

Final Program

The Huntsville Simulation Conference ***HSC 2007***

The Advanced Research Center (ARC)

October 30, 2007 (Classified Sessions) – 1:30 to 4:00

The Huntsville Marriott

October 31, 2007 – 8:30 to 5:00

November 1, 2007 – 8:00 to 1:30

Invited Keynote Speaker: Michael C. Schexnayder

Deputy to the Commander for Research, Development & Acquisition
Space and Missile Defense Command

Invited Luncheon Speaker: Steven Thomas Phillips

NASA Marshall Space Flight Center

Conference General Chairman: Joseph S. Gauthier

[Gauthier Simulation, Inc.](#)

Conference Program Chairman: James Head

U.S. Army Research, Development, and Engineering Command

Primary Sponsor

[The Society for Modeling and Simulation International](#)

P.O. Box 17900, San Diego, CA 92177

(858) 277-3888; www.scs.org

Hosted by:

[The Alabama Modeling and Simulation Council](#)

CONFERENCE REGISTRATION

Wednesday, October 31, 2007, 8:00a.m. to 4:00p.m.

Thursday, November 1, 2007, 8:00a.m. to 11:00a.m.

Online pre-registration has closed. Register on site, in the meeting room area at the Marriott hotel.

CONFERENCE SOCIAL

Wednesday, October 31, 2007, 5:00p.m. to 6:30p.m.

Exhibit/Registration Area

The conference social event is an excellent opportunity to network with the other conference participants and visit the exhibitors. Enjoy heavy hors d'oeuvres and a cash bar. Costumes optional.

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[Presagis USA](#)

CONFERENCE COMMITTEE

The Society for Modeling and Simulation International wishes to thank and acknowledge the following individuals and their respective organizations for their contributions to the success of this conference:

Paul Agarwal, COLSA Corporation
Alleen Bray, Aegis Technologies Group
Harold Dessau, CAS. Inc.
Bruce Fairchild, Society for Modeling and Simulation International
Bruce Fowler, U.S. Army Research, Development, and Engineering Command (Retired)
Laurie Fraser, U.S. Army Research, Development, and Engineering Command
Jean Graffagnini, U.S. Army Research, Development, and Engineering Command
Sharon Hardy, Westar
James Head, U.S. Army Research, Development, and Engineering Command
Michelle Herman, BFA Systems
Keith Jodus, U.S. Army Research, Development, and Engineering Command
Lisa Laurendine, Missile Defense Agency
Nathanial Nichols, Aegis Technologies Group
E.L. Perry, Northrop Grumman IT
Jeff Maddox, U.S. Army Research, Development, and Engineering Command
Mindy Newbauer, U.S. Army Research, Development, and Engineering Command
Edwin Núñez, COLSA Corporation
Bernard Schroer, University of Alabama in Huntsville
Alan M. Shih, University of Alabama at Birmingham
Ralph Weber, Dynetics
Jeanette Wilson, Trideum Corporation
Bobby Wright, U.S. Army Research, Development, and Engineering Command

PROFESSIONAL ENGINEER CONTINUING EDUCATION UNITS

Attendance at this conference can be credited towards Professional Engineer Continuing Education Units (CEU).

CERTIFIED MODELING AND SIMULATION PROFESSIONAL RECERTIFICATION UNITS

This conference qualifies for Recertification Units (RU's) for the Certified Modeling and Simulation Professionals (CMSP) as administered by the Modeling and Simulation Professional Certification Commission (MSPCC – www.SimProfessional.org).

