IEEE

IEEE International Conference on
Industrial Engineering and Engineering Management (IEEM)

# IEEM2023

## SINGAPORE | 18 - 21 December 2023

www.ieem.org

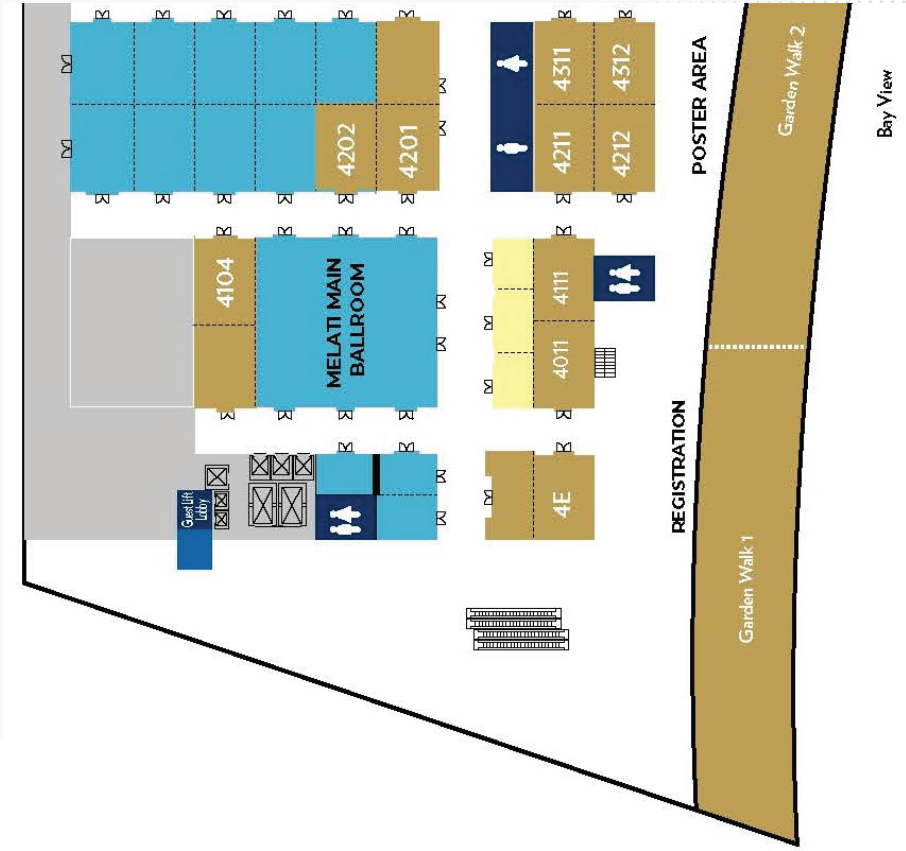
# WAYFINDER

## Sands Expo & Convention Centre, Marina Bay Sands Singapore

*10 Bayfront Ave, Singapore 018956*

## Meeting Room Locations

*Level 4, Sands Expo & Convention Centre*



# CONTENT



SCAN FOR SCHEDULE FINDER

# WELCOME MESSAGE

## Organizing Chairs

**Kah Hin CHAI**
*National University of Singapore*

**Seung Ki MOON**
*Nanyang Technological University*

## Program Chairs

**Roger JIAO**
*Georgia Institute of Technology*

**Min XIE**
*City University of Hong Kong*

Dear Esteemed Colleagues and Participants,

It is with great pleasure we welcome you to IEEE 2023 International Conference on Industrial Engineering and Engineering Management (IEEM2023), taking place in Singapore from December 18th to 21st, 2023.

IEEM has consistently led the way in advancing research and knowledge in industrial engineering and engineering management. IEEM 2023 promises to be another exceptional event, bringing together global experts, scholars, and practitioners to share insights and discoveries, fostering collaboration and inspiration. In a remarkable resurgence towards pre-COVID-19 normalcy, we are delighted to announce that this year we have received an impressive total of nearly 1000 submissions from over 50 countries.

# WELCOME MESSAGE

Within these pages lie the papers representing cutting-edge research, insights, and expertise that will shape our conference discussions. The diversity of topics, the depth of knowledge, the rigorous review process, and the collaborative spirit of our presenters embody the essence of IEEM.

We extend our profound gratitude to our distinguished keynote speakers, Professor Saman Halgamuge, a Fellow of both IEEE and IET, from the School of Electrical Mechanical and Infrastructure Engineering at The University of Melbourne, and Professor Bernard Tan, Senior Vice Provost for Undergraduate Education at the National University of Singapore and a past Department Editor of IEEE Transactions on Engineering Management. Their invaluable contributions enrich our conference, and we deeply appreciate their participation.

Our heartfelt appreciation also goes out to the authors for sharing their innovative work and to the reviewers for their meticulous evaluation and feedback.

May your journey through these papers be enlightening and may the connections you make at the IEEM2023 conference lead to a future of innovation and progress.

# COMMITTEES

## ORGANIZING COMMITTEE

### ORGANIZING CHAIRS

**Kah Hin CHAI**
*National University of Singapore*

**Seung Ki MOON**
*Nanyang Technological University*

### PROGRAM CHAIRS

**Roger JIAO**
*Georgia Institute of Technology*

**Min XIE**
*City University of Hong Kong*

### MEMBERS

**Nan CHEN**
*National University of Singapore*

**Songlin CHEN**
*Nanyang Technological University*

**Edwin CHEUNG**
*Hong Kong Institute of Vocational Education (Tuen Mun)*

**Walter FUNG**
*City University of Hong Kong*

**Tritos LAOSIRIHONGTHONG**
*Thammasat University*

**Carman Ka Man LEE**
*The Hong Kong Polytechnic University*

**Szu Hui NG**
*National University of Singapore*

**Annapoornima M. SUBRAMANIAN**
*National University of Singapore*

**Pei-Lee TEH**
*Monash University Malaysia*

## PROGRAM COMMITTEE

**Luciana ALENCAR**
*Universidade Federal de Pernambuco*

**Tosporn ARREERAS**
*Mae Fah Luang University*

**Philipp BAUMANN**
*University of Bern*

**Lyes BENYOUCEF**
*Aix-Marseille University*

**Zhiqiang CAI**
*Northwestern Polytechnical University*

**Ayon CHAKRABORTY**
*Federation University*

**Long-Sheng CHEN**
*Chaoyang University of Technology*

**Mu-Chen CHEN**
*National Yang Ming Chiao Tung University*

**Zhi Lin CHONG**
*Universiti Tunku Abdul Rahman*

**Sanjay CHOUDHARI**
*Indian Institute of Management Indore*

**Yves DE SMET**
*Université Libre de Bruxelles*

**Ahmed El-BOURI**
*Sultan Qaboos University*

**Akram EI-TANNIR**
*Lebanese American University*

**Siana HALIM**
*Petra Christian University*

**Janne HARKONEN**
*University of Oulu*

**Markus HARTONO**
*University of Surabaya*

**Adnan HASSAN**
*Universiti Teknologi Malaysia*

**Yu-Hsiang HSIAO**
*National Taipei University*

**Supachart IAMRATANAKUL**
*King Mongkut's University of Technology Thonburi*

**Tatsuya INABA**
*Kanagawa Institute of Technology*

**Ville ISOHERRANEN**
*Oulu University of Applied Sciecies*

**Shino IWAMI**
*NEC Corporation*

**Raja JAYARAMAN**
*Khalifa University of Science & Technology*

**Rohit KAPOOR**
*IIM Indore*

**Hadi KHORSHIDI**
*The University of Melbourne*

**Gitae KIM**
*Hanbat National University*

**Yong-Hong KUO**
*The University of Hong Kong*

**Gwo-Liang LIAO**
*National Taitung University*

**S.C. Johnson LIM**
*Universiti Tun Hussein Onn Malaysia*

**Shieu-Hong LIN**
*Biola University*

**Tyrone T. LIN**
*National Dong Hwa University*

**Weidong LIN**
*Singapore Institute of Technology*

**Bin LIU**
*University of Strathclyde*

**Hongrui LIU**
*San Jose State University*

**Shuang MA**
*University of Science & Technology Beijing*

**Tahir MAHMOOD**
*King Fahd University of Petroleum and Minerals*

**Indrajit MUKHERJEE**
*IIT Bombay*

**Bupe MWANZA**
*University of Johannesburg*

**Nabil NAHAS**
*Université de Moncton*

**Kam K.H. NG**
*The Hong Kong Polytechnic University*

**Dinh Son NGUYEN**
*University of Science and Technology, The University of Danang*

**Edoghogho OGBEIFUN**
*University of Johannesburg*

**Sanjay Kumar PALEI**
*Indian Institute of Technology (BHU)*

**Alan PILKINGTON**
*University of Westminster*

**Yogi Tri PRASETYO**
*Yuan Ze University*

**Kemlall RAMDASS**
*University of South Africa*

**R.M. Chandima RATNAYAKE**
*University of Stavanger*

**Mojahid SAEED OSMAN**
*North Dakota State University*

# COMMITTEES

**Premaratne SAMARANAYAKE**
*Western Sydney University*

**Sara SHAFIEE**
*Technical University of Denmark*

**Ronnachai SIROVETNUKUL**
*Mahidol University*

**Rawinkhan SRINON**
*Mahidol University*

**Aries SUSANTY**
*University of Diponegoro*

**Charlie SY**
*De La Salle University*

**Quang Minh TA**
*Nanyang Technological University*

**Yoshinobu TAMURA**
*Yamaguchi University*

**Ai Chin THOO**
*Universiti Teknologi Malaysia*

**Anders THORSTENSON**
*Aarhus University*

**Norbert TRAUTMANN**
*University of Bern*

**David VALIS**
*University of Defence in Brno*

**Ehsan VAZIRI GOUDARZI**
*Islamic Azad University Tehran North Branch*

**Yue WANG**
*The Hang Seng University of Hong Kong*

**Junfeng WANG**
*Huazhong University of Science and Technology*

**Wei WANG**
*Xi'an Jiaotong University*

**Gangyan XU**
*The Hong Kong Polytechnic University*

**Haiyan XU**
*Institute of High Performance Computing*

**Om Prakash YADAV**
*North Carolina A&T State University*

**Keng-Chieh YANG**
*National Kaohsiung University of Science and Technology*

**Anies Faziehan ZAKARIA**
*Universiti Kebangsaan Malaysia*

**Linda ZHANG**
*IESEG School of Management*

**Meimei ZHENG**
*Shanghai Jiao Tong University*

**Yaoming ZHOU**
*Shanghai Jiao Tong University*

## Opening & Keynote Presentations

Tues, 19 December 2023 | 08:30 – 10:30 | Level 4, Melati Main Ballroom

| | |
|---|---|
| **08:30 - 09:00** | **Opening & Welcome Address** |
| **09:00 - 09:45** | **Keynote Presentation: "Machine Vision and 21st Century AI – Our Responsibilities for The Planet"**<br>Saman HALGAMUGE<br>*Fellow of IEEE and IET, Professor, School of Electrical Mechanical and Infrastructure Engineering, The University of Melbourne* |
| **09:45 - 10:30** | **Keynote Presentation: "Education Reforms at NUS"**<br>Bernard TAN<br>*Senior Vice Provost (Undergraduate Education), National University of Singapore* |

## Closing, Awards and Conference Dinner

Wed, 20 December 2023 | 18:30 – 21:00 | Level 4, Melati Main Ballroom

| | |
|---|---|
| **18:30 – 18:45** | Guest Arrival |
| **18:45 – 18:50** | Dinner Speech |
| **18:50 – 21:00** | Dinner Served |
| **20:00 – 20:30** | IEEM2023 Awards Presentation |
| **20:30 – 21:00** | Next Meeting Presentation<br>IEEM2024 at Bangkok |

# KEYNOTE PRESENTATIONS

## Saman HALGAMUGE

*Fellow of IEEE and IET*
*Professor, School of Electrical Mechanical and Infrastructure Engineering, The University of Melbourne*

### "Machine Vision and 21st Century AI – Our Responsibilities for The Planet"

Tues, 19 Dec 2023 | 09:00 – 09:45
Level 4, Melati Main Ballroom

**About the Speaker**
Prof Saman Halgamuge, Fellow of IEEE and IET, received the B.Sc. Engineering degree in Electronics and Telecommunication from the University of Moratuwa, Sri Lanka, and the Dipl.-Ing and Ph.D. degrees in data engineering from the Technical University of Darmstadt, Germany. He is currently a Professor of the Department of Mechanical Engineering of the School of Electrical Mechanical and Infrastructure Engineering, The University of Melbourne. He is listed as a top 2% most cited researcher for AI and Image Processing in the Stanford database. He was a distinguished Lecturer of IEEE Computational Intelligence Society (2018-21). He supervised 50 PhD students and 16 postdocs in Australia to completion. His research is funded by Australian Research Council, National Health and Medical Research Council, US DoD Biomedical Research program and International industry. His previous leadership roles include Head, School of Engineering at Australian National University and Associate Dean of the Engineering and IT Faculty of University of Melbourne.

**"Machine Vision and 21st Century AI – Our Responsibilities for The Planet"**
In this talk, I traverse unmarked territories of machine vision coupled with the conscientious use of 21st century AI keeping our responsibilities for the planet in mind. Imagine a world where every machine has the ability to see, process information, and communicate with other machines and humans. How do we shape this future world of co-existing machines and humans with socially responsible AI? I will discuss two directions of AI our research group is focusing on, which can enable machines to learn and reason fast and also to be transparent about the internal intelligence of AI systems opening up the opportunity for authorities to regulate AI when required.

You may wonder, how well can this vision of AI fit in a world already struggling to curb climate change, socio-economic inequality, and geo-political turmoil? Can Machine vision and 21st century AI help to restore the balance and cure the planet while supporting the thriving discipline of industrial engineering and engineering management? I will articulate my thoughts in answering those questions.

## Bernard TAN

*Senior Vice Provost (Undergraduate Education),*
*National University of Singapore*

## "Education Reforms at NUS"

Tues, 19 Dec 2023 | 09:45 – 10:30
Level 4, Melati Main Ballroom

**About the Speaker**
Professor Bernard Tan is Senior Vice Provost (Undergraduate Education) at the National University of Singapore (NUS). He assists the Provost in setting educational directions and policies, and in assuring educational quality for the University.

Professor Tan was Vice Provost (Undergraduate Education and Student Life) from 2012 to 2017, Associate Provost (Undergraduate Education) from 2009 to 2012, Chair of the NUS Teaching Academy in 2009, Head of the Department of Information Systems from 2002 to 2008, and Assistant Dean of the School of Computing from 2000 to 2002. He was a recipient of the NUS School of Computing Outstanding Alumnus Award in 2019, the Singapore Long Service Medal in 2019, the Singapore Public Administration Medal (Silver) in 2012, the NUS Outstanding Educator Award in 2004, and the NUS Young Researcher Award in 2002.

Professor Tan was President of the Association for Information Systems (AIS) from 2009 to 2010. He was a Fellow of the AIS and a recipient of the AIS Outstanding Service Award in 2019. He has served on the editorial boards of MIS Quarterly (Senior Editor), Journal of the AIS (Senior Editor), IEEE Transactions on Engineering Management (Department Editor), Management Science (Associate Editor), ACM Transactions on Management Information Systems (Associate Editor), and Journal of Management Information Systems (Editorial Board Member).

Prof Tan is a Shaw Professor in the Department of Information Systems and Analytics. His research interests include virtual communities, Internet commerce, and big data analytics. He has given invited talks and keynote addresses at various international conferences. His research work has been published in major international journals and conference proceedings in the field of information systems.

**"Education Reforms at NUS"**
Students today will be working in an Industry 4.0 workplace for much of their careers. Such a workplace is characterized by rapid obsolescence of knowledge, massive transformation of industries, increased complexity of problems (and solutions needed), and greater turbulence of the environment. To prepare students for such a workplace, it is imperative for universities to re-examine and make bold but necessary changes to its curriculum and pedagogy. This address provides insights into (and the rationale for) the various pieces of education reforms carried out by NUS (over the past few years) to better prepare students for an Industry 4.0 workplace.

## SUPPLY CHAIN MANAGEMENT 1

19/12/2023 11:00 AM-01:00 PM Room 4E

**Session Chair(s):** **Zahra HOSSEINIFARD**
*The University of Melbourne*
**Saurabh CHANDRA**
*Indian Institute of Management Indore*

**IEEM23-A-0008/A Production Routing Model to Design a Jit Delivery System for an Inbound Supply Chain**
Saurabh Chandra[#+1], Mamta Sahare[1]
[1]Indian Institute of Management Indore, India

**IEEM23-F-0033/Risk Assessment of Agri-food Supply Chain to Minimise Food Insecurity in Developing Economies: A Case Study of Poultry Chain in Indonesia**
Puti Larasati[#+1], R.M. Chandima Ratnayake[2], Nur Budi Mulyono[3]
[1]Institut Teknologi Bandung, Indonesia
[2]University of Stavanger, Norway
[3]Bandung Institute of Technology, Indonesia

**IEEM23-F-0034/Inbound Supply Chain Risk Management: A Case Study from an Automotive Manufacturing Firm**
Jovanska Arfianda Imran[#+1], R.M. Chandima Ratnayake[2], Liane Okdinawati[3]
[1]Institut Teknologi Bandung, Indonesia
[2]University of Stavanger, Norway
[3]Bandung Institute of Technology, Indonesia

**IEEM23-F-0052/Adjusting Product Returns of IoT-enabled Products through Financial Incentives**
Tatsuya Inaba[#+1]
[1]Kanagawa Institute of Technology, Japan

**IEEM23-A-0021/Ordering and Substitution Decisions for Red Blood Cells**
Zahra HosseiniFard[#+1], Babak Abbasi[2]
[1]The University of Melbourne, Australia
[2]RMIT University, Australia

**IEEM23-F-0057/Crafting a Resilient Two-echelon Supply Chain in the Era of Sustainability**
Ahmed Mohammed[#1], Salwa Al Bluashi[+2], Kannan Govindan[3], Nasiru Zubairu[2]
[1]University of Birmingham, United Arab Emirates
[2]Muscat University, Oman
[3]University of Southern Denmark, Denmark

**IEEM23-F-0063/E-procurement and Sustainability Practices in COVID-19: Practitioners Perspective**
Simon Yuen[#+1], Calvin Cheng[1]
[1]The Hong Kong Polytechnic University, Hong Kong SAR

## SUPPLY CHAIN MANAGEMENT 2

19/12/2023 11:00 AM-01:00 PM Room 4011

**Session Chair(s):** **Aries SUSANTY**
*Diponegoro University*
**Rajesh MATAI**
*Birla Institute of Technology and Science, Pilani*

**IEEM23-F-0077/Applying Interpretative Structural Modelling to Analyze the Barriers to Maximizing the Performance of the Halal Industry**
Aries Susanty[#+1], Nia Budi Puspitasari[1], Shinta Devi Mariana[1]
[1]Diponegoro University, Indonesia

**IEEM23-F-0084/Analyzing the Modal Shift Initiatives of Intermodal Railroad Freight Transportation**
Nevil Gandhi[#+1], Ravi Kant[1], Jitesh J Thakkar[2]
[1]Sardar Vallabhbhai National Institute of Technology, India
[2]Gati Shakti Vishwavidyalaya, India

**IEEM23-F-0113/Barriers to Circular Economy Transition in Small and Medium-sized Businesses: A Systematic Review**
Zabina Asfahani[1], Bertha Maya Sopha[#+1], Muhammad Arif Wibisono[1]
[1]Universitas Gadjah Mada, Indonesia

**IEEM23-F-0118/Barriers to Coordination among Humanitarian Organizations: Insights from Practitioners in a Developing Country**
Bertha Maya Sopha[#+1]
[1]Universitas Gadjah Mada, Indonesia

**IEEM23-F-0119/Strategic Cross-dock Allocation for Traffic Safety Products across Thailand**
Pakaporn Bunwit[#+1], Wipawee Tharmmaphornphilas[1]
[1]Chulalongkorn University, Thailand

**IEEM23-F-0136/Performance Assessment of Food Logistics Service under SERVQUAL Model Using Analytic Hierarchy Process Approach**
Poonyawat Kusonwattana[+1], Yogi Tri Prasetyo[#2], Jui-Hao Liao[2], Omar Paolo Benito[2], Michael Nayat Young[1], Nattakit Yuduang[3], Thanatorn Chuenyindee[4], Satria Fadil Persada[5]
[1]Mapúa University, Philippines
[2]Yuan Ze University, Taiwan
[3]Suvarnabhumi Institute of Technology, Thailand
[4]Navaminda Kasatriyadhiraj Royal Air Force Academy, Thailand
[5]Bina Nusantara University, Indonesia

**IEEM23-A-0275/Prediction of Passenger Car Sales Rate for the Indian Automobile Market Using Economic Indicators**
Sanjita Jaipuria[#+1]
[1]Indian Institute of Management Shillong, India

## OPERATIONS RESEARCH 1

19/12/2023 11:00 AM-01:00 PM Room 4111

**Session Chair(s):** **Norbert TRAUTMANN**
*University of Bern*
**Om Prakash YADAV**
*North Carolina Agricultural and Technical State University*

**IEEM23-F-0011/A Deep Reinforcement Learning Framework for Capacitated Facility Location Problems with Discrete Expansion Sizes**
Zhonghao Zhao[+1], Carman Ka Man Lee[#1], Xiaoyuan Yan[1], Haonan Wang[1]
[1]The Hong Kong Polytechnic University, Hong Kong SAR

**IEEM23-F-0031/Workload-based Extensions of Mixed-integer Programming Models for Resource-constrained Project Scheduling**
Jonas Saupe[1], Mario Gnägi[1], Norbert Trautmann[#+1]
[1]University of Bern, Switzerland

**IEEM23-F-0096/A DEA-CCR Model Application in Clustered Stocks Portfolio with Technical Investment Strategies and Mean-Variance Model**
Maricar Navarro[#+1], Michael Nayat Young[2], Yogi Tri Prasetyo [3], Jennifer Camino[1], Bryan Navarro[1], V.T. Ramos[1]
[1]Technological Institute of the Philippines, Philippines
[2]Mapúa University, Philippines
[3]Yuan Ze University, Taiwan

**IEEM23-F-0139/Canonical Form of the TLBO for Multi-hole Drilling**
Vijay Rathod[1], Om Prakash Yadav[#+2], S.P. Kadam[1], Ajay Pal Singh Rathore[3]
[1]Government Polytechnic, India
[2]North Carolina Agricultural and Technical State University, United States
[3]Malaviya National Institute of Technology, India

**IEEM23-F-0162/Designing a Bi-level Collaborative Maintenance Planning Approach Between Airline and Service Company under MRO Outsourcing Practice**
Yichen Qin[+1], Kam K.H. Ng[#2]
[1]Shanghai Maritime University, China
[2]The Hong Kong Polytechnic University, Hong Kong SAR

**IEEM23-F-0214/Efficient Decision-making for Rail Freight Operators: A Real-time IoT-based Approach for Rake Rescheduling**
Gaurav Kumar[#+1], Akhilesh Kumar[1]
[1]Indian Institute of Technology Kharagpur, India

**IEEM23-F-0275/A Multi-objective Optimization Model for Wastewater Treatment in Eco-industrial Park Design with Employment Considerations**
Ralph Anderson Chua[1], Cherry Pauline Magdaong[1], Ricardo Emmanuelle Mañalac[1], Ylesa Erliria Puente[#1], Gian Carlo Torres[1], Dennis Cruz[+1]
[1]De La Salle University, Philippines

**IEEM23-A-0094/Decomposition Algorithms for Multistage Robust Optimization and its Applications in Power Systems**
Neng Fan[#+1]
[1]The University of Arizona, United States

## TECHNOLOGY AND KNOWLEDGE MANAGEMENT 1

19/12/2023 11:00 AM-01:00 PM Room 4104

**Session Chair(s):** **Koichi MURATA**
*Nihon University*
**Annika HASSELBLAD**
*Mid Sweden University*

**IEEM23-F-0059/Sustainability-focused Product Configurators Benefits and Expectations: A Construction Industry Case**
Irene Campo-Gay[#+1], Lars Hvam[1]
[1]Technical University of Denmark, Denmark

**IEEM23-F-0089/Acceptance of Architecture-related Content Videogames in Landscape Architecture Education: A Simplified UTAUT 2 Model**
Ningxin Chen[#+1], Tong Liu[2]
[1]Wuhan University of Bioengineering, China
[2]Royal Melbourne Institute of Technology (RMIT) University, Australia

