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

IEEM2022
KUALA LUMPUR, MALAYSIA
07 - 10 December 2022

www.ieem.org
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Kuala Lumpur Convention Center

Jalan Pinang, Kuala Lumpur, 50450 Kuala Lumpur, Wilayah Persekutuan Kuala Lumpur, Malaysia

Key Timings

**Wednesday 07 December 2022**
- 1pm to 6pm Technical Visit To Steelcase Malaysia
- 4pm to 6pm Level 3 Conference Hall 3 Registration Check-in Welcome Reception

**Thursday 08 December 2022**
- From 8am Level 4 Registration Check-in
- 9am to 10:30am Level 3 Plenary Theatre Auditorium Opening & Keynote Presentation
- 11am to 5:30pm Level 4 Meeting Rooms Oral Presentations

**Friday 09 December 2022**
- 8:30am to 3:30pm Level 4 Meeting Rooms Oral Presentations
- 4pm to 5:30pm Outside Level 4 Meeting Rooms Poster Presentations
- 6pm to 9pm Level 3 Conference Hall 3 Conference Dinner Best Paper Awards IEEM2023 Singapore
Organizing Chairs

Dear participants,
A very warm welcome to the 2022 IEEE International Conference on Industrial Engineering and Engineering Management (IEEM2022). We are pleased to see many of you face-to-face, after two years of meeting online.

Since its 2007 inaugural meeting in Singapore, the IEEM conference has greatly evolved. It has become a leading international conference in the fields of industrial engineering and engineering management. IEEM2022 received nearly seven hundred submissions from forty countries and regions, worldwide. Like past IEEM conferences, up to five reviewers are assigned to each submission and the acceptance decisions were based on at least two consistent recommendations, ensuring the conference’s consistent demand for high quality standards. These accepted submissions, organized around twenty topics, will be presented in the oral and poster sessions.

We greatly appreciate the time that Dr Abdul Azim has taken to prepare and deliver his keynote address and for accommodating the technical visit to Product Engineering Asia Pacific Steelcase. We are also grateful to Professor Matthew Nicholson our wonderful host representative from the Monash University Malaysia for making time to join us.

The organizing committee would like to thank all authors and participants for their interests, contributions and continued support to IEEM. Lastly, we are also grateful to the technical program committee members and reviewers for their help in the review process.

We wish all a fruitful conference, and hope that you will enjoy the cultural experiences of Malaysia.

Program Chairs

Kah Hin CHAI
National University of Singapore

Seung Ki MOON
Nanyang Technological University

Pei-Lee TEH
Monash University Malaysia

Roger JIAO
Georgia Institute of Technology

Min XIE
City University of Hong Kong
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IEEE TEMS Hong Kong Chapter
IEEE TEMS Malaysia Chapter
IEEE TEMS Singapore Chapter

Partner

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IEEE TEMS Hong Kong Chapter
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The Hong Kong Polytechnic University

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Oulu University of Applied Sciences

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NEC Corporation

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Khalifa University

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Multimedia University

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University of Regina

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Institute of Rural Management Anand

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Multimedia University

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The Hong Kong Polytechnic University

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The University of Danang

Edoghogho OGBEIFUN,
University of Johannesburg

Sanjay Kumar PALEY,
Indian Institute of Technology (BHU)

Alan PILKINGTON,
University of Westminster
<table>
<thead>
<tr>
<th>Name</th>
<th>University/Institution</th>
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<tr>
<td>Fernando ROMERO</td>
<td>University of Minho</td>
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<td>Mojahid SAEED OSMAN</td>
<td>American University of Sharjah</td>
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<td>Premaratne SAMARANAYAKE</td>
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<td>Karthik SANKARANARAYANAN</td>
<td>Ontario Tech University</td>
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<td>Kiyoshi SAWADA</td>
<td>University of Marketing and Distribution Sciences</td>
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<td>Monika TANWAR</td>
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<td>Ai Chin THOO</td>
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<td>Institut Teknologi Sepuluh Nopember</td>
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<td>Elise VAREILLES</td>
<td>ISAE SUPAERO</td>
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<td>Ehsan VAZIRI GOUDARZI</td>
<td>Islamic Azad University, South Tehran Branch</td>
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<td>Junfeng WANG</td>
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<td>Michael YOUNG</td>
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<td>Anies Faziehan ZAKARIA</td>
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<td>Yaoming ZHOU</td>
<td>Shanghai Jiao Tong University</td>
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Committees
Opening & Keynote Presentation
Thursday 08 December 2022, 9am to 10:30am, Level 3 Plenary Theatre Auditorium
Program (Actual May Vary)

Opening Addresses
Andy CHEN, VP Conferences
IEEE Systems Council
President 2020-2021, IEEE TEMS

IEEM2022 Organizing Chairs
Seung Ki MOON, Nanyang Technological University
Pei-Lee TEH, Monash University Malaysia

Host Welcome Speech
Matthew NICHOLSON, Interim Pro Vice-Chancellor and Interim Chief Executive Officer, Monash University Malaysia

Keynote Presentation
Abdul AZIM, Director, Product Engineering Asia Pacific
Steelcase, Adjunct Professor, Universiti Putra Malaysia (UPM)

Conference Dinner & Best Paper Awards (Actual May Vary)
Friday 09 December 2022, 6pm to 9:00pm, Level 3 Conference Hall 3

6:00PM TO 6:25PM
Guest Arrival

6:25PM TO 6:30PM
Dinner Speech by Program Chair
Min XIE, City University of Hong Kong

6:30PM TO 8:00PM
Dinner Served

8:00PM TO 8:30PM
IEEM2022 Best Papers Award Presentation

8:30PM TO 9:00PM
Next Meeting Presentation
IEEM2023 at Marina Bay Sands, Singapore
Oral Presentations
Oral Presentations

Human Factors 1
2022-12-08 11:00 AM-01:00 PM Room 401

Session Chair(s): Markus HARTONO, University of Surabaya
Chien-Sing LEE, Sunway University

IEEM22-F-0028/Towards Self-adaptive/Reflective Co-managed Open
Generativity to Augment Absorptive-multiplicative-relational
Capabilities/Capacities
Chien-Sing LEE1#*, K. Daniel WONG2
1Sunway University, Malaysia
2Daniel Wireless Software Pte Ltd, Singapore

IEEM22-F-0078/Human Resources Strategies in High-tech Startups
during the Seed Phase: The Relationship between Recruitment,
Career, and Tolerance of Uncertainty
Yushi Nakaya1#*, Shuichi Ishida1
1Tohoku University, Japan

IEEM22-F-0150/Integration of Text Mining, Railqual, Kano Model,
and Kansei Engineering for Train Service Excellence
Markus Hartono1###, Dina Natalia Prayogo1, Gusti Anandia Saylendra1
1University of Surabaya, Indonesia

IEEM22-F-0198/Searching for the Gaps in Mental Workload
Assessment of Assistive Technologies
Andreas Dörner1, Marek Bures2*, Gerald Pirkl1
1University of Applied Sciences Amberg-Weiden, Germany
2University of West Bohemia, Czech Republic

IEEM22-F-0397/Investigating the User Experience and Identifying
User Needs for Kitchen Appliances Using Thematic Analysis
Woochul Jung1, May Jorella Lazaro1, Joong Hee Lee1, Gyungbhin Kim1,
EunJeong Yang1, Myung Hwan Yun2*1
1Seoul National University, Korea, South

IEEM22-F-0011/ The Mediating Role of Organizational Culture in
Managing the Relationship Between Quality and Innovation: A
Conceptual Model Proposal
Ráissa HERINGER1, Andre M. CARVALHO2**, Paulo Sampaio1
1University of Minho, Portugal
2Polytechnic Institute of Cávado and Ave, Portugal
Oral Presentations

Engineering Economy and Cost Analysis
2022-12-08 11:00 AM-01:00 PM Room 402

Session Chair(s): Pei-Lee TEH, Monash University
S.C. Johnson LIM, Universiti Tun Hussein Onn
Malaysia

IEEM22-F-0155/Operational Energy Optimizing in Office Buildings:
A Simulation-Based Green Design Approach
Chandana Hemantha Thebuwena1#, R.M. Chandima Ratnayake2
1Galle Face Properties Limited, Sri Lanka
2University of Stavanger, Norway

IEEM22-F-0122/Energy Storage Potential Model for Residential
Photovoltaic Systems
Vicente Rios1, Yupeng Wei1, Hongrui Liu2
1San Jose State University, United States

IEEM22-F-0285/Technical and Economic Analysis of Solar Energy
Powered Lighting System in a Smart Building at Tropical Region
Ming Foong Lee1, S.C. Johnson Lim2#, Peng Wah Siew2, Boon Tuan Tee3
1Universiti Tun Hussein Onn Malaysia, Malaysia
2Seikou Systec Sdn. Bhd., Malaysia
3Universiti Teknikal Malaysia Melaka, Malaysia

