

Welcome Attendees and Participants to the Fourth Modeling & Simulation (M&S) Leadership Summit:

On behalf of the National Training and Simulation Association (NTSA), I would like to extend a warm welcome to the 4th M&S Leadership Summit as we again join with the Congressional Modeling and Simulation Caucus to present this important event. This series of meetings began in 2006 with the support and encouragement of the Caucus to bring together key members of the M&S community of practice from industry, government and academia to assess the growth and potential of the M&S community at large.

This event is an integral part of the effort to develop a national framework for the M&S community of practice. In keeping with this goal, the theme for this year's event is "Modeling and Simulation, A National Enterprise". Even in the face of enormous economic challenge, we are witnessing the rapid expansion of M&S into new areas of application, recognition of its importance by ever larger numbers of academic and government institutions, as well as private industry. The Summit represents an ongoing effort to examine this phenomenon and to gauge its significance for the industry.

We are very pleased to welcome keynote speaker Dr. Anita Jones, Professor of Engineering and Applied Science at the University of Virginia. This year's event will feature four panel sessions, in which leaders in key areas will examine regional initiatives in M&S. The four individual panels will represent the Northeast/Atlantic, Southeast/South Central, Southwest/Midwest, and West. Several members of the Congressional Modeling and Simulation Caucus are expected to actively participate, and we will anticipate approximately 300 delegates from government, industry and academia to be in attendance.

The members and staff of NTSA are placing an ever-increasing emphasis on science, technology, engineering and math and are well into the process of making STEM an integral part of everything we do. We are particularly pleased to welcome representatives from a number of educational institutions to this year's M&S Summit and hope these efforts will continue to strengthen STEM within all the regions represented will be part of our overall discussion.

I would like to close by citing one of the most recent and most publicized examples of the importance of our industry. Clearly, exceptional skill and cool-headedness on the part of the US Airways captain and his flight crew played a vital role in the dramatic events earlier this month in New York. I am certain, however, that without having trained for just such contingencies in a simulation environment, the pilot would have had to overcome one more hurdle, the lack of full preparedness, in order to achieve the life saving outcome. We sometimes spend too much time thinking about the complexities of our industry and community of practice. It only takes one event of this magnitude to make us realize the true worth of what we do.

Sincerely,



RADM Fred Lewis, USN (Ret.)
President
National Training and Simulation Association

MONDAY FEBRUARY 2, 2009

Monday 02 February

- 0700 – 0800 Continental Breakfast and Registration
- 0800 – 0805 Call to Order
Dr. Linda J. Brent, CEO and Senior Managing Associate, The ASTA Group, LLC
- 0805 – 0815 Opening Remarks and Congressional Commentary
RADM Fred Lewis, President, National Training & Simulation Association (NTSA)
- 0815 – 0845 Keynote Address
Dr. Anita Jones, University of Virginia
- 0845 – 1030 Regional Initiatives in Modeling & Simulation: Northeast/Atlantic
Moderator: Dr. Mike McGinnis, VMASC / ODU
Panelists: Delegate John Cosgrove, Virginia House of Delegates
Dr. Steve Dawson, Harvard Medical School
Mr. E. Dana Dickens III, Hampton Roads Partnership
Mr. Greg Knapp, Joint Warfighting Center, JFCOM
Dr. Daniel Serfaty, Aptima Corporation
- 1030 – 1045 Break
- 1045 – 1230 Regional Initiatives in Modeling & Simulation: Southeast/SouthCentral
Moderator: Mr. Russ Hauck, National Center for Simulation
Mr. Bill Waite, Alabama Modeling and Simulation Consortium
Panelists: Dr. Jim Blake, Program Executive Office, U.S. Army STRI
Dr. Richard Fujimoto, Georgia Tech
Mr. Deryl Israel, Air Armament Center, United States Air Force
Dr. Michael Macedonia, Forterra Systems
Dr. Mikel Petty, Alabama Modeling & Simulation Consortium
Dr. Randall Shumaker, University of Central Florida, IST
- 1230 – 1400 Luncheon
Congressional Commentary
M&S Awards Ceremony
Status of M&S as a National Enterprise: Summit Report Update

- 1400 – 1545 Regional Initiatives in Modeling and Simulation: Southwest & Midwest
Moderator: Ms. Lisa Moya, Werner Anderson
 Mr. Bill Tucker, The Boeing Company
- Panelists:** Mr. Glyn Anderson, Game Production Services, LLC
 Dr. Carolina Cruz-Neira, University of Louisiana
 Mr. Lawrence J. Cox, Los Alamos National Laboratory
 Dr. Jim Wall, Texas A&M
- 1545 – 1600 Break
- 1600 – 1745 Regional Initiatives in Modeling & Simulation: Far West
Moderator: Mr. Fred Hartman, Institute for Defense Analyses
- Panelists:** Dr. Ron Fuchs, The Boeing Company
 Mr. John Illgen, Northrop Grumman
 Dr. James Peery, Sandia National Laboratories
 CDR Joe Sullivan, MOVES Institute
- 1745 – 1800 Closing Remarks
- 1800 – 1930 Closing Reception



Mr. Glyn Anderson

President, Game Production Services, LLC

Glyn Anderson, President and Founder of Game Production Services, LLC, has been creating immersive training simulations for the US Army and US Marine Corps since 2003. Game Production Services (GPS), located in Albuquerque, New Mexico, has created several significant training systems in use by the military today:

The Joint Fires and Effects Trainer System Urban Terrain Module (JFETS UTM) at Ft. Sill, Oklahoma, is used by the US Army Field Artillery School to train Forward Observers to call for fire in an urban environment.

The Joint Fires and Effects Trainer System Close Air Support Module (JFETS CASM) at Ft. Sill, Oklahoma, is used by the US Army Field Artillery School to train Joint Terminal Attack Controllers (JTAC) to conduct Type I Close Air Support missions. The JFETS CASM has been approved to conduct JTAC certification missions in simulation. The Joint Forces Command (JFCOM) rated the JFETS CASM #1 among the Close Air Support training systems it surveyed in 2007.

The Engagement Control Station Simulator (ECS2) at Ft. Bliss, Texas, is used by the US Army Air Defense Artillery School to train Patriot missile crews.

The Infantry Immersive Trainer (IIT) at Camp Pendleton, California, is used by the First Marine Expeditionary Force to train units in urban combat skills.

Mr. Anderson comes to the Modeling and Simulation industry from a career developing commercial games for computers and video game consoles.

Prior to GPS, Mr. Anderson was the General Manager of Matahari Studios, a video game development company located in Indonesia, and part of the Leisure and Allied Industries Group. This effort created a game development industry in Indonesia where previously there was none.

Mr. Anderson served for two years as the Director of Technology for Infogrames North America, a major international publisher of commercial video games (now known as Atari). In this role, he helped the company, during a period of rapid expansion through acquisition, to develop a cohesive technology strategy.

For most of the 1990's, Mr. Anderson was the President and Founder of Abalone Entertainment Software Development, a video game development company located in the San Francisco Bay Area. Abalone created games and technology for major game publishers such as Activision, Disney, Virgin Interactive, Electronic Arts, Sega, Accolade and Acclaim. Mr. Anderson began his career in 1980 working for Mattel and later for Activision as a programmer, game designer, project lead and engineering manager.

He earned a BS degree with honors in Engineering and Applied Science, with an emphasis in Computer Science, from the California Institute of Technology.



James T. Blake, Ph.D.

Program Executive Officer

U.S. Army Program Executive Office for Simulation, Training and Instrumentation

Dr. Blake became the Program Executive Officer (PEO) for Simulation, Training and Instrumentation (STRI) on 2 June 2005. He is responsible for providing materiel solutions and services in modeling, simulation, training and test/instrumentation to support the Soldier. Dr. Blake is also dual-hatted as the Head of Contracting Activity.

PEO STRI annually executes a multi-billion dollar program. More than 900 military, government civilian, and industry personnel perform the PEO STRI mission. In addition, PEO STRI's Foreign Military Sales program supports more than 50 countries.

In April 1968, Dr. Blake began his service to the nation as a Private in the U.S. Army and completed his military career as a Colonel on 1 July 1995. He is a dual-rated Master Army Aviator. His last military assignment was as the Army's Senior Uniformed Army Scientist.

During his military career, Dr. Blake served in many positions and locations, including aviation operations in Vietnam. With more than twenty years of research, development, and acquisition experience in the Army Acquisition Corps, he holds level-three certifications in six acquisition career fields.

Following his military career, Dr. Blake held several technical and executive positions in industry before joining academia where he served as a Senior Research Scientist at Texas A&M University.

While at Texas A&M, Dr. Blake joined the Simulation, Training and Instrumentation Command as the Program Manager for the Institute for Creative Technologies (ICT), the internationally recognized University Affiliated Research Center for Advanced Modeling and Simulation. In March 2003, Dr. Blake became a member of the Senior Executive Service. From 23 March 2003 until 2 June 2005, he served as the Deputy PEO STRI.

Dr. Blake is a graduate of the U.S. Army Command and General Staff College, the Defense Systems Management College, and the U.S. Army War College. His formal education includes a B.S. degree in Accounting from the University of Tampa, an M.S. degree in Systems Engineering from the Naval Postgraduate School, and a Ph.D. degree in Computer Science from Duke University.



