Welcome

Old Dominion University and the Virginia Modeling, Analysis and Simulation Center welcome you to the fifth annual *Modeling, Simulation & Visualization (MS&V) Student Capstone Conference*.

The Conference features student research and student projects that are central to MS&V. Also participating in the conference are faculty and judges who have volunteered their time to impart direct support to their students’ research, facilitate the various conference tracks, serve as judges for each of the tracks, and provide overall assistance to this conference.

This handbook is designed to assist all participants of the conference to better understand their areas of responsibilities. Included are descriptions of the student paper requirements, Track Leaders’ duties, and criteria for reviewing papers and judging presentations.

Appreciating the purpose of the conference and working in a cohesive, collaborative effort will no doubt result in a successful symposium for all involved. Thank you for joining us!

Sincerely,

Chuck Turnitsa
Capstone Conference Chair Person

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638-6315
Table of Contents

Capstone Conference ................................................................................................................... 4
Schedule ........................................................................................................................................... 5
Track Descriptions ........................................................................................................................... 6
Student Submissions .......................................................................................................................... 8
On Line Paper Submission ................................................................................................................ 9
Track Leaders .................................................................................................................................... 9
Reviewers .......................................................................................................................................... 10
Judges ................................................................................................................................................ 10
The Gene Newman Award for Excellence in M&S Research ......................................................... 11
Capstone Banquet .............................................................................................................................. 11
About VMASC ................................................................................................................................... 11
Appendix A: Paper Evaluation Form – Reviewers ........................................................................... 12
Appendix B: Presentation Evaluation Form - Judges ........................................................................ 14
Capstone Conference

The Virginia Modeling, Analysis and Simulation Center (VMASC) of Old Dominion University is hosting the 2011 Modeling, Simulation, & Visualization Student Capstone Conference on April 14th. The Conference features students in Modeling and Simulation undergraduate & graduate degree programs from national and international colleges or universities. Students will present their research to an audience of fellow students, faculty, judges, and other distinguished guests.

For the students, these presentations afford them the opportunity to present their research to members of the modeling and simulation community in academe, industry, and government. Each presentation track is assigned judges who select the top three projects for each track. These winners will receive awards at the Capstone Banquet the evening of April 14th.

Registration is at the door. Cost per attendee is $25.00, payable by cash only upon arrival. Check, debit cards, and credit cards will not be accepted. The conference will conclude with the evening awards banquet. Please RSVP cturnits@odu.edu
## Schedule

### Morning
- 7:30-8:30: Registration
- 8:30: Welcome
- 9:30-12:15: Presentation Tracks
- 12:15-1:15: Lunch

### Afternoon
- 1:15-4:00: Presentation Tracks

### Evening
- 5:00-6:00: Reception
- 6:00-8:30: Capstone Banquet and Awards Presentations

### Tracks

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Track Descriptions

General Science

This track encompasses the use of modeling and simulation in the non-medical sciences and is open to all science disciplines. Examples include, but are not limited to, ecology, evolution, paleontology, climate modeling, oceanography, biochemistry and behavior. Any application of modeling and simulation in the life sciences is a candidate for this track.

Homeland Security/Military

This track encompasses modeling and simulation that has been applied in either the military or homeland security domain. It will also include any work done in these 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.

Medical

This track looks into various aspects of medical modeling and simulation from imaging capability to the augmented standardized patient (using augmented virtual reality). Modeling of physical systems, such as joints and muscles, the virtual operating room, and virtual reality for rehabilitation are also key to this application area. The development of simulators and the validation of those simulators will also be covered in this track.

M&S in Engineering

This track focuses on M&S methodologies and applications in the broader domain of engineering. One aspect is that simulation more and more replaces the traditional experimentation and prototyping. The track looks for such M&S ideas and examples and necessary changes in these traditional disciplines. Examples are, but are not limited to, enterprise decision support, optimization, product design, testing, life cycle support, and more.

Gaming

This track includes not only all aspects related to the development of games and gaming environments, but also research topics related to the serious use of games, as well as the effects of gaming.
Development aspects can be as varied as those on game environments, artificial intelligence for game agents, or methods to enable distributed gaming. Aspects related to gaming use and effects also vary widely, ranging from serious gaming to the impact of online gaming environment interactions.

**Immersion/VR**

This track encompasses the many different topics related to immersive environments as well as virtual reality issues. The track is looking for any topics related to either the development of such environments; the presentation requirements (visual and other) to make such environments accessible; and the effects of employing such environments to present information.