IEEM22-F-0165/Portfolio Selection Using Mean-variance Model for
Financial Technology Sector in the Australian Market Before and
During COVID-19
Rogel Angelo Rebualos1, Michael Young#1, Yogi Tri Prasetyo1, Reny
Nadlifatin2
1Mapúa University, Philippines
2Institut Teknologi Sepuluh Nopember, Indonesia

IEEM22-F-0262/The Impact of Product Variety on Cost of Quality in
Production
Mads Lunde Andersson1#, Lars Hvam1
1Technical University of Denmark, Denmark

IEEM22-F-0424/On the Necessity for Improving Effectiveness of
Qualification Process for Spare Parts Additive Manufacturing in a
Circular Economy Supply Chain
R.M. Chandima Ratnayake#1
1University of Stavanger, Norway
Oral Presentations

Operations Research 1
2022-12-08 11:00 AM-01:00 PM Room 403

Session Chair(s): Tonguc UNLUYURT, Sabanci University
Philipp BAUMANN, University of Bern

IEEM22-F-0038/Cabinet Location Optimization for E-bike Battery
Swapping Systems
Ziqi Li¹, Gangyan Xu², Yaoming Zhou²¹
¹Shanghai Jiao Tong University, China
²The Hong Kong Polytechnic University, Hong Kong SAR

IEEM22-F-0222/A Vehicle Routing Problem in Plastic Waste
Management Considering the Collection Point Location Decisions
Madeline Tee²¹, Dennis Cruz¹
¹De La Salle University, Philippines

IEEM22-F-0253/Railway Rolling Stock Assignment for Passenger
Trains
Alyaa M. Younes²¹, Islam Ali¹, Amr B. Eltawil¹
¹Egypt-Japan University of Science and Technology, Egypt

IEEM22-F-0301/A Heuristic Approach for the Robust Traveling
Salesman Problem
Kazuki Hasegawa²¹, Wei Wu¹
¹Shizuoka University, Japan

IEEM22-F-0303/Optimization Models for Routing and Frequency
Assignment in Wireless Mesh Networks
Gulten Busra Karkili¹, Tonguc Unluyurt²²
¹University of Massachusetts, United States
²Sabanci University, Turkey

IEEM22-F-0138/Pickup and Multi-delivery Problem with Time
Windows
Pham Tuan Anh¹, Aldy Gunawan²², Vincent F. Yu¹, Chau Tuan Cuong¹
¹National Taiwan University of Science and Technology, Taiwan
²Singapore Management University, Singapore
Oral Presentations

Production Planning and Control 1
2022-12-08 11:00 AM-01:00 PM Room 404

Session Chair(s): Emrah ARICA, SINTEF Manufacturing
Tahir MAHMOOD, King Fahd University of
Petroleum and Minerals

IEEM22-F-0214/Implementing Distribution Requirement Planning and Scheduling System for Lens Manufacturing Company
Wei Qing Lee#,1, Tay Jin Chua1, Ravi Kumar Katru1, Tian Xiang Cai1
1Singapore Institute of Manufacturing Technology, Singapore

IEEM22-F-0302/Batch Scheduling and Robust Batch Scheduling to Minimize Maximum Lateness
Keigo Miyagawa#,1, Kazuki Hasegawa1, Liang Tang2, Wei Wu1
1Shizuoka University, Japan
2Dalian Maritime University, China

IEEM22-A-0102/A Fast Metaheuristic Optimizer for Large-scale Batch Fulfillment Planning
Choonoh Lee#,1, Seyeon Park1, Dongyun Kang1, Jaehyeong Choi1, Soojee Kim1, Younggeun Kim1
1Kurly Corporation, Korea, South

IEEM22-F-0173/Effect of Lean Manufacturing Implementation: A South African Printing Industry Perspective
Kem Ramdass1, Kgabo Mokgohloa1, Nita Sukdeo#2
1University of South Africa, South Africa
2University of Johannesburg, South Africa

IEEM22-F-0439/Systemising Data-driven Methods for Predicting Throughput Time within Production Planning & Control
Tobias Hiller#,1, Lukas Deipenwisch1, Peter Nyhuis1
1Leibniz University Hannover, Germany

Supply Chain Management 1
2022-12-08 11:00 AM-01:00 PM Room 405

Session Chair(s): Linda ZHANG, University of Lille
David VALIS, University of Defence, Brno

IEEM22-F-0003/Optimizing Joint Sustainable Supply Chain Decision-making under Emission Tax: A Stackelberg Game Model
Linda Zhang#,1, Shuang Ma2, Sara Shafiee3, Xiaotian Cai4
1University of Lille, France
2University of Science and Technology Beijing, China
3Technical University of Denmark, Denmark
4Chinese Academy of Science and Technology for Development, China
IEEM22-F-0046/Pricing Strategies of AI-enabled and Regular Products
Yinmeng Li¹, Zhaojun Yang#¹, Jun Sun², Xu Hu¹
¹Xidian University, China
²University of Texas Rio Grande Valley, United States

IEEM22-F-0111/How Big Data Analytics Mitigates Supply Chain Vulnerability? An Interpretive Structural Modeling
Xiaoting Guo¹, Zhaojun Yang#¹, Jun Sun²
¹Xidian University, China
²University of Texas Rio Grande Valley, United States

IEEM22-F-0114/Data-driven Procurement Optimization in Fresh Food Distribution Market under Demand Uncertainty: A Two-stage Stochastic Programming Approach
Lu Xu¹, Xinglu Liu¹, Li Xiao¹, Qiruyi Zuo¹, Jianfeng Liu², Wai Kin (Victor) Chan#¹
¹Tsinghua University, China
²Shenzhen YUEHOU Technology Co., Ltd, China

IEEM22-A-0097/The Development of Refrigerated-container Loading Problem Model for Shipment of Fruits and Vegetables using Ventilated Cargo
Ahmad Rusdiansyah#¹, Ratna Sari Dewi¹, Fadila Isnaini*¹, Irza Rachmadiar Adetio¹
¹Institut Teknologi Sepuluh Nopember, Indonesia

IEEM22-F-0030/Modelling Causal Loop Diagram for Measuring Performance of Indonesian Halal Prepared Food and Beverage Industry
Aries Susanty*¹, Nia Budi Puspitasari¹, Zainal Fanani Rosyada¹, Habib Ashari¹, Sumunar Jati²
¹Diponegoro University, Indonesia
²Lembaga Pengkajian Pangan, Obat-obatan, dan Kosmetika Majelis Ulama Indonesia, Indonesia
Safety, Security and Risk Management 1
2022-12-08 11:00 AM-01:00 PM Room 406

Session Chair(s): Yi Liu LIU, Norwegian University of Science and Technology
Ziaul Haque MUNIM, University of South-Eastern Norway

IEEM22-F-0162/A Methodological Setting to Explore National Occupational Safety and Health Systems
Gaia Vitrano#, Guido J.L. Micheli#, Armando Guglielmi, Diego De Merich, Mauro Pellicci
1Politecnico di Milano, Italy
2National Institute for Insurance against Accidents at Work (INAIL), Italy

IEEM22-F-0447/Public Perception on Safety of Autonomous Ferry in the Norwegian Context
Ziaul Haque Munim#, Marius Imset, Olivier Faury, Maire Sukke, Hyungju Kim
1University of South-Eastern Norway, Norway
2EM Normandie Business School, France

IEEM22-A-0033/A Zoom Permutation Entropy based Method for Health Condition Assessment of Machine
Chenyang Ma#, Zhiqiang Cai#
1Northwestern Polytechnical University, China

IEEM22-F-0204/A Conceptual Analysis of Green Shipping Practices, Rational Culture and Sustainability for a Safer and Sustainable Ocean
Choon Hee Ong#, Hui Ying Yeo#, Hooi Siang Kang, Yi Liu Liu, Owee Kowang Tan
1Universiti Teknologi Malaysia, Malaysia
2Norwegian University of Science and Technology, Norway

IEEM22-F-0208/Risk Analysis of Dynamic Positioning Systems based on Incident Data
Imran Naseem#, Yi Liu Liu#
1Aibel AS, Norway
2Norwegian University of Science and Technology, Norway

IEEM22-F-0261/A Data-driven Framework of Resilience Evaluation for Power Systems under Typhoon Disasters
Zhen Yu, Mingce Wang, Yinguo Yang, Shuangxi Wu, Qiuyu Lu, Yu Zhu, Yang Liu, Wei Wang, Chao Fang
1Electric Power Dispatching Control Center of Guangdong Power Grid Co., Ltd., China
2Xi’an Jiaotong University, China
IEEM22-F-0413/Standards, Ethics, Legal Implications & Challenges of Artificial Intelligence
Sanjana Chauhan¹, Arvind Keprate²
¹University of Oslo, Norway
²Oslo Metropolitan University, Norway

