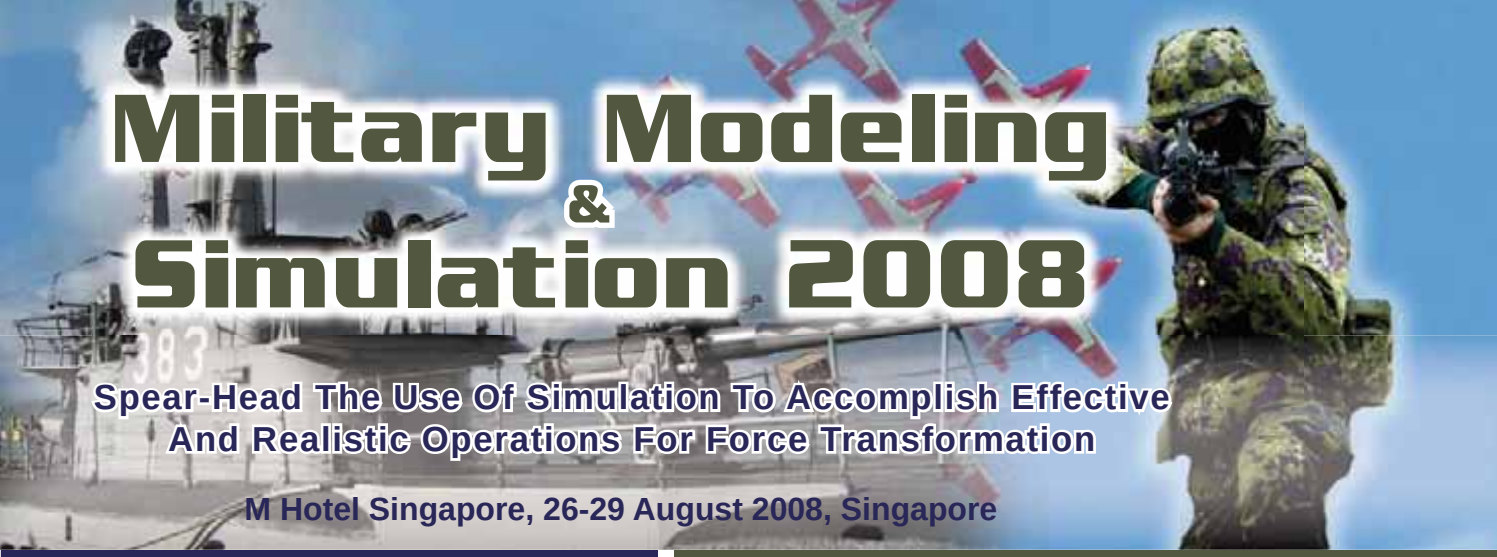

Military Modeling & Simulation 2008

Spear-Head The Use Of Simulation To Accomplish Effective And Realistic Operations For Force Transformation

M Hotel Singapore, 26-29 August 2008, Singapore

DISTINGUISHED SPEAKERS

Rodney A. Chapman
Chief Learning Officer
Director, Learning Strategies Dept
US Naval Service Training Command

Darren Mc Farlane
Acting Director General
Australian Defence Simulation Office

Dr Kendall R. Wheaton
Senior Operational Research Analyst
Canadian Department of National Defence

Klaus H.A. Niemeyer
Operations Analysis Consultant
Former Director Operations Research Division
NC3A (NATO Consultation, Command and Control Agency)

Lars Lindberg
Head of Department
Div. of Command & Control Systems
Swedish Defence Research Agency

Dr Paul K. Davis
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Col Apisak Sombutcharoennon
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Captain Prof Boyan Mednikarov
Deputy Commandant of the Bulgarian Naval Academy
N.Y.Vaptsarov Naval Academy

Michel Rademaker
Senior Policy Analyst & Director Business Development
The Hague Centre for Strategic Studies

Prof Bernard Zeigler
Director
Arizona Center for Intergrative Modeling And Simulation