**IEEM23-F-0095/Continuance Usage Intention of Wearable Healthcare Technology: A Comparison of Younger and Older Users**
Kodai Aoyama[1], Xiuzhu Gu[#+1]
[1]Tokyo Institute of Technology, Japan

**IEEM23-F-0271/Openness and Technological Innovation in Firms' R&D Network: A Network Pluralism View**
Chunxiao Xie[#+1], Naiding Yang[1]
[1]Northwestern Polytechnical University, China

**IEEM23-F-0279/Application of Topic Modeling for the Identification of Innovation Potentials in the Product Environment**
Michael Riesener[1], Maximilian Kuhn[1], Hendrik Lauf[#+1], Günther Schuh[1]
[1]RWTH Aachen University, Germany

**IEEM23-A-0098/The Curvilinear Relationship between Instant Messaging Interruptions and Task Performance: the Moderating Roles of Job Autonomy and Work Mode**
Mavis Yi-Ching Chen[#+1], Yen-Yu Chen[2]
[1]National Taiwan Normal University, Taiwan
[2]National Yang Ming Chiao Tung University, Taiwan

**IEEM23-F-0286/A Qualitative Review of Smart Farming in ASEAN**
Siti Fatimahwati Pehin Dato Musa[#+1]
[1]Universiti Brunei Darussalam, Brunei Darussalam

**IEEM23-F-0375/Impact of Demographic Characteristics and Technology Adoption on Sales Growth in Small and Medium Enterprises: An Empirical Study**
Dian Fajarika[#+1], Bertha Maya Sopha[1], Fitri Trapsilawati[1]
[1]Universitas Gadjah Mada, Indonesia

## BIG DATA AND ANALYTICS 1

19/12/2023 11:00 AM-01:00 PM Room 4201

**Session Chair(s):** **Haiying JIA**
*Norwegian School of Economics*
**Dyuti PAUL**
*University of New South Wales Canberra*

**IEEM23-F-0028/Identification of Key Persons in Open Source Communities**
Shino Iwami[#+1]
[1]NEC Corporation, Japan

**IEEM23-F-0029/Mechanical Categorization of Open Source Projects**
Shino Iwami[#+1]
[1]NEC Corporation, Japan

**IEEM23-F-0055/Substitute and Complementary Open Source Software in Blockchain**
Shino Iwami[#+1], Yoshiyasu Takefuji[2]
[1]NEC Corporation, Japan
[2]Musashino University, Japan

**IEEM23-F-0086/Data Driven Model Selection in Vessel Valuation**
Haiying Jia[#+1]
[1]Norwegian School of Economics, Norway

**IEEM23-F-0088/Modeling Machine Learning to Solve Distribution Problems and the Number of Backlogs in Maintenance**
Pattharapol Louhuraikul[#+1], Sataporn Amornsawadwatana[1], Amnual Kaewsai[1]
[1]University of the Thai Chamber of Commerce, Thailand

**IEEM23-F-0209/Forecasting Stock Price Index of Four Asian Countries during COVID-19 Pandemic Using ARMA-GARCH and RNN Methods**
Ferry Vincenttius Ferdinand[+1], K. V. I. Saputra[#1], Michelle [1], Johan Sebastian Edbert[1]
[1]Universitas Pelita Harapan, Indonesia

**IEEM23-F-0211/Performance Comparison between Facebook Prophet and SARIMA on Indonesian Stock**
Ferry Vincenttius Ferdinand[#+1], Terry Hilario Santoso[1], K. V. I. Saputra[1]
[1]Universitas Pelita Harapan, Indonesia

## SYSTEMS MODELING AND SIMULATION 1

19/12/2023 11:00 AM-01:00 PM Room 4202

**Session Chair(s):** **Charlle SY**
*De La Salle University*
**Yuan CHAI**
*The University of Adelaide*

**IEEM23-F-0061/Profitability and Policy Pressure Determination on Circular Business Model in Household Waste Management: A System Dynamic Approach**
Noorhan Firdaus Pambudi[#+1], Samindi Samarakoon[2], Togar Mangihut Simatupang[1], Nur Budi Mulyono[1]
[1]Bandung Institute of Technology, Indonesia
[2]University of Stavanger, Norway

**IEEM23-F-0091/Modeling the Dynamics of Oil Price Fluctuations Using the System Dynamics Approach**
Charlle Sy[#+1], Aaron Chan[1]
[1]De La Salle University, Philippines

**IEEM23-F-0098/Process Improvement: A Case Study to Reduce Operational Inaccuracies of Tin Can and Metal Sheet Fabrication Company Using ProModel Simulation**
Kristina Marie Abad[1], Mac Friedrich Dantes[1], Antonio Mari Garcia[+1], Carlo Gonzales[1], John Matthew Halog[1], Kobe Bryan Madalang[1], Marinell Santos[1], Maricar Navarro[#1], Arriane Palisoc[1], Juan Miguel Dinglasan[1]
[1]Technological Institute of the Philippines, Philippines

**IEEM23-F-0129/A Multiphase Liquid-gas Plant Modelling Using Fuzzy Cognitive Maps: An Application to an Actual Experimental Plant**
Giovanni Mazzuto[1], Sara Carbonari[#+1], Maurizio Bevilacqua[1], Filippo Emanuele Ciarapica[1]
[1]Università Politecnica delle Marche, Italy

**IEEM23-F-0255/A Simulation Study: Continuous Production Process of Seaweed Production**
Phavika Mongkolkittaveepol[+1], Tinnakorn Phongthiya[#1], Chanawee Meekarm[1], Jirasuta Kanjanarajit[1]
[1]Chiang Mai University, Thailand

**IEEM23-F-0266/A Comparative Analysis of Hybrid Assembly Line Key Performance Indicators Between a Real-world Industrial Setting and a Fast Discrete Event Simulator**
Anass El Houd[#+1], Benoit Piranda[1], Raphael De Matos[2], Julien BourgeoIntelligent Systems 1
[1]University of Franche-Comte, France
[2]Forvia Clean Mobility, France

## RELIABILITY AND MAINTENANCE ENGINEERING 1

19/12/2023 11:00 AM-01:00 PM Room 4211

**Session Chair(s):** **Shinji INOUE**
*Kansai University*
**Karthik SANKARANARAYANAN**
*Ontario Tech University*

**IEEM23-F-0035/Risk-based Predictive Maintenance Approach for Power Distribution Systems: A Time Series Analysis Case Study**
A. M. Sakura R. H. Attanayake[#1], R.M. Chandima Ratnayake[+1]
[1]University of Stavanger, Norway

**IEEM23-F-0043/Cycle-proportion-based Maintenance Scheduling of Machining Station with Unstable Demands**
Mixin Zhu[#+1], Xiaojun Zhou[1]
[1]Shanghai Jiao Tong University, China

**IEEM23-F-0049/Economic Periodic Maintenance Intervals for Dangerous Undetected Fault of Safety-related Systems**
Shinji Inoue[#+1], Shigeru Yamada[2]
[1]Kansai University, Japan
[2]Tottori University, Japan

**IEEM23-F-0108/Design and Development of Operation and Maintenance Platform for Material Service Performance Test Equipment**
Guotai Huang[#+1], Peng Liu[1], Anran Zhao[1], Xiyu Gao[1]
[1]Jilin University, China

**IEEM23-F-0206/Identification of Ground Fault Causes in Distribution Lines for Large-scale Power Customers Using Machine Learning**
Ryoma Matsubara[#+1], Takasi Onoda[1]
[1]Aoyama Gakuin University, Japan

**IEEM23-F-0318/Availability Analysis Method for Phased Serial System Considering Equal Mission Interval and Cannibalization**
Jiangbin Zhao[1], Mengtao Liang[+1], Zaoyan Zhang[1], Xiangang Cao[#1]
[1]Xi'an University of Science and Technology, China

**IEEM23-F-0362/Current and Future Trends in Manufacturing Maintenance Strategies**
Bheki Makhanya[#+1], Jan Harm Pretorius[1], Hannelie Nel [1]
[1]University of Johannesburg, South Africa

## MANUFACTURING SYSTEMS 1

19/12/2023 11:00 AM-01:00 PM Room 4212

**Session Chair(s):** **Zhe ZHANG**
*Nanjing University of Science & Technology*

**IEEM23-F-0015/Empirical Findings on the Need of Industrial Production Management Systems in the Context of Enhanced Digitalization**
Stefan Schmid[#+1], Herwig Winkler[1]
[1]Brandenburg University of Technology Cottbus-Senftenberg, Germany

**IEEM23-F-0090/An Influential Node Identification Framework in the Aircraft Assembly Network Based on the Community Structure**
Jinhua Hu[+1], Yanning Sun[2], Hongwei Xu[1], Runzhi Tan[1], Jiyue Zhu[1], Wei Qin[#1]
[1]Shanghai Jiao Tong University, China
[2]Shanghai University, China

**IEEM23-F-0157/Dynamic Scheduling of Operators in an Unbalanced Assembly Line Based on Weighted Fuzzy Petri Nets Decision**
Delian Tang[1], Junfeng Wang[#+1], Xia Tang[1]
[1]Huazhong University of Science and Technology, China

**IEEM23-F-0180/Distributed Permutation Flow Shop Scheduling Method Based on Efficient Job Allocation Strategy**
Yang Li[#+1], Xinyu Li[1], Liang Gao[1], Cuiyu Wang[1], Yue Teng[1]
[1]Huazhong University of Science and Technology, China

**IEEM23-F-0187/Effect of the Training Data Quantity on the Day-ahead Load Forecasting Performance in the Industrial Sector**
Lukas Baur[#+1], Philipp Pelger[1], Alexander Sauer[1]
[1]Fraunhofer Institute for Manufacturing Engineering and Automation, Germany

**IEEM23-F-0200/Additive Manufacturing for Automotive Industry: Status, Challenges and Future Perspectives**
Lequn Chen[+1], Nicholas Poh Huat Ng[1], Jihwan Jung[2], Seung Ki Moon[#1]
[1]Nanyang Technological University, Singapore
[2]Hyundai Motor Group, Korea, South

**IEEM23-F-0100/Sustainable Production through Competency Development in Smart Manufacturing**
Peter Onu[#+1], Anup Pradhan[1], Charles Mbohwa[1]
[1]University of Johannesburg, South Africa

## DECISION ANALYSIS AND METHODS 1

19/12/2023 11:00 AM-01:00 PM Room 4311

**Session Chair(s):** **Daniel Y. MO**
*The Hang Seng University of Hong Kong*
**Venkateswarlu NALLURI**
*Chaoyang University of Technology*

**IEEM23-A-0012/Generating Policy Alternatives for Decision Making: A Process Model, Behavioural Issues and an Experiment with a Climate Change Mitigation Game**
Raimo P. Hämäläinen[#+1], Tuomas Lahtinen[1], Kai Virtanen[1]
[1]Aalto University, Finland

**IEEM23-F-0070/Prioritizing Barriers to Reverse Logistics of Lithium-ion Batteries in Electric Vehicles**
Amit Kumar Gupta[#+1]
[1]Management Development Institute, India

**IEEM23-F-0128/A Mixed Approach to Determine the Factors Affecting the Customers Trust on Financial Services on Social Media Platforms**
Venkateswarlu Nalluri[+1], Long-Sheng Chen[#1]
[1]Chaoyang University of Technology, Taiwan

**IEEM23-F-0173/An Accelerated Dynamic Programming Algorithm for Storage Class Formation in Unit Load Warehouses with Considerations of Space Sharing**
Subir S. Rao[#+1], Gajendra K. Adil[2]
[1]S. P. Jain Institute of Management and Research, India
[2]Indian Institute of Technology Bombay, India

**IEEM23-F-0186/Solving Capacitated and Time-constrained Vehicle Routing Problems by Deep Reinforcement Learning-based Method**
Y.P. Tsang[*1], Daniel Y. Mo[#2], K.T. Chung[1], Carman Ka Man Lee[1]
[1]The Hong Kong Polytechnic University, Hong Kong SAR
[2]The Hang Seng University of Hong Kong, Hong Kong SAR

**IEEM23-F-0288/An Intelligent Design Method Based on Case-based Reasoning and Reinforcement Learning**
Yu Huang[*1], Ru Wang[#1], Zhuqin Wei[1], Guoxin Wang[1]
[1]Beijing Institute of Technology, China

**IEEM23-F-0307/Multi-trip Pickup and Delivery Problem in One to Many and Many to One (1-M/M-1) Transportation Network**
Deepak Kumar Kushwaha[#1], Goutam Sen[2]
[1]Indian Institute of Technology Kharagpur, India
[2]Indian Institute of Technology Kharagpur, India

## PROJECT MANAGEMENT

19/12/2023 11:00 AM-01:00 PM Room 4312

**Session Chair(s):** **Song-Kyoo (Amang) KIM**
*Macao Polytechnic University*

**IEEM23-F-0065/Strategic Decision Spectrum for Software Engineering**
Song-Kyoo (Amang) Kim[#+1]
[1]Macao Polytechnic University, Macau

**IEEM23-F-0134/Project Team Resilience during Pandemic: Evidence from the Indonesian Construction Industry**
Budi Hartono[#+1], Annisa Nurizzati[1]
[1]Universitas Gadjah Mada, Indonesia

**IEEM23-F-0268/Monocular Vision-based 3D Human Pose Estimation and Cumulative Damage Assessment at Industrial Workplaces**
Wen Sin Lor[+1], Jinwoo Kim[#1]
[1]Nanyang Technological University, Singapore

**IEEM23-F-0430/Investigating Project Front-end Practices for Aligning Potential and Enacted Value of Space Projects**
Valentina Zancan[#+1], Paolo Trucco[1]
[1]Politecnico di Milano, Italy

**IEEM23-F-0553/A Smart Project Management System for Task Assignment Using Multi-objective Optimization Algorithms**
Turgut Refik Caglar[#+1], Hartmut Pohlheim[2], Elena Andrushchenko[1], Maurice Meyer[1], Roland Jochem[1]
[1]Technical University of Berlin, Germany
[2]Model Engineering Solutions GmbH, Germany

**IEEM23-F-0557/Managing Accessibility Requirements in Web Application Development Projects: The Perspectives from Research and the Industry**
Faisal Nour[1], Younes Benslimane[#+1], Zijiang Yang[1]
[1]York University, Canada

**IEEM23-A-0144/Proposal on How to Proceed with a Project on a Decentralized Autonomous Organization (DAO)**
Yutaro Endo[#+1], Shuichi Ishida[1], Amol Gore[2]
[1]Tohoku University, Japan
[2]Rochester Institute of Technology, United Arab Emirates

**IEEM23-F-0371/Empirical Study for System Development in a VUCA-World: Development of a Resilient and Sustainable Method for Risk and Technical Change Management in Automotive Industry**
Jennifer Lechner[#+1], Nadine Schlüter[2], Achim Fahrner[1]
[1]ZF Friedrichshafen AG, Germany
[2]University of Wuppertal, Germany

## SUPPLY CHAIN MANAGEMENT 3

19/12/2023 02:00 PM-04:00 PM Room 4E

**Session Chair(s):** **Naly RAKOTO**
*IMT Atlantique*
**Meimei ZHENG**
*Shanghai Jiao Tong University*

**IEEM23-F-0197/Vehicle Dispatch Problem with Chassis Pool Use for Inland Marine Container Transport**
Etsuko Nishimura[#+1], Naoto Mizuta[1]
[1]Kobe University, Japan

**IEEM23-F-0249/Electric Vehicle Adoption Modeling in France: A Systematic Literature Review**
Karsi Widiawati[#+1], Bertha Maya Sopha[1], Naly Rakoto[2]
[1]Universitas Gadjah Mada, Indonesia
[2]IMT Atlantique, France

**IEEM23-F-0265/A Novel Hybrid Methodology for Assessing Suppliers' Product Compliance Risk**
Stefano Pullano[#+1], Giorgia De MatteIntelligent Systems 1, Paolo Trucco[1], Brian Sieben[2]
[1]Politecnico di Milano, Italy
[2]Hilti Corporation, Liechtenstein

**IEEM23-F-0274/ Coordination of Competing Supply Chains: Wholesale Pricing vs. Two-part Tariff**
Hou-ping Tian[+1], Xi-jiang Shen[1], Yi-qian Li[1], Chang-xian Liu[#2]
[1]Nanjing University of Science & Technology, China
[2]Nanjing University of Posts and Telecommunications, China

**IEEM23-F-0327/Improved Dynamic Spare Parts Inventory Control Considering Turnover Rate and Two Types of Lead Time**
Yuan Li[+1], Lingzi Li[1], Tangbin Xia[1], Wei Weng[2], Meimei Zheng[#1]
[1]Shanghai Jiao Tong University, China
[2]Kanazawa University, Japan

**IEEM23-F-0334/Designing Order Picking System Efficiency by Combining Four Planning Problems and its Influence on Picker Blocking with RFID**
Donna Kharisma Novita[+1], Markus Hartono[#1]
[1]University of Surabaya, Indonesia

**IEEM23-F-0337/Utilizing the FMEA RPN Framework in Quantifying Supply Chain Risks of High Severity and Low Probability Events: Pandemics and Geopolitical Conflicts - An In-depth Analysis**
Parveen Goel[#+1], Rishi Mendiratta[1], Bharat Maheshwari[2], Om Prakash Yadav[3]
[1]Royal Roads University, Canada
[2]University of Windsor, Canada
[3]North Carolina Agricultural and Technical State University, United States

## INFORMATION PROCESSING AND ENGINEERING

19/12/2023 02:00 PM-04:00 PM Room 4011

**Session Chair(s):** **Shuo-Yan CHOU**
*National Taiwan University of Science and Technology*
**Shih-Wen KE**
*National Central University*

**IEEM23-F-0058/Data Model Using Graph DB to Integrate Data from Multi-Field Sources for Service Utilization**
Junya Shimada[#+1]
[1]MITSUBISHI Electric Corporation, Japan

**IEEM23-F-0232/The Usability Evaluation Attributes for Halal Traceability System**
Aries Susanty[#+1], Abila Ramadhani[1]
[1]Diponegoro University, Indonesia

**IEEM23-F-0338/Transformer with Multi-block Encoder for Multi-turn Dialogue Translation**
Shih-Wen Ke[#+1], Yu-Cyuan Lin[1]
[1]National Central University, Taiwan

**IEEM23-F-0356/Automated Fixture Planning in Milling Processes: A Systematic Literature Review**
Gregor Müller[#+1], Lars Rödel[1], Jonas Krebs[1]
[1]Fraunhofer Institute for Manufacturing Engineering and Automation IPA, Germany

**IEEM23-F-0495/A Feasibility Study on Hybrid Plug-in: Advanced Power Monitoring and Control Technology to Minimize Household Electrical Consumption**
Mart Lorenz Agravante[1], Vanne Ray Morales[1], April Joyce Noble[1], Beverly Perez[1], Miguel Tabirao[#+1], Jaypy Tenerife[1]
[1]Technological Institute of the Philippines, Philippines

**IEEM23-F-0503/Towards Intelligent and Trustable Digital Twin Asset Management Platform for Transportation Infrastructure Management Using Knowledge Graph and Explainable Artificial Intelligence (XAI)**
Hendro Wicaksono[#+1], Mehr Un Nisa[1], Annas Vijaya[1]
[1]Constructor University, Germany

**IEEM23-F-0531/Real-time Human Activity Recognition Using Convolutional Neural Network Methods and Deep Gated Recurrent Unit**
Rasyid Fajar[1], Shuo-Yan Chou[+1], Anindhita Dewabharata[#1]
[1]National Taiwan University of Science and Technology, Taiwan

**IEEM23-F-0072/Industry 4.0 - Assessment of Digital Readiness of Manufacturing Companies in Portugal**
André Guimarães[#+1], Perdo ReIntelligent Systems 2, Fernando Charrua-Santos[1]
[1]University of Beira Interior, Portugal
[2]Polytechnic Institute of Viseu, Portugal

## OPERATIONS RESEARCH 2

19/12/2023 02:00 PM-04:00 PM Room 4111

**Session Chair(s):** **Norbert TRAUTMANN**
*University of Bern*
**Guopeng SONG**
*National University of Defense Technology*

**IEEM23-F-0290/Cost Optimal Planning of Energy Supply and Storage under Demand Uncertainty**
Osama Mussawar[+1], Andrei Sleptchenko[#1], Ahmad Mayyas[1]
[1]Khalifa University, United Arab Emirates

**IEEM23-F-0292/A Customer-centric and Operator-centric Approach on Airport Gate Assignments**
Jeremy Gabriel Uy[1], Jarvy Larz San Juan[1], Jayne Lois San Juan[#+1], Charlle Sy[1]
[1]De La Salle University, Philippines

**IEEM23-F-0309/Combinatorial Search Space Reduction Approach in Aircraft Schedule Recovery Problem**
Kartik Punjabi[1], Imran Haider[#+1], Goutam Sen[1]
[1]Indian Institute of Technology Kharagpur, India

**IEEM23-F-0300/Bidding Pricing Strategy for Waste to Energy Projects Based on Option Game Theory**
Hongzhe Shi[#+1], Junfei Hu[1], Peng Guo[1]
[1]Northwestern Polytechnical University, China

**IEEM23-F-0328/Mitigating Uncertainty in Short Life Cycle Remanufacturing: Leveraging Spare Parts Reuse in Multiple Generations**
Satchidananda Tripathy[#+1], Akhilesh Kumar[1], Biswajit Mahanty[1]
[1]Indian Institute of Technology Kharagpur, India

**IEEM23-F-0348/Promising Area Exploration Based on Hybrid Niching: A Metaheuristic Search Framework for Multimodal Optimization**
Jing-Ting Huang [+1], Tsung-Che Chiang[#1]
[1]National Taiwan Normal University, Taiwan

**IEEM23-F-0365/A Blood Supply Chain Optimization Model to Determine Optimal Collected Blood and Vehicle Routing Considering Demand Shortage**
I Made Aryantha Anthara[#+1], Cucuk Nur Rosyidi[1], Wakhid Ahmad Jauhari[1], Pringgo Widyo Laksono[1]
[1]Universitas Sebelas Maret, Indonesia

## TECHNOLOGY AND KNOWLEDGE MANAGEMENT 2

19/12/2023 02:00 PM-04:00 PM Room 4104

**Session Chair(s):** **Koichi MURATA**
*Nihon University*
**Suli ZHENG**
*China Jiliang University*

**IEEM23-F-0291/Concept for Effective Identification and Initiation of Startup Investments for the Digital Transformation of Manufacturing Companies**
Günther Schuh[1], Leonard Schenk[#+2]
[1]RWTH Aachen University, Germany
[2]Fraunhofer Institute for Production Technology IPT, Germany

**IEEM23-F-0293/A Boundary Crossing Perspective on Digital Industrial Platform Evolution**
Henrique Silva[#+1], Daniel Hussmo[2]
[1]INESC TEC, Portugal
[2]Jönköping University, Sweden

**IEEM23-F-0335/Optimal Interval Time for Enterprise (Business Intelligence) Software Upgrade**
Indriati Njoto Bisono[#+1], Hanijanto Soewandi[2]
[1]Petra Christian University, Indonesia
[2]Microstrategy, Inc., United States

**IEEM23-F-0410/A Study on Utility Factors of Value Karuta -Application to College Student and Business Person Groups-**
Tamao Kobayashi[#+1], Yuka Ishizaki[1], Hanaka Tukamoto[1], Miyuu Sugi[1], Mayu Nakane[1], Koichi Murata[1]
[1]Nihon University, Japan

**IEEM23-F-0452/A Patent Landscape and Knowledge Trajectory Study for Intelligent Pipeline Network Technology**
Bing Liu[1], Yan Cao[1], Xiao Tan[1], Yiling Zhang[1], Dinan Li[1], Quan Hui[1], Xiao Sun[#2], Suli Zheng[+3]
[1]China Oil & Gas Piping Network Corporation, China
[2]Zhejiang Institute of Economics and Trade, China
[3]China Jiliang University, China

**IEEM23-F-0453/Avoiding Negative Effects of Performance Measurement in Public Organizations: A System Thinking Approach**
Annika Hasselblad[#+1]
[1]Mid Sweden University, Sweden

**IEEM23-F-0516/Practical Roadmap to Precision Agriculture Considering Circular Economy Constraints**
Mohammed Yaqot[#+1], Adnan Albanna[1], Brenno Menezes[1]
[1]Hamad Bin Khalifa University, Qatar