Delegate John A. Cosgrove

Virginia House of Delegates
 Session 2007
 R - 78th District
 District includes City of Chesapeake (part)
 Member from 2002 — Present

Committee Assignments

Counties Cities and Towns
 Science and Technology
 Transportation

Legislation

Chief Patron
 Co-Patron

Membership & Affiliation:

Great Bridge Baptist Church
 Fourth Congressional District GOP Committee (former chairman)
 Chesapeake Rotary
 South Norfolk Ruritan
 Fraternal Order of Police, Lodge 9
 Chesapeake Crimeline (former member)
 Virginia Commission on Base Retention
 Hampton Roads Civic Leadership Forum
 Sports Authority of Hampton Roads
 Sorensen Institute for Political Leadership at University of Virginia (fellow)
 Governor's Commission on National and Community Service (director)
 Republican Party of Chesapeake (former chairman)
 Republican Party of Virginia (executive committee)
 Virginia Republican State Central Committee
 2000 Republican National Convention (delegate)
 Recreation League (football and baseball coach)
 Joint Commission on Technology and Science
 Chesapeake Bay Commission
 U.S. Route 460 Communications Committee
 Joint Subcommittee Studying the VRS and Line of Duty Act
 Joint Subcommittee Studying the Voting Equipment Certification Process
 Virginia Commission on Military Bases
 Virginia Housing Commission

Education:

Annandale High School
 Tidewater Community College
 (A.A.S.; Electronics; 1983)
 Old Dominion University (B.S.E.E.T.; 1985)

Virginia Colleges and Universities:

Old Dominion University; Tidewater Community College

Military Service:

USNR (Aerospace Engineering Officer, 1987-present)

Occupation/Profession:

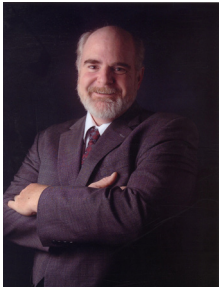
Electronics engineer

Awards:

Virginia State Police Association, Legislator of the Year (2005)

Elected State/ Local Office:

Chesapeake City Council (1998-2001; Vice Mayor, 2000-01)

**Dr. Lawrence J. Cox**

Deputy Division Leader for the Computer, Computational, and Statistical Sciences Division

Dr. Lawrence J. Cox is currently the Deputy Division Leader for the Computer, Computational, and Statistical Sciences Division (CCS) at the Los Alamos National Laboratory. CCS Division conducts basic and applied research and development in computer, computational, statistical, and information sciences at the petaFLOPS scale (10¹⁵ floating point operations per second). With an annual budget of approximately \$55M, CCS Division was responsible for the design and performance of the science applications on the Roadrunner supercomputer, the first computer in the world to achieve a sustained petaFLOPS performance. CCS Division develops, supplies, and supports massively-parallel numerical methods and scientific simulation software for geosciences (COSIM ocean and sea-ice modeling), material science (casting, welding, phase change and microstructure analysis), nuclear energy, and nuclear weapons. The division's research in applied statistics is directed at understanding uncertainty propagation in time-dependent, multi-physics simulations, experimental design, and many other disciplines that require statistical analysis. CCS Division is also the institutional home for advanced computer science research as well as the emerging area of Information Sciences and Technology, sponsoring research in cognitive science, machine learning, quantum computing, visualization, network analysis, data management, and advanced computational architecture design and performance. As the Deputy Division Leader, Dr. Cox works with the Division Leader to provide leadership, management, and oversight to approximately 150 scientists engaged in research and development in these areas.

Dr. Cox received his B.S Degree in both Physics and Mathematics from Western Washington University in 1987, magna cum laude. He received an M.S. in Applied Science from UC Davis in 1988, and a Ph.D. in Applied Science from UC Davis in 1993. Dr. Cox is a senior member of the IEEE, he is an IEEE Certified Software Development Professional, a senior member of the American Society for Quality, a certified Quality Auditor, and a certified Software Quality Engineer. Dr Cox actively works with the IEEE to develop and improve its professional certification programs for software developers. Dr. Cox also contributes his expertise to the American Society of Quality's Certified Software Quality Engineering (CSQE) program, serving as an exam question reviewer.



Dr. Carolina Cruz-Neira

Chief Scientist of LITE and the W. Hansen Hall and Mary Officer Hall/BORSF Endowed Super Chair in Telecommunications in Computer Engineering at the University of Louisiana at Lafayette

Dr. Carolina Cruz-Neira is the Chief Scientist of LITE and the W. Hansen Hall and Mary Officer Hall/BORSF Endowed Super Chair in Telecommunications in Computer Engineering at the University of Louisiana at Lafayette. She is also a member of the Board of the Greater Lafayette Chamber of Commerce and a member of the Academy of Information Technologies.

From 2006 until 2008, Dr. Cruz was the founding Executive Director of the Louisiana Immersive Technologies Enterprise, a State of Louisiana initiative to support economic development through the use of immersive technologies.

Prior to being in Louisiana, Dr. Cruz was the Stanley Chair in Interdisciplinary Engineering and the Associate Director and co-founder of the Virtual Reality Applications Center at Iowa State University (ISU). In 2002, she co-founded and co-directed the Human-Computer Interaction graduate program at ISU. Dr. Cruz's work in VR started with her PhD dissertation, the design of the CAVE Virtual Reality Environment, the CAVE Library software specifications and implementation and preliminary research on CAVE Supercomputing integration. She is known as the co-inventor of the CAVE and the original developer of the CAVELibs. Since then, her research is driven by providing applicability and simplicity to VR technology focusing on software engineering for VR, applications of VR technology and usability studies of virtual environments. She spearheaded the open-source VR API movement with the development of VR Juggler and has been an advocate of best practices on how to build and run VR facilities and applications. She serves on numerous advisory boards for research centers around the world as well as for federal and international funding organizations. Many of her former students are now doing leading work in VR at places such as Purdue University, Navteq, Nintendo, EA, Deere & Company, Boeing, Sony Pictures Imageworks and Argonne National Laboratory.

Beyond her academic career, Dr. Cruz is a business entrepreneur. She co-founded Glass House Studio, a company dedicated to create virtual experiences and she also co-founded Infiscape Corporation, a services company in immersive applications and high-end interactive graphics. She serves on many advisory boards, including Sensics Inc., Mersive and Micoy and has performed corporate consulting for many companies around the world.

Among her many achievements, in 1997, Business Week magazine named Dr. Cruz a "rising research star" in the new generation of computer science pioneers. She received the 1999 Motorola VIP Software Engineer recognition, the 2000 Iowa State Foundation Award for Early Achievement in Research, in June 2001 she received the Boeing A.D. Welliver Award, in 2002 she was inducted as Eminent Engineer by the Tau Beta Pi Honors Society, in 2003 she was inducted as a Computer Graphics Pioneer by the ACM SIGGRAPH organization, and in 2007 she was the recipient of the Virtual Reality Technical Achievement Award from the IEEE Visualization and Graphics Technical Committee (VGTC).

Dr. Cruz has a PhD in Electrical Engineering and Computer Science (EECS) from the University of Illinois at Chicago (UIC) (1995) and a master's degree in EECS at UIC (1991). She graduated cum laude in Systems Engineering at the Universidad Metropolitana at Caracas, Venezuela in 1987. Additionally, she was an accomplished classical ballet dancer performing with several dance groups in Spain, Venezuela and the U.S.

**Mr. Steve Dawson**

Associate Professor at Harvard Medical School

Dr. Steve Dawson graduated magna cum laude, Phi Beta Kappa, from the State University of New York at Buffalo in 1974. He received his medical degree from Tufts University in 1978 and then completed his radiology residency and a two year post-doctoral fellowship in Interventional Radiology, all at the Massachusetts General Hospital in Boston. He was then in private practice for six years before returning to MGH in 1990.

As a means of integrating the revolutions in minimally invasive therapies and medical devices, Dr. Dawson and his surgical colleague, Dr. David Rattner, conceived and organized the Center for Innovative Minimally Invasive Therapy, CIMIT, in 1993. CIMIT now has over 300 participating employees and an annual budget of over \$10 million.

In 1994, Dr. Dawson became interested in the possibilities for procedural medical training through computer-based simulations. Since that time, he has concentrated his research efforts in this area as leader of The SimGroup, a research group at CIMIT and Massachusetts General Hospital. In December 2000, the journal *Catheterization and Cardiovascular Interventions* published the first report of a simulator for interventional cardiology training, which was developed as a collaboration between the Mitsubishi Research Laboratories and Dr Dawson and colleagues from MGH. An accompanying editorial called the work “a breakthrough of astonishing and revolutionary importance”. The commercial version of this system, called VIST (Mentice AB, Gothenburg, Sweden), has trained over 20,000 physicians at training institutes in Brussels and Tokyo, as well as individual sites throughout Europe, Asia and North America. The Group’s work has been selected for inclusion in the permanent collection of the National Museum of Health and Medicine in Washington, DC (2005) and in the Wellcome Collection in London, England (2008).

