous San Diego Zoo, Seaworld, Legoland, and the Gaslamp Quarter— Southern California's premier dining, shopping and entertainment district.

The features of the single conferences composing AutumnSim will be highlighted in the respective General Chairs' messages. Here we wish to thank the many individuals, whose dedicated effort contributed to the success of the event. Our sincere appreciation goes to all authors including those whose papers could not be accommodated in the program, and to all presenters. We would like to thank our tutorial presenters Mr. Donald C. Glaser and Mr. Serge S. Duarte. We would also like to thank our General Co-Chairs and Program Chairs.

On behalf of the Society for Modeling and Simulation International, SCS, we invite all of you to join us at AutumnSim 2012 in San Diego, CA, USA.

Symposia

Education and Training Modeling & Simulation (ETMS12)

General Chair: Dr. Abdolreza Abhari, Ryerson University, Toronto, Canada
Program Chair: Dr. Maryam Davoudpour, Ryerson University, Toronto, Canada

The use of Internet and Web has dramatically increased in the different areas of education and training in the last decade. The transition of World Wide Web from Web1.0 to Web 2.0 (i.e., the new generation of web) took place within a relatively short period of time. Web 2.0 has become increasingly popular due to the growing popularity of web sites that enable users to build social networks and share content that can be used for training. Today plus these Social Networking web sites, clouds have become particularly important in learning and education.

Defense and Military Modeling & Simulation (DMMS12)

General Chair: Dr. Mike McGinnis, The Peter Kiewit Institute, University of Nebraska
General Co-Chair: LTC Dan McCarthy, Dept. of Systems Engineering, West Point
Track Admin Assistant: Ms. Leah Ellis , The Peter Kiewit Institute, University of Nebraska

The Defense and Military Modeling and Simulation Symposium welcomes submissions of state of the art technical papers, experience papers, and panel presentations from experts in government, industry and academia. DMMS seeks papers from across the full spectrum of modeling and simulation in the military domain. In addition to providing a venue for publication and presentation of peer-reviewed papers, the symposium provides attendees with the opportunity to network, exchange ideas, discuss and disseminate the most recent advances in military modeling and simulation with practitioners engaged in military modeling and simulation from across North America and around the world.

Homeland Security Modeling & Simulation (HLSMS12)

General Chair: Dr. Nabil R. Adam, Science & Technology Directorate, Dept. Homeland Security
General Co-Chair: CDR Rick Gay, US Coast Guard Academy, US

The Homeland Security Modeling and Simulation Symposium is a series of annual autumn gatherings devoted to the full breadth of modeling and simulation in support of security efforts to protect the United States from a plethora of threats and enhance America's resiliency. The themes for this year's conference are Game Theory and Cybersecurity. In addition to providing a venue for publication and presentation of peer-reviewed papers, the symposium is a place for industry and end users to network and exchange of information concerning Homeland Security.

Symposia (Cont.)

Energy, Climate & Environment Modeling & Simulation (ECEMS12)

Power systems and simulation:
General Chair: Dr. James Nutaro, Oak Ridge National Laboratory
General Co-Chair: CDR Rick Gay, US Coast Guard Academy, US

The wave of technological innovation taking place today in energy systems is fundamentally about automation, and the desire to build sophisticated automation systems is spurring a fresh interest in modeling and simulation of electric power systems. The aim of this symposium is to bring together practitioners and researchers in the fields of modeling and simulation and energy systems to share ideas, foster collaborations, and accelerate the advance of M&S for future energy systems.

This conference gives practitioners and researchers in the field of M&S an opportunity to become familiar with simulation technologies and outstanding problems in the field of energy systems. For practitioners and researchers in the field of energy systems, this conference provides an opportunity to learn about recent advances in modeling and simulation technologies and their applications within a variety of disciplines. This interdisciplinary conference will also provide a unique opportunity to begin collaborations to work on solutions of difficult research problems in M&S for energy systems and to bring state of the art M&S technology to bear on practical problems of the energy industry.

Medical Processes Modeling & Simulation (MPMS12)

General Chair: Richard J. Severinghaus, CMSP, The Aegis Technologies Group, Inc.
General Co-Chair: C. Donald Combs, Ph.D., Eastern Virginia Medical School

Medical modeling and simulation is a contemporary interest due to the labor-intensive nature of the current practice of medical processes in organizations that span from University research to patient care. Systems based healthcare requires cooperation on research and integration of resulting discoveries into clinical practices. One example of this includes “lab rat” testing in the R&D of molecular and cellular phenomena. Because of regulatory restrictions, medical science procedures are clearly defined processes and are therefore ripe for the application of modeling and simulation to develop cyber “lab rats” for each scale of physiological phenomena. A goal here is to demonstrate the successful use of modeling and simulation to emulate and facilitate underlying molecular, cellular, operational and patient-level processes, with a longer term goal of standardizing medical modeling and simulation approaches for repeatable, verifiable and accredited phenomenological description.

Symposia (Cont.)