Dr Richard E. Hayes
President and Senior Scientist
Evidence Based Research

Francis Choi
Practice Manager
Telelogic

Prof Xueshan Luo
Deputy Director
National Key Laboratory of Information Systems Engineering
National University of Defense Technology, China

Prof Zhou Suiping
School of Computer Engineering
Nanyang Technological University

Pre-Conference Masterclass A :
26 August 2008 (Tuesday)

BATTLE STATIONS 21 AS A MODEL TRAINING SIMULATOR OF THE FUTURE

Conducted by:

Rodney A. Chapman
Chief Learning Officer
Director, Learning Strategies Dept (NSTC N9)
US Naval Service Training Command

Post-Conference Masterclass B :
29 August 2008 (Friday)

THE DEVELOPMENT AND USE OF SIMULATION MODELS FOR CATASTROPHIC SITUATIONS

Conducted by:

Klaus H.A. Niemeyer
Former Director Operations Research Division (R'td)
SHAPE (now NATO Consultation, Command and Control Agency)

KEY BENEFITS OF ATTENDING THIS EVENT:

- **Learn** to design models that efficiently and effectively support analyses
- **Develop** flexible, scalable and reusable models
- **Master** effective simulation modeling that combines correctness, flexibility and affordability
- **Enhance** military decision making via innovative tools that predicts accurately behaviors
- **Obtain** insights in integrated training solutions
- **Understand** different modeling approaches and their various pros & cons
- **Discover** the latest in research technologies that make simulation even more real
- **Identify** how serious games can play a role in military defence

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"Today it is not the word "truth" but the word "model" that continually decorates the pages of scientific journals."
Owen Gingerich (1982)

Military Modeling & Simulation 2008

Modeling and Simulation (M&S) is increasingly widely used in today's military forces worldwide. M&S can assist decision makers in choosing various strategic courses of action, whether or not to purchase particular weapons systems, implement programs and more. Growing costs of operational trials and limited budgets make extensive live tests of military systems impossible, hence simulation is one of the most important tools currently for military analyses, strategic planning, training and acquisition. It is imperative that models used are logically coherent and provide results that closely mirror real situations.

Military Modeling & Simulation 2008 brings together the government, industry and academia in sharing the latest innovative technologies and simulation methods to build up our future force for a strong national and international defence. Diverse sharing from international keynote speakers will update you on key innovations from different countries and best practices will be shared. This is a not to be missed opportunity to network with key defence personnel in the region and learn more about current trends in the military sector.

CONFERENCE DAY 1 • 27 AUGUST 2008

Day 1 Keynote

08:00 *Registration and refreshments*

09:00 *Chairman's Welcome & Opening Address*
Dr Kendall R. Wheaton
Senior Operational Research Analyst
Canadian Department of National Defence

09:05 **BATTLE STATIONS 21 – THE FUTURE OF MILITARY TRAINING**
This presentation showcases how the US Navy pursues absolute realism for its newest immersive experiential trainer, the Battle Stations 21. Here, the concept of a training simulator is taken to a whole other level where recruits undergo a 12-hour period of intensive skills testing where they practice their skills and teamwork learned during their eight weeks of basic training. The twists and outcomes are cunningly designed to outwit the multimedia-savy recruits.
Rodney A. Chapman
Chief Learning Officer
Director, Learning Strategies Dept (NSTC N9)
Naval Service Training Command

09:50 **MODEL-DRIVEN DEVELOPMENT AND UML 2.0**
Model-Driven Development is the change of an entire industry in constant flux. It is not a mere revolution, but a change that will gradually permeate the way we develop and simulate systems. The emphasis is to focus on what really matters and reduce the importance of code. This presentation demonstrates procedures to:
- Build the final system to work reliably and according to client's requirements
- Optimise productivity and ensure quality delivery to customers.