Invited Keynote Speaker: Michael C. Schexnayder
Deputy to the Commander for Research, Development & Acquisition
Space and Missile Defense Command/Army Forces Strategic Command
Thursday, November 1, 2007, 12:00p.m., Salon A/B/C

As the deputy to the commander, Mr. Schexnayder manages the Space and Missile Defense Command / Army Forces Strategic Command (USASMDC/ARSTRAT) Research, Development and Acquisition activities and is responsible for overseeing all materiel development functions, test and evaluation activities, and simulations support including the Space and Missile Defense Future Warfare Center, the Space and Missile Defense Technical Center which includes the U.S. Army Kwajalein Atoll/Reagan Test Site in the Marshall Islands and the High Energy Laser Systems Test Facility located at White Sands Missile Range, N.M., and the Technical Interoperability and Matrix Center. He also serves as the Head of Contracting Activity.

Mr. Schexnayder was born in New Orleans, La. He received a bachelor of science in electrical engineering from Louisiana State University in 1971, a master of science in electrical engineering from the Georgia Institute of Technology in 1979, and an MS in management as a Sloan Fellow from the Massachusetts Institute of Technology in 1988.

Columbia Investigation: Foam Impact Point Analysis

**Invited Luncheon Speaker: Steven Thomas Phillips
Digital Manufacturing Lead, NASA Marshall Space Flight Center
Thursday, November 1, 2007, 12:00p.m., Salon D/E/F**

On January 16, 2003, the Space Shuttle Columbia blasted off from launch pad 39-A at the Kennedy Space Center. At approximately 81 seconds into flight, a piece of insulating foam broke off of the external tank and impacted Columbia's left wing. This impact led to the catastrophic loss of Columbia during reentry on February 1, 2003. During the accident investigation, the Marshall Space Flight Center was presented with the following problem: Using only the available camera images, determine the point and speed of impact for the foam that hit Columbia's left wing.

To solve this problem, MSFC used its kinematics-based manufacturing simulation software to reproduce the flight path of Columbia. Cameras were also created inside the simulation to mimic those of the actual ground-based cameras. An iterative process was then entered whereby images from the simulated environment were matched to the actual camera images. To isolate the flight path of the foam, line-of-sight vectors were created from the simulated cameras to the foam location in space. This process was repeated for three separate cameras. Once all the line-of-sight vectors were defined, a solution path was generated by triangulating the vectors. This solution path provided a point and speed of impact.

Mr. Phillips is the Digital Manufacturing lead for NASA's Marshall Space Flight Center. He leads the team which is responsible for performing manufacturing simulations for the Upper Stage of the Ares I vehicle. He is currently implementing a Manufacturing Hub which will house all process and manufacturing related data. Mr. Phillips has also used manufacturing simulation software to solve non-manufacturing related problems, such as the Columbia Accident Investigation and the RCC On-orbit Crack Repair. Mr. Phillips has worked with NASA for 10 years. He graduated from the University of Alabama in Huntsville with a Bachelor of Science Degree in Computer Science and Mathematics.

THE ADVANCED RESEARCH CENTER (ARC)
CLASSIFIED PRESENTATION
Chairs: Paul Agarwal and James Young, COLSA Corporation

TUE, 1:30 > Welcome

TUE, 1:45 > FWC Information Paper on Real-Time 3D Modeling & Visualization
Andrew Johnson, Norven Goddard, Space and Missile Defense Command

PATHFINDER
GRADUATE RESEARCH IN SIMULATION TECHNOLOGY
Chair: E. L. Perry, Northrop Grumman IT

WED, 10:30 > Metasymbol Coding for HPC Visualization of Structured Grid Physical Simulation Datasets
Brian Wood, Timothy Newman, University of Alabama in Huntsville

WED, 11:00 > An Introduction to the Live-Ball Virtual Pitcher
Bradley Schricker, Dynetics, Inc.
Theresa Becker, Full Sail, Richard Calloway, University of Central Florida

WED, 11:30 > Aggregation Procedures for Large Hierarchical Simulation Models
June Rodriguez, John Miller, Kenneth Bauer, Air Force Institute of Technology

PATHFINDER
AVIATION, MISSILE AND SPACE SIMULATION
Chair: Keith Jadus, U.S. Army Research, Development, and Engineering Command

