Conference Program

5th IAJC/ISAM Joint International Conference





Engineering and the Global Economy: Ideas for the 21st Century



The International Conference on Engineering & Technology November 6-8, 2016 Orlando, Florida

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Embassy Suites Hotel Map (ba	ick cover)

IAJC/ISAM Conference Registration Desk Hours

Sunday 3:00—7:00pm Monday 8:30—11:30am / 2:30—6:00pm Tuesday 8:00—10:00am

The Embassy Suites hotel offers FREE breakfast (buffet), FREE Internet, FREE parking, and FREE daily receptions with open bar and snacks. Shuttle service is available to area shopping and all Central Florida attractions.

A Message from the IAJC and ISAM Presidents









Dear Conference Participants:

As IAJC President and ISAM President, we would like to welcome you to the 5th IAJC/ISAM Joint International Conference on engineering and related technologies. The conference theme, Engineering and the Global Economy: Ideas for the 21st Century, reflects a significant need for academic global connections and partnerships. Such partnerships can provide the backbone for strategic planning that may lead to the creation of a better future for the next generation of students, faculty, and researchers, so that they, in turn, can lead the world in the tight, competitive global markets of the 21st century. The IAJC and ISAM Conference Executive and Advisory Boards, comprised of well-known individuals from over 50 of the top universities from around the globe, have made every effort to present this highquality, joint conference, and to ensure that your time spent with us is both rewarding and productive. If you have questions about the conference or need assistance, please feel free to contact any board member.

The famed city of Orlando, with its rich and varied history, offers an excellent conference venue. It is the top vacation destination in the world, providing many fun activities for all ages. Best wishes for a pleasant stay and for a productive and successful conference. Thank you for joining us.

Sincerely,

Mark Rajai, Ph.D. IAJC President California State University-Northridge

Phone: 818-677-5003

Email: mark.rajai@csun.edu

Alok Verma, Ph.D. ISAM President Old Dominion University Phone: 757-683-3766 Email: averma@odu.edu

Message from the IAJC/ISAM Conference General Chair



As we in higher education and industry reflect back on the first decade in this new millennium, we realize that the sharing of ideas and resources is an effective way for us to create a better future for the next generation of students, faculty, and researchers. In the competitive and tight global markets of the 21st century, leading companies across industry have embarked on massive reorganizations, mergers, partnerships, and varied collaborative projects, not only with their like-minded peers, but also with their rivals, in order not only to survive, but to grow and thrive. As industry changes with time, so must academia. Conversely, as academic R&D efforts provide advancements in technology, so must industry provide a quick turnaround from concept to market. However, many academic organizations, journals, and conferences have been slow to adapt, and, thus, to provide the necessary platforms for the dissemination of knowledge.

Beginning in 2004, the editorial board of the International Association of Journals and Conferences (IAJC) embarked on unprecedented efforts to establish groundbreaking strategic partnerships with other major rival journals and organizations in order to share resources. This approach offers authors a unique opportunity to attend one conference, yet have the ability to publish their paper(s) in one of a broad selection of journals representing interests as diverse as those of the researchers and educators in fields related to engineering, engineering technology, industrial technology, mathematics, science, and education. These efforts resulted in an innovative model for joint international conferences that include a variety of journals and organizations. IAJC joint and independent international conferences have been a great success, with the main conferences being held in the United States, while simultaneous regional conferences are held in other parts of the world. In addition to attracting top authors to its conference venues, IAJC attracts myriad journals that wish to publish the best of what its conference attendees have to offer, thereby creating excitement in academic communities around the

world. IAJC is a first-of-its-kind, pioneering organization. It is a prestigious, global, multilayered umbrella consortium of academic journals, conferences, organizations, and individuals committed to advancing excellence in all aspects of technology-related education.

Conference Statistics:

The submissions for this conference included 425 abstracts from 118 educational institutions and companies worldwide (multiple submissions from the same authors were not counted). These represented 46 of the 50 U.S. states and 37 countries. After a multi-level review process, only 91 full papers and 29 abstracts were accepted for presentation at the conference and for publication in the conference proceedings. This reflects an acceptance rate of about 28% for both abstracts and full papers (22% for our previous conference), which is one of the lowest acceptance rates of any international conference. Organizing such broad conferences is a monumental task and could not be accomplished without the help and support of the conference committee, the division/ session chairs, and the reviewers. Thus, I offer my sincerest thanks to all for their hard work and dedication in the development of this outstanding 2016 conference program. I personally hope you will seek them out to thank them for their fine work. As we continue to offer, and to strive to improve upon, these high-quality and unique conferences, we are seeking dedicated individuals to join us on the planning committee for the next conference—scheduled for fall, 2018. Please watch for updates on our website (www.IAJC.org) and contact us anytime with comments, concerns, or suggestions. On behalf of the 2016 IAJC/ISAM conference committee and IAJC Board of Directors, we thank you for participating in this great conference, and we hope to see you next time

