

About the Capstone Conference

The Virginia Modeling, Analysis and Simulation Center (VMASC) of Old Dominion University is hosting the 2013 Modeling, Simulation, & Visualization Student Capstone Conference on April 11th. The Capstone Conference features students in Modeling and Simulation (M&S) undergraduate & graduate degree programs and fields from many colleges or universities. Students 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 impart their innovative research to members of the M&S community from academic, industry, and government backgrounds. The Student Capstone Conference offers seven presentation tracks this year. The best paper and the best presentation in each track will receive awards.

MODELING. SIMULATION. VISUALIZATION.

TRACKS

General Science and Engineering

APRIL 11

Homeland Security/Military

VMASC, Suffolk, VA

Medical and Health Care

Gaming and Virtual Reality

Training and Education

Business and Industry

Transportation

2013

STUDENT CAPSTONE CONFERENCE

SCHEDULE

8:00 - 8:30	Registration, Reception, Breakfast
8:30 - 8:50	Opening Remarks
9:00 - 10:00	Track Presentations
10:00 - 10:20	Morning Break
10:20 - 11:40	Track Presentations
11:40 - 1:30	Lunch
1:30 - 2:50	Track Presentations
2:50 - 3:10	Afternoon Break
3:10 - 4:30	Track Presentations
4:30 - 5:00	Reception
5:00 - 6:00	Speaker & Awards



www.vmasc.odu.edu/capstone2013

Welcome

Keynote Speaker



Old Dominion University Department of Modeling, Simulation and Visualization Engineering (MSVE) and the Virginia Modeling, Analysis and Simulation Center (VMASC) welcome you to the seventh 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.

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,

Rick McKenzie,
Capstone Conference Chair
rdmckenz@odu.edu

John Shull,
Capstone Conference Vice Chair
jshul003@odu.edu



Joseph P. Ruddy

President and Chief Executive Officer
Virginia International Terminals Inc.
Norfolk, Virginia

Joe Ruddy has recently been appointed as President & CEO of Virginia International Terminals, Inc. He holds a Bachelor's Degree from Virginia Wesleyan College, and a Master's Degree from the College of New

Jersey, formerly Trenton State.

As Executive Vice President & Chief Operating Officer of the Virginia International Terminals, Joe Ruddy was responsible for Terminal Operations, Engineering & Maintenance, and Information Technology. Preceding his role as Executive Vice President, he served as the Director of Operations & Labor at VIT. In addition, he held managerial positions at Virginia Intermodal Management, as well as for several ship lines such as CMA-CGM and NSCSA. He currently serves as Immediate Past Chairman for the Hampton Roads Shipping Association.





Room 2100B

Room 2100A



Medical & Health Care Simulation

Session Chair: Dr. Michel Audette (ODU)
Judges: Dr. Andrea Parodi (VMASC), Dr. Michel Audette (ODU)

- 10:00-10:20am Erik G. Prytz
Department of Psychology-ODU
Using a Spatial Task to Measure Laparoscopic Mental Workload: Lessons Learned and Initial Results
- 10:20-10:40am Tyrell Gardner, Spencer Lane, Lucas Lezzi, and Tien Nhan
MSVE-ODU
Dynamic Architecture for Simulation-Based Obstetrics Training
- 10:40-11:00am Margaret Lubas, and Gianluca De Leo
MSW-ODU
Grief Support Groups in Second Life: Exploring Professional Opportunities to Increase and Improve Grief Support
- 11:00-11:20am Sharmin Sultana, Tanweer Rashid, and Christian Zemlin
MSVE-ODU
Occurrences of Delayed After-Depolarizations and Triggered Activity in RNC Model
- 11:20-11:40am John Gounley, and Yan Peng
Department of Mathematics and Statistics-ODU
Modeling and Simulation of the Shape Recovery of Red Blood Cells
- 1:30-1:50pm Jing Xu, and Andrey N. Chernikov
CS-ODU
A Parallel Marching Cubes Algorithm for Extracting Isosurface from Medical Images
- 1:50-2:10pm Andrew McKnight, Jing He, Nikos Chrisochoides and Andrey Chernikov
CS-ODU
Estimating Lower Bounds on the Length of Protein Polymer Chain Segments using Robot Motion Planning
- 2:10-2:30pm Dong Si, Hani Elsayed-Ali, Wei Cao, Olga Pakhomova, Howard White, and Jing He
CS-ODU / ECE-ODU / Health Sciences-ODU / Physiological Sciences-EVMS / and CS-ODU
Simulation of the Localized 3-dimensional Reconstruction for Electron Cryo-tomography
- 2:30-2:50pm Lin Chen, Kamal Al Nasr, Jing He
CS-ODU / CS-Howard University / CS-ODU
Estimating Lower Bounds on the Length of Protein Polymer Chain Segments using Robot Motion Planning