Decision Analysis and Methods 1
2022-12-08 11:00 AM-01:00 PM Room 407

Session Chair(s): Xiaowen SUN, Guangdong University of Education
Yves DE SMET, Université Libre de Bruxelles

IEEM22-F-0230/Experimental Design to Increase Productivity in Medium Sized Garment Industry with Three-way ANOVA Analysis Approach
Lina Gozali¹, Thomson Richard², Louis Valentino³, Teuku Yuri M. Zagloel³, Habibah Norehan Haron⁴, Ariawan Gunadi¹
¹Tarumanagara University, Indonesia
²Universitas Tarumanagara, Indonesia
³Universitas Indonesia, Indonesia
⁴Universiti Teknologi Malaysia, Malaysia

IEEM22-F-0396/A Reinforcement Learning Approach for Integrated Scheduling in Automated Container Terminals
Zhanluo Zhang¹, Zilong Zhuang¹, Wei Qin¹, Huaijin Fang², Shulin Lan³, Chen Yang⁴, Yù Tian²
¹Shanghai Jiao Tong University, China
²Shanghai International Port (Group) Co., Ltd., China
³University of Chinese Academy of Sciences, China
⁴Beijing Institute of Technology, China

IEEM22-F-0105/A Comparative Evaluation Model for Assessing Solar Energy Capacity Development of Multiple Geographical Alternatives
Pratik Rai¹, Sasadhar Bera¹
¹Indian Institute of Management Ranchi, India

IEEM22-F-0429/The Application of Ambidextrous Organizational Design on the Founding of an Autonomous Vehicle Development Research Team – A Case Study
Marek Miltner²
¹Czech Technical University, Czech Republic

IEEM22-F-0334/The Disruption Funnel: A Model for Fleet Asset Management During Sustainable Disruption
Hossam Elhamy¹, Mohamed Gheith¹, Amr B. Eltawil¹
¹Egypt-Japan University of Science and Technology, Egypt
Oral Presentations

Technology and Knowledge Management 1
2022-12-08 11:00 AM-01:00 PM Room 408

Session Chair(s): Masayuki KONDO, Kaishi Professional University
                 Ewilly Jie Ying LIEW, Monash University

IEEM22-F-0007/Global Innovation Networks of Japanese Companies, German Companies and US Companies
Masayuki Kondo#1
1Kaishi Professional University, Japan

IEEM22-F-0073/A Consensus Clustering-based Label Propagation Method for Classification of Science & Technology Resources
Yuqi Tang#1, Wenyan Song#1, Caibo Zhou1, Yue Zhu1, Jianing Zheng1, Wan Rong1
1Beihang University, China

IEEM22-F-0342/Are Consumers Ready for Flying Taxis? A Choice-based Conjoint Analysis of eVTOLs in Germany
Robert Zaps1, Stanislav Chankov#1
1Jacobs University Bremen, Germany

IEEM22-A-0096/The Coevolution of Intellectual Property Capabilities and Technology Capabilities in Large Complex Technological Organizations
Punyapat Saksupapchon#1, Kelvin W. Willoughby1
1HHL Leipzig Graduate School of Management, Germany

Manufacturing Systems 1
2022-12-08 11:00 AM-01:00 PM Room 409

Session Chair(s): P.V.M. RAO, Indian Institute of Technology Delhi
                 Sven HINRICHSEN, Ostwestfalen-Lippe University of Applied Sciences and Arts

IEEM22-F-0270/In-situ Melt Pool Monitoring of Laser Aided Additive Manufacturing using Infrared Thermal Imaging
Lequn Chen#1, Xiling Yao2, Nicholas Poh Huat Ng1, Seung Ki Moon#1
1Nanyang Technological University, Singapore
2Agency for Science, Technology and Research (A*STAR), Singapore

IEEM22-F-0284/Agile and Continuous Cost Analysis and Forecasting in the HIP3D
Günther Schuh1, Andreas Gütlaff1, Seth Schmitz1, Shari Wlecke#1
1RWTH Aachen University, Germany
IEEM22-F-0288/A Reference Data Model for Material Flow Analysis in the Context of Material Handling System Design and Reconfiguration
Zakarya Soufi*1, Pierre David1, Zakaria Yahouni1
1University of Grenoble Alpes, France

IEEM22-F-0372/Metric-based Identification of Target Conflicts in the Development of Industrial Automation Software Libraries
Eva-Maria Neumann*1, Birgit Vogel-Heuser1, Michael Gnadlinger1, Juliane Fischer1, Laura Reimoser1, Sebastian Diehm2, Tobias Englert2, Michael Schwarz2
1Technical University of Munich, Germany
2Schneider Electric Automation GmbH, Germany

IEEM22-F-0386/Reliability Modeling and Rework Strategy Evaluation of Manufacturing System based on Stochastic-flow Network
Qinglin Zheng*1, Weiwei Duan1, Wei Dai*1, Yu Zhao1
1Beihang University, China

IEEM22-A-0052/Research on Robust Operator Assignments in the Cellular Manufacturing Industry
Harumi Haraguchi*1, Yujiro Yoshida1
1Ibaraki University, Japan

Human Factors 2
2022-12-08 02:00 PM-03:30 PM Room 401

Session Chair(s): Marek BURES, University of West Bohemia
Christine GROßE, Mid Sweden University

IEEM22-F-0211/Effects of Different Interface Color Modes and Textbox Design on Users’ Reading Efficiency and Accuracy
Xiaozhou Fang*1, Danni Chang#1, Zhen Zhang1
1Shanghai Jiao Tong University, China

IEEM22-F-0249/User-perception-oriented Website Design Optimization for University Portals: Using Kansei Engineering and Neural Networks
Jia-He Zhou*1, Yuming Zhu*1, Hao-Jing Song1
1Northwestern Polytechnical University, China

IEEM22-F-0289/Voice of the Workforce: Integrating the Workforce’s Perspective on Operator Assistance Systems into Human-centric Production
Jessica Horn*1, Mirco Moencks1, Elisa Roth1, Thomas Bohné1
1University of Cambridge, United Kingdom
Oral Presentations

IEEM22-F-0304/Factors in Credit Decision-making and Related Research Gaps in Indonesia: A Literature Review
Dewi Sari Pinandita1, Hilya Arini2, Budi Hartono1, Budhi Wibowo1
1Universitas Gadjah Mada, Indonesia

IEEM22-F-0400/Sociotechnical System Digital Twin as an Organizational-enhancer Applied to Helicopter Engines Maintenance
Quentin Lorente2, Eric Villeneuve2, Christophe Merlo2, Guy André Boy3, François Thermy1
1Safran Helicopter Engines, France
2University of Bordeaux, France
3Université Paris-Saclay, France

Reliability and Maintenance Engineering 1
2022-12-08 02:00 PM-03:30 PM Room 402

Session Chair(s): Yoshinobu TAMURA, Yamaguchi University
David VALIS, University of Defence, Brno

IEEM22-F-0029/Risk-Based Inspection and Maintenance Analysis of Distribution Transformers: Development of a Risk Matrix and Fuzzy Logic Based Analysis Approach
A. M. Sakura R. H. Attanayake1, R.M. Chandima Ratnayake1
1University of Stavanger, Norway

IEEM22-F-0088/Cyclic Jump Diffusion Process Modeling Based on Different Effort Consumption Scenarios for OSS Multi Up-gradation
Yoshinobu Tamura1, Adarsh Anand2, Pramod Kumar Kapur3, Shigeru Yamada4
1Yamaguchi University, Japan
2University of Delhi, India
3Amity University, India
4Tottori University, Japan

IEEM22-F-0210/On the Necessity of Using Supervised Machine Learning for Risk-based Screening of Distribution Transformers: An Industrial Case Study
A. M. Sakura R. H. Attanayake1, R.M. Chandima Ratnayake1
1University of Stavanger, Norway

Shinji Inoue1, Shigeru Yamada2
1Kansai University, Japan
2Tottori University, Japan
IEEM22-F-0337/Maintenance in Process Industries with Digital Twins and Mixed Reality: Potentials, Scenarios and Requirements
Linda Rudolph†1, Dorothea Pantförder1, Fabrizio Palmas2, Manfred Fischer3, Peter Niemann4, Gudrun Klinker1, Birgit Vogel-Heuser1
1Technical University of Munich, Germany
2University of Applied Management, Germany
3Wacker Chemie AG, Germany
4straightlabs GmbH & Co. KG, Germany

IEEM22-F-0354/Residual Based Control Charts for Zero-inflated Poisson Processes
Abdulla Mosa Al-Sayed†1, Tahir Mahmood†1, Haitham H. Saleh1
1King Fahd University of Petroleum and Minerals, Saudi Arabia