Dr. Dawson is currently an Associate Professor at Harvard Medical School, and from 1998-2002, he was also a Visiting Scientist at the Massachusetts Institute of Technology. In addition to his research work, he remains an enthusiastic, active clinical interventional radiologist at MGH. He is on the simulation and education committees and subcommittees of the Radiological Society of North America, the Society of Interventional Radiology, and the Cardiovascular and Interventional Radiology Society of Europe, and has consulted for the American Academy of Orthopedic Surgeons, the American College of Cardiology, and the Radiological Society of North America. He has received the Satava Award, the Edward M. Kennedy Award for Healthcare Innovation, and the prestigious Army’s Top Ten Greatest Inventions Award for his innovative work. In 2005, he was selected to speak at Boston IDEAS 2005, a conference featuring the 25 most innovative thinkers of New England, and in 2008 he was invited to speak at SciFoo 2008, an invitation-only meeting of the world’s 200 most innovative researchers, thinkers, and scientists from all disciplines, hosted by Google and Nature. Dr Dawson is the founder and Chair of the Advanced Initiatives in Medical Simulation, a 501 c 6 non-profit corporation. In that role, he co-authored H.R.4321, a Bill that is intended to raise the level of federal support for medical simulation at all levels. He is a member of the Board of Directors of the International Society for Simulation in Healthcare.



Mr. E. Dana Dickens, III
President and CEO
Hampton Roads Partnership

E. Dana Dickens, III was appointed President and CEO of the Hampton Roads Partnership on January 7, 2005. Dana is responsible for implementing the policies of the Partnership's Board of Directors and the general management of the Corporation.

Prior to coming to the Partnership, Dana was full time president/owner of First Service Insurance, providing life and health insurance, retirement services, and accident insurance for public schools in Virginia.

Dana has a distinguished background in public service in Hampton Roads having served as Vice Chairman on the Suffolk Planning Commission, and Chair of the Subcommittee on Ordinances. Later he successfully ran for City Council and became the first ever "rookie" Councilman elected Mayor. He served two terms as Mayor of the City of Suffolk.

Dana served on the Board and Executive Committee of the Hampton Roads Partnership prior to being appointed as its third president. He also served on the Executive Committee of the Hampton Roads Economic Development Alliance and served as Vice Chair of the Mayors and Chairs Caucus of Hampton Roads.

Other leadership positions include the Chairmanship of the Western Tidewater Water Authority and member of the Hampton Roads Planning District Commission. He was Chairman of the High Growth Coalition and had an active leadership role in working with the General Assembly and the shelter industry on growth issues. The Virginia High Speed Rail Development Committee and the Urban Land Institute have elected Dickens to their Board of Directors.

Selected by the Rotary Club as Suffolk First Citizen 2003, Dana was also presented the award of excellence for the Local Government Elected Official from a City with population over 50,000 at the 2003 Annual Conference of the Virginia Downtown Development Association. The Virginia Chapter of the American Planning Association selected him for their 2004 Leadership Award for excellence in Virginia planning. Dana was chosen Elected Official of the Year 2004 by the Virginia Downtown's Association, and served on the Virginia Municipal League's Legislative Committee. He also chaired the VML Finance Committee.

In 2006, Governor Timothy Kaine appointed Dana to the Commonwealth Transportation Board.



PARTNERSHIP Old Dominion University honored Dana during the 2008 Founders' Day program with The Albert B. "Buck" Gornto Jr. Regional Service Award, given to an individual who has shown outstanding commitment and service to this region of the commonwealth.

Dana graduated from NC Wesleyan College with a BA Degree in history. He and his wife, Linda Kay Rankin Dickens, reside in the village of Eclipse, located in Northwest Suffolk.



Mr. Michael L. Finnern

M&S Senior Technical Advisor for MPRI

Mike Finnern has four years of corporate experience as the M&S Senior Technical Advisor for MPRI, an L-3 Communications Division, and over 28 years of active duty service as a retired Air Force Colonel specializing in the management, policy development and advocacy of Modeling and Simulation, Joint Training, Logistics and Operations.

As MPRI Site Manager and Defense Analyst for two different Joint Staff directorates, he provided capability issue analysis and budget assessment of critical Joint capabilities. While serving as Director of the Defense Modeling and Simulation Office (DMSO), he worked with OSD, Joint Staff, Services, other Federal Departments and U.S. allies to develop a common, interoperable, standards-based M&S infrastructure. A consequence of his work was the establishment of DMSO as the DoD Lead Standards Activity for M&S and the successful deployment of DMSO's Flexible Asymmetric Simulation Toolkit to Iraq in support of the Army's analysis of OIF lessons learned. While leading the HQ USAF M&S Policy Division, he advocated and managed their premier Standard Analysis Toolkit of analytic models used throughout the Service for multi-level analysis—engagement through campaign. A career C-130 pilot, Mike has almost 3,000 hours supporting operational and humanitarian airlift worldwide.

Mike has a M.S. degree in Logistics Management from the Air Force Institute of Technology and a M.S. degree in Management and Human Relations from Abilene Christian University.

**Ronald P. Fuchs, PhD**

Director, Modeling & Simulation, The Boeing Company.

Dr. Fuch leads the group responsible for developing, maintaining, and coordinating all Boeing government and defense modeling and simulation efforts for ~2500 people. Responsible for: identifying, prioritizing, and allocating funding to M&S technology needs; developing and operating the collaboration environment for Boeing's M&S community; developing Boeing's Simulation Based Acquisition program; and managing Boeing's M&S technology development group.

1997-2004 Director, System-of-Systems (SOS) Architecture Development, Boeing. Led the Boeing Phantom Works group responsible for defining and analyzing SOS architectures with emphasis on C2 systems. These military and commercial architectures are the frameworks for identifying and selling future Boeing products and for moving The Boeing Company into Network Centric Operations.

1996-1997 Director, Virtual Simulation Technology, McDonnell Douglas Aerospace. Developed advanced modeling and simulation technology using both contracted and internal R&D investments. Led technology thrusts in virtual simulation, model/tool transportability, JMASS, and threat model development.

1996-1994 Director, Mission Area Assessments, McDonnell Douglas Aerospace. Led the group performing all major internal company studies aimed at understanding current and future weapons systems. Developed and evaluated requirements and ConOps for new and conceptual systems. Advised Strategic Business Council on requirements, strategy, cost effectiveness, and new product opportunities.

1994-1991 Director, Strategic Plans and Analysis, McDonnell Douglas Corporation. Developed the Corporation's first Strategic Plan. Identified and analyzed long-term business and product opportunities in defense and commercial aerospace as well as competitor strategies. Performed independent analyses of systems, businesses, and business opportunities for the Chairman of MDC.

1991-1989 Chief Program Engineer, McDonnell Aircraft Company. Led thirty analysts of the McDonnell Aircraft Company's Strategic Evaluation and Studies (SEAS) Group. SEAS developed an analytical link from world conflict areas and national goals to military systems and technologies. This process is used for robust strategic planning in the face of uncertainty. SEAS also provided analytical products for classified projects in the New Aircraft Products Div.

Member of National Academy Board on Army Science and Technology (2008-Present). Member of NASA Advanced Modeling, Simulation, and Analysis Roadmapping team (2005.) Vice Chairman (2000-2003) and member of the Air Force Scientific Advisory Board (SAB) 1997-2003, SAB Executive Committee member, Chairman 2002 SAB AFRL Special Programs Science & Technology review, Chairman 2000 SAB Summer Study on Hypersonics, Chairman, 1997 SAB Summer Study on Aerospace Expeditionary Forces, Chairman 1999 SAB Airborne Laser Study, and participant in 15 other SAB studies and two Defense Science Board studies. Nationally recognized by peers in three fields: elected Director, Secretary/Treasurer, Vice President (Professional Affairs), and Chairman of Publications Committee for the Military Operations Research Society; elected member of the National Technical Committee on Guidance and Control of the American Institute of Aeronautics and Astronautics and founder of the Journal of Guidance and Control; elected Chairman of the Government Fluidics Coordinating Group. Represented US Government in international exchanges on operations research in Great Britain, Germany, and Japan. Authored over forty published technical reports, study reports, and journal articles. Awarded numerous professional and community honors and decorations including: Air Force Decoration for Exceptional Civilian Service, McDonnell Douglas President's Award and two Boeing Phantom Works Silver Team Awards. Member Sigma Gamma Tau, Tau Beta Pi, AIAA, AOC, and MORS.

**Dr. Richard Fujimoto**

Regents' Professor and the founding Chair of the Computational Science and Engineering Division in the College of Computing at the Georgia Institute of Technology

Dr. Richard Fujimoto is Regents' Professor and the founding Chair of the Computational Science and Engineering Division in the College of Computing at the Georgia Institute of Technology. He received the Ph.D. and M.S. degrees from the University of California, Berkeley in 1983 and 1980, respectively in Computer Science and Electrical Engineering, and two B.S. degrees from the University of Illinois, Urbana in 1977 and 1978 in Computer Science and Computer

Engineering. He has been an active researcher in the parallel and distributed simulation community since 1985, and has published numerous technical papers on this subject. His publications include three books and several award-winning articles on parallel and distributed simulation. He led the development of parallel/distributed simulation software systems including the Georgia Tech Time Warp (GTW) simulation executive and the Federated Simulation Development Kit (FDK), both of which have been distributed worldwide. He has given several keynote addresses and tutorials on parallel and distributed simulation at leading conferences. He led the definition of the time management services for the High Level Architecture (HLA) for modeling and simulation in the U.S. Department of Defense that has since been standardized by IEEE. Fujimoto has served as Co-Editor-in-chief of the journal *Simulation: Transactions of the Society for Modeling and Simulation International* as well as a founding area editor for the *ACM Transactions on Modeling and Computer Simulation* journal. He has served on the organizing committees for several leading conferences in the parallel and distributed simulation area such as the Workshop on Parallel and Distributed Simulation (PADS), the Simulation Interoperability Workshop (SIW), International Symposium on Modeling, Analysis, and Simulation of Computer and Telecommunication Systems (MASCOTS), and Distributed Simulation and Real-Time Workshop (DS-RT).



