

Michigan Simulation User Group – 2011 Annual Conference

Sponsored By Diamond Head Associates, Inc.



17th Annual Conference

Wednesday, October 19, 2011

7:30 am (Registration & Refreshments) – 4:30 pm

Management Education Center

811 West Square Lake Road

Troy, MI 48098

Annual Conference Overview

The Michigan Simulation User Group (MSUG) announces their 2011 Annual Conference, including presentations by prominent speakers on a wide range of topics designed to be of interest to the simulation practitioner and their management.

In addition to a presentation by our sponsor, we have chosen **3 speakers** from the healthcare, automotive and warehousing & distribution industries to present a variety of case studies. We are also continuing with our restructured agenda to give attendees the opportunity to see a variety of simulation products and services showcased in **vendor sessions**; you will have the opportunity to talk to these and other vendors during our break room sessions so that you can get detailed information about each vendor's complete product-line and/or service offerings. There will also be plenty of opportunities to **network** with fellow simulation professionals from Michigan and the Mid-West.

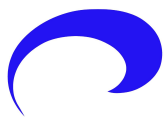
...network with
fellow simulation
professionals...

The conference fee, which is waived for presenters, is \$15 for full-time students, \$25 for all others, and covers attendance, refreshments, morning & afternoon snacks, and a buffet lunch. We invite you to **register, no later than Friday, October 14**, for the conference and reserve a space for this exciting event. Just fill in the [Attendee Registration Form](#) and send it to Mark Steury, MSUG Treasurer. If you have any questions regarding payment, please e-mail Mark at treasurer@m-sug.org. Please direct all other questions to Virginia Minolli, MSUG President, at president@m-sug.org.

Please put the date in your calendar - we look forward to seeing you there!



Conference Sponsor



Diamond Head | Associates, Inc.

Optimizing Supply Chain Strategy, Performance, and Investment

We are pleased to announce that our 2011 Annual Conference will be sponsored by [Diamond Head Associates, Inc.](#)

**...over 150 years of
hands-on industry
experience...**

Diamond Head Associates, Inc., is a consulting firm composed of senior consultants and analysts with direct operational and executive supply chain strategy, design, and analysis experience. Cumulatively, they have over 150 years of hands-on industry experience in planning, designing, analyzing, and improving an array of operational, facility, and structural components of supply chain networks and facilities.

Sponsor Presentation

AutoMod Product & Market Update

Randall Gibson, [Diamond Head Associates, Inc.](#) & Dan Muller, [Applied Materials, Inc.](#)

Abstract

Applied Materials provides software solutions utilizing its AutoMod simulation products. Come find out the latest developments in Applied Materials' industry leading simulation software products. Applied has recently joined forces with Diamond Head Associates to advance the use of AutoMod in North America. This presentation will discuss the current status of AutoMod as well as recent releases and future plans. The forum will be open, and comments will be welcomed regarding the product direction. This is your chance to have your questions answered.

**Applied Materials
has joined forces
with Diamond Head
Associates to
advance the use of
AutoMod...**

Biographies

Randall Gibson is the Managing Principal at Diamond Head Associates, Inc. – a consulting firm focused on applying advanced Operations Research tools, such as simulation and optimization, to help clients solve critical problems and improve performance in their supply chain network, facilities, and operation. Mr. Gibson has over 30 years of experience in engineering, process control, simulation modeling, and supply chain engineering and consulting for a wide variety of industrial and business market segments. He has personally been founder or co-founder of 3 technology software companies, and has broad experience in strategy, operations, marketing, and the day to day issues in building and running a software technology based company. He has been a part of the operations research / simulation modeling community in the US for 20 years, is considered one of the senior leaders in this industry, and has relationships with many of the key simulation industry companies and people. Mr. Gibson holds a M.S. degree in Electrical Engineering & Computer Sciences from the University of California, Berkeley, and B.A. degrees in both Applied Physics & Information Sciences and Psychology from the University of California, San Diego.