**IEEM23-A-0147/Blockchain-based E-governance Model: Exploring Developing Economics Perspective**
Rajhans Mishra[#+1]
[1]Indian Institute of Management Indore, India

## BIG DATA AND ANALYTICS 2

19/12/2023 02:00 PM-04:00 PM Room 4201

**Session Chair(s):** **Danni CHANG**
*Shanghai Jiao Tong University*
**Fan LIU**
*National University of Singapore*

**IEEM23-F-0239/Predicting Crowdedness Level of the Mass Rapid Transit (MRT) Platform Using Big Data Framework: A Case Study in Singapore**
Fan Liu[#+1], Suriya Priya R. Asaithambi[1], Ramanathan Venkatraman[1]
[1]National University of Singapore, Singapore

**IEEM23-F-0267/Leveraging Urban Big Data for Informed Business Location Decisions: A Case Study of Starbucks in Tianhe District, Guangzhou City**
Yan Xiang[+1], Danni Chang[#1], Xuan Feng[2]
[1]Shanghai Jiao Tong University, China
[2]Seoul National University, Korea, South

**IEEM23-F-0314/Artificial Intelligence for Ground-level Ozone Concentration Forecasting Using Data from the Ground Stations of the Abu Dhabi Environment Agency**
Fatema AlShehhi[+1], Aamna AlShehhi[#2]
[1]United Arab Emirates University, United Arab Emirates
[2]Khalifa University, United Arab Emirates

**IEEM23-F-0353/Prediction of Workpiece Film Thickness via Multi-region Segmented Model of Painting Process Parameters**
Jhan-Yu Liao[+1], Shang-Chih Lin[#1], Shun-Feng Su[2], Yennun Huang[3]
[1]Feng Chia University, Taiwan
[2]National Taiwan University of Science and Technology, Taiwan
[3]Academia Sinica, Taiwan

**IEEM23-F-0420/Manipulation of Deformable Linear Objects Enabled by Sound-event Classification in the Manufacturing Environment**
Huong Giang Nguyen[#+1], Negin Javaheri[1], Jörg Franke[1]
[1]Friedrich-Alexander-Universität Erlangen-Nürnberg, Institute for Factory Automation and Production Systems (FAPS), Germany

**IEEM23-F-0424/Predicting Energy Consumption of Battery-operated Electric Vehicles: A Comparative Performance Assessment**
Dyuti Paul[#+1], Huadong Mo[1], Saber Elsayed[1], Ripon K. Chakrabortty[1]
[1]University of New South Wales Canberra, Australia

**IEEM23-F-0488/Role of Enterprise Social Media and HR Analytics in Different Strategic Firms for Various HR Practices within the Organization**
Sonal Gupta[#1], R.R.K. Sharma[1], Vinay Singh[+2]
[1]Indian Institute of Technology Kanpur, India
[2]ABV-Indian Institute of Information Technology and Management Gwalior, India

**IEEM23-F-0305/Collision Avoidance and Trajectory Planning for Autonomous Mobile Robot: A Spatio-temporal Deep Learning Approach**
K. L. Keung[#+1], K. H. Chow[1], Carman Ka Man Lee[1]
[1]The Hong Kong Polytechnic University, Hong Kong SAR

## SYSTEMS MODELING AND SIMULATION 2

19/12/2023 02:00 PM-04:00 PM Room 4202

**Session Chair(s):** **Zhiqiang CAI**
*Northwestern Polytechnical University*
**Peng JIANG**
*Sichuan University*

**IEEM23-F-0296/A Preliminary Study of System Dynamics Models for Resilient and Smart Cities**
Yuan Chai[#+1], Indra Gunawan[1], Nam Nguyen[1], Jian Zuo[1]
[1]The University of Adelaide, Australia

**IEEM23-F-0391/An SIQRS Model of Infectious Diseases with Time-delayed Control Measures**
Yufei Fan[+1], Xueyu Meng[1], Yanan Qiao[2], Junying Cui[2], Junchao Ma[3], Zhiqiang Cai[#1]
[1]Northwestern Polytechnical University, China
[2]University of Fribourg, Switzerland
[3]East China University of Science and Technology, China

**IEEM23-F-0393/Linking Discrete-event Simulation with Artificial Intelligence: A Literature-based Analysis of Existing Approaches in the Context of Manufacturing Planning and Control**
Michael Kranz[#+1], Verena Nitsch[1], Susanne Mütze-Niewöhner[1]
[1]RWTH Aachen University, Germany

**IEEM23-F-0431/Motion Planning of Industrial Robot by Data-driven Optimization Using Petri Nets**
Masaya Shiraga[+1], Tatsushi Nishi[#1], Ziang Liu[1], Tomofumi Fujiwara[1]
[1]Okayama University, Japan

**IEEM23-F-0470/Multi-task Least-squares Support Vector Regression Model for Predicting Co-abundance of Antibiotic Resistance Genes and Resistant Bacteria**
Shuyi Sun[+1], Peng Jiang[#1]
[1]Sichuan University, China

**IEEM23-F-0477/Analysis of the Factors That Affect the Performance of Agroecological MSMEs in the City of Cuenca through the Forgotten Effects Theory**
Nicole Vimos[1], Gabriela Araujo[#+1], Javier Cabrera[2]
[1]Salesian Polytechnic University, Ecuador
[2]Catholic University of Cuenca, Ecuador

**IEEM23-F-0575/Multi-method Simulation of E-methanol Supply Chain**
Yohanes Kristianto Nugroho[#+1], Niels Gorm Maly Rytter[1]
[1]University of Southern Denmark, Denmark

## RELIABILITY AND MAINTENANCE ENGINEERING 2

19/12/2023 02:00 PM-04:00 PM Room 4211

**Session Chair(s):** **Xiaoyue WANG**
*Beijing Technology and Business University*
**Yaqiong LV**
*Wuhan University of Technology*

**IEEM23-F-0363/Using the Markov Chain to Understand the Impact of Contract Cancellation during the Early Stages of Technology Adoption: A Case Study of South African Locomotive Procurement**
Bheki Makhanya[#+1], Jan Harm Pretorius[1], Hannelie Nel [1]
[1]University of Johannesburg, South Africa

**IEEM23-F-0551/Weakness Analysis of Multi-state Hybrid Systems Based on Integrated Importance Measure**
Jiangbin Zhao[1], Zaoyan Zhang[+1], Mengtao Liang[1], Xiangang Cao[#1]
[1]Xi'an University of Science and Technology, China

**IEEM23-F-0582/Intelligent Fault Diagnosis Based on Vibration and Acoustic-monitored Data Fusion for Rolling Bearings**
Xian Wang[1], Yaqiong Lv[#+1], Yu Liu[1]
[1]Wuhan University of Technology, China

**IEEM23-F-0592/Prognostic-information-driven Policy for Joint Spare Parts Ordering and Postponed Replacement Optimization**
Ruoran Han[+1], Xiaobing Ma[1], Li Yang[#1]
[1]Beihang University, China

**IEEM23-A-0083/Reliability Analysis of a Two-dimensional Voting System Equipped with Protective Devices Considering Triggering Failures**
Xian Zhao[1], Bingbing Dong[1], Xiaoyue Wang[#+2]
[1]Beijing Institute of Technology, China
[2]Beijing Technology and Business University, China

**IEEM23-A-0164/Condition Monitoring Based on Bi-phase Stochastic Modeling for Manufacturing Process**
Munwon Lim[+1], Suk Joo Bae[#1]
[1]Hanyang University, Korea, South

**IEEM23-A-0291/A Novel Framework for Improving the Breakdown Point of Robust Regression Algorithms**
Zheyi Fan[#+1], Qingpei Hu[1], Szu Hui Ng[2]
[1]Chinese Academy of Sciences, China
[2]National University of Singapore, Singapore

## MANUFACTURING SYSTEMS 2

19/12/2023 02:00 PM-04:00 PM Room 4212

**Session Chair(s):** **Ahmed MOHAMMED**
*University of Birmingham*
**Avishek PANDEY**
*Indian Institute of Technology Kharagpur*

**IEEM23-F-0212/Model to Increase the Productive Efficiency in the Plastic Manufacturing Sector**
Favio Allende[1], Alonso Choquepuma[1], Duilio Aranda[1], Jose C. Alvarez[#1], A. S. M. Monjurul Hasan[+2], Andrea Trianni[2]
[1]Universidad Peruana de Ciencias Aplicadas, Peru
[2]University of Technology Sydney, Australia

**IEEM23-F-0226/Adaptive Voxelization and Material-dependent Process Parameter Assignment for Multi-material Additive Manufacturing**
Yuxuan Xie[+1], Lequn Chen[1], Xiling Yao[2], Wenhe Feng[3], Seung Ki Moon[#1]
[1]Nanyang Technological University, Singapore
[2]Singapore Institute of Manufacturing Technology, Singapore
[3]Advanced Remanufacturing and Technology Centre, Singapore

**IEEM23-F-0234/Jointly Optimizing Production, Quality Inspection and Maintenance Policies for an Unreliable Production System**
Qi Li[+1], Jun Yang[#1], Ning Wang[1], Hao Xing[1], Yu Zhao[1]
[1]Beihang University, China

**IEEM23-F-0236/Operating Condition Recognition Methods of Mechanical System Based on CEEMDAN and GA-DBN**
Xiaoliang He[+1], Chun Su[#1]
[1]Southeast University, China

**IEEM23-F-0336/Enhancing Efficiency and Delivery Performance through Optimization of Machine Scheduling in Pre-emptive Parallel Manufacturing Systems**
Avishek Pandey[#+1], David Anunay Alexander[1], Sri Krishna Kumar[1]
[1]Indian Institute of Technology Kharagpur, India

**IEEM23-F-0401/Concept for the Competence Development and Learning Process of Assembly Workers**
Maria Maier[#+1], Julia Schulz[1]
[1]Technical University of Munich, Germany

**IEEM23-F-0105/Exploring Standardization and Sustainability Challenges in Maintenance Processes for a Maintenance Business**
Godfree Mapande[1], Kemlall Ramdass[#+1]
[1]University of South Africa, South Africa

## DECISION ANALYSIS AND METHODS 2

19/12/2023 02:00 PM-04:00 PM Room 4311

**Session Chair(s):** **Vagesh NARASIMHAMURTHY**
*Indian Institute of Technology Madras*
**Leif OLSSON**
*Mid Sweden University*

**IEEM23-F-0295/Validation of the POMDP-based Model for Assortment Optimization of Vend-ing Machines**
Gaku Nemoto[#+1], Kunihiko Hiraishi[1]
[1]Japan Advanced Institute of Science and Technology, Japan

**IEEM23-F-0394/A Conceptual Model for Sustainable Growth: Operational, Tactical, and Strategy Focus on Products and Economic Value**
Janne Harkonen[#+1]
[1]University of Oulu, Finland

**IEEM23-F-0443/Analysis of Influencing Factors on the Mobility of New Generation of Scientific and Technological Talents ----- A Correlation Study Based on Xi'an and 12 Cities**
Shuyan Gong[+1], Junyi Yu[#1], Xiaotong Niu[1]
[1]Northwestern Polytechnical University, China

**IEEM23-F-0446/A Real Application of the Multistage One-shot Decision-making Approach: A Museum Renewal Decision**
Mohammed Al-Shanfari[#+1]
[1]Yokohama National University, Japan

**IEEM23-F-0451/Enhancing Transparency and Sustainability in Urban Freight: A Decision-making Support Tool for City Logistics**
Mert Mete[#+1], Tuan Nguyen[1], Tolga Toker[1], Wolfgang Echelmeyer[1]
[1]Reutlingen University, Germany

**IEEM23-F-0494/Constructing an Interactive Kansei Novelty Design System Using Rough Set Theory**
Kotoru Sato[#+1], Takashi Ito[1], Syohei Ishizu[1]
[1]Aoyama Gakuin University, Japan

**IEEM23-A-0230/Porosity/Distributed Resistance (PDR) Based CFD Modeling for Industrial Gas Safety Studies**
Vagesh Narasimhamurthy[#+1], Anand Zambare[1]
[1]Indian Institute of Technology Madras, India

**IEEM23-A-0232/Machine Learning in Decarbonization Research**
Jasmine Siu Lee Lam[#+1]
[1]Techical University of Denmark, Denmark

## CRISIS MANAGEMENT

19/12/2023 02:00 PM-04:00 PM Room 4312

**Session Chair(s):** **Budi HARTONO**
*Universitas Gadjah Mada*

**IEEM23-F-0491/Sustainable Entrepreneurship Development Strategy for Achieving SDGs: Insight from Islamic Boarding Schools Business Units in Times of Crisis**
Wawan Dhewanto[1], Rozan Hanifan[#+1], Aang Noviyana Umbara[1], Suhaiza Zailani[2]
[1]Institut Teknologi Bandung, Indonesia
[2]Universiti Malaya, Malaysia

**IEEM23-A-0129/Integrated Emergency Medical Supply Planning Considering Stochastic Multi-channel Supply in Healthcare Coalitions**
Aocheng Xu[1], Qingyi Wang[#+2]
[1]National University of Singapore, Singapore
[2]Sichuan University, China

**IEEM23-F-0544/Prediction Model for Infectious Disease Outbreak Tree in Social Contact Networks**
Siddhartha Mukhopadhyay[#+1], Rudra Nath Maji[1], Goutam Sen[1]
[1]Indian Institute of Technology Kharagpur, India

**IEEM23-A-0333/System Thinking and Entrepreneurial Thinking Approach in Managing Corporate Turnaround**
Nengah Rama Gautama[#+1], Pri Hermawan[1], Eko Agus Prasetio[1]
[1]Institut Teknologi Bandung, Indonesia

**IEEM23-F-0306/EEG-based Online Purchase Decisions and Preferences in Neuromarketing Considering Eco-design**
Carman Ka Man Lee[+1], M. Y. Au[1], K. L. Keung[#1]
[1]The Hong Kong Polytechnic University, Hong Kong SAR

**IEEM23-F-0522/Single Depot Heterogeneous Capacitated Vehicle Routing Problem with Simultaneous Delivery and PickUp for Disaster Management Systems**
Santanu Banerjee[#+1], Soumen Atta[2], Goutam Sen[1]
[1]Indian Institute of Technology Kharagpur, India
[2]University of Nova Gorica, Slovenia

## SUPPLY CHAIN MANAGEMENT 4

19/12/2023 04:30 PM-06:00 PM Room 4E

**Session Chair(s):** **Simon YUEN**
*The Hong Kong Polytechnic University*

**IEEM23-F-0425/Relief Facility Locations Using Expected Regret Model**
Wichitsawat Suksawat Na Ayudhya[#+1]
[1]King Mongkut's Institute of Technology, Thailand

**IEEM23-F-0476/Blockchain-based Architecture for Improving Maize Supply Chain Performance: Designing an Aggregator Platform**
Roy Deddy Hasiholan Lumbantobing[#+1], R.M. Chandima Ratnayake[2], Togar Mangihut Simatupang[1], Liane Okdinawati[1], Nur Budi Mulyono[1]
[1]Bandung Institute of Technology, Indonesia
[2]University of Stavanger, Norway

**IEEM23-F-0485/Deep Reinforcement Learning for Perishable Inventory Optimization Problem**
Yusuke Nomura[+1], Ziang Liu[#1], Tatsushi Nishi[1]
[1]Okayama University, Japan

**IEEM23-F-0496/Optimization Models for Crop Planning Problem under Uncertainty in Free Market and Contract Farming Scenarios**
Yameng Huang[#+1], Takashi Hasuike[1]
[1]Waseda University, Japan

**IEEM23-F-0509/A New Practical Storage Class Formation for Unit-load Warehouses with a V Cross-aisle**
Subir S. Rao[#+1], Aditya Iyer[1]
[1]S. P. Jain Institute of Management and Research, India

## ENGINEERING EDUCATION AND TRAINING 1

19/12/2023 04:30 PM-06:00 PM Room 4011

**Session Chair(s):** **Ziaul Haque MUNIM**
*University of South-Eastern Norway*

**IEEM23-F-0079/Sentiment Analysis of Semester Learning Essays in Design Education**
Zhihan Wang[+1], Zhenjun Ming[#1], Guoxin Wang[1], Farrokh Mistree[2], Janet K. Allen[2]
[1]Beijing Institute of Technology, China
[2]The University of Oklahoma, United States

**IEEM23-F-0137/A Framework on the New Industrial Engineering Education**
Víctor Manuel Rayas-Carbajal[#+1], Rodolfo Mendoza-Gomez[1], Eduardo Bastida-Escamilla[1]
[1]Tecnologico de Monterrey, Mexico

**IEEM23-F-0145/A Systematic Review of Technical and Vocational Education and Training (TVET) Entrepreneurship Education in Malaysia: Insights and Directions**
Ghazali Harun[#+1], Noorlizawati Abd Rahim[2], Zainai Mohamed[2]
[1]Majlis Amanah Rakyat, Malaysia
[2]Universiti Teknologi Malaysia, Malaysia

**IEEM23-F-0333/Teamwork and Peer Assessment Within Semester-wide Project-Based Learning: A Case Study on an Industrial Management and Engineering Degree**
Francisco Moreira[#+1], Cristina Rodrigues[1]
[1]University of Minho, Portugal

**IEEM23-F-0250/One-shot Grading: Design and Development of an Automatic Answer Sheet Checker**
Aran Blattler[+1], Teppakorn Sittiwanchai[#1], Patipan Tareram[1], Worraphong Chenvigyakit[1], Chanatep Sila-ars[1]
[1]King Mongkut's University of Technology North Bangkok, Thailand

## OPERATIONS RESEARCH 3

19/12/2023 04:30 PM-06:00 PM Room 4111

**Session Chair(s):** **Neng FAN**
*The University of Arizona*

**IEEM23-F-0367/ A Mixed-integer Programming Model for the Container Truck Routing Problem with Net worth Maximization**
Mohamed Haouari[#+1], Mariem Mhiri[1]
[1]Qatar University, Qatar

**IEEM23-F-0385/Reverse Logistics for Empty Pesticide Containers: Evaluating the Need for Government Regulation**
Laila Handayani[#+1], Gatot Yudoko[1], Liane Okdinawati[1]
[1]Institut Teknologi Bandung, Indonesia

**IEEM23-F-0387/A Novel Optimized Tourism Itinerary Recommender System: A Modified Capacitated Vehicle Routing Problem Approach**
Biswajit Kar[1], Nikitha Akula[#+1], Mamata Jenamani[1]
[1]Indian Institute of Technology, Kharagpur, India

**IEEM23-F-0409/Application of Benders Decomposition in Closed-loop Supply Chain Models with Uncertain Scenarios**
Benjie Li[#+1], Takashi Hasuike[1]
[1]Waseda University, Japan

**IEEM23-F-0441/Design of EV Battery Swapping and Charging Stations Based on Queuing Model**
Si Chen[1], Tao Fang[1], Na Li[#+1]
[1]Shanghai Jiao Tong University, China

**IEEM23-F-0405/Optimization of Vehicle Routing Problem in Waste Collection Systems for Large Cities: An Emphasis on Cost Efficiency and Landfill Selection**
Supapat Phuangkaew[#+1], Piya Rontlaong[2], Jakawat Deeying[3]
[1]Rajamangala University of Technology Krungthep, Thailand
[2]Bansomdejchaopraya Rajaphat University, Thailand
[3]King Mongkut's University of Technology North Bangkok, Thailand

## TECHNOLOGY AND KNOWLEDGE MANAGEMENT 3

19/12/2023 04:30 PM-06:00 PM Room 4104

**Session Chair(s):** **Leif OLSSON**
*Mid Sweden University*
**Ville OJANEN**
*LUT University*

**IEEM23-F-0552/Knowledge Management Practices in the End-of-life Phase of Product-service Systems: Experiences of Recycling and Waste Management Companies**
Yan Xin[#1], Ville Ojanen[+1], Meichun Wang[1]
[1]LUT University, Finland

**IEEM23-F-0570/Data Based Analysis of Requirements in Product Development Represented in Graph Based Semantic Requirement Nets**
Michael Riesener[1], Viktor Konrad Slawik[#+1], Tobin Holtmann[1], Steffen Frölian[1], Maximilian Kuhn[1], Günther Schuh[1]
[1]RWTH Aachen University, Germany

**IEEM23-F-0579/Consumer Value Creation: New Product Strategies Enabled by Consumer 3D Printing**
Günther Schuh[1], Gerret Lukas[#+1]
[1]RWTH Aachen University, Germany

**IEEM23-A-0074/Configurational Paths of Automobile Companies' Product Innovation Performance: Perspectives from Government Regulation and Support**
Youngwook Park[1], Hosung Son[#+2]
[1]Korea Institute of Science and Technology Information, Korea, South
[2]Pukyong National University, Korea, South

**IEEM23-A-0078/Foresight for the Interface between Technology Inputs and Sociotechnical Outcomes: A New Approach Based on a UK Policy Experiment**
Martin Ho[#+1], Andrew Watkins[1], Eoin O'Sullivan[1]
[1]University of Cambridge, United Kingdom

**IEEM23-F-0056/Industrial Engineering and Management Students Envision AI's Role in the Industry**
Per Åhag[1], Lisa Hed[1], Rasmus Leijon[2], Oskar Nordenfors[1], Leif Olsson[#+3]
[1]Umeå University, Sweden
[2]Clear Street Markets LLC, United States
[3]Mid Sweden University, Sweden

## BIG DATA AND ANALYTICS 3

19/12/2023 04:30 PM-06:00 PM Room 4201

**Session Chair(s):** **Huong Giang NGUYEN**
*Friedrich-Alexander-Universität Erlangen-Nürnberg, Institute for Factory Automation and Production Systems (FAPS)*
**Carman Ka Man LEE**
*The Hong Kong Polytechnic University*

**IEEM23-F-0512/Time Series Clustering of Product Categories Based on Purchase History and Consumer Characteristics**
Rin Watanabe[#+1], Mina Urata[1], Yu Sasaki[1], Fumiaki Saitoh[1]
[1]Chiba Institute of Technology, Japan

**IEEM23-F-0521/Visualization of Evaluation Viewpoints in Similar Customers by XAI Based on Review Evaluation Scores**
Yu Sasaki[+1], Rin Watanabe[1], Takuma Shimizu[1], Yasukuni Hasegawa[1], Fumiaki Saitoh[#1]
[1]Chiba Institute of Technology, Japan

**IEEM23-F-0581/Reference Architecture for Metadata Management – A Case Study on Data Mining in the Development of Cyber-physical Systems**
Steffen Wagenmann[#1], Artur Krause[+2], Jakob Rall[3], Jens Kaeske[1], Moritz Schoeck[1], Nikola Bursac[2], Albert Albers[1]
[1]Karlsruher Institute of Technology, Germany
[2]Hamburg University of Technology, Germany
[3]Albstadt-Sigmaringen University, Germany

**IEEM23-A-0060/Long Term Load Forecasting Model Selection Strategies: A Comparative Analysis**
Thangjam Aditya[#+1], Sanjita Jaipuria[1], Pradeep Kumar Dadabada[1]
[1]Indian Institute of Management Shillong, India

**IEEM23-A-0064/Low-dimensional Representation Learning of Nodes in Signed Networks for Sign Prediction**
Mukul Gupta[#+1]
[1]Indian Institute of Management Indore, India

**IEEM23-A-0108/Development of an Algorithm for Predicting the Number of Confirmed Epidemic Cases Using Opinion Mining of Social Big Data**
Youngchul Song[+1], Byungun Yoon[#1]
[1]Dongguk University, Korea, South

## SYSTEMS MODELING AND SIMULATION 3

19/12/2023 04:30 PM-06:00 PM Room 4202

**Session Chair(s):** **Kota VENKATA REDDY**
*Jawaharlal Nehru Technological University, Kakinada*
**David VALIS**
*University of Defence*

**IEEM23-F-0586/Exploring the Correlation between Urban Microclimate Simulation and Urban Morphology: A Case Study in Yeongdeungpo-gu, Seoul**
Yan Xiang[+1], Danni Chang[#1], Jieli Cheng[2]
[1]Shanghai Jiao Tong University, China
[2]Seoul National University, Korea, South

**IEEM23-F-0593/Supporting Human-centered Work Design with Discrete Event Simulation: A Simulation Study of Skilled Worker Availability in Assembly Systems**
Maximilian Duisberg[#+1], Zoe Song[1], Verena Nitsch[1], Susanne Mütze-Niewöhner[1]
[1]RWTH Aachen University, Germany