IEEM22-F-0047/Degradation Assessment of Drilling Head based on Stochastic Growth Models and Continuous Time Diffusion Processes
David Valis†1, Jakub Gajewskι2, Marie Forbelskα3, Jozef Jonak2
1University of Defence, Brno, Czech Republic
2Lublin University of Technology, Poland
3Mendel University in Brno, Czech Republic

Operations Research 2
2022-12-08 02:00 PM-03:30 PM Room 403

Session Chair(s): Mohamed HAOUARI, Qatar University
Hilya ARINI, Universitas Gadjah Mada

IEEM22-F-0353/A Deep Reinforcement Learning Approach for Crowdshipping Vehicle Routing Problem
Hong Huang†1, Yu-Sheng Lin1, Jia-Rong Kang2, Chun-Cheng Lin†1
1National Yang Ming Chiao Tung University, Taiwan
2Tatung University, Taiwan

IEEM22-F-0355/Solving a Bus Routing Problem Arising in Doha
Anas Tammam Aljundi1, Maryam Al-Khatib1, Mohamed Kharbeche†1, Mohamed Haouari†1
1Qatar University, Qatar

IEEM22-F-0377/Insight and Transfer of Learning Measurement on Discrete Event Simulation (DES) User Using Usability Method and Eye-Tracking
Siti Aghnia Salsabilla Purnama†1, Hilya Arini†1, Titis Wijayanto1
1Universitas Gadjah Mada, Indonesia

IEEM22-F-0467/Economic Production Quantity Model with Energy Consideration
Hong Nguyen Nguyen†1, Matthieu Godichaud1, Lionel Amodeo1
1University of Technology of Troyes, France
IEEM22-F-0453/Comparative Study of Multi-hole Drill Path Optimization using Evolutionary Algorithms
Vijay Rathod¹, Om Prakash Yadav²*, Ajay Pal Singh Rathore³
¹Government Polytechnic, India
²North Dakota State University, United States
³Malaviya National Institute of Technology, India

IEEM22-F-0320/Exploring Quantitatively Corporate Financial Performance and Social Performance Relationship with Net Impact Method
Jorma Turunen¹, Saku Mäkinen¹, Deborah Kuperstein-Blasco²
¹University of Turku, Finland
²Tampere University, Finland

Production Planning and Control 2
2022-12-08 02:00 PM-03:30 PM Room 404

Session Chair(s): Ahmed EL-BOURI, Sultan Qaboos University

IEEM22-F-0164/Towards a Framework to Assess the Impact of Industry 4.0 Technologies & Services on Production Resources
A. S. M. Monjurul Hasan¹, Andrea Trianni²*
¹University of Technology Sydney, Australia
²Institute for Computer Science and Control, Hungary

IEEM22-F-0450/Impact of Customer Order Change Dimensions on Order Management
Christian Fries²*, Ádám Szaller², Thomas Bauernhansl¹, Günther Schuh³
¹Fraunhofer Institute for Manufacturing Engineering and Automation IPA, Germany
²Institute for Computer Science and Control, Hungary
³RWTH Aachen University, Germany

IEEM22-F-0021/Exploring the Basic Features and Challenges of Traditional Product Lifecycle Management Systems
Mubashir Hayat²*, Herwig Winkler¹
¹Brandenburg University of Technology, Germany

IEEM22-F-0195/Dispatching Rules in a Job Shop: The Case of Dynamic Scheduling under Time-of-use Electricity Costs
Ahmed El-Bouri²*, Amar Oukil¹
¹Sultan Qaboos University, Oman

IEEM22-F-0232/Framework for the Selection of Sustainable Suppliers using Integrated Compensatory Fuzzy AHP-TOPSIS Multi-criteria Approach
Amit Kumar Gupta²*
¹Management Development Institute Gurgaon, India
Oral Presentations

Supply Chain Management 2
2022-12-08 02:00 PM-03:30 PM Room 405

Session Chair(s): Nur Aini MASRUROH, Universitas Gadjah Mada
Fazleena BADURDEEN, University of Kentucky

IEEM22-F-0252/The Three-dimensional Bin Packing Problem for Deformable Items
Qiruyi Zuo1, Xinglu Liu1, Lu Xu1, Li Xiao1, Chengyin Xu1, Jianfeng Liu2, Wai Kin (Victor) Chan1
1Tsinghua University, China
2Shenzhen YUEHOU Technology Co., Ltd, China

IEEM22-F-0263/Development of a Supply Chain Disruption Optimization Model
Alfina Budi Khoirani1, Nur Aini Masruroh#1, Vincent F. Yu2
1Universitas Gadjah Mada, Indonesia
2National Taiwan University of Science and Technology, Taiwan

IEEM22-F-0267/E-procurement Performance Model for Construction Tendering: A Multiple Linear Regression Approach
Ferial Hendrata#1, Iwan Vanany1, Patdono Suwignyo1, Nurhadi Siswanto1
1Institut Teknologi Sepuluh Nopember, Indonesia

IEEM22-F-0279/Digital IT Innovation to Improve Supply Chain Resilience: A Systematic Literature Review
Rui Meng1, Zhaojun Yang1, Jun Sun2
1Xidian University, China
2University of Texas Rio Grande Valley, United States

IEEM22-F-0407/Approach to Determining and Comparing the Truck Parking Problem with Sustainability Factors
Simon Riedle#1, Jan Burkhardt1, John-Dean Kasher1, Felix Hackbarth1, Navid Julian Sardarabady1
1Duale Hochschule Baden-Württemberg Ravensburg, Germany

IEEM22-F-0378/Are Two Heads Always Better Than One? Human-AI Complementarity in Multi-criteria Order Planning
Chin Sheng Tan#1, Abhishek Gupta1, Chi Xu1
1Agency for Science, Technology and Research (A*STAR), Singapore
Safety, Security and Risk Management 2
2022-12-08 02:00 PM-03:30 PM Room 406

Session Chair(s): Ardiyansyah YATIM, Universitas Indonesia
Harpreet KAUR, Indian Institute of Management Amritsar

IEEM22-F-0343/Risk Assessment of Flammable Natural Refrigerant Application in Air Conditioning Systems
Ardiyansyah Yatim1, Elang Wijaya2, Ridho Irwansyah1, Ahmad Syihan Auzani1, Yi Liu Liu3
1Universitas Indonesia, Indonesia
2Artech Teknik Indonesia, Indonesia
3Norwegian University of Science and Technology, Norway

Sutthipong Yungratog1, Floris Goerlandt2, Wonsiri Punurai1, Sotarat Thammaboosadee1
1Mahidol University, Thailand
2Dalhousie University, Canada

IEEM22-F-0379/Exploration of Risky Riding Behavior on Last Mile Food Delivery using Motorcycle Rider Behavior Questionnaire: Evidence From Chiang Rai
Tosporn Arreeras1, Krit Sittivangkul1, Sunida Tiwong1, Pattaramon Vuttipittayamongkol1
1Mae Fah Luang University, Thailand

IEEM22-F-0393/Assessment of Ship Emission Inventory in Strait of Malacca and Singapore based on Automatic Identification System Data
Ki Hong Ten1, Hooi Siang Kang1, Kuan Yew Wong1, Chee-Loon Siow1, Choon Hee Ong1, Yi Liu Liu2
1Universiti Teknologi Malaysia, Malaysia
2Norwegian University of Science and Technology, Norway

IEEM22-A-0079/Dynamic Cyber Risk Mitigation for Social Robots in Public Space
Yonas Zewdu Ayele1
1Østfold Univeristy College, Norway

IEEM22-A-0030/Examining the Impact of Cyber Physical Infrastructure and Shared Capabilities on Supply Chain Cyber Resilience
Harpreet Kaur1
1Indian Institute of Management Amritsar, India
Oral Presentations

Decision Analysis and Methods 2
2022-12-08 02:00 PM-03:30 PM Room 407

Session Chair(s): Pattaramon VUTTIPIPTAYAMONGKOL, Mae Fah Luang University
ChihHsuan WANG, National Yang Ming Chiao Tung University

IEEM22-F-0384/Data-driven Industrial Machine Failure Detection in Imbalanced Environments
Pattaramon Vuttipittayamongkol*1, Tosporn Arreeras1
1Mae Fah Luang University, Thailand

IEEM22-F-0417/Supporting Implementation of Virtual Reality in Engineering Design by Structured Reflection
Hans-Patrick Balzerkiewitz*1, Theresa Ammersdörfer2, Carsten Stechert1,
David Inkermann2
1Ostfalia University, Germany
2Technische Universität Clausthal, Germany

IEEM22-F-0441/Stakeholder Value on the Concept of Sustainability Balanced Scorecard: Case Study of State-owned Plantation Enterprise (SOPE) in Indonesia
Erlin Trisyulianti*1, Budhi Prihartono1, Made Andriani1, Kadarsah Suryadi1
1Bandung Institute of Technology, Indonesia