Dan Muller and has been associated with Applied Materials for over 19 years. Mr. Muller currently oversees the Performance Product Suite of software at Applied Materials as well as directly managing the AutoMod and AutoSched AP simulation products. During his years at Applied, Mr. Muller has worked as a Senior Simulation Consultant, Consulting Manager, Distributor Manager, World Wide Presales Support, and Product Manager. Prior to joining Applied Materials, Mr. Muller worked as Senior Simulation Consultant for Systems Modeling Corporation and as Systems Engineer for Litton Integrated Systems. Mr. Muller earned his Bachelor of Industrial Engineering degree from The Georgia Institute of Technology and his M.S.I.E. degree from the University of Pittsburgh.

Speaker Presentations

Operational Simulation of Operating Rooms

Dr. Alper Murat, Wayne State University

Abstract

...40% of total hospital revenues are generated from OR.

The importance of operating room (OR) management lies in its impact on hospitals' financial performance. It is estimated that around 40% of the total hospital revenues are generated from OR. The challenges in effective OR management results from the uncertainties and interactions among related resources such as the assignment of surgeons and anesthesiologists, reusable medical equipment supplies, complexity of patients' health conditions and surgery duration prediction accuracy. Simulation provides a good tool to model the realistic situation and capture the impacts of elements on operating room performance. In our study, we simulate and evaluate the operating room

baseline performance given a day schedule with respect to utilization, overtime and first-case on-time start percentage. We then evaluate the impact of case on-time start, improved surgery prediction and minimized turnover time on the performance criteria. The simulated results are compared by statistical methods to test for improvements and prioritization for OR resources. The approach is critical in developing robust case schedules with respect to the composite measure and is being piloted in multiple VA medical centers in the VISN-11 network.

Biography

Dr. Alper Murat received his B.S. in Mechanical Engineering and M.S. in Industrial Engineering degrees both from Bogazici University/Turkey in 1998 and 2000. He completed his Ph.D. degree in Management Science/Operations Research from the McGill University/Canada in 2006. His research interests include application of optimization modeling and simulation techniques and data mining in the fields of supply chain management, logistics and transportation, product development, quality, reliability and healthcare. He has worked with Ford Motor Company, General Dynamics, Henry Ford Health Care Systems and Veterans Engineering Resource Center (VERC) on various applications of operations research and simulation tools and techniques. He is the principal investigator of multiple research projects funded by VA, VAVERC VISN-11, US Department of Transportation, Department of Homeland Security, General Dynamics, and Ford Motor Company. He has authored numerous peer-reviewed journal articles which appeared in such journals as European Journal of Operations Research, Computers and Operations Research, Transportation Research Part E: Logistics and Transportation, and Information Sciences.

Integration of Traffic Simulation and Propulsion Modeling to Predict BEV Energy Consumption

Dr. Oleg Gusikhin, Ford Motor Company

Abstract

The introduction of battery electric vehicles (BEV) faces many challenges. For example, limited driving range, long charging time and sparse availability of charging stations lead to range anxiety for many prospective owners. There is a need for vehicle features that help BEV owners plan routes that avoid being stranded due to an empty battery. The key to these tools is the estimation of future energy consumption along different routes and under different driving conditions. How can this be done before sufficient statistical data is accumulated? Even when such vehicles are available it may not be possible to collect sufficient data to get meaningful statistics. This presentation describes a novel approach based on the integration of traffic simulation and propulsion modeling to predict BEV energy consumption.

...help owners plan routes that avoid being stranded due to an empty battery...

Biography

Dr. Oleg Gusikhin is a Technical Leader at Ford Vehicle and Enterprise Sciences Research Laboratory. He received his Ph.D. from the St. Petersburg Institute of Informatics and Automation of Russian Academy of Sciences and an MBA from the Ross Business School at the University of Michigan. For over 15 years he has been working at Ford Motor Company in different functional areas including Information Technology, Advanced Electronics Manufacturing, and Research & Advanced Engineering. During his tenure at Ford, Dr. Gusikhin has been involved in the design and implementation of advanced information technology and intelligent controls for manufacturing and vehicle systems. Dr. Gusikhin is a recipient of two Henry Ford Technology Awards and the 2009 Institute of Industrial Engineers Transactions Best Application Paper Prize in Scheduling and Logistics. He is a Certified Fellow in Production and Inventory Management, chair of Southeastern IEEE Systems, Man and Cybernetics chapter and a Lecturer in the Industrial and Operations Engineering department at the University of Michigan.