**IEEM23-A-0311/A Novel GMPPT Scheme to Extract Maximum Power from a PV Array under Non-uniform Irradiance Condition**
Kota Venkata Reddy[#+1], Revathi Duba[2]
[1]Jawaharlal Nehru Technological University, Kakinada, India
[2]Lincoln University College, Malaysia

**IEEM23-A-0312/Bidirectional T-type Multilevel Inverter with Enhanced Capacitor Balancing for Electric Vehicle Application**
Kota Venkata Reddy[#+1], Bankuru Vamsi[1]
[1]Jawaharlal Nehru Technological University, Kakinada, India

**IEEM23-F-0109/A Security Framework for Internet of Things Systems Based on Dynamic Watermarking for Data Packet Authentication and Anomaly Detection**
Lei Gu[#+1]
[1]Nanyang Technological University, China

## SERVICE INNOVATION AND MANAGEMENT 1

19/12/2023 04:30 PM-06:00 PM Room 4211

**Session Chair(s):** **Sylvester MUJAKPERUO**
*University of Greenwich*
**Jazmin TANGSOC**
*De La Salle University*

**IEEM23-F-0045/Impact of Business and Political Ties on Innovation Performance through Internationalization, and Moderating Impact of Strategic Orientation within SMEs in UAE**
Mumin Dayan[#+1], Houyem Chaib[2], Volkan Yeniaras[3], Eissa Alremeithi[1]
[1]United Arab Emirates University, United Arab Emirates
[2]ICD Business School, France
[3]Ozyegin University, Turkey

**IEEM23-F-0053/Determining Marketing Strategy for Coffee Shops with Conjoint Analysis**
Yogi Tri Prasetyo[#1], Krisna Chandra Susanto[+1], Sheree Mae A. Asiddao[2], Omar Paolo Benito[1], Jui-Hao Liao[1], Michael Nayat Young[2], Satria Fadil Persada[3], Reny Nadlifatin[4]
[1]Yuan Ze University, Taiwan
[2]Mapúa University, Philippines
[3]Bina Nusantara University, Indonesia
[4]Institut Teknologi Sepuluh Nopember, Indonesia

**IEEM23-F-0195/The Impact of Resale Market on Video Games: Boosted Revenue and Better Player Engagement**
Xueping Dong[+1], Li Xiao[#1]
[1]Tsinghua University, China

**IEEM23-F-0202/An Integrative Approach to National Innovation Systems: The Role of Multi-Level Perspective and Associated Theories**
Amirul Shahnoel Noeh[#+1], Pg Siti Rozaidah Pg Hj Idris[1], Muhammad Anshari[1]
[1]Universiti Brunei Darussalam, Brunei Darussalam

**IEEM23-F-0545/Omnichannel Retail in Small and Medium-sized Enterprises: Insights from Indonesia**
Atik Febriani[#+1], Bertha Maya Sopha[1], Muhammad Arif Wibisono[1]
[1]Universitas Gadjah Mada, Indonesia

## MANUFACTURING SYSTEMS 3

19/12/2023 04:30 PM-06:00 PM Room 4212

**Session Chair(s):** **Tatsushi NISHI**
*Okayama University*
**Zhe GAO**
*Shanghai Normal University*

**IEEM23-F-0416/Multi-objective Optimization for Three-dimensional Packing Problem Using the Sequence-triple Representation with Robot Motion Planning**
Ziang Liu[#+1], Shun Ito[1], Tomoya Kawabe[1], Tatsushi Nishi[1], Tomofumi Fujiwara[1]
[1]Okayama University, Japan

**IEEM23-F-0426/Eddy Current-based Monitoring System for Hairpin Coils in Electric Vehicle Motors**
Jihyun Park[1], Dongwook Yang[1], Young-Dae Shim[2], Eun-Ho Lee[#+2]
[1]Hyundai Mobis, Korea, South
[2]Sungkyunkwan University, Korea, South

**IEEM23-A-0059/Spatio-temporal Modeling of Tool Wear Propagation in Micro Friction Stir Welding**
Zhe Gao[#+1]
[1]Shanghai Normal University, China

**IEEM23-A-0092/AI Investments and Efficiency Enhancement of Firm**
Andy C. L. Yeung[#+1], Shucheng Miao[1]
[1]The Hong Kong Polytechnic University, Hong Kong SAR

**IEEM23-F-0507/Towards Circular Economy in Manufacturing Industries Based on Industry 4.0 Technologies**
Md. Habibur Rahman[+1], Mohammed Yaqot[1], Brenno Menezes[#1]
[1]Hamad Bin Khalifa University, Qatar

**IEEM23-F-0215/Challenges to Represent and Manage Transport and Material Handling Systems in Manufacturing Systems**
Micael Goncalves[#+1], Paulo Martins[1], Guilherme Pereira[1]
[1]University of Minho, Portugal

## DECISION ANALYSIS AND METHODS 3

19/12/2023 04:30 PM-06:00 PM Room 4311

**Session Chair(s):** **Yves DE SMET**
*Université Libre de Bruxelles*

**IEEM23-F-0500/A Genetic Approach to Solve the MultiCriteria Anti-clustering Problem**
Aurélien Chassagne[1], Yves De Smet[#+1]
[1]Université Libre de Bruxelles, Belgium

**IEEM23-F-0520/Large-scale Group Emergency Decision-Making: A Literature Review**
Devy Dwi Orshella[#+1], Nur Aini Masruroh[1], Hilya Arini[1]
[1]Universitas Gadjah Mada, Indonesia

**IEEM23-F-0580/Evaluating the Interrelationships of Driving Factors of Industry 4.0 Maturity Models in Developing Countries Using Fuzzy DEMATEL**
Linda Salma Angreani[#1], Annas Vijaya[+1], Hendro Wicaksono[1]
[1]Constructor University, Germany

**IEEM23-A-0231/Prioritization of Sustainability Indicators from a Business Perspective**
Dimitris Bouras[1], Stella Sofianopoulou[#+2]
[1]Greek Atomic Energy Commission, Greece
[2]University of Piraeus, Greece

**IEEM23-F-0087/Planning Pipe-laying Projects Under Uncertainty: A Simulation Approach**
Paolo Trucco[#+1], Yulia Lapko[1]
[1]Politecnico di Milano, Italy

## QUALITY CONTROL AND MANAGEMENT 1

19/12/2023 04:30 PM-06:00 PM Room 4312

**Session Chair(s):** **Amitava MUKHERJEE**
*XLRI - Xavier School of Management*
**Benjamin GIGERL**
*Siemens Energy*

**IEEM23-F-0436/Control Chart Pattern Recognition Based on MDWOP and Ensemble Classifier**
Yazhou Li[+1], Yanyun Ma[2], Wei Dai[#1], Weifang Zhang[1]
[1]Beihang University, China
[2]Aerospace Precision Products Co., Ltd., China

**IEEM23-A-0100/An Empirical Study of Quality Prediction for Multiple Machines Using Machine Learning Techniques**
Chien-Chih Wang[#1], SHEN HONG GU[+2]
[1]Ming Chi University of Technology, Taiwan
[2]MING CHI UNIVERSITY OF TECHNOLOGY, Taiwan

**IEEM23-A-0171/On Surveillance Methods for Drifted Processes**
Huda Alshammari [+1], Muhammad Riaz[1], Tahir Mahmood[#2]
[1]King Fahd University of Petroleum and Minerals, Saudi Arabia
[2]University of the West of Scotland, United Kingdom

**IEEM23-A-0240/Nonparametric High-dimensional Process Surveillance – Recent Advances and Some New Perspectives**
Amitava Mukherjee[#+1]
[1]XLRI - Xavier School of Management, India

**IEEM23-A-0320/Experimental Design of Maximum Projection Coordinate Exchange Algorithm in Normalized Constrained Space**
Zichen Wang[+1], Zhengqiang Pan[#1], Zhijun Cheng[1], Tianyu Liu[1], Yanlin Wang[1]
[1]National University of Defense Technology, China

**IEEM23-F-0026/Enhancing Service Quality: A Total Quality Management Approach in a South African Company**
Sfiso Aldrin Mncube[1], Nita Sukdeo[1], Sambil Charles Mukwakungu[#+1], Charles Mbohwa[1]
[1]University of Johannesburg, South Africa

## SUPPLY CHAIN MANAGEMENT 5

20/12/2023 08:30 AM-10:30 AM Room 4E

**Session Chair(s):** **Hendro WICAKSONO**
*Constructor University*

**IEEM23-F-0518/Importance of Machine Learning for Digital Resilient Supply Chain**
Sachin Yadav[#+1], Surya Prakash Singh[2]
[1]O.P. Jindal Global University, India
[2]Indian Institute of Technology Delhi, India

**IEEM23-F-0549/China's Overseas Warehouses Sustainable Development Strategy**
Zhang Ming[#+1], Yu Gong[2], Thanapong Chaichana[1]
[1]Chiang Mai University, Thailand
[2]University of Southampton, United Kingdom

**IEEM23-F-0559/A Conceptual Model of Digital Technology Implementation for Risk Management in Agriculture Supply Chain by Local Government in a Developing Country**
Roy Deddy Hasiholan Lumbantobing[#+1], R.M. Chandima Ratnayake[2], Togar Mangihut Simatupang[1], Liane Okdinawati[1], Nur Budi Mulyono[1]
[1]Bandung Institute of Technology, Indonesia
[2]University of Stavanger, Norway

**IEEM23-F-0569/The Traceability Designing of Information Flow Data System in Rail Freight Transportation in Thailand**
Nattakit Yuduang[+1], Yogi Tri Prasetyo[#2], Rachkanok Sukhavalli[2], Michael Nayat Young[3]
[1]Suvarnabhumi Institute of Technology, Thailand
[2]Yuan Ze University, Taiwan
[3]Mapúa University, Philippines

**IEEM23-F-0590/Blockchain Technologies for Sustainable Last Mile Delivery: Investigating Customer Awareness and Tendency Using NFT Reward Mechanisms**
Ali Raza[+1], Hendro Wicaksono[1], Omid Fatahi Valilai[#1]
[1]Constructor University, Germany

**IEEM23-A-0046/Critical Factors Affecting the Adoption of Smart Green Supply Chain (SGSC) in Indian SMEs**
Debmallya Chatterjee[#+1]
[1]S. P. Jain Institute of Management and Research, India

**IEEM23-A-0072/Organizational Resilience in the Perspective of Supply Chain Risk Management: A Scholarly Network Analysis**
William Ho[#+1], Agus Wicaksana[1]
[1]The University of Melbourne, Australia

## ENGINEERING EDUCATION AND TRAINING 2

20/12/2023 08:30 AM-10:30 AM Room 4011

**Session Chair(s):** **Tlotlollo HLALELE**
*University of South Africa*
**Carman Ka Man LEE**
*The Hong Kong Polytechnic University*

**IEEM23-F-0183/A Training Strategy of Lecture Video-based Dataset for Chatbot Development in Civil Engineering Education**
Seungmo Lim[#+1], Seokho Chi[1], Jinwoo Kim[2]
[1]Seoul National University, Korea, South
[2]Nanyang Technological University, Singapore

**IEEM23-F-0301/Digital Transformation in Higher Education: A Comparative Exploration of Industry 4.0 in Switzerland and Mexico**
Gabriela G. Reyes-Zárate[#+1], Gabriel Gruener[2], Patrik Marti[2]
[1]Tecnologico de Monterrey, Mexico
[2]Bern University of Applied Sciences, Switzerland

**IEEM23-F-0369/The Challenges of Implementing a Computerized Maintenance Management System in the South African Railway Sector**
Bheki Makhanya[#+1], Jan Harm Pretorius[1], Hannelie Nel [1]
[1]University of Johannesburg, South Africa

**IEEM23-F-0578/Online Labs in Modern Engineering Education: Global Reality or Restricted Concept?**
Majd Batarseh[#+1], Rajaa Alqudah[1], Fadia El issa[1]
[1]Princess Sumaya University for Technology, Jordan

**IEEM23-F-0595/User Requirements for Learning Analytics Dashboard in Maritime Simulator Training**
Ziaul Haque Munim[#+1], Hans-Joachim Schramm[2], Helene Luise Sonna Krtabbel[1], Franklin Nyairo [3], Per Haavardtun[1], Tae-Eun Kim[4], Morten Bustgaard[1]
[1]University of South-Eastern Norway, Norway
[2]WU University of Economics and Business, Austria
[3]Novia University of Applied Sciences, Finland
[4]University of Tromsø, Norway

**IEEM23-F-0021/Evaluation of the New Electrical Engineering Program Qualification Mix (PQM) in an Open Distance Learning (ODeL) Environment**
Tlotlollo Hlalele[#+1]
[1]University of South Africa, South Africa

**IEEM23-F-0204/Education and Training for Future Engineering Teachers in the Age of Artificial Intelligence: A Bibliometric Analysis**
Ran Chu[#+1], S.C. Johnson Lim[2]
[1]Universiti Tun Hussein Onn Malaysia, Malaysia
[2]Universiti Teknologi MARA, Malaysia

**IEEM23-F-0040/The Mediating Effect of Entrepreneurial Attitude on the Relationship between Entrepreneurial Motivation and Entrepreneurial Intention**
Feng-Ming Sui[+1], Jen-Chia Chang[#2]
[1]Hwa Hsia University of Technology, Taiwan
[2]National Taipei University of Technology, Taiwan

## OPERATIONS RESEARCH 4

20/12/2023 08:30 AM-10:30 AM Room 4111

**Session Chair(s):** **Rajesh MATAI**
*Birla Institute of Technology and Science, Pilani*

**IEEM23-F-0444/Optimizing Distribution Network Models for a Fruit Trading Company in Thailand: A Comparative Study Using Linear Programming and Optimization**
Piyanee Akkawuttiwanich[#+1], Pisal Yenradee[2], Sophea Horng[2], Tantikorn Pichpibul[3]
[1]International Academy of Aviation Industry, Thailand
[2]Thammasat University, Thailand
[3]Panyapiwat Institute of Management, Thailand

**IEEM23-F-0454/Standardizing Process Optimization for Production Processes in the Control Cabinet Industry: A Multiple Case Study**
Micha Herbert[#+1], Patrick Bründl[1], Huong Giang Nguyen[1], Andreas Baechler[2], Jörg Franke[1]
[1]Friedrich-Alexander-Universität Erlangen-Nürnberg, Institute for Factory Automation and Production Systems (FAPS), Germany
[2]Rittal GmbH & Co. KG, Germany

**IEEM23-F-0484/Enhancing Holt-winters Forecasting of PSEi Data with Genetic Algorithm and Cuckoo Search Algorithm: A Comparative Analysis**
Maricar Navarro[#+1], Bryan Navarro[1]
[1]Technological Institute of the Philippines, Philippines

**IEEM23-F-0499/Hybrid Cuckoo Search and Genetic Algorithm for Optimizing Electricity Forecast**
Maricar Navarro[+1], Bryan Navarro[#1]
[1]Technological Institute of the Philippines, Philippines

**IEEM23-F-0510/A Study on the Improvement Targets of Data Envelopment Analysis Models**
Xu Wang[#+1], Hiroki Iwamoto[1], Takashi Hasuike[1]
[1]Waseda University, Japan

**IEEM23-F-0527/Planning Electric Vehicle Charging Stations under Uncertainty**
Nicklas Klein[#+1], Norbert Trautmann[1]
[1]University of Bern, Switzerland

**IEEM23-A-0331/Improvement of Building Energy Efficiency through the Intelligent Asset Management and Operational Decision Support**
Siu Kei Lam[#+1]
[1]Hong Kong Metropolitan University, Hong Kong SAR

## TECHNOLOGY AND KNOWLEDGE MANAGEMENT 4

20/12/2023 08:30 AM-10:30 AM Room 4104

**Session Chair(s):** **Peter ONU**
*University of Johannesburg*
**Annapoornima SUBRAMANIAN**
*National University of Singapore*

**IEEM23-F-0280/The Impact of Indonesian Managers' Digital Disruptive Skills on Organizational Resilience**
Firdaus Alamsjah[#+1], Muhammad Asrol[1], Stella Sukarta[2]
[1]Bina Nusantara University, Indonesia
[2]BINUS CREATES, Indonesia

**IEEM23-A-0109/Designing a Supporting System of Technology Strategy Based on Customer Complaint Classification: Use of Text Mining**
Minseok Go[+1], Taeyeon Roh[1], Byungun Yoon[#1]
[1]Dongguk University, Korea, South

**IEEM23-A-0123/Technology Roadmap of Maritime Autonomous Surface Ships**
Ziaul Haque Munim[#1], Guro Franken[+1], Olivier Faury[2], Ardiyansyah Yatim[3]
[1]University of South-Eastern Norway, Norway
[2]EM Normandie Business School, France
[3]Universitas Indonesia, Indonesia

**IEEM23-A-0210/Forecasting Emerging Technologies Based on Relationship among Technologies: Application of Graph Clustering with Graph Neural Networks**
Leehee Kim[+1], Sungjoo Lee[#1]
[1]Seoul National University, Korea, South

**IEEM23-A-0248/A Deep Learning Approach to Link Technology to Business and Industry: A Concordance between Patent Classes, Trademark Classes, and Industry Sectors**
Taeeun Kim[+1], Sungjoo Lee[#1]
[1]Seoul National University, Korea, South

**IEEM23-A-0250/Extracting Technology Intelligence from Patent Data Using Large Language Models**
Sanghyun Park[+1], Sungjoo Lee[#1]
[1]Seoul National University, Korea, South

**IEEM23-F-0099/Industry 4.0 and Beyond: Enabling Digital Transformation and Sustainable Growth in Industry X.0**
Peter Onu[#+1], Anup Pradhan[1], Charles Mbohwa[1]
[1]University of Johannesburg, South Africa

## BIG DATA AND ANALYTICS 4

20/12/2023 08:30 AM-10:30 AM Room 4201

**Session Chair(s):** **Ping Chong CHUA**
*Institute of High Performance Computing, Agency for Science, Technology & Research*
**Nan CHEN**
*National University of Singapore*

**IEEM23-A-0117/Spatiotemporal Analytics of PM2.5 Concentration and Dispersion Episodes for Sustainable Development**
Peng-Yeng Yin[#+1]
[1]Ming Chuan University, Taiwan

**IEEM23-A-0131/Systematic Data Generation and Sampling to Improve AI Modeling Performance in Manufacturing Industrial Internet**
Yingyan Zeng[1], Xiaoyu Chen[2], Ran Jin[#+1]
[1]Virginia Tech, United States
[2]University of Lousiville, United States

**IEEM23-A-0150/Integrating the ERP System with Big Data for Real-time Monitoring and Control of Manufacturing System**
Sanjay Choudhari[#+1], Jeetendra Kumar Saraswat[1]
[1]Indian Institute of Management Indore, India

**IEEM23-A-0202/A Fast Competitor Search Algorithm for the Global E-commerce Market**
Ding Ma[#+1], Tongda Zhang[1], Michael Saunders[1], Xiaoquan (Michael) Zhang[2]
[1]Stanford University, United States
[2]Tsinghua University, China

**IEEM23-A-0211/The Making of AI Toolkit the Möbius Trip: Revolutionizing Film Analysis through AI and Humanities Collaboration**
Landry Digeon[#+1]
[1]Möbius Trip LLC, France

**IEEM23-A-0213/Automatizing the Bechdel Test 2.0 How AI Helps Improve Gender Representation Measurement Accuracy in Movies**
Landry Digeon[#+1]
[1]Möbius Trip LLC, France

**IEEM23-A-0223/Comparison of Information Characteristics in Patents and Papers for Enhancing Efficiency in Drug Repositioning**
Hyunjin Shin[+1], Sungjoo Lee[*2]
[1]Ajou University, Korea, South
[2]Seoul National University, Korea, South

## HUMAN FACTORS 1

20/12/2023 08:30 AM-10:30 AM Room 4202

**Session Chair(s):** **Isabelle YS CHAN**
*The University of Hong Kong*
**Yung-Chang HSIAO**
*National University of Tainan*

**IEEM23-A-0014/How Does Digital Transformation Contribute Firm Performance with the Influence of Intellectual Capital and Organization Ambidexterity from Resource-based View**
Yung-Chang Hsiao[#+1], Nien-Chi Liu[2], Ming-Jhe Jeng[2]
[1]National University of Tainan, Taiwan
[2]National Taiwan University, Taiwan

**IEEM23-F-0150/Relating Learning-loops to Selected Organizational Variables**
Shivangi Rai[#+1], R.R.K. Sharma[1], J. Ramkumar[1]
[1]Indian Institute of Technology Kanpur, India

**IEEM23-F-0154/Exploring the Influence of Text Features on User Interface Design Aesthetics: A Computational Approach**
Jintang Zhou[+1], Xiang Ben[1], Ying Zhang[1], Zhiyong Wei[1], Yajing Kan[#1]
[1]Southeast University, China

**IEEM23-F-0185/Utilizing Deep Learning for Semi-automatic Conversation Analysis during Recruitment and Employee Education in the Seed Phase of High-tech Startups**
Yushi Nakaya[#+1], Shuichi Ishida[1]
[1]Tohoku University, Japan

**IEEM23-F-0201/People-centric Production: Towards an Assessment Tool for Workforce Empowerment in Industry 5.0**
Elisa Roth[#+1], Mirco Moencks[1], Arne Freigang[2], Gunter Beitinger[2]
[1]Augmented Industries GmbH, Germany
[2]Siemens AG, Germany

**IEEM23-F-0244/A Critical Review of Safety Culture Maturity Model Tools**
Wisda Mulyasari[#+1], Udisubakti Ciptomulyono[1], Adithya Sudiarno[1]
[1]Institut Teknologi Sepuluh Nopember, Indonesia

**IEEM23-F-0247/Using a Mixed-method Approach to Identify Urban Mobility Needs for the Development of Micromobility Solutions**
Michael Riesener[1], Maximilian Kuhn[1], Matthias Sebastian Mertens[#+1], Sebastian Hagedorn[1], Felix Stracke[2], Günther Schuh[1]
[1]RWTH Aachen University, Germany
[2]Rheinmetall AG, Germany

**IEEM23-F-0529/Effects of Signage Colour Designs and Noise Levels on Human Psychophysiological States and Wayfinding Performance in Urban Underground Space: A Combined EEG and VR Experiment**
Isabelle YS Chan[+1], Hao Chen[#2]
[1]The University of Hong Kong, Hong Kong SAR
[2]The University of Hong Kong, China

## SERVICE INNOVATION AND MANAGEMENT 2

20/12/2023 08:30 AM-10:30 AM Room 4211

**Session Chair(s):** **Pei-Lee TEH**
*Monash University Malaysia*
**Madalena ARAÚJO**
*University of Minho*

**IEEM23-F-0324/Simulation-based Hyperheuristic Approach for the Operative Service Delivery Planning in the Context of Product-service Systems**
Enes Alp[#+1], Ravza Korkmaz[1], Olcay Özgün[1], Bernd Kuhlenkötter[1]
[1]Ruhr-Universität Bochum, Germany

**IEEM23-F-0355/Hidden in Plain Sight: Disengagement with Technology among Older Female Entrepreneurs**
Soo Yeong Ewe[1], Sylvester Mujakperuo[+2], Pei-Lee Teh[#1], Dotun Adebanjo[2]
[1]Monash University Malaysia, Malaysia
[2]University of Greenwich, United Kingdom

**IEEM23-F-0417/Use of Circular Economy Goals in Product Development: A Case Study from a Water-proof Shoe Cover**
R.M. Oshadha B. Ratnayake[1], R.M. Chandima Ratnayake[#+2]
[1]British International School of Stavanger, Norway
[2]University of Stavanger, Norway

**IEEM23-F-0474/A Proposal for Streamlining the Sustainability Report of an SME Textile Company**
Pedro Rodrigues[1], Paula Ferreira[1], Jorge Cunha[#+1]
[1]University of Minho, Portugal

**IEEM23-F-0480/Fulfilling Customer Needs by Re-engineering Specification Processes for a Logistics Service Company**
Tine Meidahl Münsberg[#+1], Erika Marie Strøm[1], Lars Hvam[1]
[1]Technical University of Denmark, Denmark

**IEEM23-F-0564/Uncovering Socioeconomic Factors Influencing Railway User Perception**
Fátima Lima[1], Madalena Araújo[+1], Paula Ferreira[#1]
[1]University of Minho, Portugal

**IEEM23-A-0088/JIT in Shipping: Concepts and Potential Benefits**
Siyuan Huang[#+1], Kah-Hin Chai[2]
[1]Centre for Maritime Studies, Singapore
[2]National University of Singapore, Singapore

