Dear Readers:

Happy New Year to you and your family! The start of the year marks my third-year as Editor-in-Chief of this fine publication. I’m especially proud to have the privilege of leading our fine team of editorial board members who have contributed the many articles and news items that you have enjoyed over the past year.

I’d like to say a sincere thank you to our readers, as without you, we have no purpose. I’d also like to say a sincere thank you to our editorial board members and advisory board members because without them, there would be nothing to read. Thank you to the SCS executive team who produced every issue of the newsletter.

Do have a prosperous and blessed 2014, keep reading the SCS M&S Newsletter and keep sending us awesome articles and news items.

Best regards,
Yu Zhang
Editor-in-Chief
Upcoming SCS Conferences

2014 POWERPLANT SIMULATION CONFERENCE
January 20 - 23, 2014
Astor Crowne Plaza, New Orleans, LA, USA

The 2014 Power Plant Simulation Conference (PowerPlantSim’14) 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.

Who should attend?
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.

Topics of interest include but are not limited to:
- Next Generation Simulators
- Post Fukushima Extended Blackout Modeling
- Severe Accident Simulation
- Simulator Knowledge Retention
- Advanced Fuel Pool Modeling
- Fleet Coordination – Does it Work?
- Recent Simulator Projects
- Thermal-Hydraulics
- Post Event Testing
- Virtual Simulation
- Control of Virtual Simulation Technologies
- Smart Grid and Cyber Security Impacts
- ANSI/ISA 77.20 Fossil Functional Requirement Strategies
- Workforce Development, Re-staffing, and Knowledge Transfer/Retention

Deadline for Presentation Topic Submission: December 1, 2013

Please submit your suggested presentation title directly to the track chairs below:

Fossil Track
Chair: William H. Talbot, Ameren
PPFossil@scs.org

Nuclear Track
Chair: Scott Cupp, Entergy, Arkansas
(479) 858-6858
PPNuclear@scs.org

Read more: www.scs.org/powerplant

2014 SPRING SIMULATION MULTI-CONFERENCE
April 13 - 16, 2014
Grand Hyatt Tampa Bay, Tampa, FL, USA

The Spring Simulation Multi-Conference 2014 (SpringSim’14) brings leading experts in various domains of Modeling and Simulation together. The following symposia are organized under SpringSim’14:

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News and Development in M&S

PROFESSOR BERNARD P ZEIGLER VISITED THE BEIHANG UNIVERSITY

Past president of SCS, SCS Fellow, IEEE Fellow, professor Bernard P Zeigler visited Beihang university in early December, 2013. During the visit, Prof. Zeigler carried on extensive communication and discussion with professors and students in the simulation center of the School of Automation Science and Electrical Engineering, Beihang University. At the same time, Professor Zeigler gave two excellent lectures for graduated students. The lectures introduced the theory of Discrete Event System Specification (DEVS) and its applications in multiple areas.

-This news item is contributed by Bohu Li.

News from SCS Networks

REPORT ON 20TH INTERNATIONAL CONGRESS ON MODELING AND SIMULATION (MODSIM 2013)

The MODSIM International Congress on Modeling and Simulation, run biennially by the Modeling and Simulation Society of Australia and New Zealand (MSSANZ), is perhaps the largest southern-hemisphere simulation conference. This year, it was combined with the 22nd National Conference of...
the Australian Operations Research Society, and held on 1–6 December in Adelaide, South Australia.

The conference opened with a plenary presentation by Jeff Kepert (Centre for Australian Weather and Climate Research) on weather forecasting, with a particular focus on simulating the weather during the tragic “Black Saturday” bushfires of 2009 (see photo above). This was followed by over 800 other talks on a wide variety of modelling and simulation topics, including biology, climate, disease, economics, urban infrastructure, and water resources. Approximately 800 people attended, from a total of 32 different countries. See www.mssanz.org.au/modsim2013 for the conference proceedings.

A particular highlight this year was the large contingent of delegates and presentations from DSTO, the (Australian) Defense Science and Technology Organization – a culmination of the increasing Defense involvement since the Defense and Homeland Security segment of the conference was founded in 2005. The DSTO-led Defense Operations Research Symposium was also incorporated within the six-day event.