Workshops and Tutorials

Time: 1330 - 1500, Tuesday Oct. 30, Room: Mission II
"*Tunnel and Maritime Threats to Homeland Security*" by Serge S. Duarte

Time: 1330 - 1500, Tuesday Oct. 30, Room: Mission I
"Hands-On/Minds-On Training for Refinery, Chemical Plant, and Power Plant Operators" by Donald C. Glaser

THE SOCIETY FOR MODELING & SIMULATION INTERNATIONAL

Keynote Presentations

Keynote Speaker: Dr. William Swartout
Director of Technology USCS Institute for Creative Technologies
Research Professor USC School of Engineering Computer Science Department

Presenting on Monday, October 29 8:30am-10:00am; Mission I/II

Title: Building and Using Virtual Humans

Abstract

For a little over a decade, we have been building virtual humans — computer-generated characters — at the USC Institute for Creative Technologies. Ultimately, our vision is to create virtual humans that look and behave just like real people. They will think on their own, model and exhibit emotions, and interact using natural language along with the full repertoire of verbal and non-verbal communication techniques that people use. Although the ultimate realization of that goal is still in the future, it is already possible to build and deploy useful applications with virtual humans. Originally, we focused on using virtual humans to act as role-players in training applications, but we have since seen that actual and potential applications go far beyond that to include areas such as entertainment, marketing, informal education (such as in museums), and coaching and mentoring. Indeed, we believe that virtual humans may represent a new metaphor for how we interface with computers, where using a computer is fundamentally changed and becomes much more like interacting with a person. In this talk, I will discuss how we build virtual humans, the lessons we have learned, and the applications we have built. I will also talk about new technologies that we are developing for interaction with virtual humans, new computer graphics techniques we are creating to support rapid creation of near photo-real virtual characters, and tools we are developing to animate virtual humans and support verbal and non-verbal communication with them.

Biographical Sketch

William Swartout has been involved in the research and development of artificial intelligence systems for over 35 years. He is the director of technology at the USC Institute for Creative Technologies and a research professor in the computer science department at the USC Viterbi School of Engineering. His particular research interests include virtual humans, explanation and text generation, knowledge acquisition, knowledge representation, intelligent computer based education and the development of new AI architectures. At the ICT, Swartout provides overall direction for the institute's research programs. In 2009, he received the Robert Engelmore Award from the Association for the Advancement of Artificial Intelligence (AAAI) for contributions to knowledge-based systems and explanation, groundbreaking research on virtual human technologies and their applications, and service to the artificial intelligence community. He is a Fellow of the AAAI, has served on their Board of Councilors and is past chair of the Special Interest Group on Artificial Intelligence (SIGART) of the Association for Computing Machinery

Keynote Presentations

(ACM). He received his Ph.D. and M.S. in computer science from MIT and his bachelor's degree from Stanford University.

Keynote Speaker: Dr. Jerzy W. Rozenblit
Dept. of Electrical and Computer Engineering and Dept. of Surgery The University of Arizona

Presenting on Monday, October 29 8:30am-10:00am; Mission I/II

Title: Simulation-Based Surgical Training: Concepts, Foundations, and Model-based Techniques

Abstract

Laparoscopic surgery is a surgical technology that can minimize recovery time and postoperative pain. However, with this procedure surgeons lose many of the tactile and visual cues that they rely upon in conventional surgery. Current research and commercial products focus on virtual simulation of procedures, generation of haptic feedback for training, and automated control of the laparoscope in the operating room (OR). This talk will provide an overview of the concept, will discuss some of the existing systems, their advantages and shortcomings. Then, a design concept for a surgical training and assessment system that provides unique and reasoning capabilities for laparoscopic surgery will be presented. The system implements sensors and offers real-time feedback capability that can enhance sensory input for surgeons. A training device prototype has been developed. Preliminary results from a study conducted with novice and experienced subjects will be presented. Future research work will focus on developing the technology as a surgical assistant system for use in the operating room.

Biographical Sketch

Jerzy Rozenblit is Raymond J. Oglethorpe Endowed Professor in the Electrical and Computer Engineering Department at The University of Arizona. He also has a joint appointment as Professor of Surgery in the College of Medicine. During his tenure, he has established the Model-Based Design Laboratory with major projects in design and analysis of complex, computer-based systems, software engineering, embedded systems, and symbolic visualization. He had served as a research scientist and visiting professor at Siemens AG and Infineon AG Central Research and Development Laboratories in Munich and Fulbright Senior Scholar in Austria and Poland. Currently, jointly with the Arizona Surgical Technology and Education Center, he is developing virtually assisted surgical training methods and systems, and computer-guided techniques for minimally invasive surgery. In 2009, he was named University Distinguished Professor.

Keynote Presentations

Keynote Speaker: Dr. Michael Orey

President, MoWerks, LLC
Chair, Learning, Design, and Technology at the University of Georgia

Presenting on Tuesday, October 30 8:30am-10:00am; Mission I/II

Title: Online Learning: Content Delivery or Human Connection

Abstract

After 30 years of research on how to use technology for learning, the one aphorism that I can offer is this, teaching and learning is a human centered activity. So, being at a conference devoted to content like simulations and games, I can tell you that the learning that is involved in using your tools, occurs between the facilitator and the learner as the learner uses the tools you build. One of my favorite movies is Apollo 13. In the scenes where Gary Sinise tries to figure out the most efficient way of handling re-entry into the atmosphere, it is not the simulation that is the center of attention. It is Gary and it is the team in the control room constantly critiquing and analyzing that makes the solution work. So, what is important in that scene, the simulation or the people. The answer of course is that it is both. In the world of eLearning, content and delivery tools are king. The content of eLearning can be readings, tutorials, simulations, games, and other materials. This is the equivalent of yesterday's library. It is the content, without teaching. These materials can be produced by what is akin to publishers and then sold to many or, as is the case with the Open Courseware Project at MIT, put online and offered for free. However, content is only a part of learning. The other parts of learning include, but are not limited to, interaction, discussion, and assessment. Tools such as Learning Management Systems, can allow for these processes to take place. Teachers can meet in the LMS with students, students can meet with other students, and discussions can take place. If they are very successful, the discussions result in relationships being built between teachers and students and between students and students. While there have been some noted exceptions such as the Stanford massively online class (now offered through Know Labs), most of the rest of this requires a knowledgeable instructor and interesting fellow students. Content is scalable and so are LMSs, teaching is not so much.