**IEEM23-F-0054/A New Management Mode Based on Prediction and Pre-marshalling in Automated Container Terminal**
Jinghan Tao[+1], Peixiang Wang[1], Wei Qin[#1], Zhanluo Zhang[1], Runzhi Tan[1], Kedi Xu[1], Zengni Zhang[1]
[1]Shanghai Jiao Tong University, China

## MANUFACTURING SYSTEMS 4

20/12/2023 08:30 AM-10:30 AM Room 4212

**Session Chair(s):** **Fazleena BADURDEEN**
*University of Kentucky*
**Shucheng MIAO**
*The Hong Kong Polytechnic University*

**IEEM23-A-0224/Charting the Path to Excellence: Visualizing Employee Development with People Value Stream Mapping**
Amir Najarzadeh[#1], Fazleena Badurdeen[+1]
[1]University of Kentucky, United States

**IEEM23-A-0252/A Framework to Assess an SME's Level of Digital Transformation in Manufacturing**
Woojin Cho[#+1], Sungjoo Lee[1]
[1]Seoul National University, Korea, South

**IEEM23-A-0294/Utilization of Recycled Oyster Shell Waste in Polymer-modified Green Concrete towards Environmental Benefits**
Fanny Tang[#+1]
[1]Hong Kong Metropolitan University, Hong Kong SAR

**IEEM23-F-0182/A Matheuristic Approach for the Aircraft Final Assembly Line Balancing Problem Considering Learning Curve**
Zhongkai Bao[+1], Lu Chen[#1]
[1]Shanghai Jiao Tong University, China

**IEEM23-A-0058/Integrated Optimization of Human-robot Collaboration in the Disassembling of Retired Power Batteries**
Mengling Chu[+1], Weida Chen[#1]
[1]Southeast University, China

**IEEM23-A-0173/Dispatching Rules for Hybrid Make-to-order/make-to-stock Production in a Speaker Manufacturing Company in South Korea**
Seong-Woo Choi[1], Ju-Yong Lee[#+2]
[1]Kyonggi University, Korea, South
[2]Kangwon National University, Korea, South

## PRODUCTION PLANNING AND CONTROL 1

20/12/2023 08:30 AM-10:30 AM Room 4311

**Session Chair(s):** **Vinay SINGH**
*ABV-Indian Institute of Information Technology and Management Gwalior*
**Yuchen LI**
*Beijing University of Technology*

**IEEM23-F-0003/LP (Linear Program) and LDR (Linear Decision Rule) Model of Aggregate Production Planning (APP): Inclusion of Aggregate Shortage**
Vinay Singh[#+1], R.R.K. Sharma[2], K.K. Lai[3]
[1]ABV-Indian Institute of Information Technology and Management Gwalior, India
[2]Indian Institute of Technology Kanpur, India
[3]Chaoyang University of Technology, Taiwan

**IEEM23-F-0127/Job Shop Scheduling Problem Using Proximal Policy Optimization**
Ziqing Wang[1], Wenzhu Liao[#+1]
[1]Chongqing University, China

**IEEM23-F-0259/ Study on Operator Assignment Considering Operator Absence in Cellular Manufacturing System**
Yujiro Yoshida[+1], Harumi Haraguchi[#1]
[1]Ibaraki University, Japan

**IEEM23-F-0298/Sustainable Lot-sizing and Scheduling Model: A Systematic Literature Review**
Theresia Sunarni[#+1], Wakhid Ahmad Jauhari[1], Nughtoh Arfawi Kurdhi[1], Pringgo Widyo Laksono[1]
[1]Universitas Sebelas Maret, Indonesia

**IEEM23-F-0329/Systematic Layout Planning for Nanocomposite-based Product for Electric Vehicle Supercapacitor**
Yusuf Ihda Yogatama[1], Anna Maria Sri Asih[#1], Anas Saifurrahman[+1], Imam Prasetyo[1], Teguh Ariyanto[1]
[1]Universitas Gadjah Mada, Indonesia

**IEEM23-A-0029/Pareto Optimization for a Robotic Assembly Line Considering Robot Collaboration and Uncertain Demand**
Yuchen Li[#+1], Mukund Janardhanan[2], Ibrahim Kucukkoc[3]
[1]Beijing University of Technology, China
[2]University of Leicester, United Kingdom
[3]Balıkesir University, Turkey

**IEEM23-F-0347/The Capabilities of SME Managers for Managing Relationships in the Business Ecosystem: An Open Innovation Perspective**
Anjar Priyono[#+1], Anas Hidayat[1], Sarina Abdul Halim-Lim[2]
[1]Universitas Islam Indonesia, Indonesia
[2]Universiti Putra Malaysia, Malaysia

## QUALITY CONTROL AND MANAGEMENT 2

20/12/2023 08:30 AM-10:30 AM Room 4312

**Session Chair(s):** **Jose Pedro TEIXEIRA DOMINGUES**
*University of Minho*

**IEEM23-F-0062/Optimizing Durian Chip Quality Using Machine Learning: Multiple Linear Regression for Predicting Inputs in Microwave-hot Air Drying Process**
Sakraan Sitcharangsie[#+1], Suwit Paengkanya[1]
[1]Rajamangala University of Technology Phra Nakhon, Thailand

**IEEM23-F-0222/Attention Mechanism-based Deep Learning Denoising of Scanned Point Cloud for Rocket Tank Panel**
Liling Zuo[+1], Jie Zhang[#1], Silong Ding[1], Youlong Lv[1]
[1]Donghua University, China

**IEEM23-F-0299/A New Method for Classifying High Speed Chip Using Machine Learning**
Jeong Eon Ahn[#+1], Ji Hye Choi[1], Jin Soo Park[1], Moon Jung Kim[1], Kang Il Kim[1]
[1]Samsung Electronics, Korea, South

**IEEM23-F-0323/Predicting Partial Discharges of Transformers: Decision Support System for Factory Acceptance Test**
Benjamin Gigerl[#+1], Yang Zhao[2], Johann Raminger[1], Jupiter Bakakeu[3], Roman Kern[4], Stefan Thalmann[5]
[1]Siemens Energy, Austria
[2]Siemens Energy, Germany
[3]Alteryx, Germany
[4]Technical University of Graz, Austria
[5]University of Graz, Austria

**IEEM23-F-0397/Digital Era: The Profile of the Quality Leader**
Jose Pedro Teixeira Domingues[+1], Ana Dias[#1], Margarida Dias[1], André Carvalho[2], Paulo Sampaio[1]
[1]University of Minho, Portugal
[2]NOVA University, Portugal

**IEEM23-F-0019/Improving Performance through Benchmarking: A Study on the Continuous Improvement Process**
Rahab Mathakgadi Malapa[1], Nita Sukdeo[1], Sambil Charles Mukwakungu[#+1], Charles Mbohwa[1]
[1]University of Johannesburg, South Africa

**IEEM23-F-0020/Implementation and Transition to ISO 9001:2015 – Case of Beverage Company in South Africa**
Hlengiwe Ndlovu[1], Nita Sukdeo[1], Sambil Charles Mukwakungu[#+1], Charles Mbohwa[1]
[1]University of Johannesburg, South Africa

## SUPPLY CHAIN MANAGEMENT 6

20/12/2023 11:00 AM-01:00 PM Room 4E

**Session Chair(s):** **Parveen GOEL**
*Royal Roads University*

**IEEM23-A-0077/Over-the-Counter (OTC) Drugs Supply Chain Equilibrium: A Health Rumors Intervention Perspective**
Xin Li[#+1], Xi Chen[1]
[1]Xidian University, China

**IEEM23-A-0096/The Impact of Materials Commonality on Commercial Performance: A Case Study in the Apparel Industry**
Javier Cabello[#+1], Lars Hvam[1]
[1]Technical University of Denmark, Denmark

**IEEM23-A-0104/Pricing Decision of the Dual Channel Supply Chain Considering the Customer Preference**
Shuyi Yang[#+1], Xin Li[1], Xi Chen[1]
[1]Xidian University, China

**IEEM23-A-0115/The Role of Sustainability-linked Financing in Shaping the Buyer-supplier Interaction**
Stuti Arora[#+1], Avijit Raychaudhuri[1]
[1]Indian Institute of Management Udaipur, India

**IEEM23-A-0125/Agri 4.0 – Enhancing the Effectiveness of Agri-food Supply Chain with Industry 4.0**
Mahima Gupta[#+1]
[1]Indian Institute of Management Amritsar, India

**IEEM23-A-0132/The Impact of Remote Sensing on Environmental Monitoring of Supply Chains**
Pavel Castka[#+1], Cory Searcy[2], Xiaoli Zhao[3]
[1]University of Canterbury, New Zealand
[2]Toronto Metropolitan University, Canada
[3]Lincoln University, New Zealand

**IEEM23-F-0567/Modeling and Analysis of Solar Photovoltaic Supply Chain**
Akshay Vilas Upasany[#+1], Jayendran Venkateswaran[1]
[1]Indian Institute of Technology Bombay, India

## SUPPLY CHAIN MANAGEMENT 7

20/12/2023 11:00 AM-01:00 PM Room 4011

**Session Chair(s):** **Linda ZHANG**
*IESEG School of Management*
**Jun-Der LEU**
*National Central University*

**IEEM23-F-0349/Evaluating Environmental Sustainability Performance in Healthcare Supply Chains under Demand Surges**
Towfique Rahman[#+1], Sanjoy Kumar Paul[1]
[1]University of Technology Sydney, Australia

**IEEM23-F-0350/Identification and Prioritization of Lean Supply Chain Management Factors Using Analytical Hierarchy Process**
Md Al Amin[#+1], Roberto Baldacci[1], Anika Tabassum Promi[2]
[1]Hamad Bin Khalifa University, Qatar
[2]Khulna University of Engineering & Technology, Bangladesh

**IEEM23-F-0366/A General Framework for Building Resilient Global Supply Chains**
Maryam Al-Khatib[#1], Mohamed Kharbeche[1], Mohamed Haouari[+1]
[1]Qatar University, Qatar

**IEEM23-F-0381/Integration of Risk Sources and Risk Controls to SysML Requirements Diagrams with Application to Sustainable Aviation Fuels**
DeAndre Johnson[#+1], Rayshaun Wheeler[1], Megan Marcellin[1], Negin Moghadasi[1], Richard Altman[2], Thomas Polmateer[1], James Lambert[1]
[1]University of Virginia, United States
[2]Commercial Aviation Alternative Fuels Initiative, United States

**IEEM23-F-0406/Optimizing Sustainable City Logistics: A Time Window and $CO_2$ Emissions-Aware Vehicle Routing Approach**
Fei-Pai Liu[1], Jun-Der Leu[#+1], Andre Krischke[2]
[1]National Central University, Taiwan
[2]Munich University of Applied Sciences, Germany

**IEEM23-A-0036/Joint Operations Decision-making Optimization Involving Substitute Products Based on Stackelberg Game and Nested PSO**
Linda Zhang[1], Shuang Ma[#+2]
[1]IESEG School of Management, France
[2]University of Science and Technology Beijing, China

**IEEM23-F-0402/Enhancing the Trailer Coupling Manufacturing Process through Work Study and Process Improvement**
Supapat Phuangkaew[#+1], Piya Rontlaong[2]
[1]Rajamangala University of Technology Krungthep, Thailand
[2]Bansomdejchaopraya Rajaphat University, Thailand

## OPERATIONS RESEARCH 5

20/12/2023 11:00 AM-01:00 PM Room 4111

**Session Chair(s):** **Sang Jin KWEON**
*Ulsan National Institute of Science and Technology*
**Jian ZHOU**
*Nanjing University of Science & Technology*

**IEEM23-F-0528/An Efficient Exact Algorithm for Chip Resource Allocation Problem**
Xizi Qiao[+1], Xinglu Liu[1], Kefan Lai[1], Kexin Cao[1], Yuxuan Xiu[1], Wai Kin (Victor) Chan[#1]
[1]Tsinghua University, China

**IEEM23-F-0530/A Unique Discrete Formulation for Unequal Area Dynamic Facility Layout Problem**
Rajesh Matai[#+1]
[1]Birla Institute of Technology and Science, Pilani, India

**IEEM23-F-0534/Fair Cost-savings Allocation in Transportation Game**
Gopal Saha[+1], Manu Kumar Gupta[#1]
[1]Indian Institute of Technology Roorkee, India

**IEEM23-F-0556/The Benefits of Willingness-to-pay-based Incentive-driven Rider Repositioning in Ride-hailing Systems**
Kefan Lai[+1], Xinglu Liu[1], Wai Kin (Victor) Chan[#1]
[1]Tsinghua University, China

**IEEM23-A-0062/Long-term Microgrid Expansion Planning with Resilience and Environmental Benefits Using Deep Reinforcement Learning**
Jian Zhou[#+1], Kexin Pang[1], Stamatis Tsianikas[2], David Coit[2]
[1]Nanjing University of Science & Technology, China
[2]Rutgers University, United States

**IEEM23-A-0082/The Production Scheduling Problem in a High-mix, Low-volume Production Setting with Non-identical Parallel Machines**
Sang Jin Kweon[#+1], Nakyung Lee[1], Younggyu Bok[1], Sugyeong Jo[1], Seokho Yoon[1]
[1]Ulsan National Institute of Science and Technology, Korea, South

**IEEM23-A-0089/A Rational Approach to Administrative Performance Measurement: An Application of the Analytic Hierarchy Process**
Yiying Wang[#+1], Yuji Sato[1]
[1]Chukyo University, Japan

## TECHNOLOGY AND KNOWLEDGE MANAGEMENT 5

20/12/2023 11:00 AM-01:00 PM Room 4104

**Session Chair(s):** **Martin HO**
*University of Cambridge*
**Pei-Lee TEH**
*Monash University Malaysia*

**IEEM23-A-0257/An Approach to Evaluate a Roadmapping Workshop for Identifying New Technology Opportunities**
Giyun Kim[+1], Rob Phaal[2], Yuta Hirose[2], Nathasit Gerdsri[3], Clare Farrukh[2], Sungjoo Lee[#1]
[1]Seoul National University, Korea, South
[2]University of Cambridge, United Kingdom
[3]Mahidol University, Thailand

**IEEM23-A-0259/Patterns of Technology Transfer Based on the Relationship between Licensor and Licensee: The Case of Artificial Intelligence**
Seokhyun Ryu[#+1], Sungjoo Lee[1]
[1]Seoul National University, Korea, South

**IEEM23-A-0265/Technology Transformation of Automobile Companies: A Patent and Trademark-based Approach**
Jinseob Kim[+1], Sungjoo Lee[#1]
[1]Seoul National University, Korea, South

**IEEM23-A-0332/Machine Learning Augmented Question Generation Framework for Probing the Efficiency of Indian Judicial System**
Sri Harsha Dorapudi[#+1], S. G. Deshmukh[1], Shaurya Shriyam[1]
[1]Indian Institute of Technology Delhi, India

**IEEM23-A-0334/TransCubating Technology: A Novel Approach to Measure the Value of Technology Using Technology Transfer History**
Jinhong Kim[+1], Youngjung Geum[#1]
[1]Seoul National University of Science & Technology, Korea, South

**IEEM23-A-0335/The Adverse Effects of Contingent Earnouts on Target Firm's Technological Innovation**
Jiawei Lin[+1], Saixing Zeng[#1]
[1]Shanghai Jiao Tong University, China

**IEEM23-F-0101/EcoMechatronics: Advancing Sustainable Production through Mechatronic Systems**
Peter Onu[#+1], Anup Pradhan[1], Charles Mbohwa[1]
[1]University of Johannesburg, South Africa

**IEEM23-F-0082/Examining the Feedback Effects of Support System Facilities on Tourism Industry Performance: A Causal Loop Diagram Modeling Approach**
Fandi Achmad[#+1], Yudha Prambudia[1], Augustina Asih Rumanti[1]
[1]Telkom University, Indonesia

## INTELLIGENT SYSTEMS 1

20/12/2023 11:00 AM-01:00 PM Room 4201

**Session Chair(s):** **S.C. Johnson LIM**
*Universiti Teknologi MARA*
**Megashnee MUNSAMY**
*University of Johannesburg*

**IEEM23-F-0198/Digitalization and Adoption of Industry 4.0 in Engineer-to-order Small and Medium-sized Manufacturing Companies: An Empirical Analysis**
Patrick Bründl[#+1], Micha Herbert[1], Huong Giang Nguyen[1], Andreas Baechler[2], Jörg Franke[1]
[1]Friedrich-Alexander-Universität Erlangen-Nürnberg, Institute for Factory Automation and Production Systems (FAPS), Germany
[2]Rittal GmbH & Co. KG, Germany

**IEEM23-F-0210/Application of Sensor Technology for Energy Consumption Analysis: A Case Study in a Smart Office Building**
Boon Tuan Tee[1], S.C. Johnson Lim[#+2], Peng Wah Siew[3], Ming Foong Lee[4]
[1]Universiti Teknikal Malaysia Melaka, Malaysia
[2]Universiti Teknologi MARA, Malaysia
[3]Seikou Systec Sdn. Bhd., Malaysia
[4]Universiti Tun Hussein Onn Malaysia, Malaysia

**IEEM23-F-0313/Will Industry 4.0 Applications Help in Designing Sustainable Forest Management? A Conceptual Framework of Connected Networks in Novel Sectors**
Ylva Reinhold[1], Omid Fatahi Valilai[1], Hendro Wicaksono[#+1]
[1]Constructor University, Germany

**IEEM23-F-0372/ExploreLah: Personalised and Smart Trip Planner for Mobile Tourism**
Aldy Gunawan[#1], Siu Loon Hoe[1], Xun Yi Lim[+1], Linh Chi Tran[1], Dang Viet Anh Nguyen[1]
[1]Singapore Management University, Singapore

**IEEM23-F-0400/Traffic Collision Detection Using DenseNet**
Daniel Kaluza[+1], Marco Seiler[1], Rasha Kashef[#1]
[1]Toronto Metropolitan University, Canada

**IEEM23-F-0423/The Theory of Probabilistic Hierarchical Supervised Learning for Classification**
Ziauddin Ursani[#+1]
[1]University of Liverpool, United Kingdom

**IEEM23-F-0440/Smart Automated Guided Vehicles and Autonomous Mobile Robots in Warehouse Operations: A Bibliometric Analysis**
Bilal Ahmadi[+1], Iwan Vanany[#2], Ratna Sari Dewi[2]
[1]Politeknik APP, Indonesia
[2]Institut Teknologi Sepuluh Nopember, Indonesia

**IEEM23-F-0284/Mindset of an Innovation Resistant Consumer: An Expert's Opinion Analysis**
Abhishek Kulshrestha[#+1], Prabha Bhola[1]
[1]Indian Institute of Technology Kharagpur, India

## HUMAN FACTORS 2

20/12/2023 11:00 AM-01:00 PM Room 4202

**Session Chair(s):** **Aries SUSANTY**
*Diponegoro University*
**Víctor Manuel RAYAS-CARBAJAL**
*Tecnologico de Monterrey*

**IEEM23-F-0297/Modeling the Users' Acceptance and Perceived Usability for Halal Traceability System**
Aries Susanty[#+1], F.A. Akhsan[1], Nia Budi Puspitasari[1]
[1]Diponegoro University, Indonesia

**IEEM23-F-0331/Exploring Subjective and Objective Performance of Multimodal Interactions in Different Physical Environments**
Zhi-Lan Ji[+1], Xin-Hao Guo[1], Xiao-Xi Du[1], Rong-Sheng Lu[#1], Cheng-Qi Xue[1]
[1]Southeast University, China

**IEEM23-F-0341/The Value of Product Repairability: A Choice-based Conjoint Analysis on Smartphone Preference**
Leul Bisenebit[1], Stanislav Chankov[#+1]
[1]Constructor University, Germany

**IEEM23-F-0351/Age Matters: Influence of the Video Instructional Materials' Playback Speed on Learning Effects**
Takahiro Ominato[1], Xiuzhu Gu[#+1]
[1]Tokyo Institute of Technology, Japan

**IEEM23-F-0392/The Impact of Character Color Combinations on Legibility When Presented on Optical Head-mounted Displays during Walking**
De-Cheng Liu[+1], Chih-Yu Hsiao[1], Wen-Yi Chen[1], Chien-Chi Chang[#1]
[1]National Tsing Hua University, Taiwan

**IEEM23-F-0458/Research on the Visual Search Ability Decline Caused by Different Types of Noise**
Mingyue Yin[+1], Jianguang Li[#1]
[1]Harbin Institute of Technology, China

**IEEM23-A-0215/Investigating the Effects of User's Movement and Gaze Position on HoloLens 2 Eye Tracking Performance**
Ching-Che Chiu[1], Jhih-Han Hu[+1], Chien-Chi Chang[#1]
[1]National Tsing Hua University, Taiwan

## HEALTHCARE SYSTEMS AND MANAGEMENT 1

20/12/2023 11:00 AM-01:00 PM Room 4211

**Session Chair(s):** **Malcolm Yoke Hean LOW**
*Singapore Institute of Technology*

**IEEM23-F-0151/A Facilities Planning and Design of Patient Rooms for a Philippine Private Tertiary Hospital**
Ira Aileen Morada [1], Pamela Isabel Yuson [1], Jazmin Tangsoc[#+1]
[1]De La Salle University, Philippines

**IEEM23-F-0263/Exploring the Development of Integrated Elderly Care Policy System in China Based on Text Mining**
Jing Zhao[1], ChuanXu Liu[#+1], Xiong Tang[1], Peng Guo[1]
[1]Northwestern Polytechnical University, China

**IEEM23-F-0264/Research on the Diffusion of Integrated Medical and Elderly Care Services Based on Complex Network Evolutionary Game Theory**
Jing Zhao[1], Xiong Tang[#+1], ChuanXu Liu[1], Peng Guo[1]
[1]Northwestern Polytechnical University, China

**IEEM23-F-0330/Implementation of a Virtual Patient Chatbot for Physiotherapy Students Training**
Malcolm Yoke Hean Low[#+1], Yue Heng Yeo[1], Chien Ching Lee[1], Liming Lu[1], Hwee Hoon Lee[1], Benjamin Tze Chin Soon[1], Nadya Shaznay Patel[1]
[1]Singapore Institute of Technology, Singapore

**IEEM23-F-0463/Evolving Eye Care Delivery: Transformation Toward a Patient-centered Healthcare Ecosystem**
Yeo-Yang Koh[+1], Kae-Kuen Hu[#1]
[1]National Taiwan University, Taiwan

**IEEM23-F-0465/Factors Influencing Purchase Intention and Product Adoption of Intelligent Medical Devices: An Empirical Study in Dental Field**
Min-Hsin Huang[1], Wen-Ming Cheng[+1], Kae-Kuen Hu[#2]
[1]National Sun Yat-Sen University, Taiwan
[2]National Taiwan University, Taiwan

**IEEM23-F-0497/A Feasibility Study on BuddyKo Application: A Reproductive and Sexual Health Awareness Platform**
Jaypy Tenerife[+1], Samantha Sophia Beldua[1], Eisen Jules Cabusas[1], Cyra Eve HelIntelligent Systems 1, Duane Marc Malonda[#1], Kyle Vincent Pangan[1]
[1]Technological Institute of the Philippines, Philippines

## SPECIAL SESSION 1

20/12/2023 11:00 AM-01:00 PM Room 4212

**Session Chair(s):** **Seung Ki MOON**
*Nanyang Technological University*
**Kijung PARK**
*Incheon National University*

**IEEM23-A-0176/Review Lifecycle Analytics and Importance–obsolescence Analysis for Supporting Design for Circularity**
Minjung Kwak[#+1], Jiyeong Son[1], Jisoo Won[1]
[1]Soongsil University, Korea, South

**IEEM23-A-0193/A Methodology for Designing Adaptive E/E Architecture through Balancing System Resource Utilization under Constraints of Physical Connectivity**
Jongwook Lim[+1], Changmuk Kang[2], Yoosuk Hong[#1]
[1]Seoul National University, Korea, South
[2]Soongsil University, Korea, South

**IEEM23-A-0244/Characterization of Complexity in Additive Manufacturing: A Review of Literature**
Kijung Park[#+1], Kyudong Kim[1], Junwoo Kim[1]
[1]Incheon National University, Korea, South

**IEEM23-A-0268/Digital Twin-driven Multi-criteria Decision-making Method for Optimal Production Line Configuration Based on the Product Modularity and its Lifecycle Information**
Jongsuk Lee[+1], Seung Ki Moon[#1]
[1]Nanyang Technological University, Singapore