Sincerely,

Philip D. Weinsier IAJC/ISAM Conference General Chair

Conference Executive Board Members

Conference General Chair

Philip D. Weinsier

Bowling Green State University-Firelands

Phone: 419.372.0628 Email: <u>philipw@bgsu.edu</u>

IAJC President and Conference Co-Chair Mark Rajai

California State University-Northridge

Phone: 818.677.5003 Email: mrajai@csun.edu

ISAM President and Conference Co-Chair

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Old Dominion University

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Organization Sponsors

- International Association of Journals & Conferences (IAJC)
- International Society of Agile Manufacturing (ISAM)
- The Institute of Electrical and Electronics Engineers (IEEE)
- American Society for Engineering Education (ASEE)
- Lean Institute

Journal Sponsors

- International Journal of Modern Engineering (official and flagship journal of IAJC)
- International Journal of Engineering Research and Innovation (official journal of IAJC)
- Technology Interface International Journal (official journal of IAJC)
- International Journal of Agile Manufacturing (official journal of ISAM)
- Computers and Concrete (ISI Journal)
- Earthquakes and Structures (ISI Journal)
- Geomechanics and Engineering (ISI Journal)
- Interaction and Multiscale Mechanics (ISI Journal)
- Membrane Water Treatment (ISI Journal)
- Multiscale and Multiphysics Mechanics (ISI Journal)
- Ocean Systems Engineering (ISI Journal)
- Steel and Composite Structures (ISI Journal)
- Structural Engineering and Mechanics (ISI Journal)
- Journal of Industry and Higher Education
- International Journal of Entrepreneurship and Innovation
- Journal of STEM Education

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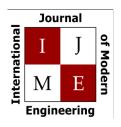
















Workshops

Workshop #1:
Getting the Rubber to Meet the Road:
Breaking Down Resistance to Lean

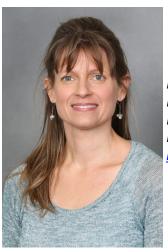
Monday, November 7, 2:00 – 3:45pm Cypress #4 — FREE Maximum attendance—20

Preregistration is requested to help gauge attendance.

Evidence-based practitioners no longer question the ability of Lean Six Sigma (Lean) to deliver significant cost reductions and enhanced customer value. However, many firms are unable to realize the benefits of Lean, due to what is euphemistically called a "lack of Lean culture." More often than not, what is really meant is that

- Workers don't trust management
- Management doesn't trust workers, and/or
- Neither group really believes that Lean can work for them because they are unique.

If you teach Lean courses, work as a quality engineer, own a company, or consult on Lean implementations then this workshop is for you. This workshop will demonstrate the use of simulations to develop trust between management and workers, while teaching Lean principles. Participants will play a role in a simulation, learn how to incorporate Lean principles into simulations, and learn how to use simulations to build the trust and knowledge required to implement Lean.



Presented by Dr. Michelle Brodke
Department of Applied Sciences
Bowling Green State University
Firelands College
mbrodke@bgsu.edu

Workshop #2:

Understanding and Teaching Statistical Process Control. A Hands-on Approach to Preparing Your Students for High-Tech Manufacturing.

Monday, November 7, 4:00 – 6:00pm Cypress #4 — FREE

Preregistration is requested to help gauge attendance.

This workshop will answer the questions: "What is Statistical Process Control (SPC)?" and "Why is it important to preparing high tech manufacturing technologists for high tech manufacturing?" We will discuss the basics of Statistical Process Control and cover the following topics using a hands on, measurement approach:

Process Variation – Why is it important Statistical Tools necessary to employ and understand:

SPC
Mean, median, mode
Standard deviation
Control charts
Interpreting control charts

The influence of a measurement system on data

Attendees will be given access to all workshop materials, presentations, reading materials, Excel templates and will also receive written materials at the workshop.

The Southwest Center for Microsystems Education will also provide links to all of its other downloadable educational materials as well, including, but not limited to, videos, lectures, access to online distance learning short course(s) which will have all the materials available. This workshop is made possible through a grant from the National Science Foundation, Department of Undergraduate Education Advance Technological Education program, DUE #1205138.

Presented by Barbara C. Lopez and Dr. Matthias W. Pleil, Southwest Center for Microsystems Education at the University of New Mexico (botero@unm.edu, mpleil@unm.edu; 505-272-7157)





Meals, Breaks, Receptions

Note: Monday lunch is not included in "Full Conference" registrations. However, IAJC attendees will receive a 20% discount at the hotel restaurant.

Sunday, November 6

 5:30 — 7:00pm
 Daily reception with open bar and snacks for Embassy Suites guests

Monday, November 7

- 7:00 8:30am
 Full breakfast for Embassy Suites guests
- 10:15 10:30am
 Refreshment break
- 12:30 2:00pm
 Executive Board Lunch
- 3:45 4:00pm
 Refreshment break
- 5:30 7:00pm
 Daily reception with open bar and snacks for Embassy Suites guests
- 7:00 8:30pm
 Dinner banquet and awards ceremony for all conference attendees

Tuesday, November 8

- 7:00 8:30am
 Full breakfast for Embassy Suites guests
- 10:15 10:30am
 Refreshment break

Session Legend

ENG Engineering

EDU Higher Education

MFG Manufacturing

ITC Information Technology, Business, Entrepreneurship, and Computer Science

Monday, November 7, 2016

8:30-10:15am Cypress 1

MFG 101: Topics in Lean Manufacturing

Session Chair: Alex Sergeyev

(Michigan Tech)

Paper #031

Can Lean Six Sigma be Implemented in Higher Education While Ensuring that All Customer Needs are Being Met?