Keynote Speaker: Mrs. Beverly J. Seay

Vice President & General Manager (Global), CAE Integrated Enterprise Solutions

Presenting on Tuesday, October 30 8:30am-10:00am; Mission I/II

Biographic Sketch

Mrs. Seay joined CAE in February 2012 as Vice President and General Manager of Global Professional Services with responsibility of executing the global growth strategy for CAE Professional Services.

Keynote Presentations

Before joining CAE, she worked at Science Applications International Corporation (SAIC) for 24 years, where she held positions with increasing responsibilities in Engineering, Operations and General Management. As Senior Vice President and GM for the Analysis, Simulation, Systems, Engineering and Training (ASSET) business unit, she led the innovation of key pioneering approaches in systems engineering, modeling and simulation, and the delivery of complex, composable software and hardware systems. These innovations included the U.S. Army's One Semi Automated Forces (OneSAF®) and the Synthetic Environment Core (SE Core) constructive and virtual simulation programs and the Army's Common Driver Trainer (CDT).

Mrs. Seay has served three terms as a member and chaired the Georgia Tech President's Advisory Board. Her current University Board memberships include the Georgia Tech College of Computing Advisory Board, University of Nebraska's Peter Kiewit Institute Advisory Board, and University of Central Florida's Engineering and Computer Science Advisory Board. Mrs. Seay's most recent appointments include the Commonwealth of Virginia's Modeling and Simulation Advisory Council, the Florida for Inspiration and Recognition of Science and Technology (FIRST) Executive Advisory Group, and the National Center for Collaboration in Medical Modeling Simulation (NCCMMS). Mrs. Seay holds a Master of Science degree in Computers, Information and Control Engineering and a Bachelor of Science degree in Mathematics from the University of Michigan.

Keynote Speaker: Dr. Michael Orosz

Assistant Director Lead, Decision Systems Group, USC Information Sciences Institute

Presenting on Wednesday October 31 8:30am-10:00am; Mission I/II

Title: The Need for Operationally Informed Model Developers

Abstract

Developing models or simulations requires an understanding of the mission space, the requirements and expectations of the model/simulation and access to information and test data sets. Traditionally, these needs have been met by the stakeholder and subject matter expert communities. Although adequate in some modeling domains, increasing demands for complex models and simulations present a number of challenges with this approach - including; 1) the operational requirements are typically defined from the stakeholders' point-of-view which may not translate well to the model development environment; 2) access to subject matter experts may be limited due to availability and demand; and 3) the development and test data provided is usually limited and only represents a subset of the mission space in which the model is targeted.

There is a need for a paradigm shift in the model/simulator development community. Rather than modelers totally relying on stakeholders and subject matter experts for operational

information, modelers need to be operations-informed. Through immersion and prior operational experience, these modelers will obtain knowledge of the mission space in which they developing and deploying technology. This approach doesn't negate the need for stakeholder and subject matter experts. Rather, the operations-informed modeler addresses the gaps that currently exist in the traditionally separated operational and research environments – including easing the "translation" between operations and the model development environment.

This shift to an operations-informed modeler requires the support of both the operational and research communities. In academia and other research organizations, publishing and cutting-edge research are awarded, while time spent immersed in an operational environment is often not supported. Similarly, government, industry and other stakeholders are typically product-driven and time and resources required to support an immersed researcher is often seen as non-productive or a distraction. A partnership in which both these communities see advantages in continuous collaborations and are awarded for those collaborations is necessary. Further, there is a need to reach out to the K-12 community to not only increase focus on science and technology, but also stress the importance of acquiring a diverse educational background that can later help with immersion into operational mission spaces. As the demand increases for more accurate and complex models and simulations, the need for a better operationally-informed modeling community is required.

Biographical Sketch

Dr. Michael Orosz has over 29 years experience in commercial and government software development, basic and applied research and development, project management, academic research, and has developed and deployed several commercially successful products. His research interests include decision systems, predictive analysis, integrated modeling environments, distributed system of systems, operational risk management and intelligence human-computer interfaces.

Dr. Orosz has successfully led projects in developing command and control, intelligence analysis and model-based decision-support systems for applications ranging from protecting the Nation's food supply, ensuring maritime and seaport security, protecting the Nation's infrastructures and cities against terrorism events and enhanced C2I technologies used in the Intelligence Community.

Dr. Orosz is a principal investigator at the DHS National Center for Risk and Economic Analysis of Terrorism Events (CREATE) where he leads the development of InfraSec – an infrastructure terrorism risk assessment and security resource allocation system currently focused on large spectator venues such as sport stadiums, PortSec – a seaport infrastructure version of InfraSec currently focused on Ports of Los Angeles/Long Beach operations and iSARs – a suspicious activity reporting intelligence and decision analysis system. He is also a principal investigator at the DHS National Center for Food Protection Defense (NCFPD) and the DHS National Center for

Keynote Presentations

Foreign Animal and Zoonotic Diseases (FAZD). He recently served (2006-2009) as the Information Analytics Science Leader and member of the executive committee for the FAZD Center. In addition, Dr. Orosz has recently or is presently managing projects funded by DARPA, DHS, DOE, IARPA, NASA, NRO, NSA, ONR, and the USMC. Dr. Orosz received a B.S. in Engineering from the Colorado School of Mines, a M.S. in Computer Science from the University of Colorado, and a Ph.D. in Computer Science from the University of California at Los Angeles. Prior to joining USC, Dr. Orosz worked in the aerospace/defense, motion picture entertainment, engineering consulting, and heavy-mining (natural resources) industries.