**IEEM23-F-0289/Complexity Coping by Methodical Agile and Modular Product Development – A Bibliometric Review**
Marc Zuefle[#1], Christopher Rennpferdt[1], Mona Batora[1], Nikola Bursac[1], Dieter Krause[1], Artur Krause[+1]
[1]Hamburg University of Technology, Germany

**IEEM23-F-0342/Mapping of Sustainability Assessment Methodologies**
Ellia Kristiningrum[#+1], Rahmat Nurcahyo[1], Verra Syahmer[2]
[1]University of Indonesia, Indonesia
[2]ATI Polytechnic, Indonesia

**IEEM23-A-0196/A DNN Model for Demand Forecasting Considering Price Increase Policy: A Case Study of a Manufacturing Company in Korea**
Kyung Sik Choi[+1], Jun Hee Han[#1], Kyung Su Park[1], Song Eun Kim[1], Yu Jin Lee[1], Sa Eun Park[1], Jaeyoung Lee[1]
[1]Pusan National University, Korea, South

**IEEM23-A-0314/Detrimental Effects of Product Costing on Manufacturing Organizations**
Harshal Lowalekar[#+1]
[1]Indian Institute of Management Indore, India

## PRODUCTION PLANNING AND CONTROL 2

20/12/2023 11:00 AM-01:00 PM Room 4311

**Session Chair(s):** **Fernando A.C.C. FONTES**
*University of Porto*

**IEEM23-F-0358/A Hybrid Heuristic Algorithm for Rotating seru Scheduling Problems with Learning Effects**
Zhe Zhang[+1], Xiaoyun Pan[#2]
[1]Nanjing University of Science & Technology, China
[2]Nanjing Normal University, China

**IEEM23-F-0433/Method for Determining Material Demands by Combing Deterministic and Probabilistic Information in Flexible and Changeable Production Systems**
Jan Schuhmacher[#+1], Vera Hummel[1], Daniel Palm[1], Thomas Bauernhansl[2]
[1]Reutlingen University, Germany
[2]Fraunhofer Institute for Manufacturing Engineering and Automation IPA, Germany

**IEEM23-F-0466/Novel Shape and Rule-based Approach to Identify Standardized Threads and Screw Heads in Neutral 3D CAD Product Models**
Katharina Barbu[#+1], Carina Mössinger[1], Lorenz Halt[1]
[1]Fraunhofer Institute for Manufacturing Engineering and Automation IPA, Germany

**IEEM23-A-0073/D^3 Product Platform Design Method for Product Family Configuration Considering Multiple Scenarios, Performances and Thresholds**
Haoran Liu[+1], Qingyuan Zhang[#2], Xiaoyang Li[1], Li Yu[1], Jing Yuan[3], Rui Kang[1]
[1]Beihang University, China
[2]Zhongfa Aviation Institute of Beihang University, China
[3]Shenzhen Weimin Reliability Systems Engineering Research Institute, China

**IEEM23-A-0079/Uniform Parallel Machines Scheduling with Limited Resources: A Case Study of Plastic Pallet Manufacturing**
Dong-Xuan Li[#+1], Yiyo Kuo[1]
[1]Ming Chi University of Technology, Taiwan

**IEEM23-A-0081/Inventory Classification with Limited Number of Mold Exchange and Storage Space: A Case Study of Plastic Pallet Manufacturing**
Hao Chen Jiang[#+1], Yiyo Kuo[1]
[1]Ming Chi University of Technology, Taiwan

**IEEM23-A-0184/A K-nearest Neighbors Classification Approach for Predicting Job Tardiness in a Flowshop**
Ahmed El-Bouri[#+1]
[1]Sultan Qaboos University, Oman

**IEEM23-F-0535/Job Deterioration Effects in Job-shop Scheduling Problems**
Diana G. Campinho[#1], Dalila B.M.M. Fontes[+1], Alexandre F. P. Ferreira[1], Fernando A.C.C. Fontes[1]
[1]University of Porto, Portugal

## SUPPLY CHAIN MANAGEMENT 8

20/12/2023 02:00 PM-04:00 PM Room 4E

**Session Chair(s):** **Sanjita JAIPURIA**
*Indian Institute of Management Shillong*
**Javier CABELLO**
*Technical University of Denmark*

**IEEM23-A-0161/Behavioral Insights for Assurance Practices in Food Supply Chains – A Cultural Perspective**
Xiaoli Zhao[+1], Han Yin[2], Tony So[2], Cong Lei[1], Eddy Fang[2], Kangkang Yu[3], Craig Bunt[4], Phil Bremer[4], Pavel Castka[#5], Miranda Mirosa[4]
[1]Lincoln University, New Zealand
[2]Xi'an Jiaotong-Liverpool University, China
[3]Renmin University, China
[4]Otago University, New Zealand
[5]University of Canterbury, New Zealand

**IEEM23-A-0187/Synchro-modal Network Design under Strategic and Operational Consideration: A Multi Criteria Approach**
Mahima Gupta[#+1], Harpreet Kaur[1]
[1]Indian Institute of Management Amritsar, India

**IEEM23-A-0226/Advance Booking of Agri-input Products in Presence of Sales Effort**
Diwakar Kumar Pandey[#+1], Saurabh Chandra[1]
[1]Indian Institute of Management Indore, India

**IEEM23-A-0260/Stackelberg Game and Option Contract for an Air Cargo Carrier under Capacity Constraint with Multiple Forwarders**
Jiyong Kim[1], Byeongkwon Lee[1], Kunsoo Park[1], Kwanghun Chung[#+2]
[1]Seoul National University, Korea, South
[2]Hongik University, Korea, South

**IEEM23-A-0266/Optimal Pickup Point Problem for Crowdshipping**
Gitae Kim[#1], Dongyeon Noh[+1], Kiho Kwak[1]
[1]Hanbat National University, Korea, South

**IEEM23-A-0118/Collaboration-based Network Design for Return Collection in Delivery Services**
Muzaffar Makhmudov[+1], Chang Seong Ko[#2]
[1]New Uzbekistan University, Uzbekistan
[2]Kyungsung University, Korea, South

**IEEM23-F-0016/Analyzing Logistics 4.0's Impact on 3PL Performance during Pandemics: A South African Retail Perspective**
Olubusola Stephanie Adesominu[1], Sambil Charles Mukwakungu[#+1], Nita Sukdeo[1], Charles Mbohwa[1]
[1]University of Johannesburg, South Africa

## E-BUSINESS AND E-COMMERCE

20/12/2023 02:00 PM-04:00 PM Room 4011

**Session Chair(s):** **Pei-Lee TEH**
*Monash University Malaysia*
**Huey-Hsi LO**
*Aletheia University*

**IEEM23-F-0149/Competition and Cooperation Mechanism between Agency Selling and Wholesale: An Application of the Emerging E-commerce Model**
Haonan Wang[+1], Carman Ka Man Lee[#1], Ping Ji[2], Gang Li[3]
[1]The Hong Kong Polytechnic University, Hong Kong SAR
[2]Xi'an Jiaotong – Liverpool University, China
[3]Xi'an Jiaotong University, China

**IEEM23-F-0208/Analysis of the Influence of Social Media Marketing on the Purchase Decisions of Consumers Using Structural Equation Modelling (SEM)**
Ferry Vincenttius Ferdinand[#+1], Amadea Franstella Tanugerah[1], K. V. I. Saputra[1]
[1]Universitas Pelita Harapan, Indonesia

**IEEM23-F-0261/Impact of Online Reviews on Online Hotel Booking Intentions**
Ching-Yu Lien[1], Huey-Hsi Lo[#+2], Raci Li[3], Eric Ng[4]
[1]Guangdong Business and Technology University, China
[2]Aletheia University, Taiwan
[3]Jiajing University, China
[4]University of Southern Queensland, Australia

**IEEM23-F-0277/ Optimal Pricing in Livestreaming E-commerce: A Game Approach Considering the Effect of Spillover**
Hou-ping Tian[+1], Yi-qian Li[1], Xi-jiang Shen[1], Chang-xian Liu[#2]
[1]Nanjing University of Science & Technology, China
[2]Nanjing University of Posts and Telecommunications, China

**IEEM23-F-0469/Suki: A Feasibility Study on Developing a Platform Application for Local Public Markets**
Elizabeth Cruzado[#+1], John Michael Dela Cruz[1], Michael Josh Hagos[1], Kenneth Perater[1], Denise Ramos[1], Ethanne Andrei Franze Tumala[1], Jaypy Tenerife[1]
[1]Technological Institute of the Philippines, Philippines

**IEEM23-F-0390/Application of EFA and AHP in the Last-mile Delivery Service in Thailand**
Waralee Rattanakijsuntorn[#+1]
[1]King Mongkut's Institute of Technology Ladkrabang, Thailand

**IEEM23-F-0262/Prediction of the Change Trend of Customer Needs Based on Grey Markov Model**
Ling Qin[+1], Na Zhang[#1], Yanzhe Chen[1]
[1]China University of Mining and Technology, China

## OPERATIONS RESEARCH 6

20/12/2023 02:00 PM-04:00 PM Room 4111

**Session Chair(s):** **Philipp BAUMANN**
*University of Bern*
**Wee Meng YEO**
*University of Glasgow*

**IEEM23-F-0014/The MPFCC Algorithm: A Model-based Approach for Fair-capacitated Clustering**
Vanessa Tran[1], Manuel Kammermann[1], Philipp Baumann[#+1]
[1]University of Bern, Switzerland

**IEEM23-A-0105/Voucher Effect in Appointment Based Queues**
Wee Meng Yeo[#+1]
[1]University of Glasgow, United Kingdom

**IEEM23-A-0133/Parallel Machine Scheduling Under Uncertainty: Models and Exact Algorithms**
Guopeng Song[#+1], Roel Leus[2]
[1]National University of Defense Technology, China
[2]KU Leuven, Belgium

**IEEM23-A-0267/Parcel Locker Location Problem with Inbound and Outbound Transportation Costs**
Gitae Kim[#1], Chaehyun Kim[+1]
[1]Hanbat National University, Korea, South

**IEEM23-A-0293/Multiperiod Facility Location-allocation for Health Centers under Staff Shortage**
Amit Vatsa[#+1], Saurabh Chandra[1]
[1]Indian Institute of Management Indore, India

**IEEM23-A-0323/A Lagrangian Decomposition Approach for the Capacity Planning Problem in an Elastic Cloud Compute Service**
Sixiang Zhao[+1], Zhou He[#2], Qiong Wu[3]
[1]Shanghai Jiao Tong University, China
[2]University of Chinese Academy of Sciences, China
[3]Tesla Inc., China

**IEEM23-F-0227/A Comparative Study of Various 3D Interface Layout Experiments Based on Virtual Hand Interaction**
Tian Qiu[+1], Xiaozhou Zhou[#1], Helu Li[1]
[1]Southeast University, China

## SAFETY, SECURITY AND RISK MANAGEMENT

20/12/2023 02:00 PM-04:00 PM Room 4104

**Session Chair(s):** **Kartika Nur ALFINA**
*Bandung Institute of Technology*
**Seung Ki MOON**
*Nanyang Technological University*

**IEEM23-F-0022/A Critical Review on Hydrogen Production**
Wai Ying Chak[#1], Fanny Tang[1], Shu Lun Mak[+2], Chi Chung Lee[1], Siu Kei Lam[1], Chi Ho Li[1]
[1]Hong Kong Metropolitan University, Hong Kong SAR
[2]Vocational Training Council - Youth College (Kwai Chung), Hong Kong SAR

**IEEM23-F-0030/Upstream Healthcare Supply Chain Risk Management in the Implementation of Circular Economy at the Primary Care Level**
Kartika Nur Alfina[#+1], R.M. Chandima Ratnayake[2]
[1]Bandung Institute of Technology, Indonesia
[2]University of Stavanger, Norway

**IEEM23-F-0069/Determination of the Factors Influencing the Response Efficacy of Filipinos under Typhoon Conson 2021 (Jolina)**
Yogi Tri Prasetyo[#1], Omar Paolo Benito[+1], Jui-Hao Liao[1], Nagib Ismail[1], Ma. Janice Gumasing[2], Satria Fadil Persada[3], Reny Nadlifatin[4]
[1]Yuan Ze University, Taiwan
[2]Mapúa University, Philippines
[3]Bina Nusantara University, Indonesia
[4]Institut Teknologi Sepuluh Nopember, Indonesia

**IEEM23-F-0138/Injuries at Sea: A Geo-spacial Analysis of Marine Accidents**
Vegard Enerstvedt[#+1], Haiying Jia[1]
[1]Norwegian School of Economics, Norway

**IEEM23-F-0188/A Novel Method to Prevent Extreme Whole-body Vibration to Mine Workers in Underground Coal Mine Due to Heavy Earth Moving Machineries**
Tarun Verma[#+1], Suprakash Gupta[1], Charchit Jain[2]
[1]Indian Institute of Technology (Banaras Hindu University), India
[2]Coal India Limited, India

**IEEM23-F-0231/The Construction of Physical Vulnerability Evaluation Index System for Urban Old Civil Buildings**
Wenxuan Guo[+1], Ludan Xu[1], Yanfang Wu[#2], Yue Ma[2]
[1]Taiyuan University of Technology, China
[2]Northwestern Polytechnical University, China

**IEEM23-F-0317/Workplace Analysis and Ergonomics in Engineer-to-order Production Sites: A Study on the Workplace Design of Control Cabinet Manufacturing Enterprises**
Micha Herbert[#+1], Patrick Bründl[1], Huong Giang Nguyen[1], Andreas Baechler[2], Jörg Franke[1]
[1]Friedrich-Alexander-Universität Erlangen-Nürnberg, Institute for Factory Automation and Production Systems (FAPS), Germany
[2]Rittal GmbH & Co. KG, Germany

**IEEM23-F-0479/Minimizing ad hoc Technical Safety Assessments: Use of AHP for Prioritization of Passive Fire Protection Alternatives**
Eleojo Samuel Ocheni[#+1], R.M. Chandima Ratnayake[1]
[1]University of Stavanger, Norway

## INTELLIGENT SYSTEMS 2

20/12/2023 02:00 PM-04:00 PM Room 4201

**Session Chair(s):** **Sujit DAS**
*National Institute of Technology, Warangal*

**IEEM23-F-0489/Prediction of Cardiac Nephropathy in Hypertensive Complications from Tongue Image Using Optimize Deep Learning Neural Networks**
Niparat Boongun[1], Noppadol Amm-Dee[1], Adisak Sangsongfa[#+1]
[1]Muban Chombueng Rajabhat University, Thailand

**IEEM23-F-0490/Detecting Moving Objects from Moving Background by Optical Flow Decomposition**
Yinwei Zhang[1], Shenghao Xia[1], Biao Zhang[2], Jian Liu[#+1]
[1]The University of Arizona, United States
[2]ABB Inc., United States

**IEEM23-F-0523/Concept for the Evaluation and Prioritization of Machine Learning Use Cases in Industrial Production**
Günther Schuh[1], Leonard Cassel[#+2], Marc Uedelhoven[2]
[1]RWTH Aachen University, Germany
[2]Fraunhofer Institute for Production Technology, Germany

**IEEM23-A-0110/Intelligence System for Food Safety Management in Shared Kitchen Based on Blockchain**
Daye Lee[+1], Byungun Yoon[#1]
[1]Dongguk University, Korea, South

**IEEM23-A-0111/Intelligence System for Decision Support for Fuel Cell Power Business Based on Deep Learning Prediction**
Minyoung Park[+1], Sunhye Kim[1], Byungun Yoon[#1]
[1]Dongguk University, Korea, South

**IEEM23-A-0288/Hybridization of K-means and Chaotic Gravitational Search Algorithm to Solve Clustering Problems**
Sujit Das[#+1], Anwesha Das[1]
[1]National Institute of Technology, Warangal, India

**IEEM23-A-0296/How Wireless Access Control System to Manage Predictive HVAC in Smart Building in Hong Kong?**
Chi Ho Li[#+1], Tsz Ting Lee[1], Shu Lun Mak[1], Chi Man Tang[1], Wai Hang Chiu[1], Chi Chung Lee[1], Fanny Tang[1]
[1]Hong Kong Metropolitan University, Hong Kong SAR

**IEEM23-F-0245/Color Coding Method in Augment Reality Based on Enhanced Visual Depth Perception**
Qiyuan Zhang[+1], Yuan Cao[1], Xiaozhou Zhou[#1]
[1]Southeast University, China

## HUMAN FACTORS 3

20/12/2023 02:00 PM-04:00 PM Room 4202

**Session Chair(s):** **Jianxin (Roger) JIAO**
*Georgia Institute of Technology*
**Mait RUNGI**
*Estonian Entrepreneurship University of Applied Sciences*

**IEEM23-F-0486/Prospect-theoretic Modeling of Team Cognition for Task Allocation towards Human-automation Symbiosis**
Shu Wang[1], Mulang Song[1], Yiyun (Cindy) Fei[1], Dandan Zhang[2], Feng Zhou[3], Nagi Gebraeel[1], Jianxin (Roger) Jiao[#+1]
[1]Georgia Institute of Technology, United States
[2]TE Connectivity, China
[3]University of Michigan-Dearborn, United States

**IEEM23-F-0536/Cultural Aspect of Developing an Environment Supportive of Innovation in Smart Cities**
Mait Rungi[#+1]
[1]Estonian Entrepreneurship University of Applied Sciences, Estonia

**IEEM23-F-0547/The Challenge in Neutralizing Shadow IT: A Literature Review**
Rahmat Trialih[#+1]
[1]University College Cork, Ireland

**IEEM23-F-0548/Feasibility Analysis of Hybrid Kinematic-electroencephalogram Signal to Assess the Safety Interventions on the Construction Sitee**
He Huang[+1], Hao Hu[#1], Feng Xu[1], Zhipeng Zhang[1]
[1]Shanghai Jiao Tong University, China

**IEEM23-A-0119/Ensemble Learning-based Fatigue Monitoring for Smart Construction Sites**
Rebeka Rachel Lukacs[+1], Bubryur Kim[#1]
[1]Kyungpook National University, Korea, South

**IEEM23-F-0257/A Study on Measurement of Benchmark Design for Monitoring Children's Reading and Writing Posture**
Ling Luo[#+1], Huimin Hu[1], Anna Hao[2]
[1]China National Institute of Standardization, China
[2]Zhengzhou University, China

**IEEM23-F-0585/A User Influence Network Construction Approach Based on Web Mining and Social Network Analysis**
Wenyu Yuan[+1], Zhen Zhang[1], Danni Chang[#1]
[1]Shanghai Jiao Tong University, China

**IEEM23-F-0354/Research on the Effect of Visual Warming Information Presentation on Attention in Fighter Tracking Task**
Jingxin Zhu[+1], Mengyuan Qu[1], Jingze Tian[1], Yiyan Wang[1], Jianwei Huang[2], Wenjun Yang[3], Yafeng Niu[#1]
[1]Southeast University, China
[2]Xiamen Municipal Smart City Technology Co. Ltd., China
[3]National Key Laboratory of Science and Technology on Aircraft Control, China

## HEALTHCARE SYSTEMS AND MANAGEMENT 2

20/12/2023 02:00 PM-04:00 PM Room 4211

**Session Chair(s):** **Xin LI**
*The Education University of Hong Kong*
**Raja JAYARAMAN**
*Khalifa University*

**IEEM23-F-0539/Collaborative Medical Delivery Service with UAVs and Human Couriers**
Jiawei Chen[+1], Pengfu Wan[1], Gangyan Xu[#1], Saijun Shao[2]
[1]The Hong Kong Polytechnic University, Hong Kong SAR
[2]Comma Technology (Guangdong) Co., Ltd., Shenzhen, China

**IEEM23-A-0057/Machine Learning for Operational Decision Making in Blood Supply Chain**
Babak Abbasi[#+1]
[1]RMIT University, Australia

**IEEM23-A-0134/Joint Scheduling of Automated External Defibrillators and First Responders with Coordination in Out-of-hospital Cardiac Arrests**
Kexin Cao[+1], Xinglu Liu[1], Mingchuan Yang[2], Wai Kin (Victor) Chan[#1]
[1]Tsinghua University, China
[2]Shenzhen Technology Institute of Urban Public Safety, China

**IEEM23-A-0148/Using Machine Learning Algorithm to Optimize Hospital Inventory Management**
Naichuan Fang[#+1]
[1]Taichung Veterans General Hospital, Taiwan

**IEEM23-A-0221/A Neural Network-based Optimization Method for Next Day Operating Room Scheduling under Uncertainty**
Song Wu[+1], Yang Wang[#1], Zhi Chen[1]
[1]Northwestern Polytechnical University, China

**IEEM23-A-0316/Inpatient Admission Advance Scheduling with Stochastic Arrivals and Lengths of Stay**
Jiajun Dai[+1], Na Geng[#1], Xiaolan Xie[2]
[1]Shanghai Jiao Tong University, China
[2]Ecole Nationale Supérieure des Mines, France

**IEEM23-A-0336/Mixed and Binary Integer Linear Programming Models for Rehabilitation Scheduling with Coupled Operations**
Xin Li[#+1]
[1]The Education University of Hong Kong, Hong Kong SAR

## SPECIAL SESSION 2

20/12/2023 02:00 PM-04:00 PM Room 4212

**Session Chair(s):** **Kaigan ZHANG**
*Shanghai Jiao Tong University*

**IEEM23-A-0180/Comparison of Two-step and One-step Methods in Constant Stress Accelerated Degradation Tests**
Siyi Chen[#+1]
[1]Chinese Academy of Sciences, China

**IEEM23-A-0290/Study on the Statistical Modeling and Inference Methods for the Lifetime of Virus**
Dingyi Wang[1], Chengjie Wang[2], Qingpei Hu[#+1]
[1]Chinese Academy of Sciences, China
[2]Tongji University, China

**IEEM23-A-0298/A Novel Subsampling Technique for Reliability Data**
Yixiao Ruan[#+1], Qingpei Hu[1]
[1]Chinese Academy of Sciences, China

**IEEM23-F-0146/An Adjustable Functional Regression Model for Real-time Degradation Prognostic under Incomplete Data Scenarios**
Kaigan Zhang[+1], Lei Cao[1], Xueqi Xing[1], Tangbin Xia[#1], Zhen Chen[1], Ershun Pan[1], Lifeng Xi[1]
[1]Shanghai Jiao Tong University, China

**IEEM23-F-0283/A Data-driven Knowledge System for Anomaly Detection in the Oil & Gas Industry**
Giovanni Mazzuto[1], Sara Carbonari[#+1], Maurizio Bevilacqua[1], Filippo Emanuele Ciarapica[1]
[1]Università Politecnica delle Marche, Italy

**IEEM23-F-0039/Combustion Engine Degradation Assessment Supported by Tribological Data, Correlation and Reduction Analysis**
David Valis[#+1], Libor Zak[2], Zdenek Vintr[1]
[1]University of Defence, Czech Republic
[2]University of Technology, Czech Republic

## ENGINEERING ECONOMY AND COST ANALYSIS

20/12/2023 02:00 PM-04:00 PM Room 4311

**Session Chair(s):** **Mohamed Wahab MOHAMED ISMAIL**
*Toronto Metropolitan University*

**IEEM23-F-0316/Cost Analysis and Operational Feasibility: A Case Study of Thai Textile Small Enterprises in Songkhla Province**
Nopparat Rattanapong[#1], Noppadol Amm-Dee[1], Choat Inthawongse[+1]
[1]Muban Chombueng Rajabhat University, Thailand

**IEEM23-A-0130/Personalized Financial Planning with Tax on Aggregate Net Gain**
Jang Ho Kim[#+1], Bong-Geun Choi[2], Taehyun Kang[1]
[1]Kyung Hee University, Korea, South
[2]Fount Investment Co. Ltd., Korea, South

**IEEM23-A-0228/Techno-economic Investigation of Electricity Generation Systems Utilizing Renewable Energy Sources and Green Hydrogen Energy Storage for Off-grid Islands**
Marianna Poulogiannopoulou[1], Vassilis Dedoussis[#+1]
[1]University of Piraeus, Greece

**IEEM23-A-0241/A Real Options Valuation to Manufacturing Flexibility with Two Products and Life Cycles**
Mohamed Wahab Mohamed Ismail[#+1], Chi-Guhn Lee[2]
[1]Toronto Metropolitan University, Canada
[2]University of Toronto, Canada