Homeland Security & Military

Session Chair: Dr. Bharat Madan (ODU)
Judges: Dr. Barry Ezell (VMASC), Dr. Bharat Madan (ODU)

- 3:10-3:30pm Christopher Lynch, Saikou Diallo, and Andreas Tolk
MSVE-ODU
Representing the Ballistic Missile Defense System using Agent-based Modeling
- 3:30-3:50pm Nicholas Wright, and Robert Kewley
United States Military Academy
Validation Report of Composer Propagation Simulation: Case Study of Camp Blanding, FL
- 3:50-4:10pm Shiwei Jiang
International Studies-ODU
Game Theory and the North Korea Nuclear Puzzle

Training & Education

Session Chair: Mr. Sol Sherfey
Judges: Mr. Sol Sherfey (VMASC), Dr. Roland Mielke (ODU)

- 10:20-10:40am Umama Ahmed, and Yishu Zheng
MSVE-ODU
Finger-Writing Recognition System using Hidden Markov Model
- 10:40-11:00am Rebecca Law
International Studies-ODU
Using Agent-Based Modeling to Understand the Effects of Privately Contracted Security Teams on Pirate Behavior and Maritime Vessel Route Selection in the Horn of Africa
- 11:00-11:20am Yi-Ching Lin
Department of Education-ODU
Developing a Simulation for College Students Learning the Rate of Law in Chemistry

Business & Industry

Session Chair: Dr. Jim Leathrum (ODU)
Judges: Dr. Andy Collins (VMASC), Dr. Jim Leathrum (ODU)

- 1:30-1:50pm Daniele Vernon-Bido, Andrew Collins, and Michael Seiler
MSVE-ODU
Exploring the Geospatial Effect on Foreclosure Contagion Using Agent-Based Modeling and Simulation
- 1:50-2:10pm Xiaotian Wang
MSVE-ODU
Popularity or Proclivity? Understanding the Impacts of Instrumental and Intrinsic Preferential Attachment on Social Network Formation Employing Agent-based Modeling
- 2:10-2:30pm Callie Davis
GPIS-ODU
Investigating Theoretical Frontiers in International Relations
- 2:30-2:50pm David Wright
MSVE-ODU
The Induction of Community Dynamics in Online Social Networks
- 3:10-3:30pm Rebecca Law
International Studies-ODU
A Conceptual Model Utilizing Evolutionary Game Theory to Explore the Effects of Discount Factors on Interactions Between International Organizations
- 3:30-3:50pm David Flanagan, Andrew Collins, and Barry Ezell
MSVE-ODU
Reducing Stakeholder Fatigue: Integrating Governing Bodies, Committees and Working Groups Contribution to Risk Management
- 3:50-4:10pm Yishu Zheng
MSVE-ODU
Determinants of Seafarer Fatal and Non-fatal Injuries in Container Vessel Accidents
- 4:10-4:30pm Elizabeth Rasnick, Jimmy Hilton, Frederick Guy Wilson
Business and Public Administration-ODU
A Study of Contagion Spread Among a Finite Human Population on a Naval Vessel



Room 2100C



Room 2101



Science & Engineering

Session Chair: Dr. Masha Sosonkina (ODU)
Judges: Dr. Bridget Giles (VMASC), Dr. Masha Sosonkina (ODU)

