International Society for
Occupational Ergonomics & Safety

SOCIETY FOR INDUSTRIAL AND SYSTEMS ENGINEERING

The XXXVth Annual Occupational Ergonomics and Safety Conference
&
12th Annual World Conference for the Society for Industrial and System Engineering

CONFERENCE PROGRAM

October 9-10th, 2023
Munich, Germany / Hybrid

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2023 ISOES/SISE CONFERENCE PROGRAM

Lindenkeller (Room: Jagdstube), Veitsmüllerweg 2, 85354 Freising

All times are Central European Time (CEST) / UTC+2

Zoom link for online participants:
https://us02web.zoom.us/j/84674588082?pwd=Mi9ESlZTdjQwTGtVKysvV3QzV0dxQT09

MONDAY, OCTOBER 9TH, 2023

Lunch (in-person)	11:15	12:00
Welcome / Introduction (hybrid)	12:00	12:15
Session 1: Systems Engineering 1 **Chairs: Paul Evangelista**	12:15	13:00
1. Aircraft Seat Design Indicators for Eliminating Economy Class Syndrome *Kohei Ogi and Atsuhiko Senba*	12:15	12:30
2. Decision Literacy First - Then Data Literacy *Paul Evangelista*	12:30	12:45
3. Effect of Screen Configuration on the Neck Muscle Activity, Range of Motion, and Simulator Sickness Symptoms in Virtual Reality *Sobhit Pokhrel, Mobasshira Zaman and Jaejin Hwang*	12:45	13:00
Break	13:00	13:15
Session 2: Human Factors and Ergonomics 1 **Chairs: Dr. Jaejin Hwang**	13:15	14:30
1. A Survey Study of Ergonomic Perceptions among University Students in Middle Tennessee *Mina Mohebbi, Brianna Smith and Juan Garcia Mendez*	13:15	13:30
2. Machine Learning Techniques for Distinguishing Hand Gestures from Forearm Muscle Activity *Ryan Cho, Sunil Puli and Jaejin Hwang*	13:30	13:45
3. Evaluation of the Acute Effects of Dynamic and Static Stretching on Pain Tolerance, Muscular Activation, and Isometric Strength *Sandra Rivera, Manuel Gomez, Daniel Conde, Carolina Valencia and Gabriel Ibarra-Mejia*	13:45	14:00
4. Implementation of Synthetic Human Hands for the Evaluation of Impact Load Protection of Industrial Gloves *Marta Maria Moure Cuadrado and Eduardo Sosa*	14:00	14:15

5. Prevalence of Musculoskeletal Disorders in Automotive Manufacturing *Marc Snell*	14:15	14:30
Break	14:30	14:45
Keynote Speech (hybrid) Dr. Johannes Brombach Munich University of Applied Sciences Johannes Brombach is a Professor for Work Science and Ergonomics (Human Factors Engineering) at the Department of Engineering and Management at the University of Applied Sciences in Munich, Germany. He worked before at the Institute for Applied Work Science (ifaa) and as a production manager in the German automotive industry. He was elected as a representative for ergonomics for the German Research Foundation (Deutsche Forschungsgemeinschaft, DFG) and as vice president of the German Association for Work Science (Gesellschaft für Arbeitswissenschaft, GfA).	14:45	15:30
Break	15:30	15:45
Session 3: Occupational Safety and Health 1 **Chair: Jim Borchardt**	15:45	17:30
1. Ergonomic hazards cited under the "General Duty" clause in the last decade *Jerry Purswell and Chiemezie Anthony Udemba*	15:45	16:00
2. Exposure to Musculoskeletal Workplace Factors for Railroad Locomotive Shop Workers *Greg Weames, George Page, Steve Fleming and John Vanderpool*	16:00	16:15
3. Comparison of electromagnetic radiation exposure including its cancer outcome cases between cancer alley and non-cancer alley parishes in Louisiana *Priyadarshini Dasgupta, Debarshi Roy and Anagha Bhattacharya*	16:15	16:30
4. Residential Bunk Bed Child Entrapment Hazard Safety Test Methods *Dennis Brickman, Joseph Mohorovic, Anne Mathias and Erick Knox*	16:30	16:45
5. Best Safety Practices for Stability of PVC Pipe Bundles During Transport *Dennis Brickman, Anand Shah, Gary Rogers, Lance Rewerts and John Petersen*	16:45	17:00
6. Global Comparisons of Design for Construction Safety and Health among the United Kingdom, Singapore, South Korea, and United States *Sang Choi, R O'Neill, Yang Goh, and Jeong H Won*	17:00	17:15
7. Postural Assessment and Risk Estimation of Slips, Trips, and Falls on Floor Surfaces in the Construction Sites *Majed Zreiqat, Bobbie Clawson, Wanda Minnick and Luz Marin*	17:15	17:30