WED, 1:30 > Endgame Attitude Control for Maximizing Terminal Performance
David Samuel Stauffer, Tim Curry, Miltec Missiles and Space

WED, 2:00 > Predictive Target Modeling for Simulation Flexibility
Stephanie Brown, AMRDEC

WED, 2:30 > Space Improvements in One Semi Automated Forces (OneSAF)
Alesya Paschal, Steve Fox, SMDC

PATHFINDER
TUTORIAL: QUALIFICATION FOR THE
CERTIFIED MODELING AND SIMULATION PROFESSIONAL (CMSP) CERTIFICATION
PRESENTED BY THE ALABAMA MODELING AND SIMULATION COUNCIL (AMSC)
Ralph Weber, Alabama Modeling and Simulation Council

WED, 3:00 > Certification creates an identity for and builds cohesiveness across the modeling and simulation community by establishing guidelines for determining professional competency. This tutorial provides the basic instructions as to application procedures and test preparation for the CMSP certification.

PATHFINDER
PROPULSION
Chair: Pete Carter, West Desert Test Center, US Army ATEC

THU, 8:30 > Transient Temperatures of Liquid Propellant Engine Nozzles

Rom Murty, Dewey Farmer, SAIC

THU, 9:00 > Calculation of Spacecraft Propellant Loading Using a Multi-Burn Numerical Model

Matthew Turner, Michael Benfield, The University of Alabama in Huntsville

PATHFINDER

TUTORIAL: EVOLUTIONARY COMPUTING: LEVERAGING MODELING & SIMULATION

Edwin Núñez, Edwin Roger Banks and Paul Agarwal, COLSA Corporation

THU, 10:00 > Evolutionary computing (EC) encompasses a broad family of heuristic techniques that are helping solve difficult optimization problems in fields such as lens, electrical circuit, and mechanical designs, flight planning, logistics scheduling, robotics, buried unexploded ordnance discrimination, and many others. EC starts with a population of random solutions and evolves improved solutions through iteration using the biologically inspired processes of selection, recombination, and mutation over many generations. A fitness function determines the quality of the evolved solutions. Modeling & Simulation processes may serve as an underlying element in the evaluation and definition of EC fitness functions. This tutorial presents examples of how EC techniques have been successfully applied to solve diverse aeronautical, mathematical, engineering, and scientific problems, including some labeled as “human competitive results”, i.e. machine generated results indistinguishable from the work performed by humans. The tutorial includes demonstrations using the Advanced Research Center Genetic Programming Lab (ARCGPL) software suite, developed by COLSA Corporation at the Advanced Research Center (ARC) in Huntsville, AL.

PATHFINDER

EVOLUTIONARY COMPUTING

Chair: Edwin Núñez, COLSA Corporation

THU, 11:30 > Evolutionary Computation for Lens System Design

Edwin Roger Banks, Edwin Núñez, Paul Agarwal, COLSA Corporation

Marshall McBride, Ron Liedel, Space and Missile Defense Command

ENTERPRISE

SIGNAL/IMAGE PROCESSING

Chair: Chris Gaughan, Edgewood Chemical and Biological Center, US Army RDECOM

WED, 10:30 > Particle Swarm Optimization Algorithm For Block Based Motion Estimation

Jing Cai, David Pan, University of Alabama in Huntsville

WED, 11:00 > Image Registration using Automated Image Registration (AIR)

Shirali Amin, Alan Shih, University of Alabama at Birmingham

WED, 11:30 > The De-noising of Radar Pulses Using Compactly Supported Wavelets in Conjunction with the Run Test

Hyundoo Shin, Raytheon

ENTERPRISE

SOFTWARE/HARDWARE-IN-THE-LOOP SIMULATION

Chair: Michelle Herman, BFA Systems

WED, 1:30 > Improved Range-Extent Modeling for Target Generator Hardware

Timothy Hampsch, Jeannette Carberry, Patrick Murphy, David Pavlik, Helmut Snyder, Raytheon

WED, 2:00 > C2PAT, A Closed Form Modeling of Command and Control System Response

Mark Umansky, AMRDEC

Christian Tournes, Davidson Technologies, Inc.