E. Shirl Donaldson, The University of Texas at Tyler

Abstract #042

An Approach For Lean Training in Service Sectors

Zaki Kuruppalil, Ohio University; Todd Myers, Ohio University

Paper #091

Lean Agility at Scale: A Role for Strategy in Determining Performance

Andrew Czuchry, Sr., East Tennessee State University; Andrew Czuchry, Jr. ADP

Abstract #158

Lean Ohio Boot Camp: One Approach to Lean Government Processes

Michelle Brodke, Bowling Green State University— Firelands

Abstract #169

Process Simulations to Improve Judgment in Lean Implementations

Michelle Brodke, Bowling Green State University— Firelands

8:30-10:15am Cypress 2

ITC 401: Wireless Technologies

Session Chair: Austin Cheney

(Eastern Illinois University)

Paper #043

A Simple Block Coding Scheme for Peak-to-Average-Power Ratio Reduction in Multi-Carrier Systems

Yoonill Lee, Purdue University—Northwest

Paper #100

Outage Results for Heterodyne Differentially Encoded PSK over FSO Turbulence Channel with Pointing Errors

Omar Hasan, Princess Suamay University for Technology (JORDAN); Akram Abu-Aisheh, University of Hartford

Paper #102

Performance of FSO System over Double Weibull Turbulence with Pointing Error

Omar Hasan, Princess Suamay University for Technology (JORDAN);

Salah Al-Deen Almousa, Princess Suamay University for Technology (JORDAN)

Abstract #113

Watching the Internet of Things: The Convergence of Monitoring

Dale Rowe, Brigham Young University; Sarah Cunha, Brigham Young University

Paper #151

Main Factors Influencing Mobile Commerce Adoption

Mohammadjafar Esmaeili, University of Dayton; Ali Eydgahi, Eastern Michigan University

8:30-10:15am Cypress 3

ENG 203: Topics in Solar and Geothermal Energies

Session Chair: Eric Dietz (Purdue University)

Paper #006

Feasibility of Using an Augmenting Solar Thermal System for a Greenhouse in NW Ohio Sudershan Jetley, Bowling Green State University; Binisha Shrestha, Bowling Green State University

Paper #027

Design and Development of Mobile Geothermal Laboratory Equipment

Faruk Yildiz, Sam Houston State University; Keith Coogler, Sam Houston State University

Paper #150

Development of a Solar Thermal Water Management System (STWMS):

An Undergraduate Passarch Experience

An Undergraduate Research Experience

Steve Ngwira, Nissan; Nathan Frazier, UPS;

Kendal Lewis, Aisin Automotive Casting (TN); Priyam Patel, Akebono Brake Corporation; Ahmed ElSawy, Tennessee Technological University

Paper #155

Development of Combined Concentrated Photovoltaic and Fluidic Thermal Extraction for Harnessing the Sun Energy—Undergraduate Research Experience

Michael Kronland, Fastenal (GA); Nicholas Leak, Aphena Pharma Solution, Inc.; Joseph Randall, Eastman Chemical Company; Cory Womack, Tennessee Technological University; Ahmed Elsawy, Tennessee Technological University

Abstract #165

Renewable Energy Education Initiative for K-12 Teachers with Sustainable Energy Education Network

Faruk Yildiz, Sam Houston State University; Robert Lane, Sam Houston State University; Doug Ullrich, Sam Houston State University

8:30-10:15am Cypress 4

ENG 201: Topics in Electrical Grid Technologies

Session Chair: Rex Kanu

(Purdue University)

Abstract #087

Distributed Generation Systems Modeling and Simulation Visual Library

Adel El Shahat, Georgia Southern University; Rami Haddad, Georgia Southern University; Youakim Kalaani, Georgia Southern University

Paper #089

High-Speed PM Generator for Optimized Sizing Based on Particle Swarm for Smart Grids

Adel El Shahat, Georgia Southern University; Rami Haddad, Georgia Southern University; Youakim Kalaani, Georgia Southern University

Paper #095

Battery Energy Storage for a Low-Voltage DC Microgrid System

Dale Litwhiler, Penn State University; Nicholas Batt, Ecoult; Jason Hoffman, Ecoult

Paper #145

Measured and Simulated Performance of a Grid-Connected PV System in a Humid Subtropical Climate

Fredericka Brown, The University of Texas at Tyler; Raquel Lovelace, The University of Texas at Tyler; Harmonie Hawley, The University of Texas at Tyler

Paper #161

Smart Charging Management System of Plugged-in EVs Based on User Driving Patterns in Micro-Grids