**IEEM23-F-0155/Methodology to Determine the Cost of Delay in Projects to Improve Project Prioritization**
Michael Riesener[1], Maximilian Kuhn[1], Alexander Keuper[#1], Hendrik Lauf[+1], Nishant Solanki[1], Günther Schuh[1]
[1]RWTH Aachen University, Germany

**IEEM23-F-0248/Electricity Utility Business Model Risks: A Case-study of South African Municipal Utilities**
Bongani Thwala[1], Tebello Mathaba[#+1]
[1]University of Johannesburg, South Africa

**IEEM23-A-0245/Ethanol as Marine Fuel**
Paulo Cezar de Azevedo Junior[#+1], Haiying Jia[1]
[1]Norwegian School of Economics, Norway

**IEEM23-F-0218/A Strategy Comparison between the Korean and Chinese Automotive Industries in the Indonesian Electric Market Using Porter's Five Forces Model**
Ajun Tri Setyoko[#+1], Rahmat Nurcahyo[2]
[1]Universitas Indonesia, Indonesia
[2]University of Indonesia, Indonesia

# POSTER PRESENTATIONS

(Refer to Page 78-79 for Guidelines)

20/12/2023 04:30 PM - 06:00 PM
Level 4, Foyer (Outside Rooms 4212 and 4312)

**IEEM23-A-0011/Technology Management and Innovation: The Effects of Knowledge Sharing and Dynamic Capabilities**
Jeewhan Yoon[#+1]
[1]Korea University, Korea, South

**IEEM23-A-0071/Real-time Optimizing Electric Vehicles' Charging Policy with Battery Degradation Awareness by Using Multi-agent Reinforcement Learning**
Pengyu Yan[1], Kaize Yu[#+1], Yang Liu[2]
[1]University of Electronic Science and Technology of China, China
[2]National University of Singapore, Singapore

**IEEM23-A-0107/Competing in China's EV Industry: The Role of Chief Technology Officer in Innovation and Supply Chain Risk Mitigation**
Helen Hu[#+1]
[1]The University of Melbourne, Australia

**IEEM23-A-0126/The Reconciliation of Corporate Political Ties and R&D Investment Strategies**
Cheng-Yu Lee[#+1], Hsueh-Liang Wu[2], Menghang Dong[3]
[1]National Chiayi University, Taiwan
[2]National Taiwan University, Taiwan
[3]Chongqing Jiaotong University, China

**IEEM23-A-0138/Uncovering Emotions, Topics and User Engagement in Social Media Posts Associated with a Data Breach Crisis**
Xiaomeng Li[#+1], Chang Boon Lee[1], Zhaotong Lian[1]
[1]University of Macau, Macau

**IEEM23-A-0140/Development of Location Estimation Algorithm Based on Monte Carlo of for Children**
Eunho kim[#+1]
[1]Korea Institute of Industrial Technology, Korea, South

**IEEM23-A-0152/Simplicial Decomposition with Multiple Nonlinear Column Generation**
William Chung[#+1]
[1]City University of Hong Kong, Hong Kong SAR

**IEEM23-A-0155/Global Sensitivity Analysis of an Escort Formation Mission Reliability Model with New Indices**
Zhijun Cheng[#+1]
[1]National University of Defense Technology, China

**IEEM23-A-0163/Screw Loosening-fault Detection System in a Pneumatic Cylinder Using Deep-learning Based Sensor Data Analysis**
Byeong-Su Kim[+1], Sujeong Baek[#1]
[1]Hanbat National University, Korea, South

**IEEM23-A-0167/Research on the Evaluation Method of Multi-type Factor Mixed Design of Experiment**
Zhengqiang Pan[#+1], Zichen Wang[1]
[1]National University of Defense Technology, China

**IEEM23-A-0178/Experimental Research on Series-parallel Active Cell Equalizer for Supercapacitors**
Taeseung Jang[+1], Young Seop Son[2], Youngwoo Lee[#1]
[1]Chonnam National University, Korea, South
[2]Kyoungbuk National University, Korea, South

**IEEM23-A-0191/Evaluate Driver's Error and Performance Based on Gear Shifter Type**
Seokjae Kim[+1], Doyoung Lee[1], Haeun Lim[1], Taezoon Park[#1]
[1]Soongsil University, Korea, South

**IEEM23-A-0192/Dynamic Analysis of Corporate ESG Reports: A Study Based on Knowledge Management Model**
Ziyuan Xia[+1], Anchen Sun[2], Xiaodong Cai[2], Saixing Zeng[#1]
[1]Shanghai Jiao Tong University, China
[2]University of Miami, United States

**IEEM23-A-0197/A Fault Detection and Interpolation Model for Wireless Sensor Data**
Jaeyoung Lee[1], Jun Hee Han[#1], Kyung Sik Choi[1], Jiwoo Lee[1], Do-Yun Kwon[1], Minh Dang Trinh[+1]
[1]Pusan National University, Korea, South

**IEEM23-A-0201/Effect of U-I-G Collaboration on Patent Maintenance Length**
Huei-Ru Dong[1], Mu-Hsuan Huang[#2], Szu-Chia Lo[+2], Chung-Huei Kuan[3]
[1]Fu Jen Catholic University, Taiwan
[2]National Taiwan University, Taiwan
[3]National Taiwan University of Science and Technology, Taiwan

**IEEM23-A-0206/Development of Shop Floor Risk Prediction Model Based on Risk Assessment Reports**
Yerim Kim[+1], Yeojin Park[1], Seoyeon Yang[1], Taegu Kim[1], Sungmin Bae[#1]
[1]Hanbat National University, Korea, South

**IEEM23-A-0207/The Hanbat Smart Factory Test-bed: An Agent-based Execution Control**
Jimin Park[+1], Minjung Kim[1], Moonsoo Shin[#1]
[1]Hanbat National University, Korea, South

**IEEM23-A-0216/Personalized Recommendation Framework Design for Healthy Beverages Based on Knowledge Graph**
Taehoon Kim[+1], Jinmyeong Lee[1], Bong Gu Kang[1], Jungmin Yun[1], Jungnyun Lee[#1]
[1]Korea Institute of Industrial Technology, Korea, South

**IEEM23-A-0218/Dynamic Battery Charging System for Electric Motorcycles: Enhancing User Satisfaction and Battery Management**
Taehoon Kim[#+1], Kyoung-Yong Park[1], Jae-Seong Lee[1]
[1]Korea Institute of Industrial Technology, Korea, South

**IEEM23-A-0234/Using "Shortening Long-term Forecasts" to Enhance the Accuracy of Deep Learning Techniques in Predicting Air Quality**
Chi-Wei Huang[1], Yu-Hao Lin[1], Min-Der Lin[#+1]
[1]National Chung Hsing University, Taiwan

# POSTER PRESENTATIONS

(Refer to Page 78-79 for Guidelines)

20/12/2023 04:30 PM - 06:00 PM
Level 4, Foyer (Outside Rooms 4212 and 4312)

**IEEM23-A-0235/Method for Updating the Simulation Model with High Accuracy for the Small and Medium-sized Enterprises**
Bong Gu Kang[#+1], Jinmyeong Lee[1], Taehoon Kim[1], Jungnyun Lee[1], Jungmin Yun[1]
[1]Korea Institute of Industrial Technology, Korea, South

**IEEM23-A-0236/Study on Performance Evaluation of rPPG (remote Photoplethysmography) According to Brightness Situations**
Jungnyun Lee[+1], Bong Gu Kang[1], Jungmin Yun[1], Jinmyeong Lee[1], Taehoon Kim[#1]
[1]Korea Institute of Industrial Technology, Korea, South

**IEEM23-A-0239/Distinguish Between Convergence and Divergence Stages in Climate Change Mitigation Technology**
Chun-Chieh Wang[#+1], Szu-Chia Lo[1], Dar-Zen Chen[1], Mu-Hsuan Huang[1]
[1]National Taiwan University, Taiwan

**IEEM23-A-0242/Stress Index Analysis in Stressful Situations Based on Biosensors for Wearable Devices**
Jinmyeong Lee[+1], Bong Gu Kang[1], Jungnyun Lee[1], Jungmin Yun[1], Taehoon Kim[#1]
[1]Korea Institute of Industrial Technology, Korea, South

**IEEM23-A-0256/Exploring Performance Profile of Variate Pharmaceutical R&D Innovation Models**
Chao-Chih Hsueh[#+1], Chun-Chieh Wang[2], Dar-Zen Chen[2]
[1]National Pingtung University of Science and Technology, Taiwan
[2]National Taiwan University, Taiwan

**IEEM23-A-0261/AI-driven Predictive Maintenance for Ship Main Engines: A Comprehensive Data Preprocessing Approach for Enhanced Effectivity**
Haiyan Xu[#+1], Xiaocai Zhang[1], Xiaoyang Wei[1], Ping Chong Chua[1], Putu Hangga[2], Xiuju Fu[1], Zhen Qin[1]
[1]Institute of High Performance Computing, Agency for Science, Technology & Research, Singapore
[2]MTI Co., Ltd., Japan

**IEEM23-A-0263/Evaluating Information Quality and User Experience in the Cross-buying and Repurchase of IT Services**
Myung Hwan Yun[#1], Joong Hee Lee[1], Wonjoon Kim[2], Myungbin Choi[3], Heeyoung Kim[+1], Jiyeon Shin[1]
[1]Seoul National University, Korea, South
[2]Dongduk Women's University, Korea, South
[3]Hyundai Mobis Inc., Korea, South

**IEEM23-A-0270/Literature Study on Challenges of Reliability and Resilience Analysis in Green Hydrogen Production**
Farhana Tuhi[#+1], Yi Liu Liu[1], Marta Bucelli[2]
[1]Norwegian University of Science and Technology, Norway
[2]SINTEF Energy Research, Norway

**IEEM23-A-0274/Improving User Experience (UX) Testing for Personal Mobility Devices (PMDs) with a Systematic Database Support**
Jane Lee[#1], Myung Hwan Yun[#1], Yein Song[1], Cai Wang[1]
[1]Seoul National University, Korea, South

**IEEM23-A-0277/Predicting Tempering Temperature of Steel Rebar Using LSTM-DNN Model for Tempcore Process**
Yejin Kim[+1], Young-Keun Kim[#1]
[1]Handong Global University, Korea, South

**IEEM23-A-0280/A Deep Reinforcement Learning Approach for Cooling Parameter Optimization in Steel Rebar Tempcore Process**
HeeYun Kang[+1], Young-Keun Kim[#1]
[1]Handong Global University, Korea, South

**IEEM23-A-0315/Water Flow Algorithm for Complex System Reliability Block Diagram Solving Within Approximate Polynomial Time**
Tianyu Liu[#+1]
[1]National University of Defense Technology, China

**IEEM23-A-0317/Development of an Optical Coherence Tomography System Capable of Inspecting Diopter and Damage during the Contact Lens Process**
Joo Beom Eom[#+1]
[1]Dankook University, Korea, South

**IEEM23-A-0328/Performance Monitoring and Evaluating of Decision-making in the Marine Economy: A Two-stage Integrated Evaluation Model Based on Multi-source Heterogeneous Data**
Haonan Nan[#+1], Chong Wu[2], Saixing Zeng[1]
[1]Shanghai Jiao Tong University, China
[2]Harbin Institute of Technology, China

**IEEM23-A-0330/Coupling of Collaboration and Innovation Networks in Megaprojects**
Ruizhen Song[#+1], Xin Gao[1], An Dong[2]
[1]Shanghai Jiao Tong University, China
[2]Nanyang Technological University, Singapore

**IEEM23-F-0017/Market Reactions to eSports Sponsorship Announcements in Japan: Before and After the COVID-19 Outbreak**
Noriyuki Maki[1], Fumiko Takeda[#+2]
[1]The University of Tokyo, Japan
[2]Keio University, Japan

**IEEM23-F-0036/Deep Reinforcement Learning-based Method for Multi-stage Resource Allocation in Infectious Disease Emergencies**
Bokui Chen[#+1], Yuzhu Fan[1], Ziwei Ye[1]
[1]Tsinghua Univeristy, China

**IEEM23-F-0038/How are Routines from "Organizational Learning from Failure" Built?**
Sanetake Nagayoshi[#+1], Jun Nakamura[2]
[1]Shizuoka University, Japan
[2]Chuo University, Japan

# POSTER PRESENTATIONS

(Refer to Page 78-79 for Guidelines)

20/12/2023 04:30 PM - 06:00 PM
Level 4, Foyer (Outside Rooms 4212 and 4312)

**IEEM23-F-0041/Reliability Assessment of Computer in Design Phase under High Censored Setting**
Fuqing Yuan[#+1], Jinmei Lu[1], Zheng Li[2]
[1]University of Tromsø, Norway
[2]Lenovo (Beijing) Company Limited, China

**IEEM23-F-0066/Knowledge Mapping Analysis of MNEs' R&D Internationalization**
Jieli Li[+1], Xiaoran Chang[#1], Suli Zheng[1], Chao Zhou[2]
[1]China Jiliang University, China
[2]Beijing University of Posts and Telecommunications, China

**IEEM23-F-0068/How Awareness of the Observational Learning Effect Influences Consumers' Decisions in the Online Configuration Process**
Ying To Cheng[1], Lei Lam Choi[1], Yue Wang[#+1]
[1]The Hang Seng University of Hong Kong, Hong Kong SAR

**IEEM23-F-0081/Replenishment Decisions in a Perishable Food Supply Chain**
Saina Akbari[#+1], Ruhul Sarker[1], Daryl L. Essam[1]
[1]University of New South Wales, Australia

**IEEM23-F-0104/How Choice Fatigue Affects Consumer Decision Making in Online Shopping**
Yue Wang[#+1], Daniel Y. Mo[1], George T.S. Ho[1]
[1]The Hang Seng University of Hong Kong, Hong Kong SAR

**IEEM23-F-0112/A Conflict-aware Dynamic Relocation Scheme of AGVs in Warehouse Logistics**
Mengxue Huang[+1], Yaoming Zhou[#1]
[1]Shanghai Jiao Tong University, China

**IEEM23-F-0121/Predicting Stock Price Using Random Forest Algorithm and Support Vector Machines Algorithm**
Chun Ming Shih[1], Keng-Chieh Yang[#+1], Wen-Ping Chao[2]
[1]National Kaohsiung University of Science and Technology, Taiwan
[2]Shu-Te University, Taiwan

**IEEM23-F-0132/A Data-driven Approach to Predict Maintenance Delays for Time-based Maintenance**
Rajinder Khurmi[1], Karthik Sankaranarayanan[#+1], Glenn Harvel[1]
[1]Ontario Tech University, Canada

**IEEM23-F-0179/Pricing Decisions of Closed-loop Supply Chain with Misreporting Information under Platform Trade-in System**
Li Song[1], Qiaolun Gu[#+1]
[1]Tianjin University of Technology and Education, China

**IEEM23-F-0184/ Delayed Matching Considering User Patience in Ride-sourcing System**
Xuyan Shi[+1], Li Xiao[#1]
[1]Tsinghua University, China

**IEEM23-F-0191/Research on the Construction of Quality Evaluation System for Cultivation of Excellent Engineers Based on AHP-Grey Fuzzy Method**
Xu Wang[#+1], Xiaoxiao Xie[1], Fan Zong[1], Lijuan Wang[1]
[1]Northwestern Polytechnical University, China

**IEEM23-F-0213/The Modeling and Simulation of a Pharmaceutical Packaging Line: Balancing the Production Capabilities and Optimizing the Number of Operators**
Breno Renato Strüssmann[#+1], Lars Hvam[1]
[1]Technical University of Denmark, Denmark

**IEEM23-F-0220/Joint Scheduling of Automated External Defibrillators and First Responders with Coordination in Out-of-hospital Cardiac Arrests**
Kexin Cao[+1], Xinglu Liu[1], Mingchuan Yang[2], Wai Kin (Victor) Chan[#1]
[1]Tsinghua University, China
[2]Shenzhen Technology Institute of Urban Public Safety, China

**IEEM23-F-0223/Factors Affecting Information and Communication Technology Development on a National Scale**
Theresa Palale[#+1], Shuichi Ishida[1]
[1]Tohoku University, Japan

**IEEM23-F-0237/Applying Random Forest Algorithm to Predicting the Stock Price Trend of IC Design Companies**
Chia Chun Kao[1], Chieh-Yow ChiangLin[1], Keng-Chieh Yang[#+1]
[1]National Kaohsiung University of Science and Technology, Taiwan

**IEEM23-F-0241/Casing Slime Treatment Control Study with Electrical Resistivity**
Ryota Muramatsu[#+1], Yasuhide Mochida[1]
[1]Ritsumeikan University, Japan

**IEEM23-F-0253/Future Paradigm Shift and Scenario Analysis for the Era of AI: On the Perspective of Technology, Economic, Social and Politics**
Sungil Ryu[#+1], Hyunseo Cho[1], Kyunam Lee[1], Minsung Choi[1]
[1]SK Telecom, Korea, South

**IEEM23-F-0258/Identification and Assessment of Various Liability Cases Based on Written Customer Complaints**
Insa Lemke[#+1], Nadine Schlüter[1]
[1]University of Wuppertal, Germany

**IEEM23-F-0278/Processing Product, Production and Producer Information for Operations Planning and Scheduling Using CLIP for Multimodal Image and Text Data**
Julia Christina Markert[#+1], Matthias Kerzel[2], Michael Variola[2], Dominik Saubke[1], Stephanie von Riegen[2], Emad Aghajanzadeh[2], Lothar Hotz[2], Pascal Krenz[1]
[1]Helmut-Schmidt-University, Germany
[2]Hamburger Informatik Technologie-Center, Germany

# POSTER PRESENTATIONS

(Refer to Page 78-79 for Guidelines)

20/12/2023 04:30 PM - 06:00 PM
Level 4, Foyer (Outside Rooms 4212 and 4312)

**IEEM23-F-0287/Probability of Failure on Demand Calculation for Degrading Final Element of Safety Instrumented System with Multiple Failure Modes**
Emefon Dan[#+1], Yi Liu Liu[1]
[1]Norwegian University of Science and Technology, Norway

**IEEM23-F-0303/A Novel Non-biometric Multi-factor Authentication System Using Audios and Relationships**
Joaquin Zermeno-Saldana[#1], Jesus Arturo Perez Diaz[+1]
[1]Tecnologico de Monterrey, Mexico

**IEEM23-F-0321/Application of an IoT and Machine Learning Smart Irrigation System to Minimize Water Usage within the Agriculture Sector**
Josephine Kaggwa[1], Arnesh Telukdarie[#+1]
[1]University of Johannesburg, South Africa

**IEEM23-F-0325/Evaluation of a Collision Avoidance System at an Underground Mine**
Mike Chinavaenzwa[1], Megashnee Munsamy[#+1], Jan Harm Pretorius[1]
[1]University of Johannesburg, South Africa

**IEEM23-F-0339/An AI-based Forecasting Model for Intelligent Pick Face Replenishment**
George T.S. Ho[#+1], H.Y. Lam[1], Valerie Tang[1]
[1]The Hang Seng University of Hong Kong, Hong Kong SAR

**IEEM23-F-0364/ChulaVerse: University Metaverse Service Application Using Open Innovation with Industry Partners**
Pravee Kruachottikul[1], Gridsada Phanomchoeng[1], Nagul Cooharojananone[1], Kittikul Kovitanggoon[1], Pinnaree Tea-makorn[#+1]
[1]Chulalongkorn University, Thailand

**IEEM23-F-0370/Design of Closed-loop Cold Chain Logistics Optimization Model**
H.Y. Lam[#+1], Valerie Tang[1], George T.S. Ho[1]
[1]The Hang Seng University of Hong Kong, Hong Kong SAR

**IEEM23-F-0383/Definition & Categorization of Value-added Services Using a Platform Approach in a Logistics Company**
Erika Marie Strøm[#+1], Tine Meidahl Münsberg[1], Lars Hvam[1]
[1]Technical University of Denmark, Denmark

**IEEM23-F-0384/Study on the Psychological Acceptance of Level 3 Autonomous Driving**
Yilian Li[+1], Wenyu Wu[#1], Chang Gao[1], Chenhao Li[1]
[1]Southeast University, China

**IEEM23-F-0404/The Integrated Virtual and Actual Learning Environment: Case-based Building Information Modeling**
Ying-Mei Cheng[#+1]
[1]China University of Technology, Taiwan

**IEEM23-F-0414/Towards an Integrative Framework for Digital Twins in Wind Power**
Muhammad Salman Siddiqui[#1], Arvind Keprate[+2], Liang Yang[3], Tiril Malmedal[1]
[1]Norwegian University of Life Sciences, Norway
[2]Oslo Metropolitan University, Norway
[3]Cranfield University, United Kingdom

**IEEM23-F-0418/Investigation of Cognitive Preference in Augmented Reality Node-Link Diagrams**
Zhen Zi Yu[+1], Xiaozhou Zhou[#1]
[1]Southeast University, China

**IEEM23-F-0419/An Adaptive RRT Algorithm Based on Narrow Passage Recognition for Assembly Path Planning**
Linhui Zhou[+1], Jiahao Ding[1], Xiumin Fan[#1]
[1]Shanghai Jiao Tong University, China

**IEEM23-F-0421/A Statistical Method of Goodness on Quantitative Models of Efficiency and Effectiveness**
Abbas Attarwala[#+1], Stanko Dimitrov[2], Amer Obeidi[2]
[1]California State University, United States
[2]University of Waterloo, Canada

**IEEM23-F-0422/Validating Quantitative Models of Efficiency and Effectiveness for Charitable Organizations**
Abbas Attarwala[#+1], Stanko Dimitrov[2]
[1]California State University, United States
[2]University of Waterloo, Canada

**IEEM23-F-0437/Optimizing Supplier Selection and Order Allocation for Medical Supplies: A Mixed Integer Linear Approach**
Mariam Bader[1], Raja Jayaraman[#+1], Andrei Sleptchenko[1]
[1]Khalifa University, United Arab Emirates

**IEEM23-F-0448/Automated Invoice Processing System**
Lama Alkhaled[#+1], Ng Yee Fei[2]
[1]Luleå University of Technology, Sweden
[2]Asia Pacific University, Malaysia

**IEEM23-F-0456/Degradation Stage Division Method of Coordinate System Angle Based on New Health Index**
Jianfeng Wei[#1], Faping Zhang[+1], Jiping Lu[1], Mengdi Zhang[1]
[1]Beijing Institute of Technology, China

**IEEM23-F-0460/Operational Risk-based Maintenance Decision-making Modeling for Manufacturing Systems Considering Workpiece Quality**
Ruoyu Liao[+1], Yihai He[#1], Rui Shi[1]
[1]Beihang University, China

**IEEM23-F-0462/A Digital Twin Simulation Framework for Smart Warehousing**
Weidong Lin[#+1], Malcolm Yoke Hean Low[1]
[1]Singapore Institute of Technology, Singapore

# POSTER PRESENTATIONS

(Refer to Page 78-79 for Guidelines)

20/12/2023 04:30 PM - 06:00 PM
Level 4, Foyer (Outside Rooms 4212 and 4312)

**IEEM23-F-0467/Evaluating Pedestrian Wayfinding Behaviour in Day and Night Environments across Different Urban Zoning via VR, Eye Tracking, and EEG**
Xin Chen[+1], Jinchun Wu[1], Yuhan Zi[1], Cheng-Qi Xue[#1], Huifang Yin[1]
[1]Southeast University, China

**IEEM23-F-0478/Cause and Effect Relationship of Share Holder Value Creation and Employee Satisfaction for U.S. Banks**
Abbas Attarwala[#+1], Stanko Dimitrov[2], P. Robert Duimering[2]
[1]California State University, United States
[2]University of Waterloo, Canada

**IEEM23-F-0482/An Integrated Production Parameters Decision on Multi-stage Sequential Manufacturing through Experimental Design and Mathematical Programming**
Angus Jeang[1], Chien-Ping Chung[#+2]
[1]Feng Chia University, Taiwan
[2]National Taichung University of Science and Technology, Taiwan

**IEEM23-F-0524/A Persuasive Approach for Urging Construction Workers to Behave Safely**
Zhe Hu[+1], Weng Tat Chan[2], Hao Hu[#1], Feng Xu[1], Tao Yu[1], Wen Wang[1]
[1]Shanghai Jiao Tong University, China
[2]National University of Singapore, Singapore

**IEEM23-F-0526/AGV Scheduling Problem in Automated Container Terminals with Time Window under Transfer Platform Capacity Constraint**
Linman Li[#+1], Yuqing Li[1], Zhen Chen[1], Ran Liu[1], Ershun Pan[1]
[1]Shanghai Jiao Tong University, China

**IEEM23-F-0533/Prioritizing Dimensions and Drivers of Sustainable Innovation Management**
Ankur Gandotra[#+1], Abhishek Kulshrestha[1], Prabha Bhola[1]
[1]Indian Institute of Technology Kharagpur, India

**IEEM23-F-0537/A Two-way Logistics Vehicle Path Planning Method for Remanufacturing and Recycling**
Fei Chen[+1], Congyue Deng[1], Ru Wang[#1], Yu Huang[1]
[1]Beijing Institute of Technology, China

**IEEM23-F-0538/Postural Ergonomic Assessment of Construction Workers Based on Human 3D Pose Estimation and Machine Learning**
Tao Yu[+1], Hao Hu[#1], Feng Xu[1], Zhipeng Zhang[1], Zhe Hu[1]
[1]Shanghai Jiao Tong University, China

**IEEM23-F-0543/Online Controller Tuning Method Using Fictitious Reference Iterative Tuning Based on Recursive Least-squares Method for Quadrotor Flight Control**
Ayumu Sato[+1], Ryo Tanaka[#1]
[1]National Institute of Technology, Japan

**IEEM23-F-0573/Comparing Deep Learning Based Image Processing Techniques for Unsupervised Anomaly Detection in Offshore Wind Turbines**
Arvind Keprate[#1], Saeid Sheikhi[2], Muhammad Salman Siddiqui[+3], Monika Tanwar[4]
[1]Oslo Metropolitan University, Norway
[2]Kristiania University College, Norway
[3]Norwegian University of Life Sciences, Norway
[4]Indian Institute of Technology, Jodhpur, India

**IEEM23-F-0577/From Theory to Practice: Leveraging Project Based Learning to Cultivate Student Engagement in Mechanical Engineering Education**
Arvind Keprate[#1], Sam Woodford[+1], Rafael Borrajo[1]
[1]Oslo Metropolitan University, Norway

**IEEM23-F-0594/Classification of Green Procurement Risks across the Project Lifecycle in Australian Construction Projects**
Ashkan Memari[#+1], Olabode Emmanuel Ogunmakinde[2], Masoud Aghajani[3]
[1]Central Queensland University, Australia
[2]Bond University, Australia
[3]Edith Cowan University, Australia

# GUIDELINES FOR ORAL PRESENTERS

Presenters need to use the computers provided in the meeting rooms to present their materials. Total presentation duration is 15 minutes including time for Q&A and speaker changeover.