**Training & Education**

From the earliest aspects of simulation, it has long been a tool used for training & education. This track is to include topics related to any aspect of either training or education, as both communities interact with modeling and simulation. Topics can vary widely, ranging from techniques for employing and implementing M&S for training or education, to the effects of using M&S as a training tool, or education approaches built around M&S.

**Transportation**

This track includes applications of modeling and simulation to solving multimodal transportation problems. The development, validation, and application of microscopic and macroscopic traffic simulation, travel demand models, and hardware in the loop simulation are appropriate research topics for surface (road) transportation. Simulations of port facilities, railroads, and the air transportation system are also included in this track.

**Mathematics & Analysis**

This track includes the mathematics of modeling and simulation, such as the mathematical models that support different modeling techniques; the modeling of mathematical operations; and analysis as it relates to modeling and simulation. Topics also included are statistics and probability, insofar as they are related to modeling and simulation.
Student Submissions

The VMASC Modeling, Simulation & Visualization Student Capstone Conference provides a forum for students to share their research in modeling, simulation, and visualization. Students are invited to present their research to members of the modeling and simulation community in academe, industry, and government. Students from national and international colleges or universities are invited to submit papers to one of a number of tracks on topics related to the study and application of modeling and simulation. Students can submit more than one paper but cannot submit the same paper to more than one track.

All Students are required to submit a 250 word abstract and a paper 6-8 pages in length. Students should be the primary authors of the paper. Papers cannot be published or previously presented.

Invited Presentations: Students who would like to submit a paper that has been recently published and/or presented may request an Invitation to Present at the Student Capstone Conference.

Track Leaders may extend special invitations to presenters whose research complements the body of presentations in their respective Tracks. Presenters should note: invited papers will not be refereed and are ineligible for award. Please adhere to guidelines for online submission and enter under the Invited Presentation category in the desired Track.

ONLINE SUBMISSION: Please submit/upload your abstracts and papers to the conference’s website https://www.easychair.org/account/signin.cgi?conf=msv11 by Saturday, March 12, 2011. Those selected to participate will be notified via email by March 18, 2011. At this time presenters will be given back their reviewed papers and given until March 31, 2011 to make their final revisions and resubmit/upload to the website.
On-Line Paper Submission (required information)

Title of Paper or Presentation ________________________________

Intended Track ____________________________________________

Student Name _____________________________________________

Contact Information (cell and email) __________________________

University / College ________________________________________

Faculty Adviser ____________________________________________

Paper Format: Please follow IEEE paper formatting guidelines

Track Leaders

Track Leaders are key to the smooth running of the conference. Leaders have a number of responsibilities; therefore, they are encouraged to enlist the assistance of other faculty and/or experts in the track concentration.

Track Leaders are asked to do the following:

- Solicit the assistance of faculty to serve as Reviewers and Judges
- Receive and review papers for suitability of presentation for your designated track and then forward to Reviewers
- Organize the papers in presentation order
- Submit the order of paper presentations so notification can be sent to students who have been selected to present their papers
- Administer your track: watch time, sequence, and orderliness of the presentations
- Assist judges as needed to facilitate their selection of first, second, and third place presentations
Reviewers
Track Leaders will solicit the assistance of Reviewers to critically evaluate the student papers. A Paper Evaluation Form will be completed by each Reviewer (see Appendix A). Each reviewer is asked to consider the following in his critique of the paper:

1) Organization and Suitability
   • Is the material organized and focused
   • Is the presentation and/or argument understandable
   • Is this original research, a review of previous research, or informative
   • Does the paper cover the topic comprehensively, partially, or as an overview
   • Is the citation style clear and consistent

2) Illustrations
   • Review use of charts, graphs, maps for relevance and aesthetic

3) Timeliness and Usefulness
   • Is the information current
   • Does the research support or refute an argument
   • Is the Bibliography selective with primary sources

Judges
Judges will be invited to participate in the conference. Typically, there are two judges per track. Judges come from various sectors of the M&S community such as academe, industry, and government. The Judges must be able to commit the full day to hearing and observing the student presentations. They then decide first, second, and third place presentations. These selections should be based on content, student grasp of the information, student presentation of the information, and student’s ability to field the question and answer segment of their topic. A Presentation Evaluation Form will be completed by each Judge (see Appendix B). The top three presentations will be recognized at the evening banquet; students will receive awards to commemorate the event.
The Gene Newman Award for Excellence in M&S Research

The Gene Newman Award for Excellence in M&S Research was established in recognition of Mr. Eugene G. Newman for his tireless effort in advancing modeling and simulation education, research, and development.

Mr. Newman played a significant role in the creation of VMASC (in 1997) by realizing the need for credentialed experts in the M&S workforce in the military and in industry. His foresight has affected both the economic development and the high level of expertise in the M&S community of Hampton Roads.