Ali Ameli, University of Paderborn, (GERMANY); Stefan Krauter, University of Paderborn, (GERMANY); Mohammad Taghi Ameli, Shahid Beheshti University (IRAN); Saeid Moslehpour, Hartford University

8:30-10:15am Magnolia A

EDU 301: Topics in Curriculum Development and Teaching I

Session Chair: Karen Ruggles (DeSales University)

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Paper #014

Live Long and Prosper: A Robotics-Based Recruitment and Retention Program

Terry Marbut, Jacksonville State University; Jess Godbey, Jacksonville State University; Dana Ingalsbe, Jacksonville State University; Kelly Ryan, Robotics Education and Competition Foundation

Paper #044

Lessons Learned in Cross-College Collaborations: An Engineering and Early Childhood Education Design Project

Neil Littell, Ohio University; Sara Hartman, Ohio University

Paper #068

Thermo-Fluid Curriculum for Engineering Technology: Learning Outcomes and Industry Needs

Sean June, Christian Brothers University; Sudhir Kaul, Western Carolina University

Paper #083

Perceptions of the Advanced Manufacturing Competency Model (AMCM) for Curriculum Development

Mark Doggett, Western Kentucky University; Muhammad Jahan, Western Kentucky University

Paper #154

Cost Estimation for Implementation of a BS Program in Mechatronics Engineering Technology

Mauricio Torres, Northern Kentucky University; Morteza Sadat-Hossieny, Northern Kentucky University

10:15-10:30am

Refreshment Break

10:30-12:30pm Cypress 1

MFG 102: Supply Chain Management and Artificial Neural Networks

Session Chair: Youakim Kalaani (Georgia Southern University)

INVITED SPEAKER #028

Extensions of Dynamic Programming for Design and Analysis of Decision Trees

Mikhail Moshkov, King Abdullah University of Science and Technology

Paper #030

Performance Analysis of Distributed Systems Involving Loops

Togeer Israr, Eastern Illinois University

Abstract #046

Fast Neural Networks Training For Class Identification Using Parallel Processing

Mehran Aminian, St. Mary's University; Farzan Aminian, Trinity University; Shohreh Varmazani, Trinity University

Abstract #131

Development of an Online Graduate Business Program: A Case Study and Proposed Model for Successful Approval and Implementation Sam Khoury, Spring Hill College

Paper #156

Strategic Supply Chain Source Selection Using a Bayesian Multi-Criteria Decision-Based Approach

Mohammad Rahman, Central Connecticut State University;

Ravindra Thamma, Central Connecticut State University;

Mark Rajai, California State University-Northridge

10:30-12:30pm Cypress 2

ITC 402: Technology and Education Management

Session Chairs:

Emily Crawford (Strayer University)
Bin Chen (Purdue University Northwest)

Paper #007

Technology Management: Adapting to A Rapidly Changing World

James McKirahan, Jr., Indiana State University; Austin Cheney, Eastern Illinois University

Paper #017

Technology Management as a Tool for Learning Outcomes Improvement

Irina Sergeyeva, Finlandia University; Aleksandr Sergeyev, Michigan Technological University

Paper #049

Addressing the Challenges of Preparing Science Teachers to Introduce Engineering to Early Learners in Elementary and Middle Schools Tatiana Goris, Purdue University;

Shirl Donaldson, The University of Texas at Tyler

Abstract #076

A Sandbox Development for Demonstrating BOM Transmission in PLM and ERP Integrated Systems

Zhen Zeng, McGill University; Edie Schmidt, Purdue University

Paper #157

Optimal Resources for a POD Unit

Colby Craig, Purdue University; Eric Dietz, Purdue University; Adam Kirby, Purdue University

10:30-12:30pm Cypress 3

ENG 204: Wind Technologies

Session Chair: Mohan Devgun

(Buffalo State University)

Paper #038

Comparative Study of Various Custom-Constructed Wind Augmentation Shrouds for Optimal Design

Ulan Dakeev, Texas A&M University-Kingsville; Farzin Heidari, Texas A&M University-Kingsville; Mohammad Bijapur, Texas A&M University-Kingsville; Sumanth Yanamala, Texas A&M University-Kingsville;

Paper #146

Analysis of a Custom Constructed Wind Augmentation Device with 30-Degree Inlet Section to Improve Wind Power Generation Ulan Dakeev, Texas A&M University-Kingsville; Farzin Heidari, Texas A&M University-Kingsville; Bhavana Kashibhatla, Texas A&M University-Kingsville

Paper #160

The Value of Electricity Storage in the Presence of Renewable Energy Sources in the Future of Multi-Vector Energy Systems

Hossein Ameli, Imperial College London (UK); Meysam Qadrdan, University of Cardiff (UK); Goran Strbac, University of Cardiff (UK); Mohammad Ameli, Shahid Beheshti University (IRAN); Saeid Moslehpour, Hartford University

Paper #163

SWOT Analysis for Iran's Wind Farms
Akbar Adibfar, MAPNA Renewable Energies Co.