IEEM22-A-0088/Sales Forecasting and Market-share Estimation for Memory Manufacturers Considering Supply-chain Analytics
ChihHsuan Wang*1
1National Yang Ming Chiao Tung University, Taiwan

IEEM22-A-0048/Practical Research of Early Internationalization Decisions in High-tech Startups
Saki Otomo*1, Shuichi Ishida1, Mariko Yang-Yoshihara2
1Tohoku University, Japan
2Stanford University, Stanford Program on International and Cross-Cultural Education, United States

IEEM22-F-0233/Prioritizing Barriers for Reverse Logistics of Lubricating Oils using Fuzzy AHP
Amit Kumar Gupta*1
1Management Development Institute Gurgaon, India
Oral Presentations

Technology and Knowledge Management 2
2022-12-08 02:00 PM-03:30 PM Room 408

Session Chair(s): Mait RUNGI, Estonian Entrepreneurship University of Applied Sciences
Annapoornima SUBRAMANIAN, National University of Singapore

IEEM22-F-0041/Smart-city Development Model: The Case of Ulemiste City
Mait Rungi†
1Estonian Entrepreneurship University of Applied Sciences, Estonia

IEEM22-F-0062/Corporate Venturing as Catalyst for Transformation? Towards a Research Agenda
Günther Schuh1, Leonie Angela Budweiser‡2, Frederic Lademann2
1RWTH Aachen University, Germany
2Fraunhofer Institute for Production Technology IPT, Aachen, Germany

IEEM22-A-0090/Spend it Wisely: Market and Non-market Strategies in the Development of New Drugs
Vareska Van de Vrande1, Annapoornima Subramanian‡2, Patricia Klop2
1Erasmus University, Netherlands
2National University of Singapore, Singapore

IEEM22-F-0382/Testing a Benefit Analysis Model to Evaluate the Benefits of IT Projects
Annika Hasseblad†
1Mid Sweden University, Sweden

IEEM22-F-0292/Performance-based Decision Support for Business Process Analysis and Design
Günther Schuh1, Andreas Gützlaff1, Seth Schmitz1, Marco Schopen‡1, Alexander Obladen1
1RWTH Aachen University, Germany

IEEM22-F-0112/Dimension and Indicators for Assessing the SMEs Digital Readiness: A Systematic Literature Review
Aries Susanty††, Odilia Se† Anindyanari1
1Diponegoro University, Indonesia
Oral Presentations

Manufacturing Systems 2
2022-12-08 02:00 PM-03:30 PM Room 409

Session Chair(s): R.M. Chandima RATNAYAKE, University of Stavanger
Sarina Abdul HALIM-LIM, Universiti Putra Malaysia

IEEM22-F-0411/Determination and Prioritization of Flexibility Types in the Context of Industry 4.0: A Use Case in Automotive Industry
Anthony Chehami*1, Armand Baboli*1, Behnam Einabadi1, Mojtaba Ebrahimi2, Eva Rother2
*1National Institute of Applied Sciences of Lyon, France
*2Fiat Powertrain Technologies, Bourbon-Lancy, France

Chun-Hsiang Chang*1, Hao-Wei Chen1, Chun-Cheng Lin#1
*1National Yang Ming Chiao Tung University, Taiwan

IEEM22-F-0240/Optimal Motion Planning and Layout Design in Robotic Cellular Manufacturing Systems
Tomoya Kawabe*#1, Ziang Liu1, Tatsushi Nishi1, Md Moktadir Alam1, Tomofumi Fujiwara1
*1Okayama University, Japan

IEEM22-F-0287/Integration of DFMEA and PFMEA for Enhanced Co-development of Product and Production
Camilla Fasolo*#1, Fredrik Elgh1
*1Jönköping University, Sweden

IEEM22-F-0452/Lean Service-inventory Management Integrated Model to Improve the Service Level in a Metalworking Company
Favio Alfaro*1, Diana Jacinto1, Alberto Flores1, Jose C. Alvarez*2, Andrea Trianni2
*1Universidad Peruana de Ciencias Aplicadas, Peru
*2University of Technology Sydney, Australia

IEEM22-F-0286/Multi-UAV Route Planning for Data Collection from Heterogeneous IoT Devices
Shukang Wang*1, Yuying Long1, Yaoming Zhou2, Gangyan Xu#1
*1The Hong Kong Polytechnic University, Hong Kong SAR
*2Shanghai Jiao Tong University, China
Human Factors 3
2022-12-08 04:00 PM-05:30 PM Room 401

Session Chair(s): Daryl POWELL, Norwegian University of Science and Technology
Christine GROßE, Mid Sweden University

IEEM22-F-0004/How Being Healthy Helps to Get More: Evidence of Large-scale Start-ups
Arowofela Gbemisola#+1, Mait Rungi1
1Estonian Entrepreneurship University of Applied Sciences, Estonia

IEEM22-F-0012/The Virtual Sensei: Using Assisted Reality to Digitalize Gemba Walks
Daryl Powell#+1
1Norwegian University of Science and Technology, Norway

IEEM22-F-0168/Work Demand and Prevalence of Work-related Musculoskeletal Disorders: A Case Study of Pakistan Aviation Maintenance Workers
Muzamil Mahmood#+1, Afshan Naseem2, Yasir Ahmad2, Muhammad Zeeshan Mirza2
1Riphah International University, Pakistan
2National University of Sciences & Technology, Pakistan

IEEM22-F-0220/Municipal Accessibility: A Multi-linear Regression Model with a Principal Component Analysis Approach
Andreas Norin1, Christine Große#+1, Leif Olsson1
1Mid Sweden University, Sweden

IEEM22-F-0401/Artificial Neural Network (ANN) for Performance Assessment in Virtual Reality (VR) Simulators: From Surgical to Maritime Training
Hasan Mahbub Tusher#+1, Salman Nazir1, Steven Mallam1, Ziaul Haque Munim1
1University of South-Eastern Norway, Norway

IEEM22-F-0120/Augmented Workforce: A Case Study on integrating Operator Assistance Systems for Repair Jobs into Human-centric Production
Mirco Moencks#+1, Elisa Roth1, Gunter Beiting1, Arne Freigang2, Thomas Bohné1
1University of Cambridge, United Kingdom
2Siemens AG, Germany
Reliability and Maintenance Engineering 2
2022-12-08 04:00 PM-05:30 PM Room 402

Session Chair(s): David VALIS, University of Defence, Brno
Wangi Pandan SARI, Universitas Gadjah Mada

IEEM22-F-0394/Prediction of Gear Bending Fatigue Life Based on Grey GM (1,1) Prediction
Yinze Yan¹, Zhengjie Tian¹, Shengwen Hou², Zhiqiang Cai²¹
¹Northwestern Polytechnical University, China
²Shaanxi Fast Auto Drive Group Co., Ltd., China

IEEM22-A-0064/Remaining Useful Life Prediction of Experimental Bearings with Optimized Random Forest Model
Muhammad Gibran Alfarizi²¹, Bahareh Tajiani¹, Jorn Vatn¹, Shen Yin¹
¹Norwegian University of Science and Technology, Norway

IEEM22-F-0399/Specific Fuel Consumption Prediction Model for Diesel Engines: A Preliminary Study
Hamdan Hartono Alif¹, Wangi Pandan Sari²¹, Bertha Maya Sopha², Almas Aprilana¹, Yun Prihantina Mulyani², Tina Winayu Dwi Hapsari¹
¹Pusat Penelitian dan Pengembangan Ketenagalistrikan PLN, Indonesia
²Universitas Gadjah Mada, Indonesia

IEEM22-A-0061/Performance Assessment of Degrading Final Element of Safety Instrumented Systems Subject to Multiple Failure Modes
Emefon Dan²¹, Yi Liu Liu¹
¹Norwegian University of Science and Technology, Norway

Operations Research 3
2022-12-08 04:00 PM-05:30 PM Room 403

Session Chair(s): Yoshiki KURATA, University of Santo Tomas

IEEM22-F-0001/Customer Load Profile Clustering Using K-means Algorithm: A Case Study in an Electric Distribution Company in the Philippines Amidst the COVID-19 Pandemic
Maricar Navarro³¹, Michael Young², Yogi Tri Prasetyo², Reny Nadlifatin³
¹Technological Institute of the Philippines, Philippines
²Mapúa University, Philippines
³Institut Teknologi Sepuluh Nopember, Indonesia
Oral Presentations

IEEM22-F-0104/Exact Algorithms for Two-Machine Job-Shop Scheduling Problem with One Joint Job Considering Machine Repetition and Transportation Times
Hiroki Numaguchi\(^*1\), Wei Wu\(^2\), Yannan Hu\(^1\)
\(^1\)Tokyo University of Science, Japan
\(^2\)Shizuoka University, Japan