Francis Choi
Practice Manager
Telelogic

10:35 *Morning Networking Break*

11:05 **MODELLING AND SIMULATION FOR EXPERIMENTATION AND EXERCISES IN SECURITY**
Simulation is a dynamic application of a model with changing parameters over time. There is a close relationship and interoperability of modelling and simulation with command and control systems when developing and experimenting with the use of future concepts of network enabled capabilities. This presentation explores:
- Definitions, characteristics, purposes, complexities, representations & evolution of models
- Applications in the security area which require different capabilities & model structures
- Planning for objectives, proposed time horizon, scenarios, metrics, data availability and reaction requirements

Klaus H.A. Niemeyer
Operations Analysis Consultant
Former Director Operations Research Division
NC3A (NATO Consultation, Command and Control Agency)

11:50 *Lunch*

13:00 **Presentation From ST Electronics (TRAINING & SIMULATION SYSTEMS)**

13:15 **THE UTILITY OF C2 OPERATIONAL ARCHITECTURE AND HUMAN FACTORS FRAMEWORKS FOR REQUIREMENTS ANALYSIS AND THE MODELLING AND SIMULATION OF NEW CAPABILITIES**
In 2006, the Canadian Forces (CF) adopted a new integrated Command structure and stood up a number of national operational level headquarters. Foremost among these was the Canada Command charged with oversight and direction of domestic and continental operations. Defence Research and Development Canada (DRDC) has since established several projects to support improvements for C2 in the newly transformed CF that have exploited both C2 architecture and HF frameworks. This presentation looks at:
- Frameworks & data collection for analysing requirements to design M&S of new capabilities
- Using M&S tools to integrate framework tools in new military processes & systems
- Current M&S trends
- Case studies showing the successful application of the United States Department of Defense Architecture Framework (DODAF) and the Hierarchical Goal Analysis (HGA) framework in the analysis of requirements

Dr Kendall R. Wheaton
Senior Operational Research Analyst
Canadian Department of National Defence

14:00 **TOWARDS A NEXT-GENERATION STANDARD FOR MODELING AND SIMULATION INTEROPERABILITY**
Modeling and Simulation (M&S) is finding increasing application in development and testing of complex information-intensive systems. Interoperability issues are paramount in such developments. This discussion addresses:
- New interoperability concepts
- Syntactic, semantic, and pragmatic linguistic categories
- Discrete Event System Specification (DEVS) formalism as a basis for a next generation standard
- Overview of DEVS implementation in net-centric environments.

Prof Bernard Zeigler
Director
Arizona Center for Intergrative Modeling And Simulation

14:45 **THE VERIFICATION PROBLEMS OF ARCHITECTURE**
The verification problem of architecture is discussed. A three level framework for verification of architectures is proposed based on the information model of architecture. Research into the following areas are discussed:
- Classifying architecture information into syntax, semantics and pragmatics levels
- Verifying the consistency of the syntax description
- Evaluating logical rationality of the architecture data
- Performing pragmatic verification by means of simulation of executing models

Prof Xueshan Luo
Deputy Director
National Key Laboratory of Information Systems Engineering
National University of Defense Technology, China

15:30 *Evening Networking Session*

16:00 **CASE STUDY FROM BULGARIA - BUILDING A CONCEPTUAL MODEL FOR SIMULATION ARCHITECTURE IN SUPPORT OF NAVAL EDUCATION AND TRAINING**

M&S in modern naval training and education is crucial for the transformation of the Bulgarian Navy. Among the variety of simulators with limited applicability, we should develop the vision of a universal simulator that can cover the training of our personnel on different levels – tactical, operating and strategic. This article focuses on

- Problems of creating a conceptual education and training model that is universal
- Creating a model that is applicable across different levels
- Analysing theoretical and practical problems
- Defining the requirements for a model which can be used to overcome the above problems

Captain Boyan Mednikarov
Deputy Commandant of the Bulgarian Naval Academy
N.Y.Vaptsarov Naval Academy