Paper #164

Short-Term Forecasting of Wind Power Generation by Adaptive Neural Networks Hong Li, New York City College of Technology; Ali Setoodehnia, ECPI University

10:30-12:30pm Cypress 4

ENG 202: Topics in Electronics

Session Chairs: Dale Rowe (Brigham Young University)

INVITED SPEAKER #159

Using LIDAR and Animation to Develop Surveillance Strategies

Roger Ruggles, Lafayette College; Karen Ruggles, DeSales University

Paper #008

Exploring the Use of Nanoparticles to Modify the Surface Energy of Polyethylene (PE) Substrates

Rex Kanu, Purdue University; Thomas Spotts, Ball State University

Paper #070

Designing Stand-Alone Microgrid Hybrid Solar/ Wind Energy Systems and Grid-Connected Smartgrid Hybrid Solar/Wind Energy Systems Dominick Lauria, University of Hartford; Sarah Lamb, University of Hartford

Paper #127

Design Optimization of 10Gbps Optical Telecommunications Receivers *Akram Abu-aisheh, University of Hartford*

Paper #166

Geometrical Determination of Maximum Power Point of a Photovoltaic Cell

Mehmet Goksu, Millersville University of Pennsylvania; Faruk Yildiz, Sam Houston State University

10:30-12:30pm Magnolia A

EDU 302: Topics in STEM and PLTW [part 1]

Session Chairs: Vigs Chandra (Eastern Kentucky University)

Abstract #011

Separating Hardware from Software Approach to Ease Engineering Students' Work

Mohammed Abdallah, State University of New York

Abstract #071

Enrollment and Graduation Trends in Graduate Engineering Programs

Noureddine Bekhouche, Jacksonville State University

Abstract #104

How SCME's Plug-and-Play MEMS Technology Programs Have Broadened STEM Curricula Worldwide

Barbara Lopez, Southwest Center for Microsystems Education at the University of New Mexico; Matthias Pleil, Southwest Center for Microsystems Education at the University of New Mexico

Paper #140

STEM Outreach Efforts for Urban Students

Otilia Popescu, Old Dominion University; Vukica Jovanovic, Old Dominion University; Jennifer Michaeli, Old Dominion University; Stacie Ringleb, Old Dominion University

Paper #141

University-Industry-Navy Collaboration in Development and Delivery of an Additive Manufacturing Short Course to Naval Personnel

Jennifer Michaeli, Old Dominion University; Justin Yates, Francis Marion University; Michael Polanco, Old Dominion University; Gug Sretsy, Applied Systems and Technology Transfer;

Jack Scott, Applied Systems and Technology Transfer;

Todd Coursey, US Navy Mid-Atlantic Regional Maintenance Center

12:30-2:00pm Lunch Break and IAJC Executive Board Meeting

2:00-3:45pm Cypress 1

MFG 103: Construction—Bridges and Buildings

Session Chair: Ahmed Elsawy

(Tennessee Technological University)

Paper #001

Preliminary Design of a Diagrid Tall Building
Mohammad Bhuiyan, West Virginia State University;

Roberto Leon, Virginia Tech

Paper #003

Probabilistic Models for Critical Building Responses of High-Rise Buildings

Mohammad Bhuiyan, West Virginia State University; Roberto Leon, Virginia Tech

Paper #093

A Comparison Between the Minimum Resolutions of Two Digital Image Correlation-Based Tools in Making Strain Measurements

Niranjan Desai, Purdue University Northwest; Christos Georgakis, Technical University of Denmark; Gregor Fischer, Technical University of Denmark

Paper #123

The Effects of Failure of Anchor Rods on the Performance of the Tower of the New Bay Bridge

Abolhassan Astaneh-Asl, University of California— Berkeley;

Maryam Tabbakhha, University of California— Berkeley;

Xin Qian, University of California—Berkeley

Paper #124

Pushover Analysis of the Tower of the New Self-Anchored Suspension Bay Bridge

Abolhassan Astaneh-Asl, University of California— Berkeley;

Xin Qian, University of California—Berkeley

2:00-3:45pm Cypress 2

ITC 403: Cybersecurity and Computer Technology

Session Chair: Ulan Dakeev (Texas A&M University—Kingsville)

Paper #020

Latency and Phase Transitions in Interconnection Networks with Unlimited Buffers Lev Levitin, Boston University;

Yelena Rykalova, Boston University

Paper #021

Phase Transitions in Interconnection Networks with Finite Buffers

Lev Levitin, Boston University; Yelena Rykalova, Boston University

Paper #040

Employing Link Analysis for the Improvement of Threat Intelligence Regarding Advanced Persistent Threats

Corey Holzer, Purdue University; Eric Dietz, Purdue University; Baijian Yang, Purdue University

Paper #152

Information Security Risks Awareness Programs at K-12: Is This the Right Route?