Keynote Speaker: Dr. C. Anthony Hunt

Professor of Bioengineering and Therapeutic Sciences, University of California, San Francisco

Presenting on Wednesday October 31 8:30am-10:00am; Mission I/II

Title: Modeling and simulation are poised to dramatically transform the entire biomedical R&D and healthcare landscapes

Abstract

I will explain the talk's title and speculate on timelines. Many biotechnology companies and all of the major pharmaceutical companies are hitting productivity obstacles. I will describe why new M&S methods are needed to overcome those obstacles, and describe a plausible scenario for doing so. A recent NRC report, "Toward Precision [individualized] Medicine," opens another door for new M&S methods to transform healthcare at the individual level. I will describe how.

Biographic Sketch

C. Anthony Hunt is Professor of Bioengineering and Therapeutic Sciences, Schools of Medicine and Pharmacy, The University of California, San Francisco. He directs the BioSystems Group, which develops and uses advanced (from the perspective of biomedical research) modeling and simulation methods to achieve deeper insight into the networked, layered, macro- and micromechanisms that link molecular level events with higher level phenomena and operating principles across scales at cell, tissue, organ, organism, and population levels in the presence and absence of interventions. Prof. Hunt is a member of the Editorial Boards of Computers in Biology and Medicine, Simulation, the International Journal of Knowledge Discovery in Bioinformatics, and the Journal of Computational Biology and Bioinformatics Research. He is an AAAS and AAPS Fellow, a Director of The McLeod Modeling and Simulation Network, and is a consultant to three major pharmaceutical companies. Since 2004, he has co-authored 42 articles in peer reviewed journals and 49 peer reviewed articles in proceedings and book chapters (<http://biosystems.ucsf.edu/publications.html>) primarily on topics of biomedical, quantitative and systems pharmacology modeling and simulation.

Upcoming SCS Conferences

2013 Powerplant Simulation Conference (PowerplantSim'13)

Jan. 28 - Feb. 1, 2013

Tampa International Plaza Hotel; Tampa, FL, USA

The 2013 Power Plant Simulation Conference (PowerPlantSim'13) is an annual conference sponsored by The Society for Modeling and Simulation International. This conference focuses on the special needs of the nuclear and fossil power plant simulation community and includes presentations by technology and industry leaders, technical sessions, panel and roundtable discussions, and vendor exhibits. The primary goal of the conference is to promote open exchange of simulator related information between all attendees.

All individuals associated with the maintenance, management, regulation, or application of nuclear and fossil power plant simulators are encouraged to participate by submitting original presentations.

The conference includes keynote speeches presented by technology and industry leaders, technical sessions, professional development courses and seminars, as well as vendor exhibits. Scientists, engineers, managers, educators, and business professionals who develop or use simulation tools are invited to participate and present original papers. Proposals are solicited for papers, panels, tutorials, workshops, seminars, exhibits, social activities and for other presentation, discussion and sponsorship formats. People are always welcome to benefit by taking an organizing role. PowerplantSim'13 offers many ways to promote simulation products and to enhance corporate images. You are invited to use the Powerplant Simulation Conference in ways that best serve your interests.

The following topic areas are scheduled:

- Next Generation Simulators
- Post Fukushima Extended Blackout Modeling
- Severe Accident Simulation
- Simulator Knowledge Retention
- Advanced Fuel Pool Modeling

Please visit www.scs.org for key dates and deadlines, or call the SCS office at (858) 277-3888

Upcoming SCS Conferences

2013 Spring Simulation Multi-conference (SpringSim'13)

April 7 - 10, 2013

Bahia Resort; San Diego, CA, USA

The Spring Simulation Multi-Conference 2013 (SpringSim'13) brings leading experts in various domains of Modeling and Simulation together. SpringSim'13 will be collocated with the Spring Simulation Interoperability Workshop (Spring SIW) 2013 organized and conducted by the Simulation Interoperability Standards Organization (SISO). It will also be collocated with the Conference on Theory of Modeling and Simulation (TMS/DEVS 2013).

The conference includes keynote speeches presented by technology and industry leaders, technical sessions, professional development courses and seminars, as well as vendor exhibits. Scientists, engineers, managers, educators, and business professionals who develop or use simulation tools are invited to participate and present original papers. Proposals are solicited for papers, panels, tutorials, workshops, seminars, exhibits, social activities and for other presentation, discussion and sponsorship formats. People are always welcome to benefit by taking an organizing role. SpringSim'13 offers many ways to promote simulation products and to enhance corporate images. You are invited to use the Spring Simulation Multiconference in ways that best serve your interests.

The following topic areas are scheduled:

- Agent programming and simulation modeling languages.
- Service-oriented Computing and Simulation
- Cloud Computing
- Security of Mobile Devices
- Battlefield Visualization
- Whole System Simulation and Analysis
- Hybrid system modeling and integration of formalisms
- Formal analysis and symbolic reasoning
- Artificial Digital Societies
- Simulation of Clusters, Grids and Wireless System

Please visit www.scs.org for key dates and deadlines, or call the SCS office at (858) 277-3888

Upcoming SCS Conferences

2013 Summer Simulation Multi-conference (SummerSim'13)

July 7 - 10, 2013

The Fairmont Royal York, Toronto, ON, Canada

The 2013 Summer Simulation Multiconference (SummerSim'13) is an annual conference sponsored by The Society for Modeling and Simulation International which covers state-of-the-art developments in computer simulation technologies, as well as scientific, industrial, and business applications. Areas covered include high-performance computing technologies, models and algorithms, GUI visualization technologies, communications and much more. Application disciplines covered include advanced telecommunication; computer systems; military, government & aerospace; energy, and other industries.