IEEM22-F-0167/A New Deep Reinforcement Learning Algorithm for the Online Stochastic Profitable Tour Problem
Nicklas Klein\(^*1\), Jonas Prünte\(^2\)
\(^1\)University of Bern, Switzerland
\(^2\)INFORM Institute for Operations Research and Management GmbH, Germany

IEEM22-F-0406/An Optimization Model for Priority-Based On-Demand Meal Delivery System
Siddhartha Paul\(^*1\), Goda Doreswamy\(^1\)
\(^1\)Swiggy, Bundl Technologies, India

IEEM22-A-0051/Designing Retail Network in the Era of Energy Transition
Mahima Gupta\(^*1\)
\(^1\)Indian Institute of Management Amritsar, India

IEEM22-F-0185/Analysis of Hotel Attributes and Service Opportunities in Indonesia on Covid-19 Pandemic Era through Online Reviews
Vira Laksita Dewi\(^1\), Yun Prihantina Mulyani\(^*1\)
\(^1\)Universitas Gadjah Mada, Indonesia

Systems Modeling and Simulation 1
2022-12-08 04:00 PM-05:30 PM Room 404

Session Chair(s): Naragain PHUMCHUSRI, Chulalongkorn University
Charlie SY, De La Salle University

IEEM22-F-0039/Agent-based Simulation for Convenient Store’s Promotion Strategy Selection
Naragain Phumchusri\(^*1\), Warot Kosawanitchakarn\(^1\), Sirawich Srimook\(^1\), Sirawich Chawanapranee\(^1\)
\(^1\)Chulalongkorn University, Thailand

IEEM22-F-0066/Adopting Pre- and Post-processing Weight Mechanisms to Improve Deep Learning-based Fault Localization
Chih-Chiang Fang\(^1\), Chin-Yu Huang\(^*1\)
\(^1\)National Tsing Hua University, Taiwan
IEEM22-F-0090/A System Dynamics Model of False News on Social Networking Sites
Aleena Marie Concepcion1, Charlle Sy‡1
1De La Salle University, Philippines

IEEM22-A-0044/The Modeling and Simulation of a Pharmaceutical Packaging Line: Balancing the Production Capabilities and Optimizing the Number of Operators
Breno Renato Strussmann‡1, Lars Hvam1
1Technical University of Denmark, Denmark

IEEM22-A-0110/Substitution Decisions in Blood Supply Chain
Zahra HosseiniFard‡1, Babak Abbasi2, Mostafa Khatami3
1The University of Melbourne, Australia
2RMIT University, Australia
3University of Technology Sydney, Australia

Supply Chain Management 3
2022-12-08 04:00 PM-05:30 PM Room 405

Session Chair(s): Gitae KIM, Hanbat National University
Anna Maria Sri ASIH, Universitas Gadjah Mada

IEEM22-F-0410/Sustainability Investigations based on Digitalization Technologies in the Field of Transportation Logistics: A Systematic Literature Review Protocol
Simón Riedle‡1, Navid Julian Sardarabady1, John-Dean Kasher1
1Duale Hochschule Baden-Württemberg Ravensburg, Germany

IEEM22-F-0412/Multi-objective Multi-compartment Split Delivery Location Routing Problem with Time Windows
Rachmat Parayoga3, Anna Maria Sri Asih‡1
1Universitas Gadjah Mada, Indonesia

IEEM22-A-0053/Optimal Location Routing Problem for Electric Vehicles with Parcel Lockers
Gitae Kim‡1
1Hanbat National University, Korea, South

IEEM22-F-0470/Prioritisation of Supply Chain Resilience Enabling Factors using the Fuzzy DEMATEL Approach: Integration Perspective
Premaratne Samaranayake‡1, W.M. Samanthi Kamari Weerabahu1, Nisakorn Somsuk2, Tritos Laosirihongthong3, Dotun Adebamjo4
1Western Sydney University, Australia
2Rajamangala University of Technology Thanyaburi, Thailand
3Thammasat University, Thailand
4University of Greenwich, United Kingdom
IEEM22-F-0457/Towards a Scalable Permissioned Blockchain Framework for Supply Chain Management
Aaliya Sarfaraz*1, Ripon K. Chakraborty*1, Daryl L. Essam1
1University of New South Wales, Australia

IEEM22-F-0381/Measuring the Performance Impact of a Decentralized Waterborne Container Transportation Service on Inland Waterway Hubs in Western Germany
Cyril Alias*1, Jonas zum Felde1, Sven Severin2, Frank Eduardo Alarcón Olalla3
1Development Center for Ship Technology and Transport Systems, Germany
2RIF Institut für Forschung und Transfer, Germany
3Pontificia Universidad Católica de Chile, Chile

Project Management 1
2022-12-08 04:00 PM-05:30 PM Room 406

Session Chair(s): Indra GUNAWAN, The University of Adelaide
Michel ALDANONDO, University of Toulouse

IEEM22-F-0023/Complex Systems of Disaster Response: The Case of COVID-19
Yuan Chai*1, Indra Gunawan1, Nam Nguyen1, Jian Zuo1
1The University of Adelaide, Australia

IEEM22-F-0136/Investigating Efficiency in Public Project Management: A Preliminary Analysis with the Use of Fuzzy Cognitive Maps
Sara Carbonari*1, Giovanni Mazzuto1, Maurizio Bevilacqua1, Filippo Emanuele Ciarapica1
1Università Politecnica delle Marche, Italy

IEEM22-F-0191/SWOT Analysis for Implementation of Lean-Agile Mindset: A Case Study from an ETO Organisation
Daria Larsson*1, R.M. Chandima Ratnayake*1
1University of Stavanger, Norway

IEEM22-F-0254/Construction of a Quality Evaluation Index System for Construction Land Reduction Projects based on DEMATEL and Entropy Power Method
Caihong Liu*1, Yuming Zhu*1, Jia-He Zhou1, Jiangtao Xia1
1Northwestern Polytechnical University, China

IEEM22-F-0392/Solving the Resource Renting Problem with an Adapted Fix-and-optimize Heuristic
Max Reinke*1, Juergen Zimmermann1
1Clausthal University of Technology, Germany
IEEM22-A-0093/To Settle or Otherwise in Project Dispute Negotiation: A Matter of Intention
Sen Lin*†, Sai On Cheung¹
¹City University of Hong Kong, Hong Kong SAR

Decision Analysis and Methods 3
2022-12-08 04:00 PM-05:30 PM Room 407

Session Chair(s): Chien-Sing LEE, Sunway University
Ahmed EL-BOURI, Sultan Qaboos University

IEEM22-F-0368/Novel Kansei Design Method Based on Rough Set Theory
Kotoru Sato*†, Takashi Ito¹, Syohei Ishizu¹
¹Aoyama Gakuin University, Japan

IEEM22-F-0231/Method for the Semantic Modelling of the Product Context Using Text Mining for the Derivation of Innovation Potentials
Michael Riesener¹, Maximilian Kuhn¹, Hendrik Lauf*†, Günther Schuh¹
¹RWTH Aachen University, Germany

IEEM22-F-0160/Determining and Validating the Spare Parts Selection Criteria for Additive Manufacturing Using Delphi Technique
Sagar Ghuge*†, Milind Akarte¹, Alankrit Pandey²
¹National Institute of Industrial Engineering, India
²Symbiosis Institute of Operations Management, India

IEEM22-F-0186/Evaluation of the Learning Effect of VR on Engineering Education – Case Study in Machine Elements
Hans-Patrick Balzerkiewitz*†, Nick Schade¹, Carsten Stechert¹
¹Ostfalia University, Germany

IEEM22-F-0294/Model Development for the Prediction of Marbling Score of Brangus Beef Fattening Using Logistic Regression
Watchara Ninphet*†, Noppadol Amdee*†, Adisak Sangsongfa¹, Choat Inthawongse¹
¹Muban Chom Bueng Rajabhat University, Thailand

IEEM22-F-0107/Fuzzy Logic Prioritization in Halal Risk Assessment (A Case Study of Halal Chicken Supply Chain in Indonesia)
Harwati*†, Anna Maria Sri Asih¹, Bertha Maya Sopha¹
¹Universitas Gadjah Mada, Indonesia
Technology and Knowledge Management 3
2022-12-08 04:00 PM-05:30 PM Room 408

Session Chair(s): Marc PATZWALD, Fraunhofer Institute for Production Technology IPT
Annapoornima SUBRAMANIAN, National University of Singapore

IEEM22-F-0068/Organizational Capabilities as the Critical Determinants for a Successful Adoption and Implementation of Fourth Industrial Revolution Technologies in Manufacturing Industries
Steven Zulu1, Marthinus Pretorius1, Elma Van der Lingen1
1University of Pretoria, South Africa