Mr. Fred Hartman

Senior Research Staff Member with the IDA

Mr. Fred Hartman, Senior Research Staff Member with the Institute for Defense Analyses, Studies and Analyses Center, Science and Technology Division has a broad background in Defense related management and analysis positions in industry and government. Specializing in modeling and simulation applications, Mr. Hartman has over 30 years experience in providing technical management and oversight for Defense and industry programs.

Mr. Hartman served from 2003 to 2007 in the Office of the Under Secretary of Defense (Personnel and Readiness) as Director, Training Transformation Joint Assessment and Enabling Capability (JAEC) and as Deputy Director, Readiness and Training Policy and Programs (RTPP) and led the Training Transformation Block Assessments and the Training Capabilities Analysis of Alternatives.

During 2000 to 2003 he served as Technical Director, Joint Simulation System (JSIMS) and Manager, Enterprise Division of the Defense Modeling and Simulation Office (DMSO), where he was responsible for the High Level Architecture, Integrated Natural Environment, Data, and Human Behavior Programs.

From 1996 to 2000, as an Adjunct Staff Member, at IDA, Mr. Hartman served as a modeling and simulation advisor to the Deputy Under Secretary of Defense (Readiness), primarily responsible for oversight and coordination of Defense-wide training modeling and simulation programs.

Prior to positions at IDA and OSD, Mr. Hartman spent 14 years in consulting and software development for Defense industry corporations. Mr. Hartman was chief operating office, co-founder and board member for Applied Solutions International, Inc. from 1992 to 1995. This start-up technology company served as consultants and subcontractors specializing in services for the defense industry, commercial clients and international trade. During this period, Mr. Hartman led a technical evaluation mission for automated manufacturing in Beijing and Shanghai, China. Sponsored by the United Nations Development Programme (UNDP), the mission evaluated two transducer research and development programs for manufacturing applications.

Mr. Hartman joined CACI, Inc. in 1981 and over ten years progressively grew from Department Manager to Executive Vice President by building an analysis and software development group consisting of professionals in operations research, software engineering, logistics engineering, financial analysis, and software development. While at CACI Mr. Hartman conceived, designed and developed a family of resource predictive models, and developed, through a series of simulations and data applications software, the overarching framework for a high-level decision support system for Army headquarters. Mr. Hartman also developed automated tools and simulations supporting both Army and Naval aviation logistics systems.

Mr. Hartman served for six years as a member of the Army Science Board, led a study panel for the National Academy of Sciences Board on Army Science and Technology, and is a past President and Fellow of the Military Operations Research Society. Mr. Hartman attended the Missouri School of Mines and Metallurgy and began his military career on entering the United States Military Academy, graduating with a Bachelor of Science in Engineering. He earned a Master of Science degree in Operations Analysis from the Naval Postgraduate School.

**Mr. Russ Hauck**

Executive Director, National Center for Simulation

Russ Hauck is Executive Director of the National Center for Simulation (NCS), a non-profit organization that represents the modeling, simulation, and training industry and serves as a link between government, industry, and academia in promotion of simulation and related technologies. Important objectives of NCS are to promote an understanding and appreciation of simulation technology, facilitate the spin-off of defense-related investments in modeling, simulation, and training technology and products into other useful applications and support greater use of commercially available modeling and simulation products and technologies by the military, where appropriate. Russ assumed the position as NCS Executive Director in June 2001. He has been in the training and simulation technology industry in Orlando for more than 28 years. He has a BS degree (International Relations) from the U.S. Naval Academy in Annapolis, Maryland and a Master's (MSA) degree in Public Administration from George Washington University. He has taught undergraduate level courses in International Relations as an adjunct instructor at Daytona Beach Community College and Webster University; and both graduate and undergraduate courses in Public Administration as an adjunct instructor at the University of Central Florida. Russ served 8 years on active duty with the Navy as a Surface Warfare Officer and another 18½ years in the active Navy Reserve. He retired from the Navy Reserve in the rank of Captain. Russ also serves as a member of the Board of Directors of the Central Florida Chapter of the National Defense Industrial Association (NDIA).

Russ Hauck also serves his community as an elected official. He was elected Mayor of the City of Altamonte Springs, Florida in 1999, following 10 years as a City Commissioner. He was re-elected to a third three-year term as Mayor in November 2005. He represents Altamonte Springs as a member of the Board of Directors of the Orlando Area Metropolitan Planning Organization (METROPLAN Orlando), the regional transportation planning agency for Central Florida. From June 2000 through June 2003, Russ served as Chairman of the Board of the Central Florida Regional Transportation Authority, which operates under the name "Lynx;" the mass transit agency serving Orange, Seminole, and Osceola Counties. He is also past President and a board member of Lighthouse Central Florida, a charitable organization providing rehabilitation, training, and other support services to the blind and visually impaired. Russ is a founding board member of ITN (Independent Transportation Network) Orlando, a new charitable organization that provides scheduled rides for seniors and the visually impaired. He is a Past President of the Altamonte-South Seminole Jaycees, Past President of the Tri-County (Orange, Seminole and Osceola) League of Cities, Past Chairman of the Seminole County Tourism Development Council, member and Past President of the Altamonte Springs Rotary Club, and an active member of St Stephen Lutheran Church. Russ has been married to Barbara Hauck for 37 years and they have three children and two grandchildren.



Mr. John Illgen

Sector Director of Modeling and Simulation, Northrop Grumman Mission Systems

John Illgen, Sector Director of Modeling and Simulation for Northrop Grumman Mission Systems (NGMS), is a pioneer in the establishment of Modeling and Simulation in the System Acquisition Process. He is responsible for injecting simulation technologies across NG sectors, developing and applying Modeling and Simulation on key sector and cross sector programs by fostering use of Simulation Based Acquisition, continued enhancement of open ended software architecture for integration and interoperation of models and simulations using Web based technologies and use of HLA and DIS as appropriate.

Prior to joining Northrop Grumman Corporation, Mr. Illgen was the founder, Chief Executive Officer and Chairman of Illgen Simulation Technologies, Inc. for 17 years. During this time he led the development of an “Open Ended Architecture” using Web and Internet based technologies to integrate and interoperate distributed systems and simulations. Northrop Grumman acquired Illgen Simulation Technologies, Inc. in 2003.

Mr. Illgen has provided and successfully executed time critical defense projects throughout his 38 year career for the Defense and Intelligence communities, and has received numerous technology, management and community service awards.

Mr. Illgen has a national reputation in a broad spectrum of technologies that include Weapon Systems, Network Enabled Systems, Communications, Networking and Architecture, Information Systems, Threat Evaluations, Command and Control and Intelligence. He was selected as an “Industry Expert” and served as a co-host for Information Systems and Simulation on “World Business Review” hosted by Alexander Haig.

During his career, Mr. Illgen has presented and published over 50 technical papers in Modeling and Simulation for different technical domains.

Mr. Illgen is a Board Member currently serving two - two year terms on the National Defense Industrial Association Board of Directors. He is currently Vice Chairman, slated to be Chairman in 2010.

Mr. Illgen has an MSEE, Royal Technical University of Denmark, graduated from the Stanford University/AEA Business Management Program, and received certification from University of Virginia’s Darden Graduate School of Business Administration



Mr. Deryl W. Israel

Director, Engineering and Acquisition Excellence Directorate, Air Armament Center, Eglin Air Force Base, Fla

Mr. Deryl W. Israel, a member of the Senior Executive Service, is Director, Engineering and Acquisition Excellence Directorate, Air Armament Center, Eglin Air Force Base, Fla. He is responsible for the quality and effectiveness of engineering, logistics, and program management support provided to weapon systems developed and acquired by the center. He assures the proper allocation of personnel, and the engineering and acquisition processes and tools for the center's program offices. He is the center's senior engineering manager and provides executive leadership and functional direction to a work force of more than 700 science and engineering, program management and acquisition logistics professionals supporting the center's mission.

Mr. Israel entered federal service in 1976 as a project engineer at Warner Robins Air Logistics Center, Robins AFB, Ga. He has subsequently held numerous Air Force technical and management positions, including adviser for logistics technology management, Deputy Chief of Staff for Logistics and Engineering at Headquarters U.S. Air Force, and Deputy Competition Advocate General of the Air Force in the Office of the Assistant Secretary of the Air Force for Acquisition. He has also served as Director of the C-17 Partnership Office, Warner Robins ALC, where he led a command-wide team to build the government's proposal and long-term sustainment public/private partnership for the C-17.

Prior to his current position, Mr. Israel served as Director of the Engineering Directorate, Ogden ALC, Hill AFB, Utah, where he was responsible for the development, implementation, and oversight of the technical policies and processes, as well as the overall scientific and engineering expertise for the ALC.

EDUCATION

- 1976 Bachelor's degree in electrical engineering, highest honors, Georgia Institute of Technology, Atlanta
- 1978 Master's degree in electrical engineering, Georgia Institute of Technology, Atlanta
- 1982 Air Command and Staff College, by seminar
- 1990 Industrial College of the Armed Forces, National Defense University, Fort Lesley J. McNair, Washington, D.C.
- 1991 Defense Systems Management College, Program Management Course 91-2, Fort Belvoir, Va.
- 1999 Federal Executive Institute, Leadership for a Democratic Society, Charlottesville, Va.