The conference includes keynote speeches presented by technology and industry leaders, technical sessions, professional development courses and seminars, as well as vendor exhibits. Scientists, engineers, managers, educators, and business professionals who develop or use simulation tools are invited to participate and present original papers. Proposals are solicited for papers, panels, tutorials, workshops, seminars, exhibits, social activities and for other presentation, discussion and sponsorship formats. People are always welcome to benefit by taking an organizing role. SummerSim'13 offers many ways to promote simulation products and to enhance corporate images. You are invited to use the Summer Simulation Multiconference in ways that best serve your interests.

SummerSim'13 will include invited speakers, quality refereed papers, timely topical workshops, joint plenary sessions, consolidated registration, and access for registrants to all Multi-conference activities.

The following topic areas are scheduled:

- International Symposium on Performance Evaluation of Computer and Telecommunication Systems (SPECTS'13)
- Summer Computer Simulation Conference (SCSC'13)
- Grand Challenges in Modeling & Simulation (GCMS'13)

Please visit www.scs.org for key dates and deadlines, or call the SCS office at (858) 277-3888

AutumnSim At A Glance Sessions

		HLSMS	ETMS
Monday	**29-Oct-12**		
0830 – 1000	SCS Plenary	***Keynote: Dr. Bill Swartout and Dr. Jerzy Rozenblit*** ***Location: Mission I & Mission II***	
1000 – 1030	Coffee Break		
1030 – 1200	Session Block I		
1200 – 1330	Lunch (provided)		
1330 – 1500	Session Block II		Mission I
1500 – 1530	Coffee Break		
1530 – 1700	Session Block III	Mission II	Mission I
Tuesday	**30-Oct-12**		
0830 – 1000	SCS Plenary	***Keynote: Mrs. Beverly Seay and Dr. Michael Orey*** ***Location: Mission I & Mission II***	
1000 – 1030	Coffee Break		
1030 – 1200	Session Block IV	Mission II	Mission I
1200 – 1330	Lunch (on your own)		
1330 – 1500	Session Block V	Mission II	
1500 – 1530	Coffee Break		
1530 – 1700	Session Block VI		
Wednesday	**31-Oct-12**		
0830 – 1000	SCS Plenary	***Keynote: Dr. C. Anthony Hunt and Dr. Michael Orosz*** ***Location: Mission I & Mission II***	
1000 – 1030	Coffee Break		
1030 – 1200	Session Block VII		
	Conference Ends		

AutumnSim At A Glance Sessions (Cont.)

MPMS	ECEMS	DMMS	
			Monday
Keynote: Dr. Bill Swartout and Dr. Jerzy Rozenblit ***Location: Mission I & Mission II***			0830 – 1000
			1000 – 1030
Mission I	Mission II	Mission III	1030 – 1200
			1200 – 1330
	Mission II	Mission III	1330 – 1500
			1500 – 1530
		Mission III	1530 – 1700
			Tuesday
Keynote: Mrs. Beverly Seay and Dr. Michael Orey ***Location: Mission I & Mission II***			0830 – 1000
			1000 – 1030
		Mission III	1030 – 1200
			1200 – 1330
	Mission I	Mission III	1330 – 1500
			1500 – 1530
Mission I		Mission III	1530 – 1700
			Wednesday
Keynote: Dr. C. Anthony Hunt and Dr. Michael Orosz ***Location: Mission I & Mission II***			0830 – 1000
			1000 – 1030
Mission I		Mission III	1030 – 1200
			Conference Ends

Homeland Security Modeling Simulation (HLSMS) Agenda

Monday, 29 October 2012

HLSMS Session III 15:30 – 17:00 Room Mission II Session Chair: CDR Richard Gay

- Use of Modeling and Simulation Technology for PTSD Exercises as an Anti-terrorism Defense Strategy: Forensic Paradigm (Ronn Johnson and Ross Johnson)
- Modeling temporal, geographic and structural dependencies in networks: preliminary results and applications in Homeland Security (Daniel E. Salazar and Samrat Chatterjee)
- Suicide Bombing Forecaster – Novel Techniques to Predict Patterns of Suicide Bombing in Pakistan (Usmani Zeeshan, Sarah Irum, Saad Qadeer and Taimur Qureshi)

Tuesday, 30 October 2012

HLSMS Session IV 10:30 – 12:00 Room Mission II Session Chair: CDR Richard Gay

- Invited Presentation "Game Theory and Human Behavior" Dr. Miland Tambe

HLSMS Session V 13:30 – 15:00 Room Mission II Session Chair: CDR Richard Gay

- Panel "Homeland Security in San Diego" Serge Duarte
- Practical Considerations for Implementing Homeland Security M&S (Charles Hutchings, Sanjay Jain,

Medical Processes Modeling and Simulation (MPMS) Agenda

Monday, 29 October 2012

MPMS Session I **10:30 – 12:00** **Room Mission I** **Session Chair: Rick Severinghaus**

Introduction: Severinghaus. "The New Medical Processes Track – Research + Application"

- A study on the Performance of the modified Dome Rule in a Multi-Doctor Outpatient Facility (Adura Adekunjo and Michael Jones)
- Implementation of a simulation model of pre-hospital medical disaster response using realistic victims (Christophe Ullrich, Filip Van Utterbeeck, Michel Debacker and Erwin Dhondt)

Tuesday, 30 October 2012

MPMS Session VI **15:30 – 17:00** **Room Mission I** **Session Chair: Rick Severinghaus**

Invited Presentation: C. Donald Combs, Ph.D. "A Question of Timing"