16:45 **INTERACTIVE PANEL DISCUSSION: DETERMINING THE BEST MIX OF LIVE VIRTUAL & CONSTRUCTIVE**

Discuss your views with panel experts and gain insights into new perspectives and ideas. Topics to be discussed include:

- Pros & cons of Live, Virtual & Constructive
- True value of serious gaming for training
- State of technology for modeling and simulation

Moderator:
Dr Kendall R. Wheaton

Panelists:
Rodney A. Chapman
Klaus H.A. Niemeyer
Prof Bernard Zeigler

17:15 **IMPLEMENTING THE VIKING CAX CONCEPT**

The VIKING concept is to practice and exercise the procedures for joint operational/tactical planning and execution of doctrines related to the the staff procedures you want to follow. For Sweden this means the NATO Combined Joint Task Force (CJTF) concept as well as EU Battle Group Concepts. The VIKING concept will mirror a UN mandated chapter VII: multi-national operation in a complex environment, which requires a joint military forces as well as civilian presence.

Lars Lindberg
Head of Department
Div. of Command & Control Sytems
Swedish Defence Research Agency

18:00 *Chairman's Summary & Closing Remarks*

CONFERENCE DAY 2 • 28 AUGUST 2008

08:30 *Registration and refreshments*

09:00 *Chairman's Welcome & Opening Address*
Dr Richard E. Hayes
President and Senior Scientist
Evidence Based Research

09:05 **AUSTRALIAN DEFENCE SIMULATION: APPROACHES, POLICIES, PROGRESS AND APPLICATIONS**

Over the last 10 years Australia has invested heavily in Defence Simulation. Much of this investment has been in individual training for aircrafts, ships and weapons training. Recently we have seen simulation investment expand into maintenance training, collective training, capability decision support and course of action analysis. This presentation covers:

- Enhancing military training through synthetic means
- Maintaining a good return on investment
- Examining outcomes, investments and applications which impacts National Defence
- Case Study of success stories in the Australian Defence Simulation Office (ADSO) towards a national simulation approach

Darren Mc Farlane
Acting Director General
Australian Defence Simulation Office

Day 2 Keynote

09:50 **CAN M&S-MEDIATED EXPERIMENTS, TRAINING, AND OPERATIONS INFORM STRATEGIC AND PROGRAM ANALYSIS?**

In one idealisation, M&S can be the connector among the usually separate domains of strategic planning, acquisition, program planning, and operations. Strategies that cannot be implemented, weapon systems that prove ineffective in operations, and programs that put priority more on "things" rather than on capabilities of actual use are all to be deplored, and might reasonably be avoided with more cross-cutting work. At the technical level, however, the models and simulations used for training and large-scale experimentation have been designed for those purposes and are not typically very helpful to higher-level planning and programming. Can and should that be changed? This paper discusses:

- Concept of a family of analytic tools that is desirable and technically feasible for the military
- Concrete examples on integrating highly detailed simulations, historical information and higher level analytical models

Dr Paul K. Davis
Principal Researcher
RAND Corporation

Insight from work done for the U.S. Office of the Secretary of Defense

10:35 *Morning Networking Break*

11:05 **COMPLEX ENDEAVORS AS CHALLENGES TO THE MODELING AND SIMULATION COMMUNITY**

Military missions and national security challenges have changed from the familiar (war fighting) to the novel (complex endeavors involving a wide variety of actors including military coalition partners, civilian partners, non-governmental actors, private industry partners etc). Traditional & novel challenges such as the following are explored here:

- M&S of Command and Control
- M&S of Human Behavior
- M&S of Irregular Warfare
- M&S of Information Operations

The crucial issue of validation of the above is also analysed.