CAREER CHRONOLOGY

1. July 1976 - January 1978, project engineer, Electronic Countermeasures Pods, Warner Robins Air Logistics Center, Robins AFB, Ga.
2. January 1978 - December 1978, graduate student, Georgia Institute of Technology, Atlanta
3. December 1978 - December 1979, system engineer, ALQ-119 ECM Pod, Warner Robins ALC, Robins AFB, Ga.
4. December 1979 - March 1983, lead system engineer, ALQ-184 ECM Pod, Warner Robins ALC, Robins AFB, Ga.
5. March 1983 - December 1985, ECM technical consultant, Tactical ECM Systems Engineering Section, Warner Robins ALC, Robins AFB, Ga.
6. December 1985 - November 1987, chief engineer, Electronic Warfare Management Division, Materiel Management Directorate, Warner Robins ALC, Robins AFB, Ga.
7. November 1987 - July 1988, Chief, Electronic Combat Systems, Foreign Military Sales Engineering Section, later, Chief, Electronic Combat Receiver Systems, Engineering Section, Electronic Warfare Management Division, Materiel Management Directorate, Warner Robins ALC, Robins AFB, Ga.
8. July 1988 - August 1989, adviser for logistics technology management, Deputy Chief of Staff for Logistics and Engineering, Headquarters U.S. Air Force, Washington, D.C.
9. August 1989 - June 1990, student, Industrial College of the Armed Forces, National Defense University, Fort Lesley J. McNair, Washington, D.C.
10. June 1990 - June 1993, Chief, Airborne Radar Branch, Avionics Management Directorate, Warner Robins ALC, Robins AFB, Ga.
11. June 1993 - August 1994, Deputy Competition Advocate General of the Air Force, Office of the Assistant Secretary of the Air Force for Acquisition, Washington, D.C.
12. August 1994 - June 1995, Deputy Director of the Space and Special Systems Management Directorate, Warner Robins ALC, Robins AFB, Ga.
13. June 1995 - September 1997, Deputy Director of the Avionics Management Directorate, Warner Robins ALC, Robins AFB, Ga.
14. September 1997 - October 2000, Deputy Director of the C-141 System Program Office, Warner Robins ALC, Robins AFB, Ga.
15. October 2000 - September 2003, Director, C-17 Partnership Office, Warner Robins ALC, Robins AFB, Ga.
16. September 2003 - August 2006, Director, Engineering Directorate, Ogden ALC, Hill AFB, Utah
17. August 2006 - present, Director, Engineering and Acquisition Excellence Directorate, Air Armament Center, Eglin AFB, Fla.

AWARDS AND HONORS

- Air Force Logistics Command Distinguished Federal Civilian Service Award
- Air Force Award for Valor
- Meritorious Civilian Service Award
- Exemplary Civilian Service Award



Dr. Anita Jones

Lawrence R. Quarles Professor of Engineering and Applied Science

Anita Jones received her Ph.D. in Computer Science from Carnegie-Mellon University in 1973. She left CMU as an Associate Professor when she co-founded Tartan Laboratories. She was vice-president of Tartan from 1981-87. In 1988 she joined UVa as a Professor and the Chair of the Computer Science Department. From 1993-1997 she served at the U.S. Department of Defense where, as Director of Defense Research and Engineering, she oversaw the department's science and technology program, research laboratories, and DARPA. She received the U.S. Air Force Meritorious Civilian Service Award, a Distinguished Public Service Award, and

a tribute in the Congressional Record. She served as Vice Chair of the National Science Board, a member of the Defense Science Board, and Co-Chair of the Virginia Research and Technology Advisory Commission. She serves as a member of the Charles Stark Draper Laboratory Corporation, and the National Research Council Advisory Council for Policy and Global Affairs. She is an ACM Fellow, an IEEE Fellow, the author of over 40 papers and two books.

Jones' interests focus on the design and construction of programmed systems. She has designed protection mechanisms and built secure systems that make guarantees about how information is used. She has built multi-processor operating systems and experimented with their underlying architectures and applications. By choice, she implements realistic and substantial systems to test design and implementation hypotheses so as to ensure that systems perform functionally and cost-effectively. Her current focus is survivable information systems, and interactive, distributed computer simulation for training, analysis, and entertainment.

Foundations of Secure Computation, Richard De Millo, Richard J. Lipton, Anita Jones and David Dobkin, Academic Press, 1978

A Language Extension for Expressing Constraints on Data Access, Barbara Liskov and Anita Jones, Communications of the ACM, Vol. 21, No. 5, May 1978, pp. 358-367.

Software Management of Cm* - a Distributed Multiprocessor, Anita Jones, Robert J. Chansler, Jr., Ivor Durham, Peter Feiler and Karsten Schwan, Proceedings of the National Computer Conference, June, 1977; reprinted in Distributed Computing: Concepts and Implementations edited by P.L. McEntire, J.G. O'Reilly, and R.E. Larson, IEEE Press, 1984

HYDRA - the Kernel of a Multiprocessor Operating System, W. Wulf, E. Cohen, W. Corwin, A. Jones, R. Levin, C. Pierson, and F. Pollack, Communications of the ACM, Vol. 17, No. 6, June, 1974, pp. 337-345; reprinted in Distributed Computing: Concepts and Implementations edited by P.L. McEntire, J.G. O'Reilly, and R.E. Larson, IEEE Press, 1984

Secure Databases: Protection Against User Influence, David Dobkin, Richard Lipton, and Anita Jones, ACM Transactions on Database Systems, Vol. 4, No. 1, March 1979, pp. 97-106.



Mr. Gregory F. Knapp

Senior Executive Service

Executive Director

Joint Warfighting Center and Joint Training Directorate (J7)

US Joint Forces Command

Mr. Gregory F. Knapp is the Executive Director of the U.S. Joint Forces Command, Joint Warfighting Center, and Joint Training Directorate (J7), Suffolk, Virginia. Mr. Knapp's responsibilities include strategic management, programming, technical planning and management, program oversight, business and financial management, technical innovation and business process improvement for the various JWFC programs, including the Joint National Training Capability (JNTC), the Joint Knowledge Development and Distribution Capability/Joint Knowledge Online, Information Operations (IO) Range and Virtual Integrated Support for the IO Environment program. He also leads the development of modeling and simulation, instrumentation, opposition force and other training systems to support joint warfighter training worldwide.

Mr. Knapp has over 27 years of Civil Service experience. Early in his career, he established the first automated test programs for submarine combat systems, invented and developed numerous submarine combat systems trainers, led the development of over 2 million lines of software, and was the nation's lead for Submarine Combat Systems In-Service Engineering Support. He performed roles as NAVSEA Test Director for Combat System Acceptance Testing, Supervisor, Division Head, BRAC Transition Manager, and in a variety of acquisition and source selection roles.

Mr. Knapp was the principal engineer in establishing the Joint Warfighting Center as the first major Joint National Simulation Center and led the development Information Technology Systems and the integration of the Modeling and Simulation capabilities into the operational C4ISR systems. He also pioneered distributed training for NATO and Partnership for Peace nations in support of building partner capacity. More recently, Mr. Knapp created and established the JNTC and the DoD acclaimed Training Transformation business model which has been extended to include over \$800M of Joint Training Enterprise resources.

Mr. Knapp holds Bachelor and Masters Degrees in engineering from Old Dominion University where he performed research in the area of high energy physics. He has been awarded a patent, numerous value engineering awards, and the Joint Meritorious Civilian Service Award for his demonstration of exceptional leadership, program management and organizational skills. Mr. Knapp has also published dozens of articles and provided hundreds of presentations to industry, academia and government audiences worldwide.

Mr. Knapp resides in Virginia Beach, Virginia with his wife Rena. They have five children. He enjoys soccer, gardening and fishing.

**Rear Admiral Frederick L. Lewis, USN (Ret.)**

President of National Training Simulation Association

Fred Lewis, a native of Los Angeles, graduated from the U.S. Naval Academy with the class of 1962 and was designated a naval aviator at NAS Kingsville, Texas in November 1963.

After an initial tour of duty as a flight instructor, he trained in the F-4 Phantom aircraft and participated in numerous operational deployments to the Atlantic and Pacific Oceans and the Mediterranean Sea. During this time, he deployed twice to the Gulf of Tonkin and carried out combat missions over North Vietnam.

Following these combat deployments, he attended the U.S. Naval Test Pilot School and subsequently led the stand-up of the Atlantic Fleet's F-14 Training Squadron.

Several command assignments followed including his first carrier air wing command when he led the wing in successful operations in the Gulf of Sidra during which his pilots downed two Libyan fighter aircraft. Various staff assignments in Washington, DC followed including participation in the Program for Senior Defense Managers at Harvard University. He subsequently was given his second air wing command when he inaugurated the Navy's "Super CAG" program. It was in this assignment that he was selected for promotion to flag rank.

Flag assignments including Director, Strike and Amphibious Warfare (Pentagon), Commander, Tactical Wings, Atlantic, and Commander, Naval Safety Center followed in quick succession. He was sent back to sea in 1991 as Commander, Carrier Group FOUR and Commander, Carrier Striking Forces, Atlantic. In March 1993 he led the stand-up and became the first Commander of the Naval Doctrine Command located in Norfolk, Virginia.