**a. Prepare Your Presentation**
Length of presentation material should be in accordance with your time allocated. You are kindly requested to be at the presentation room at least 15 minutes before the session starts.

**b. Determine Your Audio-Visual Needs**
Each meeting room is equipped with a laser pointer and clicker, computer, LCD projector and screen. The computers in the meeting rooms are being provided to Windows-based PC users. The PC will be configured with Microsoft Windows operating system. Please bring your presentation files in thumb drives only.

**c. Create a Backup Copy of your Presentation**
We recommend that you bring at least 2 copies of your presentation to the meeting for backup purposes. Only thumb drives are acceptable.

**d. Deliver Your Presentation**
Be considerate to the other speakers and audience by staying within your allocated time. The allocated time for your presentation includes any discussion and changeover to the next speaker. Session Chairs will hold you to the allotted time. This is essential to ensure adequate time for questions and discussion as well as adherence to the schedule. Please discuss the same material as report in your abstract/paper submission. At the end of the meeting, all presentation files will be destroyed.

# GUIDELINES FOR POSTER PRESENTERS

Poster boards are pre-assigned and marked with your Paper ID. At least one author of your paper is expected to be present during the poster session.

**a. Schedule**
**Wed, 20 December 2023, 16:30 – 18:00**

| | |
|---|---|
| **13:00 – 15:00** | **Authors Put Up Posters**<br>*Approach poster helpdesk (outside Room 4212) for collection of poster, information & assistance* |
| **16:30 – 18:00** | **Poster Presentation**<br>*Poster presenter attendance required* |
| **After 18:00** | **Remove Posters**<br>*Any posters left behind will be discarded* |

**b. Poster Requirements**
Each presenter is provided with a 1m x 2.5m high poster panel.

i. Place your Paper ID, Paper Time and Authors' names prominently at the top of the poster to allow viewers to identify your presentation easily. Presenter's name must be underlined and in bold letterings.

ii. Author's names, emails and address information must be provided in case the viewer is interest in contacting you for more information.

iii. You have complete freedom in displaying your information in figures, tables, text, photographs, etc. in the poster.

iv. A successful poster presentation depends on how well you convey information to an interested (but not expert) audience. You may wish to structure your poster by including the background of your research followed by results and conclusions.

# POSTER SET-UP

Foyer Area outside Meeting Rooms 4212 and 4312

Room 4312

Room 4212

| | ROW 4B | ROW 4A | |
|---|---|---|---|
| RME | IEEM23-F-0041 | IEEM23-A-0163 | RME |
| | IEEM23-F-0132 | IEEM23-A-0261 | |
| | IEEM23-F-0258 | IEEM23-A-0270 | |
| | IEEM23-F-0287 | IEEM23-A-0315 | |
| | IEEM23-F-0414 | IEEM23-F-0537 | SMS |
| | IEEM23-F-0460 | IEEM23-F-0543 | |
| | IEEM23-F-0573 | IEEM23-A-0178 | |
| | IEEM23-A-0155 | IEEM23-A-0235 | |

| | ROW 1B | ROW 1A | |
|---|---|---|---|
| IPE | IEEM23-A-0234 | IEEM23-F-0081 | SCM |
| | | IEEM23-F-0179 | |
| CM | IEEM23-A-0138 | IEEM23-F-0370 | |
| | | IEEM23-F-0462 | |
| SSRM | IEEM23-F-0303 | IEEM23-F-0191 | DAM |
| | IEEM23-F-0384 | IEEM23-F-0422 | |
| | IEEM23-F-0524 | IEEM23-F-0478 | |
| | IEEM23-A-0206 | IEEM23-A-0328 | |

| | ROW 5B | ROW 5A | |
|---|---|---|---|
| TKM | IEEM23-A-0011 | IEEM23-F-0253 | TKM |
| | IEEM23-F-0038 | IEEM23-F-0533 | |
| | IEEM23-F-0066 | IEEM23-A-0107 | |
| | IEEM23-F-0223 | IEEM23-A-0126 | |
| EBEC | IEEM23-F-0017 | IEEM23-A-0192 | |
| | IEEM23-F-0068 | | |
| | IEEM23-F-0104 | IEEM23-F-0594 | PM |
| | IEEM23-F-0121 | IEEM23-A-0330 | |

| | ROW 2B | ROW 2A | |
|---|---|---|---|
| PPC | IEEM23-F-0482 | IEEM23-F-0184 | SIM |
| | IEEM23-A-0207 | IEEM23-F-0364 | |
| | | IEEM23-F-0383 | |
| HF | IEEM23-F-0467 | IEEM23-F-0220 | HSM |
| | IEEM23-F-0538 | IEEM23-F-0437 | |
| | IEEM23-A-0191 | IEEM23-F-0456 | |
| | IEEM23-A-0263 | IEEM23-A-0236 | |
| | IEEM23-A-0274 | IEEM23-A-0242 | |

| | ROW 6B | ROW 6A | |
|---|---|---|---|
| MS | IEEM23-F-0112 | IEEM23-A-0277 | MS |
| | IEEM23-F-0213 | IEEM23-A-0280 | |
| | IEEM23-F-0419 | | |
| BDA | IEEM23-F-0237 | IEEM23-F-0036 | OR |
| | IEEM23-A-0197 | IEEM23-F-0421 | |
| | IEEM23-A-0201 | IEEM23-F-0526 | |
| | IEEM23-A-0239 | IEEM23-A-0071 | |
| | IEEM23-A-0256 | IEEM23-A-0152 | |

| | ROW 3B | ROW 3A | |
|---|---|---|---|
| IS | IEEM23-F-0278 | IEEM23-F-0418 | IS |
| | IEEM23-F-0321 | IEEM23-A-0140 | |
| | IEEM23-F-0325 | IEEM23-A-0216 | |
| | IEEM23-F-0339 | IEEM23-A-0218 | |
| | | IEEM23-F-0448 | |
| QCM | IEEM23-F-0241 | | |
| | IEEM23-A-0167 | IEEM23-F-0404 | EET |
| | IEEM23-A-0317 | IEEM23-F-0577 | |

**?**

**POSTER HELPDESK**

# GUIDELINES FOR SESSION CHAIR

1. **Before the Session Starts**
   - If you are not able to chair the session, kindly make arrangements ahead of time and inform the Secretariat.
   - There will be a minimum of one Session Assistant (Student Volunteer) in each room and it is the assistant's duty to assist you and presenting authors. Please instruct him/her accordingly.
   - Please arrive at meeting room at least 10 to 15 minutes before and verify attendance of speakers.
   - Only participants wearing IEEM2023 Name Badge can be allowed in the room. This is a security procedure and compliance by all attendees is compulsory.

2. **During the Session**
   - At the outset, please inform all presenters to stick to the allocated time. Total duration per presenter is 15-mins for oral presentation, Q&A and speaker changeover.
   - Please introduce each speaker at the beginning of each presentation.
   - Do stick to original schedule and stay on time. Tap the service bell to indicate presentation time is up or tell the speaker to stop.
   - Do engage audience in discussion to use up spare time if any.
   - Do note that conference policy prohibits the recording or disseminating of any individuals' presentation without consent. Unauthorized photography and video recording are strictly disallowed.

3. **Report AV Breakdown and Emergency Contact**
   - For immediate assistance, please approach the session assistant in the room or the help desk located at the registration area.

# PROGRAM OVERVIEW

Time stated is based on Singapore Standard Time and is 8 hours ahead of GMT (+8:00)

## Monday, 18 December 2023

**14:00 - 17:00 | Registration Check-In (Level 4 Foyer)**

**15:00 - 17:00 | Welcome Reception (Level 4 Foyer)**

## Tuesday, 19 December 2023

**From 07:30 | Registration Check-In (Level 4 Foyer)**

**08:30 - 10:30 | Opening & Keynote Presentations @ Level 4 Melati Main Ballroom**

**Keynote Presentation I: "Machine Vision and 21st Century AI - Our Responsibilities for The Planet"**
Saman Halgamuge, Fellow of IEEE and IET and Professor,
School of Electrical Mechanical and Infrastructure Engineering, The University of Melbourne

**Keynote Presentation II: "Education Reforms at NUS"**
Bernard Tan, Senior Vice Provost (Undergraduate Education),
National University of Singapore

**10:30 - 11:00 | AM Coffee/Tea Break (Level 4 Foyer)**

**11:00 - 13:00 | AM2 Oral Presentations**

| Room 4E | Room 4011 | Room 4111 | Room 4104 | Room 4201 | Room 4202 | Room 4211 | Room 4212 | Room 4311 | Room 4312 |
|---|---|---|---|---|---|---|---|---|---|
| SCM1 Supply Chain Management | SCM2 Supply Chain Management | OR1 Operations Research | TKM1 Technology and Knowledge Management | BDA1 Big Data and Analytics | SMS1 Systems Modeling and Simulation | RME1 Reliability and Maintenance Engineering | MS1 Manufacturing Systems | DAM1 Decision Analysis and Methods | PM Project Management |

**13:00 - 14:00 | Lunch (Level 4 Foyer)**

**14:00 - 16:00 | PM1 Oral Presentations**

| Room 4E | Room 4011 | Room 4111 | Room 4104 | Room 4201 | Room 4202 | Room 4211 | Room 4212 | Room 4311 | Room 4312 |
|---|---|---|---|---|---|---|---|---|---|
| SCM3 Supply Chain Management | IPE Information Processing and Engineering | OR2 Operations Research | TKM2 Technology and Knowledge Management | BDA2 Big Data and Analytics | SMS2 Systems Modeling and Simulation | RME2 Reliability and Maintenance Engineering | MS2 Manufacturing Systems | DAM2 Decision Analysis and Methods | CM Crisis Management |

**16:00 - 16:30 | PM Coffee/Tea Break (Level 4 Foyer)**

**16:30 - 18:00 | PM2 Oral Presentations**

| Room 4E | Room 4011 | Room 4111 | Room 4104 | Room 4201 | Room 4202 | Room 4211 | Room 4212 | Room 4311 | Room 4312 |
|---|---|---|---|---|---|---|---|---|---|
| SCM4 Supply Chain Management | EET1 Engineering Education and Training | OR3 Operations Research | TKM3 Technology and Knowledge Management | BDA3 Big Data and Analytics | SMS3 Systems Modeling and Simulation | SIM1 Service Innovation and Management | MS3 Manufacturing Systems | DAM3 Decision Analysis and Methods | QCM1 Quality Control and Management |

## Wednesday, 20 December 2023

From 07:30 | Registration Check-In (Level 4 Foyer)

08:30 - 10:30 | AM1 Oral Presentations

| Room 4E | Room 4011 | Room 4111 | Room 4104 | Room 4201 | Room 4202 | Room 4211 | Room 4212 | Room 4311 | Room 4312 |
|---|---|---|---|---|---|---|---|---|---|
| SCM5 Supply Chain Management | EET2 Engineering Education and Training | OR4 Operations Research | TKM4 Technology and Knowledge Management | BDA4 Big Data and Analytics | HF1 Human Factors | SIM2 Service Innovation and Management | MS4 Manufacturing Systems | PPC1 Production and Planning Control | QCM2 Quality Control and Management |

10:30 - 11:00 | AM Coffee/Tea Break (Level 4 Foyer)

11:00 - 13:00 | AM2 Oral Presentations

| Room 4E | Room 4011 | Room 4111 | Room 4104 | Room 4201 | Room 4202 | Room 4211 | Room 4212 | Room 4311 | Room 4312 |
|---|---|---|---|---|---|---|---|---|---|
| SCM6 Supply Chain Management | SCM7 Supply Chain Management | OR5 Operations Research | TKM5 Technology and Knowledge Management | IS1 Intelligent Systems | HF2 Human Factors | HSM1 Healthcare Systems and Management | SS1 Special Session Advanced Modular Design and Complexity | PPC2 Production and Planning Control | |

13:00 - 14:00 | Lunch (Level 4 Foyer)

13:00 - 15:00 | Poster Set Up (Poster Helpdesk Outside Room 4212)

14:00 - 16:00 | PM1 Oral Presentations

| Room 4E | Room 4011 | Room 4111 | Room 4104 | Room 4201 | Room 4202 | Room 4211 | Room 4212 | Room 4311 | Room 4312 |
|---|---|---|---|---|---|---|---|---|---|
| SCM8 Supply Chain Management | EBEC E-Business and E-Commerce | OR6 Operations Research | SSRM Safety, Security and Risk Management | IS2 Intelligent Systems | HF3 Human Factors | HSM2 Healthcare Systems and Management | SS2 Special Session Reliability Statistics and Related Applications | EECA Engineering Economy and Cost Analysis | |

16:00 - 16:30 | PM Coffee/ Tea Break (Level 4 Foyer)

16:30 - 18:00 | Poster Presentations @ Level 4 Foyer (Outside Rooms 4212 and 4312)

18:30 - 21:00 | Closing, Awards & Conference Dinner @ Level 4 Melati Main Ballroom

## Thursday, December 21, 2023

09:15 - 12:00 | Technical Visit - CENTRAN (By Registration Only)

# NOTES

香港城市大學
City University of Hong Kong

College of Engineering
Department of Systems Engineering
系統工程學系

# Master of Science in Engineering Management (MSEM)

# 理學碩士(工程管理學)

Full-time (1 Year)/Part-time (2 Years)
Programme Code: P56

## From Engineers to Engineering Managers

This programme aims to develop students' managerial skills, innovation and entrepreneurial spirit, and leadership capabilities in the context of engineering management and entrepreneurship.

# Master of Science in Engineering Management (MSEM)

The Department of Systems Engineering (SYE) aims to help Hong Kong meet the technological and managerial challenges of the 21st century by engaging in industrially relevant research and development activities and by committing to foster closer research collaborations and more executive development and consultancy activities with Hong Kong and China's industrial sectors.

## PROGRAMME OBJECTIVES

This programme aims to equip students with the analytical, managerial and behavioural skills and knowledge that they need to excel in contemporary engineering management. Students should be able to undertake engineering management projects/research and to turn innovative ideas into practical applications. The programme meets the educational needs of engineers who are making the transition to engineering managers or technological entrepreneurs.

## PROGRAMME STRUCTURE

**4 core courses + 6 elective courses**
**4 core courses + 3 elective courses + dissertation**

You can obtain an MSc degree by completing coursework only or by combining coursework with a dissertation project.

**Core courses:**

| | | | |
|---|---|---|---|
| Engineering Management Principles and Concepts | Operations Management | Project Management | Technological Innovation and Entrepreneurship |

**Selected elective courses:**

| | | |
|---|---|---|
| Asset and Maintenance Management | Business Process Improvement and Innovation | Financial Engineering for Engineering Managers |
| Industrial Marketing Management for Engineers | Managerial Decision-making Systems with Artificial Intelligence | Managing Strategic Quality |
| Quality and Reliability Engineering | Risk and Decision Analysis | Supply Chain Management |

For a full list of elective courses, please visit www.cityu.edu.hk/sye/msem/

## CONTINUING EDUCATION FUND (CEF) (FOR LOCAL STUDENTS)

Some elective courses, such as ADSE6015 - Supply Chain Management and ADSE6037 - Managing Strategic Quality, have been specified by the Office of the Government's Continuing Education Fund as 'reimbursable courses'.

Full details are available at www.wfsfaa.gov.hk/cef/en/

## SCHOLARSHIP

A maximum of two MSEM- Entrance Scholarships will be awarded in each academic year. The value of each award shall not exceed HK$25,000.

Information on other scholarships and financial assistance schemes is available on the website of the University's Student Development Services (www.cityu.edu.hk/sds/).

## ENTRANCE REQUIREMENTS

Applicants must hold a Bachelor degree in engineering or science, or the equivalent, or be a graduate member or qualified for graduate membership of a professional engineering institution.

## ENGLISH PROFICIENCY REQUIREMENTS

Non-local candidates from an institution where the medium of instruction is not English should fulfil one of the following English proficiency requirements:

- a TOEFL score of 550 (paper-based test) or 79 (Internet-based test);
- an overall band score of 6.5 in the International English Language Testing System (IELTS);
- a score of 450 in the new College English Test (CET6) of mainland China or a pass in the old CET-6 test; or
- other equivalent qualifications.

TOEFL and IELTS scores are considered valid for two years from the test date and must be valid at the time of submission of application.

### Enquiries


Tel: 34429321
Email: sye.office@cityu.edu.hk
Website: www.cityu.edu.hk/sye/msem

THE HONG KONG POLYTECHNIC UNIVERSITY
香港理工大學

Department of
Industrial & Systems Engineering
工業及系統工程學系

## RESEARCH STUDIES OF DEPT OF ISE

- Precision Engineering (State Key Laboratory of Ultra-precision Machining Technology)
- Advanced Materials Processing Technologies
- Product Design and Miniaturization
- Smart Manufacturing and Robotics
- Operations and Supply Chain Management
- Aviation and Transportation Logistics

**Follow us**

**Find out more**


**CONTACT**

General Administration
Ms. Cammy Chiu

+852 2766-4982
cammy.chiu@polyu.edu.hk

**GENERAL OFFICE**

Room EF625, Core F, Main Campus
Department of Industrial
and Systems Engineering
The Hong Kong Polytechnic University
Hung Hom, Kowloon, Hong Kong

IEEE International Conference on Industrial Engineering and Engineering Management (IEEM)

# IEEM2024

## Bangkok, Thailand

15 Dec – 18 Dec 2024

**www.ieem.org**

**SUBMISSION DEADLINE**

Full Paper: 01 Jun 2024

Abstract Only: 01 Aug 2024

**Sponsored and Organised By:**

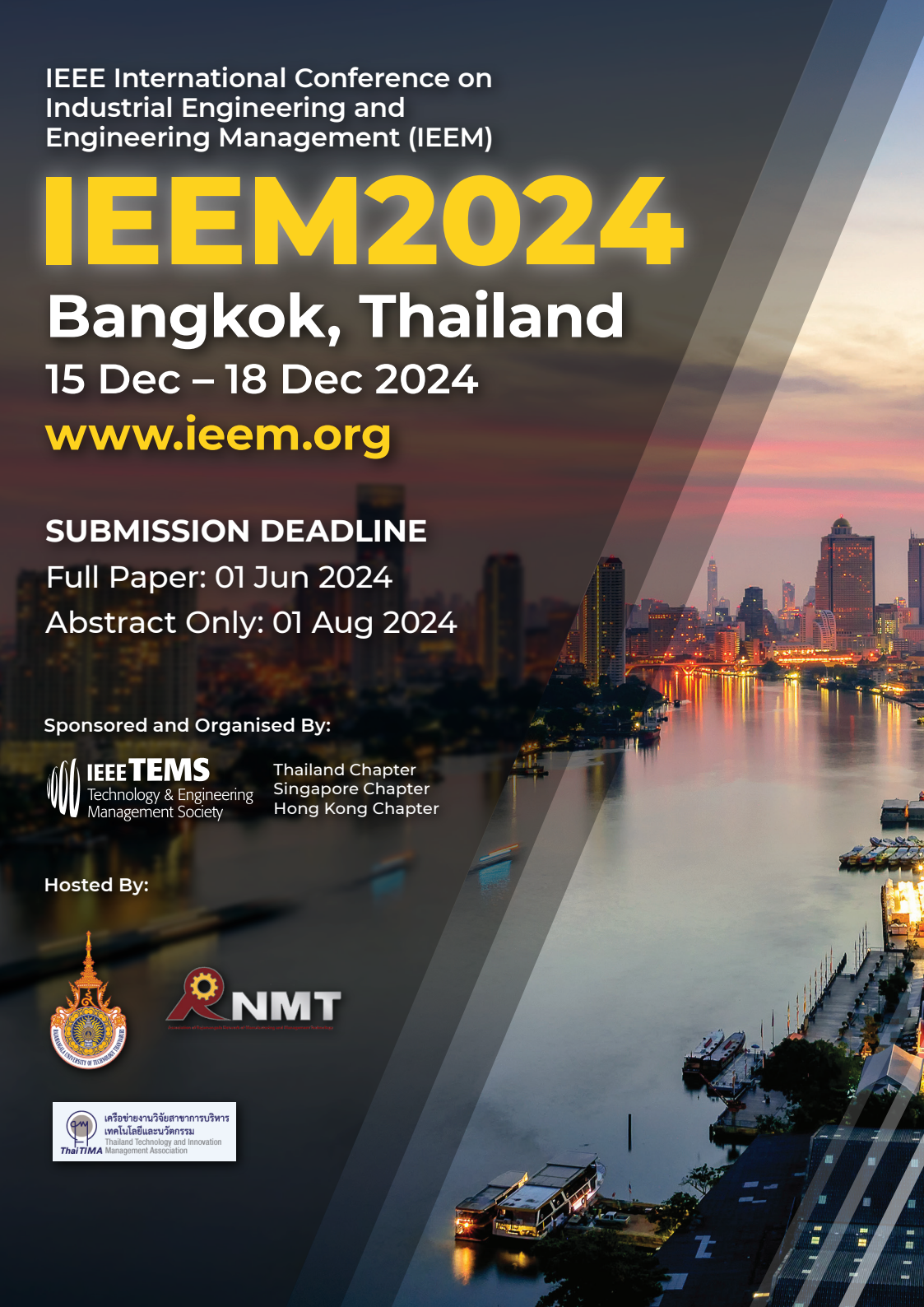
IEEE TEMS Technology & Engineering Management Society

Thailand Chapter
Singapore Chapter
Hong Kong Chapter

**Hosted By:**

NMT

เครือข่ายงานวิจัยสาขาการบริหารเทคโนโลยีและนวัตกรรม
ThaiTIMA Thailand Technology and Innovation Management Association



IEEE

## Organizers

IEEE TEMS Technology & Engineering Management Society
Hong Kong Chapter
Singapore Chapter

## Partners

Institute of Industrial & Systems Engineers

IEEE Singapore Section

## Supporting Organizations

Nanyang Technological University Singapore

NUS National University of Singapore

CityU 香港城市大學 City University of Hong Kong

The Hong Kong Polytechnic University 香港理工大學

## IEEM Secretariat

Meeting Matters International 密迈国际会务公司
A World Scientific Associate