- 9:00-9:20am Wei Li¹, Zhaoli Guo², and Li-Shi Luo¹
Department of Mathematics and Statistics-ODU / Huazhong University of Science and Technology
Modeling Two Dimensional Molecular Couette Flows in a Nano-Scale Channel
- 9:20-9:40am Bradley Leshner, Christopher Johnson, Timothy Hahn, and Michael LaPuma
Department of Mechanical and Aerospace Engineering-ODU
Experience of Using AHP for ASV Design Improvement
- 9:40-10:00am Panon Phuworawong, and Ruhai Zhou
Department of Mathematics and Statistics-ODU
Simulation of Dynamic Structures of Active Nematic Nano Particle
- 10:20-10:40am Jan Nalaskowski
International Studies-ODU
Measuring Success of Separatists' Demands: Development of the Tool
- 10:40-11:00am Sirisha Mushti, and N. Rao Chaganty
Department of Mathematics and Statistics-ODU
Modeling and Analysis of Continuous Longitudinal Data
- 11:00-11:20am Ange-Lionel Toba
VMASC-ODU
Describing the Role of Calibration in System Dynamics Models: Some Issues and Answers
- 11:20-11:40am Joseph C. Miller III
MSVE-ODU
An Analysis of Various GPU Implementations of Saint-Venant Shallow Water Equations
- 1:30-1:50pm Hamdi Kavak
MSVE-ODU
Simulation on the Clouds
- 1:50-2:10pm Olcay Sahin
MSVE-ODU
Exploring the M&S Body of Knowledge
- 2:10-2:30pm Kevin Byron, and Daniel Dauer
Biological Sciences-ODU
Autocorrelation Functions Applied to the Benthic Community of the Chesapeake Bay Suggest a Lack of Seasonality

Transportation

Session Chair: Dr. ManWo Ng (ODU)
Judges: Dr. Mike Robinson (VMASC), Dr. Mecit Cetin (VMASC)

- 9:00-9:20am Terra Elzie
MSVE-ODU
Simultaneous Pedestrian and Vehicle Evacuation- A Concept
- 9:20-9:40am Khairul Anuar
CE-ODU
Impact of Time of Day on Emergency Vehicle Travel Time Based on GPS Data
- 9:40-10:00am Abdulla Alasaadi, and Ilyas Ustun
MSVE-ODU
Classifying Vehicle State by Using Acceleration Data Collected from Smartphones
- 10:20-10:40am Abdullah Al Farooq
MSVE-ODU
A Model for Labeling Rank of Each Node in a Directed Transportation Network
- 10:40-11:00am Ozhan Unal
MSVE-ODU
A Simple and a Fuel Consumption-based Model for Optimal Driving Strategy by Using Probe Vehicle Data
- 11:00-11:20am Mariam Kotachi
Department of Engineering Management and Systems Engineering-ODU
Simulation Study: Impact of Customs and Check Points on Entity Flow in Seaports
- 11:20-11:40am Khairul Anuar, Peter Foytik, and Ilyas Ustun
CE-ODU / MSVE-ODU / MSVE-ODU
Performance Comparison Between Cube and TransCAD in Solving Traffic Assignment Problem

Gaming & Virtual Reality

Session Chair: Dr. Yuzhong Shen (ODU)
Judges: Mr. Hector Garcia (VMASC), Dr. Yuzhong Shen (ODU)

- 1:30-1:50pm Leigh Ann Diggs, Elena Radici, Tom Mastaglio, and Gianluca De Leo
Health Sciences-ODU / ODU / MYMIC LLC / Health Sciences-ODU
Measuring Sense of Presence and User Characteristics to Predict Effective Training in an Online Simulated Virtual Environment
- 1:50-2:10pm Gary Lawson, Rifat Aras, and Yuzhong Shen
MSVE-ODU
Natural User Interfaces for Learning and Exploration
- 2:10-2:30pm Anitam Das Nirjhar
CS-ODU
Lessons Learned from iOS Application Development: Towards Apps for M&S and Games
- 2:30-2:50pm Carmelo Padrino-Barrios, Gayle McCombs, Norou Diawara, and Gianluca De Leo
RDH / RDH / PhD / Health Sciences-ODU
Use of Interactive Immersive Visualization for the Control of Dental Anxiety During Dental Hygiene Treatment