- Modeling drift in the OR: A conceptual framework for research (Richard Severinghaus, Taryn Cuper- and C. Donald Combs)
- Fuzzy Database for Heart Disease Diagnosis (Rehana Parvin and Dr. Abdolreza Abhari)

Wednesday, 31 October 2012

MPMS Session VII **10:30 – 12:00** **Room Mission I** **Session Chair: Rick Severinghaus**

Invited Presentation: Parvati Dev, Ph.D. "Healthcare Simulation from a Business Perspective"

- Simulating the Need for Renal Replacement therapy capacity (Anders L. Nielsen, Alok Kumar, Philip-Nielsen and Susanne Petersen)
- Methodology and Modeling Environment for Simulation National Health Care (Bernard Zeigler, Ernest-Carter and Chungman Seo)

Education and Training Modeling and Simulation (ETMS) Agenda

Monday, 29 October 2012

ETMS Session II 13:30 – 15:00 Room Mission I Session Chair: Dr. Abdolreza Abhari

- A Conceptual Approach to a Hybrid Network Enrollment Simulation Model (Luis Robledo, Jose Sepulveda and Sandra Archer)
- The Experience of Designing and Holding an Artistic Course as a Part of E-Learning Program in Tehran Institute of Technology (Kaveh Rasouli Chizari and Erfan Khaji)
- Cellular Automata Simulation of Neutron Transport (Bahram Nassersharif)

ETMS Session III 15:30 – 17:00 Room Mission I Session Chair: Dr. Abdolreza Abhari

- Emotional Math Tutors: Applying Emotional Virtual Agent in Education (Everlyne Kimani and Hong Jiang)
- Evaluating Mobile Device Usage in the Army (Joseph Mercado and Jennifer Murphy)
- Leveraging Mobile Devices for Asynchronous Learning: Best Practices (John Killilea)

Tuesday, 30 October 2012

ETMS Session IV 10:30 – 12:00 Room Mission I Session Chair: Dr. Abdolreza Abhari

- Managing and Controlling Risk in Complex Infrastructure Projects: Using Discrete Event Simulation for Stochastic Scheduling in Construction Engineering courses (Linda Riley)
- Outcome-based Curriculum Development for an Undergraduate M&S Program (James Leathrum and Roland Mielke)
- Web Based Visualization of Outdoor Path Loss Models (Saifuddin Abdullah and Fuad Alnajjar)

Energy and Climate Modeling and Simulation (ECEMS) Agenda

Monday, 29 October 2012

ECEMS Session I 10:30 – 12:00 Room Mission II Session Chair: CDR Richard Gay

- A Fuel Cost Comparison of Electric and Gas-Powered Vehicles (Lawrence Fulton and Nathaniel Bastian)
- Situation Calculus Approach to the Oil Products Supply Control System (Victor Romanov, Ilya Moskovoy and Kseniya Grigorieva)
- Confidence Intervals for Quantiles When Applying Replicated Latin Hypercube Sampling and Sectioning (Marvin Nakayama)

ECEMS Session II 13:30 – 15:00 Room Mission II Session Chair: CDR Richard Gay

Invited Presentation "Dynamic Simulation for Process Design Applications" Abhilash Nair

- An Exploratory Application of Agent-Based Modeling for Policy Evaluation in Hawaii's Longline Fishery (Run Yu, Minling Pan, Steven Railsback and PingSun Leung)
- Agent Based model for estimating HEV market: Focusing on the case of Korea (Jinho Choi, Namgyu Im and Jaechan Park)

Tuesday, 30 October 2012

ECEMS Session V

Workshop/Tutorial 13:30 – 15:00 Room Mission I Session Chair: CDR Richard Gay

- "Hands-On/Minds On Training for Refinery, Chemical Plant, and Power Plant Operators" by Donald C. Glaser

Defense and Military Modeling and Simulation (DMMS) Agenda

Monday, 29 October 2012

DMMS Session I 10:30 – 12:00 Room Mission III Session Chair: LTC Dan McCarthy

- Effects of Cross-Modal Sensory Cueing Automation Failure in a Simulated Target Detection Task (Joseph Mercado, Timothy White, Tracy Sanders, Julia Wright and Peter Hancock)
- Tradespace Exploration for Military Simulations (Joon Hong Lau, Chong Wee Tan and Yen Kiat Lim)
- Improving Performance in an Imperfect Target Detection Simulation through Experience (Joseph Mercado, Timothy White, Tracy Sanders, Julia Wright and Peter Hancock)
- Comparison of Methods for Simulation-Based Early Prediction of Rocket, Artillery and Mortar Trajectories (Arash Ramezani, Jost Cors and Hendrick Rothe)

DMMS Session II 13:30 – 15:00 Room Mission III Session Chair: Dr. Mike McGinnis

- A System Architecture and Simulation Enivornment for Building Information Modeling in Virtual Worlds (John Oerter, Wyatt Suddarth, Matthew Morhardt, James Gehringer, Michael McGinnis, Johnnie Shockley and Allison Baysa)
- Application of Cognitive Theories for Simulation of Robotic Models (Darush Davani and Frederick Ackers)
- Real Time 3D Recording Applications for Field Medical Training (Matthew Hackett, Jack Norfleet, Brian VanVoorst, Cathy Strayhorn and Jon Schewe)
- Simulation of Models in Cognitive Robotics (Darush Davani, Frederick Ackers)