WED, 2:30 > Improved Performance of Liquid Crystal on Silicon (LCoS)-Based Infrared Scene Projectors

Jack Lippert, Dynetics, Inc.

Kipp Bauchert, Boulder Nonlinear Systems, Inc.

ENTERPRISE

VIRTUAL ENVIRONMENTS AND VISUALIZATION

Jean Graffagnini, U.S. Army Research, Development, and Engineering Command

WED, 3:30 > Vision-Space

John Jupe, Simon Parish, Vision-Spaceimaging Ltd

Dave Hoskins, QuikQuak

Dan Julian, Time-Slice Films

Andy Baker, The Swansea Institute

WED, 4:00 > CPU Processing Analysis: High Resolution Imagery Over the Mississippi Gulf Coast

Shayron Thomas, Chuck Patrick, Monika Rabarison, Jackson State University

ENTERPRISE

POTPOURRI

Chairs: Edwin Núñez, COLSA Corporation, Mark McDaniel, SAIC

CLIMATE, WEATHER AND OCEAN MODELING

THU, 9:00 > A Study of the Army Design Hover Criterion Using Temperature and Pressure Altitude

Mark Calvert, U.S. Army Aviation and Missile Research, Development and Engineering Command

Douglas Horacek, U.S. Army Aviation and Missile Command

HOMELAND DEFENSE

THU, 9:30 > An Integrated Simulation Environment for Incident Management Training

Charles McLean, Tina Lee, Guodong Shao, National Institute of Standards and Technology

Sanjay Jain, George Washington University

INTELLIGENT SYSTEMS

THU, 10:30 > Introducing SLX to an Expert System World View

Kevin Reilly, Leonard Jowers, David Lively, Steven Adrian, Beth Brooks, Mithun Challa, University of Alabama at Birmingham

Shanderia Parker, Miles College

Brittany Streeter, Talladega College

RADAR SIMULATION

THU, 11:00 > Radar Modelings for Analysis Using IDEEAS

Surasak Hauger, Science Applications International Corporation

UNMANNED SYSTEMS

THU, 11:30 > MENACE: A Modeling and Simulation Success Story

Roger Herdy, Qualis Corporation

CHALLENGER

**PANEL: MULTI-RATE, MULTI-DISCIPLINARY, AND DISTRIBUTED
REAL-TIME AND NON REAL-TIME SIMULATION FOR MARINE APPLICATIONS**

Chair: Roy Crosbie, California State University, Chico

Chair: Narain Hingorani, Consultant

WED, 10:30 > Introduction: Ship design addresses the interrelated issues of electrical, structural, thermal, hydraulic, mechanical design to produce a complete design. The simulation tools must be interfaced to propagate changes to all areas, allowing designers in different disciplines to collaborate in a continuous design process that includes real-time and non-real-time simulation.

WED, 11:00 > Models as Specifications

Terry Ericson, Office of Naval Research

WED, 11:30 > Challenges in Implementing Zoomable Multiresolution Simulation Models

Roger Dougal, University of South Carolina

WED, 1:30 > Accuracy Evaluation Methodology for Power-Hardware-in-Loop Simulations

Mischa Steurer, Wei Ren, Center for Advanced Power Systems, Florida State University

WED, 2:00 > Multi-rate Simulation using ESL

John Pearce, ISIM International Simulation

WED, 2:30 > Distributed Processing for Optimizing Marine Power Systems

Ani Gole, Hossein Pourreza, Shaahin Filizadeh, University of Manitoba

Rohitha Jayasinghe, Manitoba HVDC Research Centre

WED, 3:30 > Investigations of Real-Time, Multi-Rate, Simulation Techniques for Power Electronics