The MODSIM conference dinner on the second-last day was an opportunity to present MSSANZ Biennial Medals to Prof Natasha Boland (University of Newcastle), Prof Graeme Dandy (University of Adelaide), and Prof Shiqing Ling (Hong Kong University of Science and Technology) for “exceptional research contributions to modeling and simulation, and for promoting the aims of the Society.” Four society fellowships (www.mssanz.org.au/awards/fellows.html) and three Early Career Research Excellence awards (www.mssanz.org.au/awards/ecre.html) were also presented. The next conference in this series will be held at the Gold Coast (Queensland, Australia) in December 2015.

-This news item is contributed by Tony Dekker.

HOW THE AUTOMATED INTELLIGENT MENTORING SYSTEM (AIMS™) WILL IMPROVE MEDICAL TRAINING WITH GAMING TECHNOLOGY

By April Salisbury

How to make education more affordable and at the same time ensure that students get positive feedback without the expert present? To help find solutions to these challenges the Healthcare Simulations’ (HCS) Automated Intelligent Mentoring System (AIMS™) was developed by Eastern Virginia Medical School (EVMS) and SimIS®, Inc. AIMS™ is used for teaching and rigorously assessing procedural clinical skills performed by both novice learners and highly skilled professionals. AIMS™ measures human performance related to specific real-time 3-dimensional psychometric measurement of clinical procedural skills. In other words, AIMS™ replaces a subjective subject matter expert’s evaluation with rigorous measures of performance. AIMS™ provides accurate feedback with the use of Microsoft™ Kinect™ gaming technology to ensure that medical procedures are performed accurately.

The idea itself is easy, but the implementation became more challenging than expected. In principle our technology observes students practicing skills, compares their performance against the mastery level baseline and provides feedback when he or she needs help or makes a procedural misstep. While theoretically easy, from a practical perspective a lot of transformations and adaptations are needed to compare a thin person with a stout one, or a short 5’2” expert with a 6’6” football playing student. In a recent technical magazine paper we elaborated on more details.1

AIMS™ is able to provide professional instruction with individualized, virtual feedback for the learner, while providing detailed performance analytics for the instructors to remotely


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analyze, react, and refactor their future instructional efforts. This allows the system to be offsite at remote locations and still provide the ability to evaluate the students appropriately (or, if needed, recertify the experts in their skills).

Added to our system is the Automated Intelligent Mentoring Instructor (AIMITM), which provides feedback and teaching sequences. The sequences can be videos or virtual animations prepared by the educator, or videos captured from the student highlighting what he or she did well or incorrectly. If you do something wrong, AIMITM not only tells you that you made a mistake, but also how to do it correctly.

Our first use of this technology was supporting cardiopulmonary resuscitation (CPR) training. According to the American Heart Association, more than 380,000 cardiac arrest events occur out-of-hospital. Often, bystanders could save a life by giving CPR, but they are not confident in their skills. So we developed our first module to boost people’s confidence by training them with a system that provides professional feedback. But we are working on other ideas too. AIMS™ will focus on other models after the development of CPR training as well, such as:

- **Intubation**: AIMS™ will identify the accuracy and placement of the endotracheal tube.
- **Safe Lift**: The training system will identify body mechanics when lifting heavy objects.
- **Lateral Transfer**: A team based interaction of moving patients from a stretcher to a bed. The Kinect camera will be able to identify 2-6 individuals due to its next generation applications and tracking.
- **Infant CPR**: This will be one of the advanced versions of AIMS™ CPR.

But will it work? To help answer this question, our partners from Duke University, Eastern Virginia Medical School, and Old Dominion University helped with efforts towards validation and verification (V&V). We’ve submitted a first evaluation report to the Center for Innovative Technology in Virginia and the following advantages are presented:

- AIMS™ allows students to train for clinical procedural skills by enforcing standardized, positive learning experiences without the need of a clinical expert in this procedure to be present.
- Students can practice a procedure as often as they need to until they attain the required skill level.
- AIMS™ provides exact measurements of procedural accuracy within allowed tolerance levels.