DMMS Session III 15:30 – 17:00 Room Mission III Session Chair: Jim Taylor

- An Approach to Sparing Analysis for a Finite working Item Population (Rui Zhang and Yaw Asiedu)
- An Agile Methodology For Simulation (Dale Bardin, Ron Painter, Pamela Tsui, Mark Vriesenga, Pamela Nance, Rusty Sailors, Thomas Cunningham and Daniel Kepner)
- Proof-of-Concept for a Green Energy Linear Program for Optimizing Deployments (James Taylor and Betty Love)
- The Missing Link in Modeling and Simulation Validation (Lisa Bair)

Defense and Military Modeling and Simulation (DMMS) Agenda

Tuesday, 30 October 2012

DMMS Session IV 10:30 – 12:00 Room Mission III Panel Chair: Mrs. Beverly Seay

Panel: "Fundamental Value of Simulation Based Solutions" Beverly Seay

- Human Systems Integration (Joe Armstrong)
- Wargaming ROI (Ronald J Roland)
- Medical Simulation ROI (Rick Severinghaus)
- DOD level M&S ROI (Steve Gordon)
- Value of M&S Standards (Andrew Collins)

DMMS Session V 13:30 – 15:00 Room Mission III Panel Chair: Dave Pratt

Panel: "Organizing for Succes-Considerations for an embedded analysis and M&S Organization" Dave Pratt

- The Government View (Karl Shawhan)
- The Academic View (Mike McGinnis)
- The Industry View (Dave Pratt)

DMMS Session VI 15:30 – 17:00 Room Mission III Session Chair: George Stone

- Ontology-based Conceptual Modeling of Military Mission Spaces (Haeran Kang, Young Min Bae, Kyong-Ho Lee, Young Hoon Lee and Jai-Jeong Pyun)
- Producing Reusable Engineered Systems Through Ontology (PRESTO): An Information Sciences Approach to Architecture-driven, Model-based, Concurrent Engineering (George Ball and Christopher Runge)
- A Decision-Theoretic Approach to Defining Use for Computer Simulation (Eric Weisel)
- Ultra large-Scale Wireless Network Models using Massively Parallel Discrete-Event Simulation (Justin LaPre, Christopher Carothers, Kenneth Renard and Dale Shires)