Roy Crosbie, California State University, Chico

WED, 4:00 > Hyperfast and Distributed Real-Time Simulation: Integrating the Power System in the Complete Vehicle Simulation

Scott James, Applied Dynamics International

WED, 4:30 > The Role of Physical Modelling Tools for Enabling Effective System Modelling of More-Electric Marine Platforms

Graham Dudgeon, The MathWorks

Paul Casson, Pete Deverill, Ministry of Defence, United Kingdom

CHALLENGER

SIMULATION METHODOLOGY, THEORY AND PHILOSOPHY

Chair: Surasak Hauger, Science Applications International Corporation

THU, 9:00 > A General Model of Resources Using the Unified Modeling Language

Charles Jenkins, Stephen Rice, University of Mississippi

THU, 9:30 > Steady State Simulation and Cornering Analysis of Vehicles Using Multibody Dynamics Software

William Prescott, Richard Kading, LMS North America

**CHALLENGER
BEHAVIORAL MODELING**

Chair: Ralph Weber, Dynetics

THU, 10:30 > Simulation Driven Real-Time Testing Of a Railroad System

Milan Soklic, Florida Gulf Coast University

THU, 11:00 > Probabilistic Models in War Gaming and Behavior Analysis

E. L. Perry, Northrop Grumman IT

THU, 11:30 > The Colombian Triangulation: Modeling the Effects of the Insurgents, Military, and Political Establishment on the Counter-Insurgency Effort

John Sokolowski, Catherine Banks, Old Dominion University

**DISCOVERY
TRANSPORTATION**

Chair: John Sokolowski, Old Dominion University

WED, 10:30 > Container Terminal Simulation

*Gregory Harris, Lauren Jennings, Bernard Schroer, University of Alabama in Huntsville
Dietmar Moeller, University of Hamburg*

WED, 11:00 > Implementation of Managed Lanes in Birmingham, Alabama

Virginia Sisiopiku, Ozge Cavusoglu, University of Alabama at Birmingham

WED, 11:30 > Emissions Associated with Various Driving Cycles for Light-Duty Vehicles

Robert Peters, Virginia Sisiopiku, Fouad Fouad, University of Alabama at Birmingham

WED, 1:30 > Comparison of Traffic Simulation Delay to Actual Delay

*Roy Berryman, Michael Anderson, University of Alabama in Huntsville
Virginia Sisiopiku, University of Alabama at Birmingham
Steven Jones, University of Alabama*

WED, 2:00 > Modeling a Generalized Intermodal Node for Mesoscopic Traffic Simulation

*Jochen Wittmann, Johannes Göbel, Dietmar Möller, University of Hamburg
Bernard Schroer, University of Alabama in Huntsville*

WED, 2:30 > A Mesoscopic Level Traffic Modeling Approach: Concept and Level of Detail

*Dietmar Möller, Johannes Göbel, Jochen Wittmann, University of Hamburg
Bernard Schroer, University of Alabama in Huntsville*

**DISCOVERY
PANEL: MOVING OFF THE PLANET
SIMULATION TO POWER SPACE EXPLORATION
INNOVATION, DISCOVERY AND INSPIRATION**

Chair: Priscilla Elfrey, NASA Kennedy Space Center

WED, 3:30 > Panelists discuss space lifecycle simulations, especially distributed simulations, to serve highly dispersed teams through the 21st century as technology, teams and missions change. How can simulation help deal with the deadly space environment? What role does simulation currently play in early design,

development, ground operations and planning for space operations? How is simulation encouraging innovation, teamwork, safety and cost reduction? What are the benefits to date? What benefits are yet anticipated?