IEEM22-F-0091/Methodology for a Startup Lifecycle-dependent Approach of Financing for Investors and Deep Tech Startups
Günther Schuh1, Carolin Hamm1,2
1RWTH Aachen University, Germany
2Fraunhofer Institut for Production Technology, Germany

IEEM22-F-0113/Turbulence-induced Initiation of Technology Strategy Development in a Volatile Business Environment
Günther Schuh1, Marc Pätzwald1,2, Tim Warzawa2
1RWTH Aachen University, Germany
2Fraunhofer Institute for Production Technology IPT, Germany

IEEM22-F-0132/Explaining Willingness to Pay for Solar Panels in Finland
Deborah Kuperstein-Blasco1,2, Saku Mäkinen2
1Tampere University, Finland
2University of Turku, Finland

IEEM22-F-0395/Assessment for CO2-reduced Production by using Additively Manufactured Lightweight Robot Grippers
Günther Schuh1, Georg Bergweiler1, Falko Fiedler1, Christian Höltgen1
1RWTH Aachen University, Germany

IEEM22-A-0107/From Gantt Charts to Dependency Structure Matrix to Directed Acyclic Graphs: Quantitative Technology Roadmapping for Challenge-led Innovation
Martin Ho1, Henry C W Price2, Tim S Evans2, Eoin O'Sullivan1
1University of Cambridge, United Kingdom
2Imperial College London, United Kingdom
Manufacturing Systems 3
2022-12-08 04:00 PM-05:30 PM Room 409

Session Chair(s): Jimmy Chi Ho LI, Hong Kong Metropolitan University
Yogi Tri PRASETYO, Mapúa University

IEEM22-F-0184/Development of Wasted Non-woven Fabric Mask (NFM) Disposal Machine
Siu Kei Lam¹, Tsz Ting Lee⁵, Fanny Tang¹, Shu Lun Mak¹, Wai Hang Chiu¹, Chi Chung Lee¹, Jimmy Chi Ho Li⁴⁺¹
¹Hong Kong Metropolitan University, Hong Kong SAR

IEEM22-F-0260/A Modeling Method for Transient and Steady-state Analysis of Serial Production Systems with Exponential Machines Considering Periodic Preventive Maintenance
WenDa Wang¹, YuKan Hou⁴, Shubin Si¹
¹Northwestern Polytechnical University, China

IEEM22-F-0283/Leanness Assessment of New Product Development in the Context of Smart Manufacturing Systems
B.A. Patil¹, Makarand Kulkarni², P.V.M. Rao⁴⁺¹
¹Indian Institute of Technology Delhi, India
²Indian Institute of Technology Bombay, India

IEEM22-F-0018/Hybrid Production Management System in the Context of Industry 4.0
Stefan Schmid⁴⁺¹, Herwig Winkler¹
¹Brandenburg University of Technology, Germany

IEEM22-F-0331/Intelligent Manufacturing Cell for Implants
Berend Denkena¹, Heinrich Klemme¹, Sebastian Kaiser⁴⁺¹, Maruan Shanib²
¹Leibniz Universität Hannover, Germany
²DMG MORI Digital GmbH, Germany

IEEM22-F-0200/Proposition of Applying Markov Transfer State in Reliability Analysis of Manufacturing System with Different Configuration Orders
Tian Zhang⁴⁺¹, Lazhar Homri¹, Jean-Yves Dantan¹, Ali Siadat¹
¹Arts et Métiers Institute of Technology, France
Oral Presentations

Human Factors 4
2022-12-09 08:30 AM-10:30 AM Room 401

Session Chair(s): Andrei O. J. KWOK, Monash University
Yonas Zewdu AYELE, Østfold Universisty College

IEEM22-F-0421/Analysis of Non-fatal Occupational Accidents in a Ready-mixed Concrete Company
Yogi Tri Prasetyo†, Maria Cristina Sario†, Thanatorn Chuenyindee‡, Reny Nadlifatin†, Satria Fadl Persada‡, Thaninrat Sittiwatthanasiri‡
1Mapúa University, Philippines
2Navaminda Kasatriyadhiraj Royal Air Force Academy, Thailand
3Institut Teknologi Sepuluh Nopember, Indonesia
4Bina Nusantara University, Indonesia

IEEM22-F-0443/Color Preferences Captured by Children in Space through Virtual Reality Simulation. An Analysis in the Pediatric Chemotherapy Room
Anggra Ayu Rucitra†, Purwanita Setijianti†, Asri Dinapradiptra†
1Institut Teknologi Sepuluh Nopember, Indonesia

IEEM22-F-0459/Cultural Transformation of Industries Through Creation of New Collaboration Concepts Driven by Employee Engagement
Mario Münnich†, Jens Schlüter†, Milan Marinkovic†
1CARIAD SE, Germany

IEEM22-F-0015/Laboratory Errors and Their Effects on Quality Management
Mudimeli Farisani†, Sambil Charles Mukwakungu†, Alice Kabamba Lumbwe†, Nita Sukdeo†
1University of Johannesburg, South Africa

Reliability and Maintenance Engineering 3
2022-12-09 08:30 AM-10:30 AM Room 402

Session Chair(s): Bupe MWANZA, University of Johannesburg
Tahir MAHMOOD, King Fahd University of Petroleum and Minerals

IEEM22-F-0187/Scalable and Data-driven Decision Support in the Maintenance, Repair, and Overhaul Process
Houkun Zhu†, Helena Ebel†, Dominik Scheinert†, Florian Schmidt†, Jens Altenkirch‡, Odej Kao†
1Technische Universität Berlin, Germany
2Siemens Energy Global GmbH & Co. KG, Germany
IEEM22-F-0159/Performance Evaluation of Overhead Track Equipment and Prediction of Future Performance
Bhekiz Makhanya#+1, Khimane Motupa1, Jan Harm Pretorius1, Hannelie Nel1
1University of Johannesburg, South Africa

IEEM22-F-0177/Maintenance 4.0 for Water Pumping Infrastructures
Sipho Tlabu1, Arnesh Telukdarie1, Bupe Mwanza#+1
1University of Johannesburg, South Africa

IEEM22-F-0178/Selection of Maintenance Strategies using DMG
Arehone Nedzanan1, Arnesh Telukdarie1, Bupe Mwanza#+1
1University of Johannesburg, South Africa

IEEM22-F-0213/Development of Integrated Stormwater Asset Management Framework
Tlou Dinyake1, Arnesh Telukdarie1, Bupe Mwanza#+1
1University of Johannesburg, South Africa

IEEM22-F-0025/On the Enhanced Surveillance Methods for High-quality Processes
Tahir Mahmood#+1
1King Fahd University of Petroleum and Minerals, Saudi Arabia

IEEM22-F-0418/Prognostics for Small Bore Piping Undergoing Fatigue Degradation
Arvind Keprate#+1, Nikhil Bagalkotl
1Oslo Metropolitan University, Norway

Operations Research 4
2022-12-09 08:30 AM-10:30 AM Room 403

Session Chair(s): Philipp BAUMANN, University of Bern
Norbert TRAUTMANN, University of Bern

IEEM22-F-0179/FT-KMEANS: A Fast Algorithm For Fault-Tolerant Facility Location
Philipp BAUMANN#+1
1University of Bern, Switzerland

IEEM22-F-0192/Academic Timetabling for Online Executive Programs with Existing Schedules, Faculty Preferences and Partial Precedence
Nageswara Reddy KONDREDDY1#, Anand Jacob ABRAHAM2#
1Indian Institute of Management Jammu, India
2Indian Institute of Technology Kharagpur, India
IEEM22-A-0029/Mathematical Modelling for Multi-objective Optimization of Express Freight Train for Freight Operators
Gaurav KUMAR1*, Oqais TANVI1, Akhilesh KUMAR2
1Indian Institute of Technology Kharagpur, India
2Indian Institute of Management Raipur, India

IEEM22-F-0398/An Efficient Route Evaluation Method for the Vehicle Routing Problem with Linear Constraints
Hideki Hashimoto1*, Yannan Hu2, Yuta Okamoto1
1Tokyo University of Marine Science and Technology, Japan
2Tokyo University of Science, Japan

IEEM22-A-0023/Multi-site Project Scheduling Under Resource Constraints
Tamara BIGLER, Mario GNAEGI1, Norbert TRAUTMANN2
1University of Bern, Switzerland

IEEM22-F-0402/Operators Health and Safety Consideration in Sustainable Multi-objective Process and Production Planning for Reconfigurable Manufacturing System (RMS)
Bakélé Assou1, Imen Khettabi2, Lyes Benyoucef1
1Aix-Marseille University, France
2USTHB University, Algeria

Systems Modeling and Simulation 2
2022-12-09 08:30 AM-10:30 AM Room 404

Session Chair(s): Zahra HOSSEINIFARD, The University of Melbourne
Charlle SY, De La Salle University