Healthcare Simulations has recently showcased AIMS™ at conferences in Orlando, Florida, I/ITSEC and Ontario, Canada, SIM-One:
In Memory

Granino A. Korn passed away on Tuesday, December 17, 2013 at the age of 91, a great scholar and accomplished scientist. Those who knew him will remember him as a caring individual who was always more interested in helping others and in giving, than in taking or demanding.

Granino (Nino) Korn was born in Berlin, Germany on May 7, 1922. At the age of 17, he immigrated with his parents to the United States and attended William and Mary in Virginia, Columbia University, and Brown University where he completed his Ph.D. degree in Physics and Mathematics, following wartime service in the U. S. Navy. He and his young wife Theresa (Terry) lived in a travel trailer to quickly move to many places where his skills would be required in the aircraft industry. These included Sperry Gyroscope, Curtiss-Wright, Boeing, and Lockheed. In 1957, Nino and Terry settled in Tucson with their two young children, Anna and John, where Nino accepted a job as Professor of Electrical Engineering at the University of Arizona.

Nino soon became interested in simulation. In the 1960s, he built the fastest analog computers in the world. He and his wife Terry, an engineer and pilot in her own right, won international acclaim for their Mathematical Handbook for Scientists and Engineers, along with many other books and publications. Not only was Nino instrumental in helping the Electrical Engineering Department rise to the ranks of the top 50 EE Departments nationwide, he also helped establish Tucson as a center of research in electronics and aviation. He was the founder of the Computer Engineering program at the U of A. Nino retired from the U of A by the end of 1983 at the age of 61. By that time, the UA had become

Figure 3: AIMS™ Showcased at the Interservice/Industry Training Simulation and Education conference (I/ITSEC).

SIM-One Canada happened the same week as I/ITSEC. This event was focused on medical simulation, mental health simulation, nursing simulation and more!

Figure 4: Justin Maestri, Product Developer Manager performs intubation. Photo courtesy to SIM-One Staff, thanks!

We are always looking for research partners to add new ideas, modules, or application domains. We also look for volunteers to apply the new training system and provide us with feedback or contribute to V&V efforts. The source for more information is our research website at: www.learnwithaims.com.

-This news item is contributed by April Salisbury.

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one of the top centers worldwide for research in simulation technology.

In retirement, he founded GA & TM Korn Industrial Consultants and continued research in computer simulation, developing computer programs for interactive simulation of dynamic systems and neural networks, and writing more books.

A Fellow in the IEEE and in SCS, he was also recognized with many awards. These include the John McLeod Founder’s Award (1997) and election to the Simulation Hall of Fame by the Society for Modeling and Simulation International (2006). He was also awarded the Alexander von Humbolt Prize, and lectured widely in Europe and Japan.

Nino loved the Southwest as much as he adored nature. He was never happier than when he was able to camp with a boat on Lake Powell, living off striped bass that he pulled from the lake. Nino and Terry never cared for luxury. He frequently remarked that “men don’t need more than an orange robe and a rice bowl,” and that is how he lived. After his retirement, Terry and he returned to the nomadic life of their youth. They bought a summer home at Lake Chelan with a boat anchored next to it and pulled a travel trailer in which they spent their winters, usually in Arizona, Nevada, or California.

Nino was always unassuming, and he loved to mentor junior faculty. Terry’s and his home was always open to anyone seeking their advice and friendship … and to any creature needing their help. While other people take in stray cats and dogs, Nino and Terry adopted a monkey and kept a visiting caiman named “Cookie” in their bathtub. Unaware guests froze in terror when Cookie’s alligator-like head would pop up from underneath the sofa on which they were sitting.

Nino’s other fascination had always been with computers. Computers occupied every free space in their home, and he made it his personal challenge to search for ways to simulate large sets of differential equations as efficiently as possible. He wrote several textbooks on digital simulation and later on neural network technology. He remained scientifically active until his death.

Those who had the honor to be acquainted with Nino have lost a great friend and esteemed colleague. The world has lost one of its last true pioneers in simulation technology.