

From the Desk of the Chair ...

Rick Severinghaus

First, I am pleased to announce the results of our recent policy committee elections. Elizabeth Baron of Ford Motor Company and Dayna Downing from Children's Hospital, Dallas are joining the committee for the first time, and Marjorie Zielke of University of Texas, Dallas is rejoining us after a year's hiatus. We are very glad to be the beneficiaries of their expertise and experience. The Congressional Modeling and Simulation (M&S) Caucus continues to be active. Our Congressional News section has more information.

Near at hand is the annual MODSIM World conference, 25-27 April (www.modsimworld.org). On 27 April, NM&SC will conduct a 90-minute session to present an overview of NM&SC activities, a brief of the M&S research agenda report from January's 2-day workshop, and a briefing on a methodology for identifying promising industry, academia, and government collaborations.

Beyond that, we will hold this year's annual national meeting in Dearborn, MI, a suburb of Detroit, and the headquarters of the Ford Motor Company—which has embraced and adopted M&S technologies as an integral way to further its business interests. Last year's attendees heard Elizabeth Baron's dynamic presentation on the Ford immersive Visualization Environment (FiVE lab). This year's attendees will have the opportunity to tour the lab, courtesy of Elizabeth and Ford. Overall our meeting will address modeling, simulation, and visualization, and its inescapable importance to engineering design and manufacturing. See the NM&SC website for our draft agenda.

Heading into year's end, NM&SC will present a 90-minute special event session at the 2017 Interservice/Industry Training, Simulation and Education Conference (I/ITSEC). This session will focus on the findings of the M&S Research Agenda report and how those findings support expansion of M&S as a national critical technology as envisioned by the U.S. Congress.

I would urge you to spend a few minutes on our website (www.theNMSC.org) where you can find short descriptions of our elected leadership and information on our plans and activities. As always, please feel free to contact any of us, and we look forward to seeing you at our MODSIM World 2017 session.

DID YOU KNOW ...

THE GAME CHATURANGA, A PREDECESSOR TO MODERN CHESS, SIMULATED BATTLEFIELD TACTICS IN SEVENTH CENTURY INDIA.

Upcoming Events

25-27 Apr 2017

MODSIM World 2017, Virginia Beach Convention Center, Virginia Beach, VA

Co-located with the

2017 Spring Simulation Multi-Conference

25-26 September 2017

NM&SC National Meeting, Detroit, MI

25 October 2017

2017 AlaSim International Conference and Exposition, Huntsville, AL

27 Nov – 1 Dec 2017

I/ITSEC 2017, Orange County Convention Center, Orlando, FL

3-6 Dec 2017

2017 Winter Simulation Conference, Las Vegas, NV

13 Jan – 17 Jan 2018

International Meeting on Simulation in Healthcare, Los Angeles, CA

Announcements

New Policy Committee Members

Elizabeth Baron, Dayna Downing and Marjorie Zielke

Best Wishes & Welcome

Dr. John Sokolowski is stepping down as Director of the Virginia Modeling, Analysis, and Simulation Center, and Dr. Eric Weisel is stepping in as Interim Director.

M&S Congressional Caucus

Thanks to our new and returning members for their participation and support. Please make them feel welcome to our community.

Our Members Say ...

MODSIM World 2017 Conference Chair and Committee

MODSIM World engages government, industry, and academia—bringing together multiple domains across national and international communities. Held 25-27 April at the Virginia Beach Convention Center, this year, the theme takes a closer look at “Modeling and Simulation in the Age of Data” to highlight the important role of data in the application of M&S and its intersection with M&S. Dr. Pieter Mostermann, Chief Research Scientist and Director, MathWorks Advanced Research & Technology Office, and Dr. Paul Lehner, Chief, Test and Evaluation, Intelligence Advanced Research Projects Activity, are our keynote speakers. NM&SC has a member discussion at the close of the conference. You can find more information at the [MODSIM World 2017 website](#). We look forward to seeing you.

Alabama Modeling and Simulation Council (AMSC)

The AMSC will hold the 2017 AlaSim International Conference and Exposition in Huntsville, AL on 25 October 2017. Designed to collect, document, display, and discuss the current state of simulation technology throughout the world, AlaSim covers all domains of M&S. The event will showcase cyber simulation and medical simulation this year. AlaSim allows a variety of formats for attendees and participants to see, be seen, hear, be heard, teach, and learn about the science and technology of simulation. Elements planned for AlaSim 2017 include plenary speakers, papers, project briefings, panel discussions, workshops, tutorials, and simulation products and services exhibits. More information: contact info@almisc.org or visit www.almisc.org.