Idong Mkpong-Ruffin, Faulkner University; Sajid Raza, Walmart Stores, Inc.; Syed Raza, Trenholm State Community College

2:00-3:45pm Cypress 3

ENG 205: Topics in Automotive Technologies

Session Chair: Kevin Dittman

(Purdue University)

Paper #010

Evaluating the Fidelity of a Scale Model Hexapod Motion Simulator

Christopher Lawrence, Indiana University Purdue University Indianapolis; Andrew Borme, Indiana Universit Purdue University Indianapolis; Pete Hylton, Indiana University Purdue

Paper #026

University Indianapolis;

Gate Drive and Efficiency Analysis for a Silicon Carbide MOSFET-Based Electric Motor Drive

Todd Batzel, Pennsylvania State University-Altoona; Taylor Leach, Pennsylvania State University-Altoona

Paper #109

Towards the Improvement of Highway-Rail Intersections with an Intelligent Grade Crossing System

Osileke Osipitan, New York State Department of Transportation

Abstract #168

Early Warning Defect Analysis and Reporting: A Need for Analysis and Reporting Improvement Christopher Kluse, Bowling Green State University

2:00-3:45pm Cypress 4

Workshop #1:

Getting the Rubber to Meet the Road: Breaking Down Resistance to Lean

(FREE—Preregistration is requested to help gauge attendance)

Michelle Brodke, Bowling Green State University— Firelands

2:00-3:45pm Magnolia A

EDU 303: Topics in STEM and PLTW [part 2]

Session Chair: Faruk Yildiz (Sam Houston State University)

Paper #005

Understanding the Physics of Water Rockets Using Wireless Sensors

Eunice Yang, University of Pittsburgh at Johnstown; Brian Houston, University of Pittsburgh at Johnstown

Paper #009

Integrating Activities-, Project- and Problem-Based (APPB) Learning into Introductory Undergraduate Electronics Coursework Vigyan (Vigs) Chandra, Eastern Kentucky University; George Reese, University of Illinois

Paper #012

Professional Development Opportunity for Electrical Engineering Technology Educators in Robotics Automation

Aleksandr Sergeyev, Michigan Tech; Nasser Alaraje, Michigan Tech

Paper #036

Underrepresented Minority Students' Progression to Graduate School in Technology Shirl Donaldson, The University of Texas at Tyler; Kathryne Newton, Purdue University

Paper #061

Career and Technical Education and Its Relation to Engineering Technology Pathways in Mechatronics

Vukica Jovanovic, Old Dominion University; Otilia Popescu, Old Dominion University; Ana Djuric, Wayne State University; Petros Katsioloudis, Old Dominion University; Thomas Stout, Tidewater Community College; Roger Lagesse, Granby High School

3:45-4:00pm

Refreshment Break

4:00-6:00pm Cypress 1

MFG 104: Topics in Manufacturing I

Session Chair: Mehmet Goksu

(Millersville University)

Abstract #032

Smart CNC Metal Machining: Solid Modeling Techniques for Advanced CAM High-Speed Machining of Mechanical Components Todd Waggoner, Bowling Green State University

Abstract #053

Two New Sequencing Rules for the Non-Preemptive Single-Machine Scheduling Problem

Mohsen Hamidi, Utah Valley University

Paper #075

American Reshoring: A Model for Italian Economic Development

Patricia Polastri, Texas A&M University—Kingsville; Antonella Viggiano, Luis Guido Carli University

Paper #110

Proposed Optimization of a Pin Joint Machining and Assembly Process

Dana Ingalsbe, Jacksonville State University; Chris Marker, Jacksonville State University

Abstract #149

Surface Roughness Quality Improvement using Real-Time Machine Vision

Ravindra Thamma, Central Connecticut State University;

Vishal Dhagat, University of Connecticut

4:00-6:00pm Cypress 2

ITC 404: CAD and 3D Printing

Session Chair: Jean Jiang

(Purdue University North Central)

Abstract #112

How to Heal a Broken Heart: 3D Printing as the Future of Cardiology

Whitney Winders, Brigham Young University; Dale Rowe, Brigham Young University

Abstract #128

Immersive 3D Worlds: Creating Virtual Reality Spaces

Drew Graham, Bemidji State University; Lyle Meulebroeck, Bemidji State University

Abstract #129

Utilization of 3D Printing Technology in a University Classroom Setting

Lyle Meulebroeck, Bemidji State University; Drew Graham, Bemidji State University

Abstract #171

Anatomically Scalable Transfemoral Knee Design

Tyagi Ramakrishnan, University of South Florida; Kyle Reed, University of South Florida

Abstract #136

Teaching Outside the Classroom: Collaboration in Service Learning

Timothy Brockman, Bemidji State University; David Towley, Bemidji State University

4:00-6:00pm Cypress 3

ENG 206: Topics in Robotics

Session Chair: Suzanne Keilson (Loyola University Maryland)

Paper #033

Wireless Control of a Robotic Arm Using 3D Motion Tracking Sensors and Artificial Neural Networks

Fernando Rios, Georgia Southern University; Imani Augusma, Georgia Southern University; Rocio Alba-Flores, Georgia Southern University

Paper #048

Statistical Sampling Strategy for Pipeline CCTV Inspection

Myungjin Chae, Central Connecticut State University

Abstract #052

Evaluation of Intelligent Controllers for Improving Elevator Energy Efficiency

Muhammad Hasan, Texas A&M International University;