Edwin Z. Crues, NASA Johnson Space Center

Michael Conroy, Joni Richards, NASA Kennedy Space Center

Don Monell, NASA Marshall Space Flight Center

**DISCOVERY
SIMULATION IN EDUCATION**

Chair: Claudette Owens, Space and Missile Defense Command

THU, 9:30 > Aircraft Dynamics Simulator

Sujur Ramalingam, Ahmed Mohammed Ismaeel, Mansoor Ahmed AlMarshoudi, Abu Dhaba Men's College

THU, 10:30 > Multi-Player Immersive Learning Simulations

E. L. Perry, Northrop Grumman IT

Fortune Mhlanga, Abilene Christian University

THU, 11:00 > The Introduction of Modeling & Simulation at the High School Level

Jeffery Little, University of Alabama in Huntsville

THU, 11:30 > An Undergraduate Modeling and Simulation Engineering Program

Roland Mielke, Old Dominion University

**ATLANTIS
DISTRIBUTED SIMULATION**

Chair: Sharon Hardy, Westar

WED, 10:30 > Unmanned Aircraft Systems Distributed Simulation Sensor Transmission

Jake Roth, University of Alabama in-Huntsville

Dan Belk, Mike Burger, Joe Moran, U.S. Army RDECOM

WED, 11:00 > Automating Interoperability between NASA Ares Launch Vehicle Simulations and Commercial Visualization Products

Gregory Reed, Wesley Colley, University of Alabama in Huntsville

WED, 11:30 > Simulation of Robotic Swarm Sense for Target Localization

Galia Tzvetkova, Bulgarian Academy of Sciences

Fabio Bonsignorio, Heron Robots s.r.l

**ATLANTIS
COMPUTATIONAL FLUID DYNAMICS**

Chair: Alan Shih, University of Alabama at Birmingham

WED, 1:30 > Aerospace Applications using a Geometry and Mesh Generation Template System

Allison Copus, Justin McGlown, Douglas Ross, Fredric Dorothy, Alan Shih, University of Alabama at Birmingham

WED, 2:00 > Efficient Quadrilateral Mesh Generation in Two Dimensions

Chia-Chun Chen, Yasushi Ito, Alan M. Shih, Bharat K. Soni, University of Alabama at Birmingham

ATLANTIS

COMPUTATIONAL STRUCTURAL MECHANICS

Chair: James Davidson, Auburn University

WED, 3:00 > Simulation of Polymer Encased Concrete Walls Subjected to Blast Using High Performance Computing

Deepak Somasundaram, University of Alabama at Birmingham

James Davidson, Auburn University

Robert Dinan, Air Force Research Laboratory

WED, 3:30 > Simulation Methodologies for Membrane Retrofit Concrete Masonry Walls Subjected to Blast

Lee Moradi, University of Alabama at Birmingham

James Davidson, Auburn University

Robert Dinan, Air Force Research Lab.

WED, 4:00 > Finite Element Simulation of a Flexible Shelter Structure under Blast Loading

Zuoping Li, David Ray, University of Alabama at Birmingham

James Davidson, Auburn University

Bryan Bewick, Robert Dinan, Air Force Research Laboratory

WED, 4:30 > Simulation of Slender Precast Concrete Wall Panels Subjected to Blast Loads using LS-DYNA

Robert Browning, James Davidson, Auburn University

Bryan Bewick, Robert Dinan, Air Force Research Laboratory

ATLANTIS

SIMULATION BASED DESIGN

Chair: Takahisa Minamitani, MI Research, Inc.

THU, 8:30 > Easy Utilization of Computational Fluid Dynamics – Flow Designer

Kaoru Ikejima, Advanced Knowledge Laboratory, Inc.

Kazunari Momose, Osaka University

Takahisa Minamitani, MI Research, Inc.