Warehouse Distribution Systems

Len Copus, Dematic Corporation

Abstract

...retailers know in nearly real-time what and where products are being sold...

Over the years, all of our country's major retail companies have evolved from pushing product through the supply chain to their retail stores to pull systems. This evolution has been made possible by technological advances in computing, inventory tracking and communication systems. Now, retailers know in nearly real-time what and where products are being sold at the retail store level. This knowledge allows the retailers to pull product through their supply chain to support ever-changing customer demand. While evolving from push to pull systems, major retailers have been striving to become more efficient at the store level also. Most retailers now require the delivery of product from their distribution centers in "store friendly" sequenced order. This evolution of distribution centers from push systems to store-friendly order fulfillment centers has had a profound effect on the design and control of Warehouse Distribution Systems. This presentation discusses typical system functions of the new-age order-fulfillment centers and the challenges of modeling those systems.

Biography

Len Copus is the Manager of Simulation at Dematic. Len has 22 years experience in manufacturing and material handling simulation. Len has worked at Dematic in Grand Rapids, Michigan since 1997 and has held several positions including Simulation Consultant, Senior Simulation Consultant and Simulation Manager. At Dematic, he introduced and led the standardization and continuous improvement efforts of the simulation group. Len has worked on hundreds of simulation projects and has modeled all types of material handling systems. He has saved Dematic customer's money and improved the quality and capability of installed systems. Len holds a BS in Industrial and Systems Engineering from The Ohio State University.

Vendor Presentations

Software That Fits Your Comfort Zone

Matt Hobson-Rohrer, Emulate3D Ltd



Abstract

Model builders can choose the environment that is most natural for them.

As the range of uses for industrial simulation continues to evolve it is apparent that one size no longer fits all, if it ever did, in terms of building useful simulation models. Emulate3D products address this by offering users multiple means of defining product flow and operational logic. Creating flow around an initial layout to facilitate stakeholder discussion can be achieved by using Demo3D Control Blocks; enhanced control for occasional users is done using a drag and

drop logic builder. Component builders and experienced modelers extend the bounds of their Demo3D models using Microsoft Jscript, while machine level control can be achieved using Programmable Logic Controller (PLC) ladder logic. Model builders can choose the control definition environment that is most natural for them.

Biography

Matt Hobson-Rohrer has been a leader in the material handling simulation community for over 23 years. He has managed simulation projects for companies like Boeing, Chrysler, General Electric, Dematic, Daifuku, and Motorola, and he has extensive experience in material handling and manufacturing applications. As part of the AutoMod organization for 20 years, Matt was instrumental in growing a successful simulation consulting practice and also in shaping product direction. In his role with Emulate3D Ltd, Matt is helping expand the use of simulation into business areas such as sales and controls engineering. Matt lives in Salt Lake City, and enjoys his family and mountain lifestyle.

(If you're in town for the Annual Conference, you might be interested in knowing that Matt is offering a Demo3D Introductory Workshop in Wixom, MI on Thursday, October 20 – the day after our conference. Contact Matt, at matt@demo3d.com or (801) 831-5105.)

Modeling With Witness

Tony Waller, *Lanner Group, Inc.*



Abstract

**A range of models
from around the
world will be
shown...**

This presentation will offer a view of the latest Witness simulation software. Included in the presentation will be a short introduction to the software and an explanation of the strengths of Witness over other tools. A range of models from around the world will be shown to demonstrate current capability with particular reference to the automotive industry. Practical optimization techniques will be illustrated by reference to a Nissan case study and the options in Witness for virtual reality graphics demonstrated.