Dr Richard E. Hayes
President and Senior Scientist
Evidence Based Research

12:05 *Lunch*

13:35 **SERIOUS GAMING: A DISRUPTIVE TECHNOLOGY ASSESSMENT GAME**

Defence and security planners, operators and science & technology people normally do not communicate too much to each other. Scientists develop new technology, planners try to understand it and plan new systems around them, and operators try to use the developed systems as effectively as possible. This is a sequential process in which the actors do not interactively communicate a lot. To overcome this dilemma, an assessment game is developed to:

- Ensure systems meet expectations of the end users
- Important considerations or developments are not side-stepped

- Communicate in an early stage on the usefulness and possible disruptiveness of unforeseen technical innovations

Michel Rademaker
Senior Policy Analyst & Director Business Development
The Hague Centre for Strategic Studies

14:20 **HUMAN BEHAVIOR MODELING FOR VIRTUAL TRAINING ENVIRONMENT**

Human behavior modeling and simulation has many important applications in computer games, movie industry and virtual training environments. In a virtual training environment for military operations, it is crucial for the non-player characters (or bots) to demonstrate human-like behavior for the training to be effective. However, modeling human behavior is a challenging problem and requires inputs from different areas like psychology, sociology, physiology, AI, etc. Issues examined include:

- Critical aspects in human behavior modeling
- Creating computational model of human behavior that differs from traditional A.I
- Human decision-making process in time-critical situations

Prof Zhou Suiping
School of Computer Engineering
Nanyang Technological University

15:05 *Evening Networking Session*

15:35 **REAPING THE BENEFITS OF USING SIMULATION IN THE MODERN MILITARY OPERATIONAL ENVIRONMENT – A ROYAL THAI ARMED FORCES (RTARF) CASE STUDY**

In an era of non-traditional security threats, military personnel have to familiarize themselves in many different environments and be ready to response to missions other than war. RTARF expertise lies in Counterinsurgency (COIN), CA, HA/DR and modeling and simulation is used to achieve defence goals. This presentation examines:

- Different simulation requirements in the different services
- How to supporting different needs with limited resources
- How to link the simulation needs across the board
- Characteristics of the system needed to achieve linkage

Col Apisak Sombutcharoennon
Deputy Director of Joint and Combined Exercise
Royal Thai Armed Forces

16:20 **INTERACTIVE PANEL DISCUSSION: CHALLENGES & BARRIERS FACED BY M&S COMMUNITY**

Discuss your views with panel experts and gain insights into new perspectives and ideas. Topics to be discussed include:

- Moving towards a paradigm of interoperability
- Using M&S in irregular warfare such as disaster relief & Information Operations
- Validating M&S in different simulation environment

Moderator:
Dr Richard E. Hayes

Panelists:
Ed Kruzins
Paul K. Davis
Michel Rademaker

17:00 *Chairman's Summary & Closing Remarks End of Conference*

WHO SHOULD ATTEND

This conference is specially designed for professionals working in the area of **Modeling & Simulation♦ Operational Research ♦ Military Experimentation♦ Test & Evaluation Information Operations ♦ Command , Control, Communications, Computers , Intelligence, Surveillance and Reconnaissance (C4ISR) Systems ♦ Future Systems Architecture ♦ Defence Capabilities ♦ Interoperability ♦ Military Communications ♦ Information R&D ♦ Training Strategies ♦ Networked Systems & Infrastructure** with the following job titles:

♦ Commander ♦ Chief Of Staff ♦ Head of Department ♦ Analyst ♦ Project Manager ♦ Staff Officer ♦ Engineer

Key Organisations:

♦ Ministry of Defence ♦ Joint, Army, Air Force and Navy ♦ Defence Procurement Agency ♦ Defence Research Agency ♦ All government agencies interested in Modeling And Simulation ♦All defence-related industries interested in Modeling And Simulation