WIKIPEDIA ON [SIMULATION](#) ...

KEY ISSUES INCLUDE ACQUISITION OF VALID CHARACTERISTIC AND BEHAVIOR SOURCE INFORMATION, THE USE OF SIMPLIFYING APPROXIMATIONS AND ASSUMPTIONS, AND FIDELITY AND VALIDITY OF THE SIMULATION OUTCOMES.

Congressional News

Richard Severinghaus, Chair, Policy Committee

We look forward to working with the Congressional M&S Caucus that continues with the 115th Congress. Its leaders, Robert C. “Bobby” Scott (D, VA, 3rd Dist.), Scott Taylor (R, VA, 2nd), Stephanie Murphy (D, FL, 7th), and John Rutherford (R, FL, 4th), and members extoll the use and value of M&S technology for solving critical public and private sector problems. In past years, the Caucus supported legislative initiatives to promote the use of M&S and formally recognized M&S in [H.R. 487 in 2007](#): Recognizing the contribution of [M&S] technology to the security and prosperity of the [US], and recognizing [M&S] as a National Critical Technology. In part the Resolution reads:

Resolved, That the House of Representatives—

- (1) commends those who have contributed to the modeling and simulation efforts which have developed essential characteristics of our Nation;
- (2) urges that, consistent with previous legislation passed by this and previous Congresses, science, technology, engineering, and mathematics remain key disciplines for primary and secondary education;
- (3) encourages the expansion of modeling and simulation as a tool and subject within higher education;
- (4) recognizes modeling and simulation as a National Critical Technology;
- (5) affirms the need to study the national economic impact of modeling and simulation;
- (6) supports the development and implementation of governmental classification codes that include separate classification for modeling and simulation occupations; and
- (7) encourages the development and implementation of ways to protect intellectual property of modeling and simulation enterprises.

Among the explicit purposes and objectives of NM&SC, two support the intent expressed by Congress in H.R. 487:

- To receive requests from governmental agencies for information, evaluation or opinion regarding M&S policies and procedures affecting the Government-industry relationship, and to facilitate and coordinate Coalition replies thereto.
- To cooperate with and, upon request, assist any Government or otherwise instituted modeling and simulation advisory committee concerned with the policies and regulations affecting the modeling and simulation community.

Spotlight ... The NM&SC Story: Early History

Fred Hartman, Unofficial Historian

As a volunteer organization, NM&SC grew from the National Training and Simulation Association (NTSA) sponsored Annual M&S Leadership Summit events held to support the Congressional M&S Caucus, founded in the 2005 timeframe by Congressman Randy Forbes (VA). Supported by NTSA, Dr. Linda Brent and then NTSA President, RADM Fred Lewis USN (Ret.) organized the Leadership Summit meetings with an event planning committee. Those early M&S Leadership Summits primarily worked to develop a list of priority M&S research topics and justification to recognize M&S formally as a profession. As the volunteer planning committee worked with NTSA, it began to recognize the need for a "national" coalition of individuals and organizations having a common interest in furthering the use of M&S. The House of Representatives recognized this need when they approved HR 487 in 2007.

The 2010 Leadership Summit (1 February, Virginia Beach, VA) theme was "Realizing the Promise of House Resolution 487" to allow participants a fresh look to move the agenda for a National Enterprise forward with HR 487 as its foundation. The 2010 Summit Working Groups brought forth a call for continued action to meet these challenges. Opening remarks by Fred Lewis followed this theme:

It is clear to many that since 1995, M&S has become pervasive within the economic fabric of our Nation. Today, it is recognized that nothing that is invented, developed, built, delivered, utilized and disposed of, that has not been, at some point in its life cycle, touched by M&S and the practitioners thereof. M&S is now critically important to our way of life and to the quality of life that we enjoy today. The House of Representatives recognized this when in 2007 they approved HR 487 declaring M&S to be a "National Critical Technology."

The key legislative focus areas emerging from the 2010 meeting included three major initiatives that remain part of the driving force behind the NM&SC and its February 2012 inaugural meeting:

- Create a national office to serve as the proponent for M&S
- Establish an enterprise network to conduct research and test new M&S technologies
- Add M&S technical codes to the Department of Labor Occupation Handbook.