Defense and Military Modeling and Simulation (DMMS) Agenda

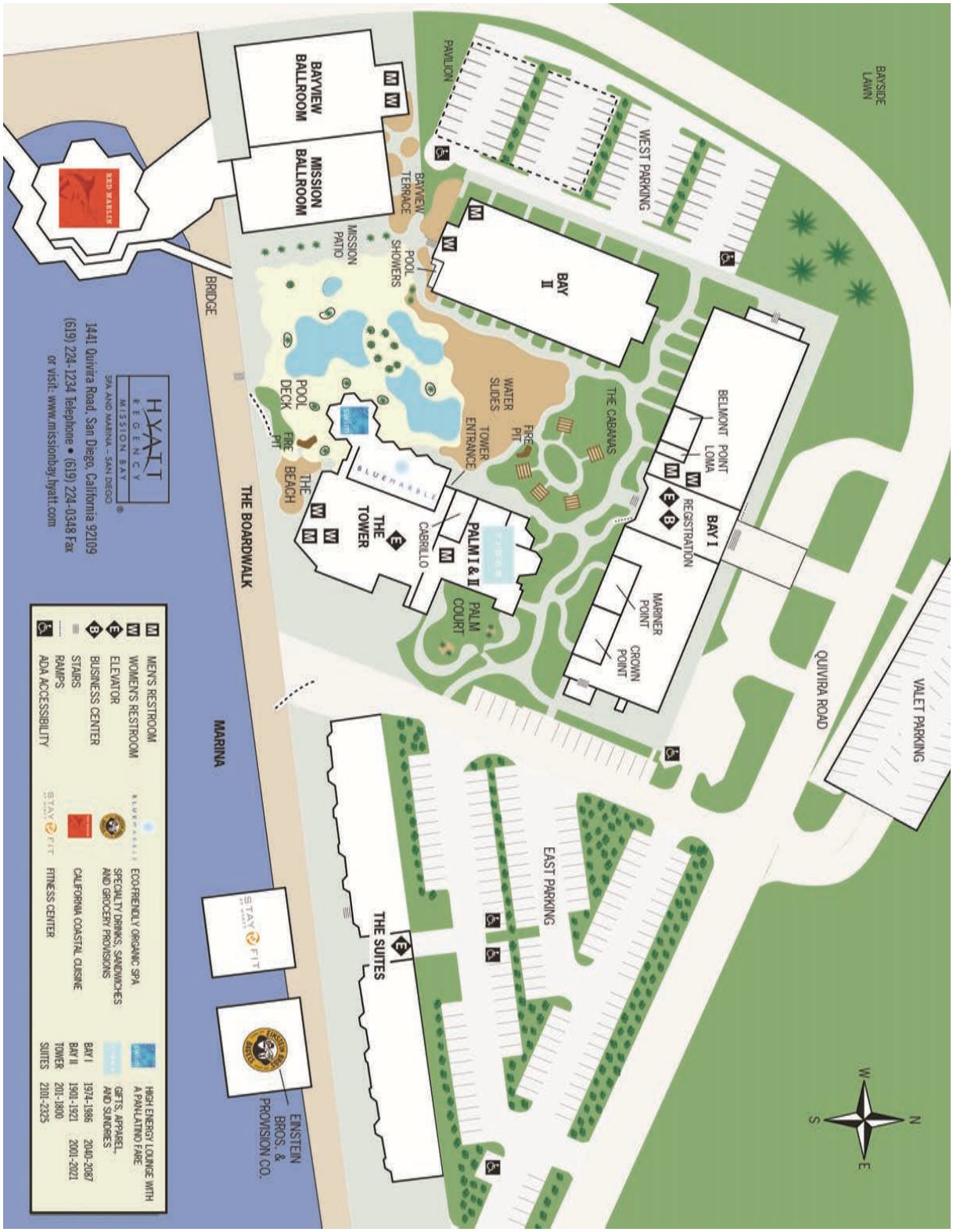
Wednesday, 31 October 2012

DMMS Session VII 10:30 – 12:00 Room Mission III Session Chair: Andy Collins

- Inserting simulated tracks into SAR CCD Imagery (Eric Turner, Rhonda Phillips, Carol Chiang and Miriam Cha)
- Concept for Simulation Engagement Strategies for C-Ram Systems using Laser Weapons (Mattias Knapp and Hendrick Rothe)
- The Value of Modeling and Simulation Standards (Andrew Collins, David Meyr, Solomon Sherfey, Andreas Tolk and Mikel Petty)
- Explosion Modeling – a Tutorial (Zeeshan-Ul-Hassan Usmani)

Notes

Hotel Map


VALET PARKING
QUIVIRA ROAD
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BELMONT POINT
LOMA
BAY I
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MARINER POINT
CROWN POINT
BAY II
THE CABANAS
FIRE PIT
WATER SLIDES
TOWER ENTRANCE
PAVILION
BAYVIEW TERRACE
POOL SHOWERS
MISSION PATIO
POOL DECK
FIRE PIT
THE BEACH
PALM I & II
PALM COURT
CABRILLO
THE TOWER
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BAY II 1901-1921 2001-2021
TOWER 201-1800
SUITES 2101-2325
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AutumnSim'12 Survey

Please take a moment to fill out this survey and return to the registration desk, via email to scs@scs.org, or via mail to SCS at 2598 Fortune Way, Suite I, Vista, CA 92081. THANK YOU! Your feedback will help us to improve future Autumn Simulation Conferences!

1. Which track did you attend? (circle) HLMS MPMS ETMS ECEMS DMMS

2. Which describes you best (circle) ATTENDEE EXHIBITOR OTHER

(if other please explain) _____

3. How satisfied were you with the conference registration process? (circle)

VERY SATISFIED SATISFIED DISSATISFIED VERY DISSATISFIED NOT SURE

4. How satisfied were you with the conference fees compared to other conferences? (circle)

VERY SATISFIED SATISFIED DISSATISFIED VERY DISSATISFIED NOT SURE

5. How satisfied were you with the conference materials provided? (circle)

VERY SATISFIED SATISFIED DISSATISFIED VERY DISSATISFIED NOT SURE

6. Overall, how satisfied were you with the speakers/presentations? (circle)

VERY SATISFIED SATISFIED DISSATISFIED VERY DISSATISFIED NOT SURE

7. Overall, how satisfied were you with the conference location and facilities? (circle)

VERY SATISFIED SATISFIED DISSATISFIED VERY DISSATISFIED NOT SURE

8. What did you like best/least from this year's conference? (please write in)

_____

_____

_____

9. What would you like to see at future AutumnSIm conferences? (locations, exhibitors, topics, etc)

_____

_____

10. What other conferences do you typically attend? (please write in)

_____

_____

Special Events

Schedule

Sunday Oct. 28 ---------- Social Mixer - Starts @ 5pm

Monday Oct. 29 ---------- Reception - Starts @ 5:30pm

Tuesday Oct. 30 ---------- Bus Trip to Gaslamp Quarter - Starts @ 6pm

FOR MORE INFORMATION, PLEASE VISIT THE CONFERENCE REGISTRATION DESK

General Information

General Chair: Dr. Jerry Couretas
Program Chair: Hamid Vakilzadian
VP of Conferences: Gabriel Wainer

The 2012 Autumn Simulation Multiconference is a state-of-the-art conference involving several different academic subjects and areas of professional activity. AutumnSim provides a unique opportunity to learn about emerging M&S applications in many thriving fields including Defense & Military, Homeland Security, Medical Processes, Education & Training, and Energy, Climate & Environment. The inaugural year of this conference proudly coincides with the 60th anniversary of the Society for Modeling and Simulation (SCS).

AutumnSim offers many ways to promote simulation products and to enhance corporate images. Scientist, engineers, managers, educators, and business professionals who develop or use simulation tools are invited to participate and present original papers. All accepted papers are published on the conference USB, by SCS and in hard-copy by Curran's Print-on-Demand service.

Registration and Breaks

Registration Hours *(Registration Desk will be at the Mission Foyer Room)*

- *Sunday, October 28* (pre-registered badge pickup ONLY) — 3:00 pm to 5:00 pm
- *Monday, October 29* — 7:30 am to 5:00 pm
- *Tuesday, October 30* — 7:30 am to 5:00 pm
- *Wednesday, October 31*— 7:30 am to Noon

If you have any questions during the event, feel free to stop by the Registration desk

Breaks

- *Monday, October 29* — 7:30am-8:30am, Mission Terrace Room (Free Breakfast); 10 am to 10:30 am; 12:00 Noon to 1:30pm, Mission Terrace Room (Free Lunch); 3 pm to 3:30 pm; 5:30-7:30pm, Cabanas Area (Monday Night Reception*);
- *Tuesday, October 30* — 7:30am-8:30am, Mission Terrace Room (Free Coffee) ; 10am to 10:30am; 12:00 Noon to 1:30pm, 3pm to 3:30 pm
- *Wednesday, October 31* — 7:30am-8:30am, Mission Terrace Room (Free Coffee) ; 10am to 10:30am; 3pm to 3:30pm

*There will be a conference-wide Welcome Reception on Monday evening with appetizers and a cash bar open to all attendees

Celebrating

60th Anniversary

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