Rainer Fink, Texas A&M University; Muthuvel Suyambu, Texas A&M University; Manoj Baskaran, Texas A&M University

4:00-6:00pm Cypress 4

Workshop #2:

Understanding and Teaching Statistical Process Control. A Hands-on Approach to Preparing Your Students for High-Tech Manufacturing

(FREE—Preregistration is requested to help gauge attendance)

Barbara Lopez and Matthias Pleil, Southwest Center for Microsystems Education at the University of New Mexico

4:00-6:00pm Magnolia A

EDU 304: Topics in Education—Robotics

Session Chair: Shirl Donaldson (University of Texas at Tyler)

Paper #013

Teaching Critical Skills in Robotics Automation: iR-Vision 2D Course in Robotic Vision Systems **Development and Implementation**

Aleksandr Sergeyev, Michigan Tech; Siddharth Parmar, Michigan Tech; Nasser Alaraje, Michigan Tech

Paper #063

Integrating Cobots in Engineering Technology Education

Ana Djuric, Wayne State University; Vukica Jovanovic, Old Dominion University; Tatiana Goris, Purdue University; Otilia Popescu, Old Dominion University

Paper #101

Investigating Effects of Stereo Baseline Distance on Accuracy of 3D Projection for Industrial Robotic Applications

Wutthigrai Boonsuk, Eastern Illinois University

Abstract #144

Interactive Robot Applications in K-16 Education: A Review of Cases and Challenges Jin Zhu, University of Northern Iowa

Paper #148

Integrating Open-Source Resources in **Robotics Education**

Haoyu Wang, Central Connecticut State University; Biao Zhang, ABB Inc,. US Corporate Research; Paul Resetarits, Central Connecticut State University

Tuesday, November 8, 2016

8:30-10:15am Cypress 1

MFG 105: Topics in Manufacturing II

Session Chair: Sean June (Western Carolina University)

INVITED SPEAKER #167

OSHA Data Initiative's (ODI) Meaning and Findings

Scott Arias, Eastern Kentucky University

Abstract #067

Tuning of Cascade Control Structures Subject to Process Constraints

Vassilios Tzouanas, University of Houston-Downtown

Abstract #078

A Novel RFID Tag Antenna for an Intelligent Library System

Deon Lucien, Georgia Southern University; Sungkyun Lim, Georgia Southern University

Abstract #097

Nanomanufacturing Utilizing the Triple-Helix Concept for Workforce Development

Alton Kornegay, North Carolina A&T State University; Bankole Fasanya, Laulima Government Solutions

Paper #126

Optimizing Thermoforming of High-Impact Polystyrene (HIPS) Trays by Design-of-Experiments (DOE) Methodologies

Vishal Dhagat, University of Connecticut Storrs; Ravindra Thamma, Central Connecticut State University

8:30-10:15am Cypress 2

ITC 405: Topics in Program Accreditation

Session Chair: Eunice Yang

(University of Pittsburgh Johnstown)

Paper #086

An Optimal Mapping Framework for ABET Criteria 3 (a-k) Student Outcomes into the Newly Proposed (1-7) Student Outcomes

Rami Haddad, Georgia Southern University; Youakim Kalaani, Georgia Southern University; Adel El Shahat, Georgia Southern University

Paper #119

A Systematic Approach to Pursue ABET Accreditation

Shuju Wu, Central Connecticut State University; Xiaobing Hou, Central Connecticut State University

Paper #120

An Accreditation Assessment Management System

Xiaobing Hou, Central Connecticut State University; Shuju Wu, Central Connecticut State University

Paper #121

Do Certifications Make a Difference with the Recruitment of Graduate Students for Industrial Management Programs?

Mark Miller, The University of Texas at Tyler; Shirl Donaldson, The University of Texas at Tyler

8:30-10:15am Cypress 3

ENG 207: Wastewater and Properties of Fluids

Session Chair: Sanjay Tewari

(Louisiana Tech University)

Paper #004

Study of the Role of Adhesive Forces During Liquid-Mediated Contacts Separation

Prabin Dhital, Minnesota State University—Mankato; Shaobiao Cai, Minnesota State University—Mankato

Paper #045

Modelling Fluid Flow Through a Flexible Tube Abdessamad Mehdari, Mohammed V University; Mohamed Hasnaoui, Royal Air Force School; Mohamed Agouzoul, Mohammed V University

Abstract #170

Emerging Water Contaminants: Assessment of Sources, Associated Risk and Options for Treatment Methods

Sanjay Tewari, Louisiana Tech University; Ashique Ahmed, Louisiana Tech University

8:30-10:15am Cypress 4

EDU 307: Topics in Education—Simulations

Session Chair: Mikhail Moshkov

(King Abdullah University of Science and Technology)

Paper #057

Real-Time Data Collection and Processing in Open-Loop and Closed-Loop Systems

Jean Jiang, Purdue University Northwest; Li Tan, Purdue University Northwest

Paper #062

Low-Cost Solutions for Wireless Communication Systems for Undergraduate Engineering Technology Students