During his naval career, he accumulated over 6,500 accident-free flying hours in tactical aircraft and over 1,200 carrier arrested landings.

In December 1995 he joined the National Training and Simulation Association as the President.

He is married to the former Allison Griggs of Hobart, Tasmania, Australia. They have two children: Lance, a Major in the United States Marine Corps and F/A-18 pilot, and Ashley, a financial analyst.



Dr. Michael R. Macedonia

Vice President and General Manager for Forterra Federal Systems

Dr. Michael R. Macedonia is the Vice President and General Manager for Forterra Federal Systems in Orlando, Florida. A graduate of West Point, Dr. Macedonia served as an infantry officer in a variety of command and staff positions in the United States and overseas assignments including Germany and the Middle East. He also served as an analyst and project manager for computer and electronic warfare systems. Following his military service, he became the Vice-president of the Fraunhofer Center for Research in Computer Graphics, Inc. in Providence, Rhode Island. He later joined the Institute for Defense Analyses in Alexandria, Virginia as a Research Staff Member for Modeling and Simulation. Dr. Macedonia then became the Chief Technology

Officer for the U.S. Army Program Executive Office for Simulation, Training and Instrumentation (PEO STRI) in Orlando, FL. At PEO STRI, Macedonia was responsible for developing the technology strategy for the U.S. Army's lead training and instrumentation acquisition organization. He also led the Army's effort to develop the Institute for Creative Technologies, initiated the Full Spectrum Warrior project, and promoted the adoption of advanced technologies for simulation. Dr. Macedonia then served as Special Assistant to the Chief Scientist of the Army for the Chief of Staff's Future Combat System technology study. Prior to his current position, Dr. Macedonia was the Director of the Disruptive Technology Office for the Office of the Director of National Intelligence. Dr. Macedonia has a Ph.D. in Computer Science and a M.S. in Telecommunications. He is a recipient of the Army's Outstanding Civilian Service Award.

Forterra Systems is a software company with offices in San Mateo, CA and Orlando, FL. Forterra develops and provided private, secure virtual worlds allow enterprises to plan, rehearse, work and train on the 3D Internet.

**BG Mike McGinnis, USA(Ret)**

Executive Director, Virginia Modeling, Analysis and Simulation Center

Mike McGinnis joined Old Dominion University on 10 June 2006 as the Executive Director of the Virginia Modeling, Analysis and Simulation Center. Prior to assuming this position Brigadier General (Ret) McGinnis served for seven years as Professor and Department Head of the Systems Engineering Department, United States Military Academy, West Point, New York.

Mike's previous Army modeling, simulation and analysis assignments include Director of the U.S. Army Unit Manning Task Force, Director of the U.S. Army TRADOC Analysis Center at the Naval Postgraduate School in Monterey, California, and Director of the U.S. Military Academy Operations Research Center.

He has served on key government engineering, modeling, simulation and analysis committees to bring about change at the Army and Department of Defense levels. These include the National Academy of Sciences Committee on Defense Modeling, Simulation and Analysis, the Undersecretary of Defense for Acquisition, Logistics and Technology Systems Engineering Forum, the U.S. Army OneSAF Architecture Working Group, Senior Reviewer for the Army Standards Nomination and Approval Process for Semi-Automated Forces, U.S. Army Training and Doctrine Command (TRADOC) Modeling and Simulation Committee, and the Deputy Undersecretary of the Army for Operations Research and Systems Analysis (ORSA) Advisory Committee.

Doctor McGinnis is a graduate of the U.S. Military Academy and has Masters of Science degrees in Applied Mathematics and Operations Research from Rensselaer Polytechnic Institute and a Ph.D. from the University of Arizona in Systems and Industrial Engineering. He attended the Command and General Staff College at Fort Leavenworth and the Naval War College in Newport, Rhode Island where he earned a Masters of Arts in National Security and Strategic Studies.

Mike's professional and scholarly body of work includes three national awards and over 40 published and peer-reviewed papers published during 17 years of working in the fields of systems engineering and operations research domains. Reflecting his contributions to military operations research, Mike has been a regular member of U.S. delegations to foreign nations as part of the Deputy Undersecretary of the Army for Operations Dr. McGinnis has been honored with the 1995 Military Operations Research Society Rist Prize, the 2004 Military Operations Research Society Barchi Prize, and the 'best paper' for the 2005 Interservice/ Industry Training, Simulation & Education Conference (I/ITSEC) Research and Development Track. He was inducted into Who's Who in Engineering Education in 2005.



Ms. Lisa Jean Moya

Chief Scientist of WernerAnderson and leads its modeling and simulation (M&S) research and development effort

Lisa Jean Moya is Chief Scientist of WernerAnderson and leads its modeling and simulation (M&S) research and development effort. She is co-chair of the M&S Congressional Caucus Standing Committee in support of M&S Professional Development and Education. She is also on the National Training and Simulation Association (NTSA) sponsored Certified Modeling and Simulation Professional (CMSP) Board of Directors. Ms Moya's areas of expertise include validation, Agent Based Simulation (ABS), Multiple Objective Decision Analysis (MODA), Multi-Attribute Utility Theory (MAUT), and the development and application of analysis. She has experience in analyses of alternatives; requirements evaluation; M&S planning use, and validation for the department of defense. Ms Moya is a PhD candidate in the Modeling and Simulation program at Old Dominion University and received an M.S. in Operations Research from The College of William and Mary and a B.S. in Applied Mathematics from Old Dominion University. Her research interests include agent based simulation, simulation theory and formalisms, and validation.

**Dr. James Peery**

Director of the Computation, Computers, Information and Mathematics Center, at Sandia National Laboratories

James Peery is the Director of the Computation, Computers, Information and Mathematics Center, at Sandia National Laboratories (SNL) in Albuquerque, New Mexico. In this role, he is responsible for research and development activities in high performance computing. This Center contains the Computer Science Research Institute (CSRI) and the Institute for Advanced Architectures and Algorithms (IAA). In addition, James is the Program Director of the NNSA's Advanced Simulation and Computing Program (ASC) at SNL.

Prior to returning to Sandia, James worked at Los Alamos National Laboratories in the positions of Hydrodynamic Experiments Division Leader, Principal Deputy Associate Director of the Nuclear Weapons program and Program Director of the NNSA's Advanced Simulation and Computing Program (ASC). Before joining Los Alamos National Laboratory, James worked at Sandia National Laboratories where he led the Computational Solid Mechanics and Structural Dynamics Department and Computation Physics Department. During his career, James has been responsible for the development of state-of-the-art, massively parallel computational tools in the fields of high energy density physics, shock physics, transient dynamics, quasistatics, nonlinear implicit dynamics, and structural dynamics. James' major research areas are in Arbitrary Lagrangian Eulerian (ALE) algorithms and parallel algorithms where he has published greater than 50 papers. As part of the SALINAS team, James was awarded the 2002 Gordon Bell Award and NNSA Award for Excellence. James earned his Ph.D. degree in nuclear engineering from Texas A&M University and joined Sandia National Laboratories as a Member of the Technical Staff in 1990.



Dr. Mikel D. Petty

Director of the University of Alabama in Huntsville's Center for Modeling, Simulation, and Analysis and a Research Professor in both the Computer Science and Industrial and Systems Engineering and Engineering Management departments

Mikel D. Petty is Director of the University of Alabama in Huntsville's Center for Modeling, Simulation, and Analysis and a Research Professor in both the Computer Science and Industrial and Systems Engineering and Engineering Management departments. Prior to joining UAH, he worked at Old Dominion University's Virginia Modeling, Analysis, and Simulation Center and the University of Central Florida's Institute for Simulation and Training. He received a Ph.D. in Computer Science from the University of Central Florida in

1997.

Dr. Petty has worked in modeling and simulation research and development since 1990 in areas that include simulation interoperability and composability, human behavior modeling, multi-resolution simulation, and applications of theory to simulation.

He has published over 140 research papers and has been awarded over \$12 million in research funding. He served on a National Research Council committee on modeling and simulation, is a Certified Modeling and Simulation Professional, and is an editor of the journals SIMULATION and Journal of Defense Modeling and Simulation. He was the dissertation advisor to the first two students to receive Ph.D.s in Modeling and Simulation at Old Dominion University.

**Dr. Daniel Serfaty**

Chairman & CEO, Aptima, Inc.

Daniel Serfaty is Aptima's Principal Founder, establishing and implementing a vision for Aptima as the premier Human-Centered Engineering business in the world. In addition to his management duties at Aptima, Mr. Serfaty's current work involves the technical leadership and coordination of inter-disciplinary projects for government agencies and private industries in conjunction with several academic, industrial and government teams. These efforts investigate factors that drive organizational performance, expertise development and human-systems integration in large-scale technology-rich socio-technical systems.

Prior to founding Aptima in 1995, Mr. Serfaty was engineering group leader and program manager at Alphatech (now BAE Systems), where he coordinated projects in the decision-making, training, and human engineering areas.

For the last 25 years Mr. Serfaty's research interests have included the application of rigorous modeling and experimental methods to improve decision-making performance, develop expertise in field settings, and apply systems engineering methods to the design of large-scale organizations. In addition to his technical pursuits, his many industry activities include participating in various technology leadership forums, and serving on the board of directors of small technology businesses.