Pre-Conference Masterclass A

26 August 2008 (Tuesday) 9am-5pm

BATTLE STATIONS 21 AS A MODEL TRAINING SIMULATOR OF THE FUTURE

In this master class, the background, current state and future plans for the Navy's newest immersive trainer is discussed. Battle Stations 21 or the USS Trayer, is a 3/4-scale, 210 feet long mockup of an Arleigh Burke-class destroyer enclosed within a 157,000-square-foot building and cost US82.5 million. The objective of BS-21 is to achieve a higher order of ability to make decisions in a highly stressed environment and to think about the effect on the unit and team. The latest in virtual reality, entertainment technology and modern construction techniques is incorporated to present recruits with the feels, smells, sounds and appearance of a real destroyer. The grueling exposure recruits would face is arguably the most realistic military training simulation environment in existence. Scenarios covered anything that can happen aboard a ship at sea, from missile attacks that can cause fires, to flooding caused by exploding undersea mines.
The following topics would be covered:

- Analysing the Navy recruit training process model
- Putting together a comprehensive training syllabus
- Using the right training scenarios, based on lessons learned from actual events
- Examining the integration of serious gaming and virtual tours into the training process
- Overall performance assessment strategy
- Using computer assisted training for integration in the next phase of training development

About Your Course Facilitator:

Mr. Chapman is the adult education agency expert, authority for Navy accessions training and director of learning strategies at US Naval Service Training Command. As an organizational change agent, he is responsible for benchmarking, evaluating and introducing new training methods and techniques to improve training quality and sailor performance. He also serves as the training quality and curriculum control authority for two field activities, which make up five training programs, with a combined annual training workload in excess of 40,000 new Navy officer and enlisted personnel. Recent projects include computer assisted instruction on an artificial intelligence foundation and serious games training simulations.

Post-Conference Masterclass B

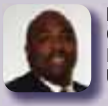
29 August 2008 (Friday) 9am – 5pm

THE DEVELOPMENT AND USE OF SIMULATION MODELS FOR CATASTROPHIC SITUATIONS

In this masterclass, an evolutionary development and use of a simulation model will be performed using an interactive approach with the participation of the audience. The first step will be the joint definition of potential catastrophic situations for a typical industrialised, highly developed region with dense population such as Singapore. The idea is the formulation of the requirement for intensive analysis of such scenarios in order to be able to manage the consequences. The second step will be the definition of the most important and sensitive entities and elements of the region. The need and problems for generation of metrics and associated data are demonstrated. A joint approach for the identification of parameters and processes is used. This will lead to the third step of a generic simulation model with some systematic experimentation of sensitive areas, statistics, and potential solutions to the problem of managing critical areas. Potential options for countering the consequences will be defined in the joint working. Finally the generic model will be used in an exercise setup (CAX) for training. The participants will take the role of typical staff teams to exercise the required actions of crisis response decision groups. The one day masterclass will demonstrate the principles of systems analysis, the development of a model, as well as the use of the model for experimentation, exercises, and demonstration.

About Your Course Faciliator:

Mr Klaus Niemeyer has had a long and distinguished career in Military Operations Research, Simulation and Computer Applications. He was the chief the IABG Wargaming Centre in 1972 and initiated international programmes such as the US/German European Conflict Analysis Program (ECAP), and the Joint Simulation (JOSIM) Project. Mr Niemeyer became Chief Scientist (NATO A6, one star equiv.) and Director (Chief) of the Operations Research Division at the SHAPE Technical Centre (now NATO Consultation, Command and Control Agency) in May, 1992. In this position he was the principal advisor on scientific matters and military operations analyses that affect SHAPE and Allied Command Europe. Mr. Niemeyer currently operates his own consultancy.



Rodney A. Chapman
Chief Learning Officer
Director, Learning Strategies Dept
US Naval Service Training Command

Mr. Chapman is the adult education agency expert, authority for Navy accessions training and director of learning strategies at US Naval Service Training Command. As an organizational change agent, he is responsible for benchmarking, evaluating and introducing new training methods and techniques to improve training quality and sailor performance. He also serves as the training quality and curriculum control authority for two field activities, which make up five training programs, with a combined annual training workload in excess of 40,000 new Navy officer and enlisted personnel. Recent projects include computer assisted instruction on an artificial intelligence foundation and serious games training simulations.