Future editions of this newsletter will discuss how the recommendations of the four working groups led to the Inaugural Event of the National Modeling and Simulation Coalition (NM&SC), held 6 February 6 2012 at the L'Enfant Plaza Hotel in Washington, DC. This meeting was the organizing event to identify interested participants and set an agenda and actions due the next NM&SC membership meeting planned for fall 2012.

In the M&S Community ...

There are a number of programs established to improve student preparation for M&S-intensive jobs. This issue's "In the M&S Community" highlights one such Florida program.

M&S Certification for High School Students

Charles Turnitsa, Education & Professional Development Committee

The National Center for Simulation (NCS) offers a new certification for high school and technical school students to prepare them for internships or entry-level positions in the M&S industry. Aligned with the State of Florida framework and standards, it is an industry-accredited certification, currently available to all Florida teachers and students and will be offered across the US in 2017.

Currently, Gaming, Simulation and Animation (GSA) courses have approximately 5,000 Florida students enrolled, with Seminole County's Paul J. Hagerty High School implementing the full M&S curriculum prototype. This new M&S Curriculum offers more extensive coverage of simulation that includes virtual and constructive simulation, project management, ethics, logistics, and entrepreneurship.

Available on-line, the certification exam accommodates students currently taking the existing GSA courses, supplemented with the Certification Study Guide, found on the [NCS website](#). Consequently, students need not delay certification if they have taken, or are taking, GSA courses.

In the M&S Community ... (continued)

For the past five years, NCS has worked with industry, academia, and government to develop the framework, standards, and certification and knows of at least one other state, Virginia, offering an M&S curriculum. NSC and the NM&SC are interested in learning of any others and encourage schools to begin offering simulation programs to prepare students for exciting careers in M&S.

Governor Terry McAuliffe's (VA) Visit to the Virginia Modeling, Analysis and Simulation Center (VMASC)

Lisa Jean Bair, VMASC Industry Association Board of Advisors

Virginia Gov. Terry McAuliffe experienced cutting-edge technology on 12 April at Old Dominion University's Virginia Modeling, Analysis and Simulation Center at the facility off College Drive in the Harbor View area of Suffolk. The tour was part of the annual "Cabinet on the Road," with the governor and his cabinet secretaries visiting points of interest across Hampton Roads. VMASC develops modeling and simulation technology for practical applications that represent complex data in well-defined simulations. Faculty presented McAuliffe with cyber security, augmented reality, and simulation applications, with academic and commercial benefits, they are developing at the center. University President John Broderick presented the economic impact of these research projects and outlined the future vision for VMASC, including the growing role of big data. Members of the VMASC Industry Association participated.

National Modeling and Simulation Coalition Annual Meeting

Rick Severinghaus, Policy Committee Chair

Our 2017 theme is "Modeling, Simulation & Visualization: Importance in Manufacturing." Modeling, simulation, and visualization (MS&V) drives improvements and innovations in manufacturing, including design. Panel discussions and break-out sessions will examine the ways in which MS&V technologies help companies rethink design, manufacturing, and product marketing. The event also will address the effect of recent and significant advances in 3D-visualization and concepts of simulation immersion and the impacts of MS&V in the revitalization of regional economies. Expert panelists will examine the consequences that these developments pose for educational and technical training for providing the highly skilled MS&V workforce industry needs.

It also is not too early to reflect on the 2018 Annual Meeting, which the University of Nebraska Medical Center, through its Interprofessional EXperiential Center for Enduring Learning (iEXCEL), is pleased to host. September will be an ideal month in Omaha, providing intriguing venues for key meetings & presentations, stimulating speakers, and attendee tours, as well as event options for families. Poised to transform healthcare education, UNMC and iEXCEL will propel the training of Health Care professionals into the next generation through the adoption of emerging virtual and augmented reality, as well as advanced clinical simulation and surgical skills training. We will announce firm dates soon. Visit the NM&SC web site and www.unmc.edu/iexcel to stay up to date! See you in Detroit and again in Omaha!

Did you know?