Otilia Popescu, Old Dominion University; Vukica Jovanovic, Old Dominion University; Ana Djuric, Wayne State University

Paper #132

BioRubeBot: A Multi-Discipline Approach to Capstone Projects in Biology and Computer Science

Adam Lewis, Athens State University; Sara Cline, Athens State University' Leigh Hester, Athens State University

Abstract #147

Integrated Laboratory Testing and FEM-Simulation of Materials in Teaching and Research

Mekonnen Tesfay Tesfu, Baden-Wuerttemberg Cooperative State University (GERMANY)

Paper #162

Cognitive Training Programs with EEG Headset Zhipeng Huang, Purdue University Northwest; Yingjie Li, Shanghai University; Wanlin Dong, Purdue University Northwest; Wenxi Li, Purdue University Northwest; Xiaoli Yang, Purdue University Northwest

8:30-10:15am Magnolia A

EDU 305: Topics in Education—Capstone

Courses

Session Chair: Edie Schmidt

(Purdue University)

Paper #002

Capstone Design Course: Evaluation of Outcomes and Senior Design Projects

Mohan Devgun, State University of New York College at Buffalo;

David Kukulka, State University of New York College at Buffalo

Paper #025

Students' Reflections in an Engineering Technology Capstone Course: Technical, Team Formation, and Communication Issues, Dealing with Ambiguity

Anne Lucietto, Purdue University; Sergey Dubikovsky, Purdue University

Abstract #041

Incorporating Descriptive Simulation of Integrated Manufacturing Systems to an Engineering Technology Capstone Course Yuqiu You, Ohio University;
Neil Littell, Ohio University

Paper #080

Combining Engineering and Engineering Technology Programs into a Single Capstone Design Sequence

Blake Stringer, Kent State University; Maureen McFarland, Kent State University

Paper #117

New Capstone Design Course Combining Architectural and Engineering Aspects of Building Design

Abolhassan Astaneh-Asl, University of California Berkeley;

Gary Black, University of California Berkeley

10:15-10:30am

Refreshment Break

10:30-12:30pm Cypress 1

MFG 106: Construction—Concrete and Sand

Session Chair: Ravindra Thamma (Central Connecticut State University)

Paper #051

Thermal Performance of a Recycled Aggregate Utilizing Building Energy Simulation Programs

Thomas Nicholas, University of North Carolina at Charlotte;

Tara Cavalline, University of North Carolina at Charlotte;

Dixie Johnson, University of North Carolina at Charlotte;

Morgan Laney, University of North Carolina at Charlotte

Abstract #064

Sugarcane Fiber-Reinforced Bricks as a Sustainable Construction Material

Christian Bock-Hyeng, North Carolina A&T State University;

Andrea Ofori-Boadu, North Carolina A&T State University;

Emmanuel Yamb-Bell, The University of Bamenda; Musibau Shofoluwe, North Carolina A&T State University

Paper #098

Concrete with Enhanced Ductility Using Structural Microfibers

Shane Palmquist, Western Kentucky University; Ramyasree Annam, Western Kentucky University

Paper #115

Epistemic Uncertainty Effects on Resistance Factors Calibrated from FHWA Drilled Shafts in Sands Static Top-Down Tests

Jiliang Li, Purdue University Northwest; Jinyuan Zhai, The University of Akron; Li Tan, Purdue University Northwest

10:30-12:30pm Cypress 2

ITC 406: Topics in Information Technology

Session Chair: Lev Levitin

(Boston University)

Paper #019

Social Media and Its Impact on Quality of Communication Management

Paul Thomas, Purdue University; Kevin Dittman, Purdue University

Paper #054

Writing for Publication

Marilyn Dyrud, Oregon Institute of Technology

Abstract #085

How Does Social Media Marketing Impact Orangeburg County's Economy through Tourism?

C'Nell Boone, Claflin University; Emily Crawford, Claflin University

Paper #125

Identification and Control of HIV Drug Therapy Using Fuzzy Systems

Samir Talssi, University Hassan II (MOROCCO); Noura Yousfi, University Hassan II (MOROCCO)

10:30—12:30pm Cypress 3

No presentations scheduled in this time slot for this room.

10:30-12:30pm Cypress 4

No presentations scheduled in this time slot for this room.

10:30-12:30pm Magnolia A

EDU 306: Topics in Curriculum Development and Teaching II

Session Chair: Matthias Pleil (University of New Mexico)

Abstract #024

Cloud-Based Applications in Engineering Drawing Education

Serdar Tumkor, University of Pittsburgh at Johnstown;

Paper #056

Effective Integration of Advanced Mobile Technology for Course Delivery in Information Technology Programs

Bilquis Ferdousi, Eastern Michigan University

Paper #072

Design of Voice Control Interface for a Microwave Oven

Suzanne Keilson, Loyola University

Paper #103

Quality for Manufacturing: Integrating a Flipped Classroom Model with a Project-Based Approach

Shirl Donaldson, The University of Texas at Tyler; Paul McPherson, Purdue University

12:30pm Conference Program Ends

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