Students receiving this award have proven themselves to be outstanding researchers and practitioners of modeling and simulation.

Capstone Banquet
The day’s events will close with an evening awards banquet. Activities involve a reception, dinner, and a presentation by a distinguished guest speaker. The highlight of the evening will be the Recognition of the Presentation Awards.

About VMASC . . .
The Virginia Modeling, Analysis and Simulation Center (VMASC) is a multi-disciplinary modeling, simulation and visualization collaborative research center managed through the Office of Research at Old Dominion University. VMASC supports the University’s Modeling and Simulation (M&S) undergraduate & graduate degree programs, offering M&S Bachelors, Masters, and Ph.D. coursework and degrees to students across ODU’s six colleges.

With more than one hundred industry, government, and academic members, VMASC furthers the development and application of modeling, simulation, and visualization as an enterprise decision-making tool and promotes economic development. www.vmasc.odu.edu
Appendix A

2010 Student MS&V Capstone Conference

_Paper Evaluation Form - Reviewers_

Information about the article:

Student: _______________________________________________________________

Title of paper: __________________________________________________________

Track: _________________________________________________________________

<table>
<thead>
<tr>
<th>5 Excellent</th>
<th>4 Developing Excellence</th>
<th>3 Satisfactory</th>
<th>2 Needs Improvement</th>
<th>1 Unsatisfactory</th>
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Please consider the following in the critique of the paper:

1) Organization and Suitability

• Is the material organized, focused, and understandable

____________________________________________________________________

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5 4 3 2 1

• Does the paper contribute to the Body of Knowledge

____________________________________________________________________

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5 4 3 2 1

• Is this original research, a review of previous research, or informative

____________________________________________________________________

____________________________________________________________________

• Does the paper cover the topic comprehensively,

5 4 3 2 1
partially, or as an overview

• Quality of Writing: well written with the citation style clear and consistent

2) Illustrations
• Review use of charts, graphs, maps for relevance and aesthetic

3) Timeliness and Usefulness
• Is the information current; does it have a breadth of interest

• Does the research support or refute an argument

• Is the Bibliography selective with primary sources

4) Evaluation - Accept ___ Accept w/ modifications ___ Lean to Reject ___ Reject ___
Appendix B

2010 Student MS&V Capstone Conference
Presentation Evaluation Form - Judges

Student __________________________ Date __________________

Track _________________________________________________________________

Paper Title __________________________________________________________

<table>
<thead>
<tr>
<th>5</th>
<th>Excellent</th>
<th>4</th>
<th>Developing</th>
<th>3</th>
<th>Satisfactory</th>
<th>2</th>
<th>Needs Improvement</th>
<th>1</th>
<th>Unsatisfactory</th>
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<tr>
<td>The student requires no prompting for clarification. Discussion points are discussed in depth and detail. The highest level of performance is achieved.</td>
<td>The student is able to clarify information with only a prompt so that information is accurate and covered in sufficient detail.</td>
<td>The student requires clarification on one or two minor discussion points so that information is accurate and covered in sufficient detail.</td>
<td>The instructor must provide directed questioning so that the information is accurate and covered in sufficient detail.</td>
<td>The student needs extensive clarification. The instructor has to intervene so that the information is accurate and covered in sufficient detail.</td>
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A. Innovation of Idea (40%)

- [ ] Purpose of research
- [ ] Methodology
- [ ] VVA

B. Review of Literature (20%)

- [ ] Current and related research identified and discussed
- [ ] Primary literature is correctly summarized
- [ ] Major strengths or deficiencies of these data are discussed

C. Evaluation of Research (20%)

- [ ] Strengths and weaknesses of methodology identified
- [ ] Statistical analysis is assessed and critiqued
- [ ] Conclusions are drawn and compared with current research
- [ ] Student’s own conclusions about the research are correct

D. Ability to answer questions (10%)

- [ ] Answers are logically presented
- [ ] Answers are accurate
- [ ] The student can think on their feet and may theorize if unsure (but indicates such)

E. Organization and Presentation (10%)

- [ ] Well prepared (does not reread the article)
- [ ] Introduction of research effectively sets the stage for the remainder of the presentation
- [ ] Direct eye contact is made with the audience
- [ ] Professional terminology used
- [ ] Confidence is apparent; absence of nervousness
- [ ] Printed material or visual aids are well prepared and utilized effectively
- [ ] Presentation is summarized at the conclusion
Total Score * __________________ (will be between 5 and 25)

This score will determine the placement of the presentation. Highest scores will rank presenters in first, second, or third place. First place presentations will receive the Gene Newman Award for Excellence in M&S Research.

Comments:

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