THU, 9:00 > Workflow Automation of NASA's Vehicle Integration and Performance Analysis

Jeffery Little, University of Alabama in Huntsville

Julie Ray, Qualis Corporation

ATLANTIS

LOGISTICS, SUPPLY CHAIN

Chair: Greg Parlier, SAIC

THU, 10:00 > Transforming Army Logistics: A Center for Innovation in Logistics Systems

Greg Parlier, SAIC

THU, 10:30 > Coal Terminal Simulation

Gregory Harris, Anthony Holden, Bernard Schroer, University of Alabama in Huntsville

Dietmar Moeller, University of Hamburg

THU, 11:00 > A Simulation to Determine Capital Equipment Constraints of a Barge Loading Operation at a Seaport Coal Terminal

Anthony Holden, Sarah Marcott, Gregory Harris, University of Alabama in Huntsville

THU, 11:30 > ATLAST Modeling & Simulation in Support of Programmatic Decisions
Roy Bryant, Clockwork Solutions, Inc

COLUMBIA
VALIDATION, VERIFICATION AND ACCREDITATION
Chair: Nathaniel Nichols, Aegis Technologies Group

WED, 10:30 > A Comparison of Statistical Methods and Metrics for Validating a Simulation against a Single Flight Test
Terril Hurst, Brett Collins, Raytheon Missile Systems

WED, 11:00 > An Inferential Approach for Simulation Validation
Alex Yahja, National Center for Supercomputing Applications
Kathleen Carley, Carnegie Mellon University

WED, 11:30 > Validation Study of a Propulsion System Sizing Tool
Michael Benfield, Matthew Turner, University of Alabama in Huntsville

WED, 1:30 > The Role of Credibility Assessment in Verification, Validation and Accreditation
Danny Thomas, Bobby Hartway, AEGIS Technologies Group

WED, 2:00 > An Automated Process for Credibility Assessment
Tom Buckner, Danny Thomas, Bobby Hartway, AEGIS Technologies Group

COLUMBIA
INTEGRATED MODELING AND TEST ENVIRONMENTS
Chair: Frank Ciarallo, Wright State University

WED, 3:00 > Enhanced Modeling Using Entities in an Integrated Process-Driven and Event-Driven Environment
Vishnu Kesaraju, Frank Ciarallo, Wright State University

WED, 3:30 > Integrating Systems Engineering Simulations for Military Use
Kevin Tang, Glenn Beach, Charles Cohen, Ryan O'Grady, Rudy Rodriguez, Steve Rowe
Cybernet Systems Corporation
Rakesh Patel, Jason Ueda, Eric Jochum, Syed Mohammad
U.S. Army Tank Automotive Research Development Engineering Center

WED, 4:00 > Real-time PC-based IR/RF Missile Simulation using FPGA
Stephen Jones, Robert Hall, Mark Brown, Scientific Research Corporation

WED, 4:30 > Modelling of 3D Infra Red and Radar Cross Section Targets in CounterSim Using Modified Open Inventor Format Descriptions
Richard Ayling, Brian Butters, Nic Millwood, Roy Walmsley, Chemring Countermeasures Ltd

COLUMBIA
NETWORK SIMULATION
Chair: Richard Tuggle, University of Alabama in Huntsville

THU, 8:30 > Large-Scale Simulations of Worms and Mitigation Techniques With Background Traffic Analysis

Mohamed Abdelhafez, George Riley, Georgia Institute of Technology

THU, 9:00 > IP Network's Impact on Weapon Systems' Effectiveness

Richard Tuggle, University of Alabama in Huntsville

**COLUMBIA
BATTLEFIELD SIMULATION**

Chair: Gloria Flowers, U.S. Army Space and Missile Defense Command

THU, 10:30 > CB Defense M&S Tools

Michael O'Connor, Joseph Fann, Dennis Jones, ITT

Chris Gaughan, Edgewood Chemical and Biological Center, US Army RDECOM

Pete Carter, West Desert Test Center, US Army ATEC

THU, 11:00 > Towards an Aggregate-Level Combat Resolution Algorithm Based on Entity-Level Models

Mikel Petty, University of Alabama in Huntsville

Robert Franceschini, Science Applications International Corporation

James Panagos, Gnosys Systems

THU, 11:30 > The Future of Wargame Design: A Componentized Approach

David Schwartz, RIT

Kevin Locke, Cornell University

David Ross, Air Force Research Laboratory

Mike Emeny, RIT