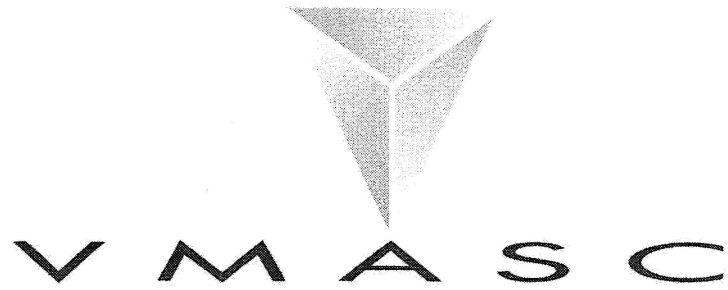# Modeling, Simulation, & Gaming: Student Capstone Conference

by

Catherine M. Banks

V M A S C

The Discipline of M&S

Modeling, Simulation, & Gaming

Student Capstone Conference

April 10, 2008
Catherine Banks, Ph.D.

Student Capstone Conference

- Highlights student research and student projects focused on MS&G
- Competitive presentations
  - Volunteer judges from industry, government, military and academic institutions across America
  - Evaluate research, presentation expertise, and ability to answer questions
  - Judges also facilitate their assigned conference tracks

Student Capstone Conference

- For students the presentations are a milestone of their research and academic careers.

- Conference the opportunity to present their findings to members of the M&S community in academe, industry, and government.

- Seven tracks.

- Awards provided for top 3 projects in each track at Capstone Banquet the evening of April 10th.

Capstone Conference Tracks

- **Transportation**

  Applications of M&S to solving multimodal transportation problems. Sample topics include:
  - o Development, validation, and application of microscopic and macroscopic traffic models for road and railway
  - o Travel demand models
  - o Port facility operations
  - o Air traffic control systems

- **Medical**

  This track looks into various aspects of medical M&S including:
  - o Imaging capability
  - o Patient models (using augmented virtual reality)
  - o Models of physical systems, such as joints and muscles,
  - o Verification and Validation programs for medical simulations

Capstone Conference Tracks

- **Education / Game-based Learning**
  The range of potential topics might include:
    - M&S in educational theory
    - Creation of specific educational products (actual games)
    - Explorations of future trends in gaming.

- **Homeland Security / Defense**
  This track includes any work done in the HLS/D domains that interfaces M&S capabilities with command and control systems and M&S work to support operations research, analysis, and visualization of military or homeland security systems or problems.

- **M&S in Engineering**
  Focuses on M&S methodologies and applications in the broader domain of engineering, including the substitution of M&S testing for traditional experimentation and prototyping. Sample topics include, but are not limited to:
    - Enterprise decision support
    - Optimization
    - Product design and testing
    - Life cycle support planning

Capstone Conference Tracks

- **<u>Applied Principles of M&S / Body of Knowledge</u>**
  The Body of Knowledge is the domain of knowledge and capability that serves to provide identity to the profession of specific discipline. Presentations should address core elements of the discipline. Potential topics might include:
  - o Theories of simulation
  - o Principles of distributed simulation
  - o Composability and Interoperability
  - o Verification and validation

- **<u>General Science</u>**
  This track encompasses the use of M&S in the non-medical sciences and is open to all science disciplines. Any application of M&S in the life sciences is a candidate for this track. Examples include M&S use in:
  - o Ecology
  - o Paleontology
  - o Climate modeling
  - o Oceanography
  - o Biochemistry
  - o Behavior.

Call for Papers

•**GRADUATE STUDENTS** must submit a 250 word abstract and a paper 6-8 pages in length. Students should be the primary authors of the paper. Papers must be unpublished and not currently submitted for publication.

•**UNDERGRADUATE STUDENTS** may submit posters or annotated PowerPoint presentations. Undergrads must submit a 250-word abstract of the presentation. Those who wish to submit a paper must follow the requirements as outlined for the Graduate students.

•**Submission deadline is Friday, January 11, 2008**. Submissions should be made by uploading via the VMASC website: www.vmasc.odu.edu/capstoneconference .

•Competitive submissions will be notified via e-mail by Wednesday, March 7, 2008.

MS&G Student Capstone Conference
Presentation Schedule

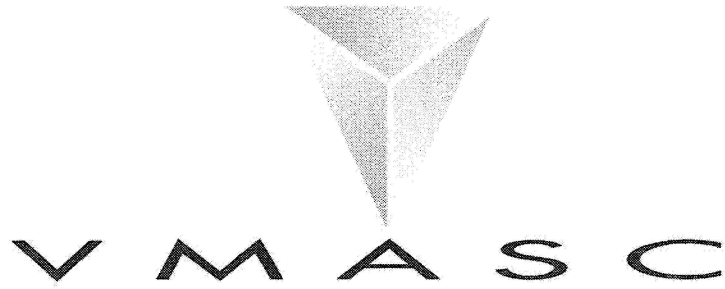| Tracks	9:30 10:00	10:00 10:30	10:30 10:45	10:45 11:15	11:15 11:45	11:45 12:15	12:15 1:15	1:15 1:45	1:45 2:15	2:15 2:30	2:30 3:00	3:00 3:30	3:30 4:00	3:15 4:00
Transp			B				L			B				
Medical			R				U			R				
Educa / Gaming			E				N			E				
HMS/Mil			A				C			A				
M&S in Engineering			K				H			K				
M&S Applic.														
General Science														

Track Leaders

TRACK	LEADER
Transportation	Dr. Yiannis Papelis Electrical and Computer Engineering
Medical M&S	Dr. Stacie Ringleb Mechanical Engineering (Biomechanics)
Education Game-based Learning	Dr. Ginger Watson Education
Homeland Security / Military M&S	Dr. John Sokolowski Modeling and Simulation
M&S in Engineering	Dr. Yuzhong Shen Electrical and Computer Engineering
Principles of M&S	Dr. Andreas Tolk Engineering Management and Systems Engineering
General Science	Dr. Kate Lyons Biology

Track Judges

TRACK	JUDGES
Transportation	- Catherine McGhee, P.E. (Virginia Transportation Research Council) - Camelia Ravanbakht, Ph.D. (Hampton Roads Planning District Commission)
Medical M&S	-William Wasilenko, Ph.D. (EVMS) -Don Combs, Ph.D., (EVMS)
Education / Game-based Learning	- Catherine Wyman, Ph.D. (Devry University) - Thom Pinelli, Ph.D. (NASA LaRC)
Homeland Security / Military M&S	- Mr. Tim Baker (US JFCOM) - Mr. Tony Cerri (US JFCOM)
M&S in Engineering	
Principles of M&S / M&S Body of Knowledge	Tuncer Oren, Ph.D. (Professor Emeritus of Computer Science at the School of Information Technology and Engineering of the University of Ottawa)
General Science	

Track Sponsors

TRACK	SPONSORS
Transportation	
Medical M&S	Eastern Virginia Medical School (Dr. Don Combs)
Education / Game-based Learning	
Homeland Security / Military M&S	American Systems (Butch Foley)
M&S in Engineering	Institute for Operations Research and the Management Sciences (INFORMS) (Dr. Pat Driscoll)
Principles of M&S / M&S Body of Knowledge	SAIC (VADM (Ret) James Metzger)
General Science	

VMASC

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QUESTIONS?