Dr Kendall R. Wheaton
Senior Operational Research Analyst
Canadian Department of National Defence

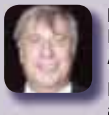
Dr Wheaton is a senior operational research analyst in the Defence Research and Development (DRDC) Centre for Operational Research and Analysis. In his career he has conducted operational research studies for air, naval and joint projects and helped establish the Canadian Forces Experimentation Centre. He is presently involved in DRDC's Technology Demonstration Program where he contributes to a variety of projects and provides analysis and advice to support decisions on this program. His work focuses on joint experimentation and on developing

Lars Lindberg
Head of Department
Div. of Command & Control Systems
Swedish Defence Research Agency

Mr Lindberg has been working in the military for over two decades. In his work at the Swedish Defence Wargaming Centre, he participated in several Viking exercises as Head of the Core Planning Team and as the Deputy Director DISTAFF during the exercises. He is a Member of the Joint Planning Committee between Sweden and US regarding PfP Simulation Network) and POC for the MoU since 1998-2008.

Col Apisak Sombutcharoennon
Deputy Director of Joint and Combined Exercise
Royal Thai Armed Forces

Col Sombutcharoennon graduated from the Chulachomklao Royal Military Academy and have since then completed several prestigious overseas courses in US and Australia. He has been in the Thailand Operation Division 1st Army area HQs for more than 10 years and is the primary Cobra Gold Action Officer of RTARF HQs. He is responsible for major Joint and Combined exercise between Thailand and Allies countries.



Prof Bernard Zeigler
Director
Arizona Center for Intergrative Modeling And Simulation

Prof Zeigler is currently heading a project for the Joint Interoperability Test Command (JITC) where he is leading the design of the future architecture for large distributed simulation events for the Joint Distributed Engineering Plant. He is also developing DEVS-methodology approaches for testing mission thread end-to-end interoperability and combat effectiveness of Defense Department acquisitions and transitions to the Global Information Grid with its Service Oriented Architecture (GIG/SOA). He received the JITC Golden Eagle Award for research and development of the Automated Test Case Generator, 2005 and the Award for Best M&S Development in the Cross-functional Area, 2004/2005.

Prof Xueshan Luo
Deputy Director
National Key Laboratory of Information Systems Engineering
National University of Defense Technology, China

Prof Luo is a renowned expert in his field and contributor to many conference proceedings. With an established reputation & track record, he had published more than 100 books and articles in the areas of C4ISR architecture, C4ISR systems modeling, Evaluation of C4ISR systems, and Military modeling and simulation.

Captain Prof Boyan Mednikarov
Deputy Commandant of the Bulgarian Naval Academy
N.Y.Vaptsarov Naval Academy

Captain Mednikarov's main responsibilities are in education and research. He has experience as a commanding officer of fast patrol boats and operational officer in the Operations Department of the Navy Headquarters. Among his research interests are studies of military systems, modelling of the activities of navy units and studies of naval organizations.

Darren Mc Farlane
Acting Director General
Australian Defence Simulation Office

Mr Mc Farlane has played a significant role in Australian Defence Simulation Governance, coordination and collaboration since 2001. He is the architect of the Defence Simulation Manual and is currently leading the development of the Defence Simulation Roadmap.

Klaus H.A. Niemeyer
Operations Analysis Consultant
Former Director Operations Research Division
NC3A (NATO Consultation, Command and Control Agency)

Mr Niemeyer has had a long and distinguished career in Military Operations Research, Simulation and Computer Applications. He was the chief the IABG Wargaming Centre in 1972 and initiated international programmes such as the US/German European Conflict Analysis Program (ECAP), and the Joint Simulation (JOSIM) Project. Mr Niemeyer became Chief Scientist (NATO A6, one star equiv.) and Director (Chief) of the Operations Research Division at the SHAPE Technical Centre (now NATO Consultation, Command and Control Agency) in May, 1992. In this position he was the principal advisor on scientific matters and military operations analyses that affect SHAPE and Allied Command Europe. Mr. Niemeyer currently operates his own consultancy.