Mr. Serfaty's academic background includes undergraduate degrees in Mathematics/Physics, Psychology, and Aeronautical Engineering from the Université de Paris and the Technion, Israel Institute of Technology, an MS in aeronautical engineering (Technion), and a M.B.A. in International Management from the University of Connecticut. His doctoral work at the University of Connecticut pioneered a systematic approach to the analysis of distributed decision-making in dynamic and uncertain environments.

**Dr. Randall Shumaker**

Director, IST

PhD University of Pennsylvania, Computer Science, 1976

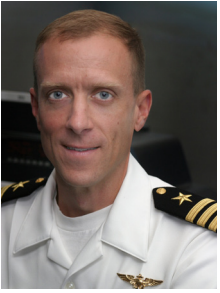
MSE University of Pennsylvania, Computer Engineering, 1969

BS University of Pennsylvania, Electrical Engineering, 1967

Randall Shumaker directs the operations of the Institute for Simulation & Training. Previously Superintendent, Information Technology Division, Naval Research Laboratory, Washington, DC, he brings considerable expertise in human-machine interface and artificial intelligence to the institute and UCF.

His personal research interests include artificial intelligence, biomorphic computing methods, and advanced techniques for software development. As a former Presidential rank Senior Executive, US Voting Member in the NATO IST Panel, and frequent reviewer and advisor for military research programs he has significant insight into military and high consequence civilian applications of technology. He has had significant success in transitioning successful research from academia into government and industry. Shumaker is the author of more than fifty scientific publications and is a frequent speaker on a variety of technical topics. He has served as a reviewer for several professional publications and for federal agencies including DARPA, DDR&E, ONR, NASA, and ARL. He received a Ph.D. in Computer Science from the University of Pennsylvania, is a Professional Engineer, and a Commercial Pilot, SEL, MEL, IA.

1. "Intelligent Machines," Pennsylvania Triangle Magazine, vol. 54, March 1967
 2. "A Highly Reliable Telemetry Link," Master's thesis, Moore School of Electrical Engineering, University of Pennsylvania 1969
 3. "A Methodology For The Development of Decision Support Systems," Ph.D. dissertation University of Pennsylvania, Philadelphia PA. 1976
 4. "Software Development for Digital Control," in Advances in Information Systems, Vol. 8 Plenum, New York, NY 1981
 5. "Embedded Expert Systems," in Proceedings of the IEEE- Expert Systems in Government Conference, IEEE Computer Society Press, 1986
 6. "Artificial Intelligence In Military Applications," with J. Franklin, Signal Vol.40, no.10, p.29-48; June 1986
 7. "Artificial Intelligence in the Military," in the Encyclopedia of Artificial Intelligence, (with L. Davis and J. Franklin), Prentice Hall, 1986
 8. "Artificial Intelligence in Military Applications," in Principles of Command and Control, Dr. S. Andriole Editor, AIP 1987 (with J. Franklin)
 9. "IAA/NASA/USAF Symposium on Automation, Robotics and Advanced Computing for the National Space Program, "Navy Research Programs in Applied Artificial Intelligence," 9-11 March 1987, Arlington, VA
- Proceedings of the IEEE Conference on Managing Expert System Programs and Projects, Ed: Liebowitz-J; Feinstein-J; Shumaker-R, IEEE Computer Society. Press, Los Alamitos, CA, USA; 1990

**CDR Joseph Sullivan, USN**

Permanent Military Professor at the Naval Postgraduate School and Director of the school's Modeling Virtual Environments and Simulation (MOVES) Institute

CDR Sullivan graduated from Catholic University of America with a Bachelor of Science in Computer Science, attended Aviation Officer Candidate School, and was commissioned in 1986. CDR Sullivan's operational background includes multiple tours in east and west coast Helicopter Antisubmarine (HS) squadrons. In 1998, CDR Sullivan earned Master of Science in Computer Science degree at the Naval Postgraduate School. CDR Sullivan has been assigned to the Naval Postgraduate School since 2001. While assigned to NPS he has filled various roles including Military Faculty, Program Officer and Principle Investigator. His research background and interests center on the application of emerging virtual environment technology to training.



Mr. Bill Tucker

Chief Scientist for Modeling and Simulation, Boeing Integrated Defense Systems

Bill is the Chief Scientist for Modeling and Simulation in Boeing Integrated Defense Systems. He has over 30 years of experience in modeling and simulation technology and applications. He has publications covering a wide range of M&S topics, but most recently has focused on the need to improve the M&S workforce via education and other programs, as well as the application of M&S in K-12 education to increase student exposure to Science, Technology, Engineering, and Math.

He is active in the M&S community, including serving as Vice-President for education and workforce development for the Society for Modeling and Simulation, chairman of the board of the Modeling and Simulation Professional Certificate Council, and chair of the M&S Caucus Advisory Panel Education team.

Within Boeing, he serves as the training lead for M&S within the Systems Engineering, and was instrumental in the establishment of a new skill code for M&S professional, as well as the ongoing development of career roadmaps and professional training inside the enterprise.

He is married to the former Mary Davis. They have four children. She, like their two oldest children, holds an engineering degree, demonstrating real commitment to technology education. Their third child is currently studying engineering, while the fourth is wondering what kind of engineer she should be.



Mr. William F. Waite

President and Co-Founder, The AEgis Technologies Group

As President and co-founder of The AEgis Technologies Group, Bill Waite directs its staff in delivering a wide variety of modeling and simulation (M&S) products and services. Mr. Waite has more than 30 years of professional hands-on experience in all phases of the M&S life cycle, and is currently active in the evolution of the M&S profession, industry, and marketplace. He serves on the Boards of Directors of the National Training Systems Association (NTSA) and the Society for Modeling and Simulation International [SCS]; and, he serves on the Advisory Council of the Modeling and Simulation Professional Certification Commission (M&SPCC),

NTSA's Standards Committee, and its Congressional Caucus Advisory Committee. Mr. Waite is currently the President of the Alabama Modeling and Simulation Council (AMSC).

**Dr. Jim Wall**

Director, Computing and Information Technology, Texas Center for Applied Technology
Associate Research Professor, Department of Industrial and Systems Engineering, Texas A&M University

Currently, Dr. Wall is responsible for organizing and executing large multi-disciplined research programs in computing and information technology involving faculty and staff researchers. His team is comprised of fifteen full-time scientists and engineers at multiple locations engaged in applied research, primarily for military and homeland security applications. Dr. Wall has extensive experience in command and control systems, distributed simulation environments, and virtual reality applications. He is currently the principal investigator for several simulation programs related to incident management and emergency response. He and his team developed and currently support a simulation referred to as the Emergency Management Exercise System (EM²ES) that is used to train emergency responders from around the nation in accordance with the National Incident Management System. To date, more than 4000 responders have been trained using EM²ES. A related program centers on the use of information technology to establish an integrated display using dashboard technology for establishing a common operational picture for either response to an animal disease outbreak or bio-surveillance. Other research activities are a Digital EMS program that is focused on transmitting real-time video, physiological telemetry, and medical record data between a moving ambulance and an emergency room. A program entitled, University XXI, addresses a number of research efforts for a diverse set of sponsors in the U.S. Army. A current University XXI program involves the use of visual analytics to support the Operational Test Command at Fort Hood to assess the performance of the instrumentation systems.

Recently, Dr. Wall served as the Program Chair for the Interservice/Industry Training, Simulation, and Education Conference (I/ITSEC), the largest simulation conference in the world and has been selected to serve as Conference Chair in 2010. For the past three years, he has served as a member of the National Institute of Justice Modeling and Simulation Technical Working Group. In 2008 he was the inaugural winner of the Texas Engineering Experiment Station's "Engineering a Brighter Future" award.

Dr. Wall completed twenty-two years of military service as a Lieutenant Colonel (Armor) and was part of the Uniformed Army Scientist Program. He served as a Senior Computer Scientist with the U.S. Army Research Laboratory at Aberdeen Proving Grounds, Maryland during his last assignment. While at the Army Research Lab, he led the research team that developed the well-known Virtual Sand Table. This was the first transportable, horizontal (rear projection) stereo display and was fully integrated with several combat simulations. Other assignments covered a broad range of duties – military operations, combat developments, operations research and systems analysis, and research and development.

Dr. Wall holds a Master of Science in Systems Technology (Command, Control, and Communications) from the Naval Postgraduate School (1986) and a Ph.D. in Computer Science from Texas A&M University (1993).

Congressional Modeling and Simulation Caucus
SELECT MEMBERS OF THE CAUCUS WILL PARTICIPATE IN THIS LEADERSHIP SUMMIT

Founder & Co-Chair

J. Randy Forbes
R/Virginia 4th District

Co-Chairs

Solomon Ortiz
D/Texas 27th District

Caucus Members

Duncan Hunter
R/California 52nd District



House Armed Services Committee Ranking Member

Robert Aderholt
R/Alabama 4th District

Jim Matheson
D/Utah 2nd District

Ken Calvert
R/California 44th District

Jeff Miller
R/Florida 1st District

John Carter
R/Texas 31st District

Todd Russell Platts
R/Pennsylvania 19th District

Mike Conaway
R/Texas 11th District

Dutch Ruppersberger
D/Maryland 2nd District

Susan Davis
D/California 53rd District

Joe Sestak
D/Pennsylvania 7th District

Bill Foster
D/Illinois 14 District

Bobby Scott
D/Virginia 3rd District

Phil Gingrey
R/Georgia 11th District

Zach Wamp
R/Tennessee 3rd District

Maurice Hinchey
D/New York 22nd District

Joe Wilson
R/South Carolina 2nd District

Doug Lamborn
R/Colorado 5th District

Robert Wittman
R/Virginia 1st District



The Congressional Modeling & Simulation Caucus continues to exert its influence as a national focus for the simulation and training industry. Under the leadership of Co-Chairmen Representative J. Randy Forbes (VA-04) and Representative Solomon Ortiz (TX-27), Caucus Membership now totals 24 members. The most significant event of recent Caucus activity is the unanimous passage on July 16, 2007 of House Resolution 487 which formally honors the contribution of M&S technology to the security and prosperity of the United States and recognizes M&S as a National Critical Technology. Furthermore, H.Res. 487 acknowledges the significant impacts of M&S on a breadth of fields including, defense, space, national disaster response, medical, transportation and construction. Congress is urged to continue to place emphasis on math and science as key disciplines in elementary and secondary education and to encourage the expansion of M&S within higher education. Finally, H.Res. 487 affirms the need to study the national economic impact of the simulation and training industry.