Break	17:30	17:45
ISOES Student Award & General Body Meeting (hybrid)	17:45	18:15
End of Day 1		
ISOES/SISE Dinner (in-person) Bräustüberl Weihenstephan, Weihenstephaner Berg 10, 85354 Freising	19:00	-

TUESDAY, OCTOBER 10TH, 2023

Lunch (in-person)	11:15	12:00
Session 4: Occupational Safety and Health 2 **Chair: Gabriel Ibarra-Mejia**	12:00	12:45
1. Enhancing the Design for Safety System in South Korea's Construction Industry: A Stakeholder-Based Approach *Seung-Hyeon Shin, Jeong-Hun Won, Hyeon-Ji Jeong and Min-Guk Kang*	12:00	12:15
2. "Failure is Inevitable, Injury is Preventable" A Proposed Cognitive Model for Teaching and Training in Occupational Safety and Health. *Awwad Dababneh*	12:15	12:30
3. Improvement of Occupational Safety: Investigation on the correlation of Ergonomic Conditions on Workplace Accidents in the automotive industry *Sven Vogel, Arman Dehghani and Marc Snell*	12:30	12:45
Break	12:45	13:00
Session 5: Human Factors and Ergonomics 2 **Chairs: Chiemezie Anthony Udemba**	13:00	14:00
1. Antioxidant System Interventions for Enhancing Spinal Health in Astronaut and Terrestrial Workers *Alvah Bittner and Priyadarshini Dasgupta*	13:00	13:15
2. Differences in Pressure Pain Threshold, Muscular Activity, and Strength Between Static and Dynamic Stretching of the Distal Upper Extremity *Daniel Conde, Manuel Gomez, Omar Cano, Carolina Valencia, and Gabriel Ibarra-Mejia*	13:15	13:30
3. Communications Brevity Words to Linguistic Variables: Compressing Information through Human Perceptions *Justin Shoger*	13:30	13:45
4. Virtual Reality Typing: The Effect of Virtual Hand Representation on Muscle Activity and Task Performance *Mobasshira Zaman, Sobhit Pokhrel, Vishal Garela and Jaejin Hwang*	13:45	14:00
Break	14:00	14:15

Session 6: Manufacturing **Chairs: Daryl Santos**		14:15	15:45
1. Predicting On-time Delivery of Material in Electronics Manufacturing Industries *Sai Srikanth Reddy Kolli and Jia Deng*		14:15	14:30
2. An approach for locally resolved inline determination of the porosity of the active material in a lithium-ion cell. *Andreas Aichele*		14:30	14:45
3. Process Improvement in Complex Manufacturing *Richard Mayorga and Tim Cook*		14:45	15:00
4. Automatic Optimization of SMT Aperture Openings for BGAs to Mitigate Reflow Defects Caused by Chip Warpage using Shadow Moiré Data *Hamez Al Shraida, Daryl Santos, and Joseph Lee*		15:00	15:15
5. Development of an Automated Optimization Framework for SMT Stencil Printing and SPI Data Analysis *Hamez Al Shraida, Daryl Santos, and Bruce Chen*		15:15	15:30
6. A Quantitative and Qualitative Evaluation of an Autonomous Ground Vehicle Simulation *Brandon Thompson, James Richards, Parker Adams, Taylor Kramer, Julia Riekena, and Adam Bakre*		15:30	15:45
Break		15:45	16:00
Session 7: Reliability **Chairs: Richard Wyatt**		16:00	17:00
1. Analysis of the Effects of Anchorage Failure on the Stability of a Mast Climber System *John Z Wu, Christopher S Pan, Bryan M Wimer, Christopher M Warren and Ren G Dong*		16:00	16:15
2. Risk type analysis for a holistic risk management approach along the product life cycle of medical devices *Carolin Schulz and Oliver Mannuß*		16:15	16:30
3. A framework for deriving meaningful actions for different failure characteristics in risk analysis by means of FMEA *Oliver Mannuß*		16:30	16:45
4. Progress and existing weaknesses of the FMEA method *Oliver Mannuß*		16:45	17:00
Break		17:00	17:15

Session 8: Systems Engineering 2 **Chairs: Steve Fleming**	17:15	18:00
1. System Design and Engineering of a Novel Sleep Detection System for Driver Drowsiness *Jasmine Talley and Vikram Mittal*	17:15	17:30
2. Model-Based Systems Engineering for Implementing Facial Recognition in the HMMWV *James Pinter and Vikram Mittal*	17:30	17:45
3. Digital Twin Learning Model for Camera Vision Inspection System in Manufacturing *Punit Singh*	17:45	18:00
Closing (hybrid)	18:00	18:15