Biography

Tony Waller received a B.Sc. (Hons) in Statistics from the University of St. Andrews, Scotland, in 1981 and has worked in the field of Operational Research and particularly simulation ever since. He has worked on many diverse international assignments as a consultant and has helped develop simulation software in a product management role. He is currently the Customer Development Manager at the Lanner Group. He is on the editorial board of the Journal of Simulation.

The Role of Simulation in Different Phases of Plant Design

Dr. Onur Ülgen, *Production Modeling Corporation*



Abstract

**We identify
different static and
dynamic modeling
approaches and
software used...**

In design and development of a new manufacturing line, application of discrete-event dynamic simulation is classified in two categories. The first classification is based on the stage of the development of the design of the system (conceptual design phase, detailed design phase, launching phase, and fully operational phase). The second classification is based on the nature of the problem of the problem investigated (equipment and layout design issues, variation management issues, product-mix sequencing issues, and detailed operational issues). We identify different static and dynamic simulation modeling approaches and software used in aiding the decision makers in optimal design and operation of their manufacturing facilities from the perspectives of production, material handling, and workers.

Biography

Onur is the President of PMC and was involved in simulation applications in manufacturing for more than 30 years. He has presented and published more than 50 papers in applications and theory of discrete and continuous simulation. He is also a Professor of Manufacturing and Industrial Systems Engineering at the University of Michigan, Dearborn Campus.

Understanding Tecnomatix Discrete Event Simulation Capabilities



Brian Shay, [Siemens PLM Software](#)

Abstract

...optimize material flow, resource utilization, throughput and logistics...

Learn how Tecnomatix Plant Design & Optimization improves collaboration among cross-functional teams through effective communication of factory design principles and the use of standardized resources within a managed, collaborative data environment. We will highlight the latest capabilities of Plant Simulation and show how it can optimize material flow, resource utilization, throughput and logistics at all levels of the global planning process.

Biography

Brian Shay has over 20 years experience in the automotive industry. He started his career with Control Data System as an onsite CAD/CAM programmer at Chrysler. He worked for Silicon Graphics' as the Midwest sales representative providing hardware solutions to automotive OEM's and their supply chain. He then worked for Tecnomatix, later acquired by UGS and then by Siemens, providing application solutions to the automotive industry for line balancing, offline robotic programming, plant simulation and optimization, offline CMM quality solutions assisting customers to improve their manufacturing efficiency. He has been a member of the Detroit SME chapter for over 10 years. He has a B.A. (Mathematics) from Wayne State University in Detroit and an M.B.A. from Eastern Michigan University.

Call for Steering Committee Members

The MSUG Steering Committee is made up of 11 volunteers from the Michigan simulation community. Committee members are elected to three year terms. We meet monthly to organize our general membership meetings and annual conference, and to support our members and our charter. If you are interested in standing for election to the Steering Committee, please send your biography to our President, Virginia Minolli, at president@m-sug.org.

Elections to the Steering Committee will be held, and the results announced, during the Annual Conference.

...meet monthly to organize our general membership meetings and annual conference...

Venue & Directions



Amphitheater at the Management Education Center

As in previous years, we will be hosting the event at Michigan State University's [Management Education Center \(MEC\)](#) in Troy, MI:

811 West Square Lake Road
Troy, MI 48098

Parking is free and is located conveniently close to the building. For maps and driving directions to the Annual Conference, please visit: www.mectroy.com/planmeeting/directions

For hotel information, please visit: www.mectroy.com/planmeeting/accommodations.

MSUG On-Line Resources



For up-to-date conference information, including attendance and vendor application forms, please visit the [2011 Annual Conference page](#) on our [web-site](#).



Stay up-to-date with MSUG announcements, and updates to this year's Annual Conference, by following us on [Twitter: MISimulation](#). Alternatively, you can subscribe to MSUG's announcement mailing list by sending an e-mail to announce+subscribe@m-sug.org (the subject and body of the e-mail will be disregarded).



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