Highlights of the Congressional Modeling and Simulation Caucus

2005

- Congressman Forbes officially founds the Caucus to an overflowing crowd.
- M&S Caucus conducts a joint briefing with the House Science & Technology Committee.
- 1st Congressional delegation panel at the I/ITSEC Conference in Orlando, Florida

2006

- First annual M&S Leadership Summit held by NTSA in cooperation with the Congressional M&S Caucus. The Summit is the only M&S conference devoted to federal policy, and features leaders from government, industry, academia, and Congress.
- First M&S Capitol Hill Expo is held – garners attention in *The Washington Post*

2007

- February -- Commitment is made by Congressional M&S Caucus to seek a resolution recognizing the role M&S has played as a national critical technology at the 2nd annual M&S Leadership Summit.
- Congressman Solomon Ortiz of Texas joins Congressman Forbes as co-chairman of the M&S Caucus.
- July 16, 2007 – House passes H. Res. 487, a resolution recognizing the contributions of M&S and recognizing M&S as a National Critical Technology. A National Critical Technology is one that has particular value to the national security of the United States and/or significant economic impact on the country.
- November 13, 2007 – Congressman Scott introduces H.R. 4165, a bill that would provide grants to encourage and enhance the study of M&S at institutions of higher education. M&S Caucus members Forbes, Ortiz, Drake, Feeney, and Keller co-sponsor this legislation.
- December 6, 2007 – Congressmen Forbes and Kennedy introduce H.R. 4321, the Enhancing SIMULATION (Safety in Medicine Utilizing Leading Advanced Simulation Technologies to Improve Outcomes Now) Act of 2007 to improve the quality of healthcare in the United States by reducing medical error and cutting healthcare costs.

2008

- February 11, 2008 – Dr. Charles Romine, Senior Policy Analyst, White House Office of Science and Technology, gives Keynote Address at 2008 M&S Leadership Summit. Commitment is made to pursue education as a key theme for this year's M&S Caucus work.
- July 2008 – Capitol Hill Expo includes participation from the Brookings Institution, marking the first time a think tank participates in an event in cooperation with the M&S Caucus.
- August 14, 2008 – H.R. 4137, the Higher Education Opportunity Act, is signed into law. This bill includes the M&S higher education grant program introduced by Congressman Scott, and cosponsored by M&S Caucus members Forbes, Ortiz, Drake, Feeney, and Keller.

NTSA Modeling & Simulation Caucus Standing Committee Members

M&S Committee Member	Organization
Mr. Rich Bensinger	SAIC
Dr. Linda Brent	The ASTA Group, LLC
Mr. Ed Curle	DoD Modeling & Simulation Coordination Office
Mr. Mike Finnern	L-3 Communications
Mr. Tom Frost	JFCOM
Mr. Fred Hartman	Institute for Defense Analyses
Mr. Russ Hauck	National Center for Simulation
Dr. Michael McGinnis	VMASC / Old Dominion University
Mrs. Lisa Moya	Werner Anderson
Mr. Michael Papay	Northrop Grumman
Mr. Bill Tucker	The Boeing Company
Mr. Bill Waite	Alabama Modeling & Simulation Consortium

Congressional Staff Support:

Mr. Brian Perkins	Office of Congressman Randy J. Forbes
Mr. James Aiken	Office of Congressman Randy J. Forbes

NTSA:

RADM Fred Lewis	National Training & Simulation Association
Mrs. Barbara McDaniel	National Training & Simulation Association
Mr. Patrick Rowe	National Training & Simulation Association
Ms. Samantha Riemer	National Training & Simulation Association

Whereas the United States of America is a great and prosperous Nation, and Modeling and Simulation contribute significantly to that greatness and prosperity;

(Engrossed as Agreed to or Passed by House)

H. Res. 487

In the House of Representatives, U. S.,

July 16, 2007

- Whereas the United States of America is a great and prosperous Nation, and modeling and simulation contribute significantly to that greatness and prosperity;
- Whereas modeling and simulation in the United States is a unique application of computer science and mathematics that depends on the validity, verification, and reproducibility of the model or simulation, and depends also on the capability of the thousands of Americans in modeling and simulation careers to develop these models;
- Whereas members of the modeling and simulation community in government, industry, and academia have made significant contributions to the general welfare of the United States, and while these contributions are too numerous to enumerate, modeling and simulation efforts have contributed to the United States by--
- (1) expanding the understanding of nuclear chain reactions during the Manhattan Project through some of the earliest simulations replicating the reaction process, which ultimately contributed to the end of World War II;
 - (2) serving as a foundational element of the Stockpile Stewardship Program, which enabled the President of the United States to certify the safety, security, and reliability of the nuclear stockpile for more than ten years without the use of live nuclear testing, which demonstrates the Nation's commitment to nuclear nonproliferation;
 - (3) accelerating the effectiveness of joint, coalition, and interagency training exercises, while dramatically reducing the costs of such exercises, as demonstrated by United States Joint Forces Command's 2007 homeland security exercise, Noble Resolve, which was conducted virtually and required 5 months, 140 personnel, and \$2,000,000 for development, compared to a 2002 Millennium Challenge exercise that was conducted live and required 5 years, 14,000 personnel, and \$250,000,000 for development;
 - (4) preserving countless human lives, as well as military and civilian aircraft, ships, and other vehicles through the rehearsal of repeatable, simulated emergencies that otherwise could not have been practiced;
 - (5) increasing the quality of health care through the development of medical simulation training, which led the Food and Drug Administration to require such training for physicians before certain high-risk procedures to treat heart disease and strokes;
 - (6) reducing the cost of health care, as demonstrated by medical malpractice insurance rate discounts being provided to anesthesiologists and obstetricians who include simulated procedures in their biennial training requirements;
 - (7) simulating large scale natural or man-made disasters to improve the effectiveness of local, State, and Federal first responders, law enforcement, and other agencies involved in a coordinated emergency response;
 - (8) forecasting weather and predicting climate change to enable scientists, industry, and policymakers to study the effects of climate change and also to prepare for extreme weather, such as hurricanes;
 - (9) protecting rivers, waterways, and endangered species reliant on these waters through the Environmental Protection Agency's hydrology Dynamic Stream Simulation and Assessment Model, which predicts impacts on water quality for the Truckee River, including its effect on Lake Tahoe and other portions of its basin;
 - (10) producing analysis that resulted in enhanced designs and construction of critical infrastructure, such as roads, interchanges, airports, harbors, railways, and bridges that increases transportation capacity and safety, and reduces travel time and environmental impact; and
 - (11) providing National Aeronautics and Space Administration (NASA) astronauts training to ensure a safe and productive mission in space, including the utilization of the Shuttle Training Aircraft, which simulates real aircraft shuttle characteristics and enables NASA pilots to have 1,000 simulated shuttle landings before they land the Space Shuttle for the first time as a glider;
- Whereas these contributions, in addition to numerous contributions that are not listed but that equally have brought prosperity to our Nation, demonstrate that modeling and simulation efforts have, and will continue to--
- (1) provide vital strategic support functions to our Military;
 - (2) defend our freedom and advance United States interests around the world;
 - (3) promote better health care through improved medical training, improved quality of care, reduced medical errors, and reduced cost;
 - (4) encourage comprehensive planning for national disaster and emergency preparedness response;
 - (5) improve and secure our critical infrastructure and transportation systems;
 - (6) protect the environment; and
 - (7) allow the Nation to explore the Earth and space to further our understanding of our world and universe;
- Whereas modeling and simulation frequently complements or replaces experimentation where experimentation is hazardous, expensive, or impossible, thus providing far greater capability than experimentation alone;
- Whereas the modeling and simulation industry provides well-paying jobs to many Americans and represents an opportunity for Americans with strong foundations in science, technology, engineering, and mathematics to contribute to the prosperity and security of the United States;
- Whereas other countries have recognized the value of modeling and simulation as an opportunity to gain a competitive advantage over the United States economically and militarily, and some of these same countries produce more engineers each year than the United States;
- Whereas modeling and simulation efforts are critically dependent on a fundamental education in science, technology, engineering, and mathematics;
- Whereas modeling and simulation require unique knowledge, skills, and abilities that are not adequately incorporated into governmental occupational classification codes; and
- Whereas advances in modeling and simulation can be achieved through innovation in the private sector, and proper export controls and intellectual property rights are critical to the continued growth and innovation in this sector: Now, therefore, be it
- 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.



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