Dr Paul K. Davis
Principal Researcher
RAND Corporation

Dr. Davis's research has long involved a combination of strategic planning and analysis, decision making theory, and theoretical and applied work on advanced methods of modeling, simulation, and analysis. He has published books on capabilities-based planning, effects-based operations, composability of models and simulation, portfolio-analysis methods for acquisition planning, multiresolution modeling, and--as a cross-cutting theme--exploratory analysis under uncertainty. He also has long experience with the design and implementation of models, simulation, and analytic war games. Before moving to RAND some years ago, Dr. Davis was a senior executive in the U.S. Department of Defense (Program and Evaluation).

Michel Rademaker
Senior Policy Analyst & Director Business Development
The Hague Centre for Strategic Studies

Mr Rademaker is a senior policy analyst who possess vast experiences in defence and security research, ranging from strategy development to focused phenomena analyses. His background is a former officer in the Royal Netherlands Army with a degree in Business Administration. During his fifteen years in the military he held both staff post (joint level) and operational posts.

Dr Richard E. Hayes
President and Senior Scientist
Evidence Based Research

Trained as an empirical political scientist focused on decision making, Dr Hayes has been conducting basic and applied research on military command and control (C2) issues since 1980. His current focus is primarily on the emerging theory behind network centric operations (NCO) and "edge" organizations and the capture and analysis empirical evidence related to the effectiveness and agility of C2 systems.

Prof Zhou Suiping
School of Computer Engineering
Nanyang Technological University

Prof Zhou has published more than 50 peer reviewed articles in these areas. He is currently an associate editor of the International Journal of Computer Games Technology. He has served as technical program committee member of many international conferences and workshops in computer games and virtual environments. He is a member of IEEE and his current research interests include: large-scale distributed interactive applications (e.g., MMOGs), parallel/distributed systems, and human behavior representation in modeling and simulation. Previously, he worked as an engineer in Beijing Simulation Center, China Aerospace Corporation, and then joined Weizmann Institute of Science (Israel) as a Post-doctoral fellow.

Francis Choi
Practice Manager
Telelogic

Francis Choi is a key staff in the Modeling Division responsible for both business and technical pre-sale and post-sale activites on Modeling products in the Greater China and ASEAN Region

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M Hotel, Singapore
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Event Code: SGC 220

Cancellations/Substitutions
If you are unable to attend, a substitute delegate is always welcome at no additional charge. All bookings carry a 50% liability immediately after a fully completed sales contract has been received by the UNI office. Please note that a written notice of the cancellation must be received via mail or fax 3 weeks prior to the event date in order to obtain the balance of the event fee as a credit to be applied against another UNI conference, summit or training course. All fees are inclusive of an 18% service charge, which is completely non-refundable and non-creditable. Cancellation of any event with less than 3 weeks notice prior to the event date carry a 100% liability, however the delegate will still be entitled to a complete set of course documentation. Payment must be made within 5 working days upon registration and in agreement, UNI will not be able to mitigate its losses for less than 50% of the contract value in case of dispute with the client or cancellation of this contract by any one party. UNI reserves the right to cancel or make any other changes to the content and timing of the events or speakers for reasons beyond its control. If for any reason UNI decide to amend these conferences, summits or training courses, UNI is not responsible for covering airfare, hotel or other costs incurred by registrants. In the event that UNI cancel the event, UNI reserves the right to transfer this booking to another event or to provide a credit of an equivalent amount to another event to be held within the following twelve months.

INDEMNITY: Should for any reason outside the control of UNI, the venue or speakers change, or the event be cancelled due to an act of terrorism, extreme weather conditions or industrial action, UNI shall endeavour to reschedule but the client hereby indemnifies and holds UNI harmless from and against any and all costs, damages and expenses, including attorney fees, which are incurred by the client. The construction, validity and performance of this Agreement shall be governed in all respects by the laws of Singapore.