YOU ARE FAMILIAR WITH THE CERTIFIED MODELING AND SIMULATION PROFESSIONAL (CMSP) CERTIFICATION. DID YOU KNOW THAT THE AMERICAN SOCIETY OF HEATING, REFRIGERATING AND AIR-CONDITIONING ENGINEERS (ASHRAE) ALSO HAS AN M&S CERTIFICATION? TO ENSURE PROPER USE, SELECTION, AND DEVELOPMENT OF ENERGY PERFORMANCE AND ECONOMICS MODELS WITHIN THE SCOPE OF THE APPLICABLE PHYSICS, THE ASHRAE DEVELOPED THE BUILDING ENERGY MODELING PROFESSIONAL CERTIFICATION.

Trivia ...

- When was the inaugural year for the CMSP certification program?
- How many charter members were there?

From the Editor...

Lisa Jean Bair, Community Outreach and Public Affairs

Time flies. We all are busy. Fall moved quickly through winter and into spring, and the business of business delayed our second newsletter. Still, NM&SC has a strong commitment to building a coalition of M&S constituents, disseminating news to Congress and M&S professionals, and delivering leadership across the M&S discipline.

Just as Hank Okraski, SES (Ret.), P.E., CMSP Chair, NCS Education & Workforce Development Committee did, please let me, and us, know if you have something you think would interest our readers. We thank him for providing us with information about their important certification initiative. Interested readers can obtain more information by contacting Hank Okraski (henry.okraski@gmail.com) or George Cheros (gcheros@simulationinformation.com) or by visiting www.simulationinformation.com. The NM&SC will consider articles on topics *from business and industry to education and theory and from defense and manufacturing to energy and healthcare.*

Building a new organization may take time, but we'll get the word out. To that end, I invite you to become a member of the [NM&SC LinkedIn group](#). If you've tried with no luck, drop me a personal email. Our ability to communicate and influence grows slowly but surely. From numbers comes strength. As one of our esteemed colleagues has quoted, "None of us is as smart as all of us."

I already have some content for our summer issue but need more. I look forward to hearing from you to help me write it.

Trivia Question Answers ...

- The inaugural year for the CMSP was 2002.
- There were 134 charter members of the CMSP certification program

KNOW A FUN FACT OR HAVE A TRIVIA QUESTION TO ANSWER RELATED TO M&S? SEND IT TO LISA.J.BAIR@SAIC.COM.

How You Can Help

The NM&SC Policy Committee and Sub-Committee Chairs

Growing our NM&SC is the work of more than our Policy and Standing Committees. Our community of practice, communicating with leaders in industry and government, makes us relevant and will help us grow. We thank everyone who comes to our meetings and helps with the committees, but we cannot do it alone. If you'd like to commit to being a deputy chair or committee member, contact our Policy Committee or committee chairs.

Policy Committee

- | | |
|---------------------------|-----------------|
| Rick Severinghaus, Chair | Jesse Citizen |
| Randy Garrett, Vice Chair | Rick Darter |
| Steve Seay, Secretary | Dayna Downing |
| Elizabeth Baron | Marjorie Zielke |
| Pamela J. Boyers | |

Committee Chairs

- | | |
|--------------------|-----------------------------------|
| Lisa Bair, COPA | Chuck Turnitsa, EPD |
| Eric Weisel, ID/BP | Randy Garrett, Tech, R&D (acting) |

"ASK CHILDREN WHY THEY LIKE TO PLAY, THEY WILL SAY, 'BECAUSE IT'S FUN.' BUT THAT INVITES THE NEXT QUESTION: WHAT IS FUN? ACTUALLY, WHEN CHILDREN PLAY, THEY ARE OFTEN TRYING TO REENACT COMPLEX HUMAN INTERACTIONS IN SIMPLIFIED FORM. HUMAN SOCIETY IS EXTREMELY SOPHISTICATED, MUCH TOO INVOLVED FOR THE DEVELOPING BRAINS OF YOUNG CHILDREN, SO CHILDREN RUN SIMPLIFIED SIMULATIONS OF ADULT SOCIETY, PLAYING GAMES SUCH AS DOCTOR, COPS AND ROBBER, AND SCHOOL. EACH GAME IS A MODEL THAT ALLOWS CHILDREN TO EXPERIMENT WITH A SMALL SEGMENT OF ADULT BEHAVIOR AND THEN RUN SIMULATIONS INTO THE FUTURE."

MICHIO KAKU, [THE FUTURE OF THE MIND: THE SCIENTIFIC QUEST TO UNDERSTAND, ENHANCE, AND EMPOWER THE MIND](#)