IEEM22-F-0438/The Role of Collaboration for a Circular Business Model in Indonesian Household Waste Management
Noorhan Firdaus Pambudi1*, Togar Mangihut Simatupang1, Samindi Samarakoon2, Nur Budi Mulyono1
1Bandung Institute of Technology, Indonesia
2University of Stavanger, Norway

IEEM22-F-0031/A Shortest Path Graph Attention Network and Non-traditional Multi-deep Layouts in Robotic Mobile Fulfillment System
Kin Lok Keung1*, Liqiao Xia1, Carman Ka Man Lee1, C. Y. Leung1
1The Hong Kong Polytechnic University, Hong Kong SAR

IEEM22-F-0277/Ontology-based Synchronization of Automated Production Systems and Their Simulation Models
Kilian Vernickel1*, Mayank Singh1, Marco Konersmann2, Jan Jürjens2
1Fraunhofer IGCV, Germany
2University of Koblenz-Landau, Germany
IEEM22-F-0310/Stackelberg Game-theoretic Approach for Lead Time Hedging in Inland Transport
Xuhan Zhao#1, Xuan Qiu#1
The Hong Kong University of Science and Technology, China

Chern Fong Lee#1, Muk Chen Ong#1
University of Stavanger, Norway

IEEM22-F-0388/Processing Cost Reduction of Lemon Products in Community Enterprises using Flexsim Simulation
Darunee Watnakornbuncha#1, Alongkorn Muangwai1, Wachira Wichitphongsa2, Noppadol Amdee1, Choat Inthawongse#1
Muban Chom Bueng Rajabhat University, Thailand

EEM22-F-0472/Development of a Business Process Modelling Framework for Continuous Improvements in Organisations
Tshegofatjo Tsiri#1, Ilesanmi Daniyah#1, Khumbulani Mpofu1
Tshwane University of Technology, South Africa

Supply Chain Management 4
2022-12-09 08:30 AM-10:30 AM Room 405

Session Chair(s): Tosporn ARREERAS, Mae Fah Luang University
Jun-Der LEU, National Central University

IEEM22-F-0100/An Iterated Local Search Algorithm for Commuting Bus Routing Problem with Latest Arrival Time Constraint
Hideki Hashimoto1, Yannan Hu#2, Tomoki Sugiuara3, Yosuke Takada3, Mutsunori Yagiura3
Tokyo University of Marine Science and Technology, Japan
Tokyo University of Science, Japan
Nagoya University, Japan

IEEM22-F-0169/Block Layout Design Problem for Marine Container Terminals
Yilong Su#1, Etsuko Nishimura#1
Kobe University, Japan

IEEM22-F-0246/A Conceptual Framework for Blockchain-based Cannabis Traceability in Supply Chain Management in an Emerging Country
Piwat Nowvaratkooolchait#1, Natcha Thawesaengskulthai1, Wattana Viriyasitavat1
Chulalongkorn University, Thailand
IEEM22-F-0275/Enablers and Barriers of Omnichannel in Traditional Grocery Retailers
Atik Febriani¹, Bertha Maya Sophi¹, Muhammad Arif Wibisono¹
¹Institut Teknologi Telkom Purwokerto, Indonesia

IEEM22-F-0278/Comparative Study of Bridge Inspection Practices in Indonesia and Foreign Countries
Nadia Avelina¹, Taeyeon Chang¹, Seokho Chi¹
¹Seoul National University, Korea, South

IEEM22-F-0279/Designing Battery Swapping Stations for Electric Scooters with a Streamlined Supply Chain
Meenakshi Ambabhavani Shanbog², Hongrui Liu¹
²San Jose State University, United States

IEEM22-F-0282/Feasibility Study of a BERT-based Question Answering Chatbot for Information Retrieval from Construction Specifications
Jungyeon Kim¹, Sehwan Chung¹, Seonghyeon Moon¹, Seokho Chi¹
¹Seoul National University, Korea, South

IEEM22-F-0283/Examining Recommended Practices for Information System Development Projects and the Effect of Standardization Frameworks: An Empirical Study
Younes Benslimane¹, Zijiang Yang¹
¹York University, Canada

IEEM22-F-0296/Comparative Study of Bridge Inspection Practices in Indonesia and Foreign Countries
Nadia Avelina¹, Taeyeon Chang¹, Seokho Chi¹
¹Seoul National University, Korea, South

IEEM22-F-0314/Exploring the Themes of Focus for Change Management Applied to Multinational Corporations: A Scoping Review
Chiara Oosthuizen¹, Sara Grobbelaar¹
¹Stellenbosch University, South Africa

IEEM22-F-0369/Incumbent Actions in Adopting Preventive Innovations: Cases in the Finnish Construction Sector
Deborah Kuperstein-Blasco¹
¹Tampere University, Finland

IEEM22-F-0228/Measuring China’s Energy Efficiency with Different DEA Models
Xu Wang¹, Takashi Hasuike¹
¹Waseda University, Japan
Oral Presentations

Quality Control and Management
2022-12-09 08:30 AM-10:30 AM Room 407

Session Chair(s): Sergio SOUSA, University of Minho

IEEM22-F-0341/A System Approach for Integration of Human-centered Smart Problem-solving Process in Digital Shop Floor Management
Turgut Refik Çağlar#1, Roland Jochem1
1Technical University of Berlin, Germany

IEEM22-F-0365/Optimization Model for Halal Gelatin Supply Chain with Carbon Emissions
Iwan Vanany#1, Ivan Darma Wangsa#1, Rizki Revianto Putera1, Niken Anggraini Savitri1, Berto Mulia Wibawa1
1Institut Teknologi Sepuluh Nopember, Indonesia

IEEM22-F-0376/The Virtual Sensei: Using Assisted Reality to Digitalize Gemba Walks
Daryl Powell1
1SINTEF Manufacturing, Norway

Sarina Abdul Halim-Lim#1, W.M. Samanthi Kamari Weerabahu2, Harsimran Sodhi3, Nur Afiqah Zahra Mohd Asni1, Muhammad Iqbal Muhammad Hussain4
1Universiti Putra Malaysia, Malaysia
2Western Sydney University, Australia
3Chandigarh University, India
4Universiti Malaysia Perlis, Malaysia

IEEM22-F-0352/Dynamic Sampling Plans using a Metrology Situation Indicator (MSI)
Allwell Dilosi#1, Alaa Hassan2, Aymen Mili3, Ali Siadat1
1Arts et Métiers Institute of Technology, France
2Université de Lorraine, France
3STMicroelectronics, France

IEEM22-F-0347/Quality Cost of 100% Inspection on Manufacturing Processes: Advantages of using a Simulation Approach
Luis Dias1, Eusebio Nunes1, Sergio Sousa#1
1University of Minho, Portugal
Oral Presentations

Technology and Knowledge Management 4
2022-12-09 08:30 AM-10:30 AM Room 408

Session Chair(s): Bheki MAKHANYA, University of Johannesburg
Ewilly Jie Ying LIEW, Monash University

IEEM22-F-0181/Capturing Citizens Experienced Value from Municipal Services: Developing an Evaluation Model in a Swedish Municipal Project
Annika Hasselblad*¹, Ingela Bäckström², Pernilla Ingelsson², Leif Olsson¹
¹Mid Sweden University, Sweden
²Department of Quality Management and Mechanical Engineering (KMT), Sweden

IEEM22-F-0189/Individual Characteristics and Technology Adoption in Asset Management
Bheki Makhanya*¹, Hannelie Nel¹, Jan Harm Pretorius¹
¹University of Johannesburg, South Africa

IEEM22-F-0217/Methodology for Automated Master Data Management using Artificial Intelligence
Michael Riesener¹, Maximilian Kuhn¹, Benjamin Lender*¹, Günther Schuh¹
¹RWTH Aachen University, Germany

IEEM22-F-0218/Concept for Databased Identification of Heuristics for Development Management using FAMD
Michael Riesener¹, Maximilian Kuhn¹, Benjamin Lender*¹, Günther Schuh¹
¹RWTH Aachen University, Germany

IEEM22-F-0238/Influence of Goal Orientation on the Innovative Behavior of Basic Research Project Members
Qun Sha*¹, Yali Zhang*¹, Liaoliao Li¹
¹Northwestern Polytechnical University, China

IEEM22-F-0244/Concept for the Design of an Implementation Process for Continuous Innovation in Manufacturing Companies
Michael Riesener¹, Maximilian Kuhn¹, Stefan Perau*¹, Günther Schuh¹
¹RWTH Aachen University, Germany

Manufacturing Systems 4
2022-12-09 08:30 AM-10:30 AM Room 409

Session Chair(s): Jimmy Chi Ho LI, Hong Kong Metropolitan University
Weidong LIN, Singapore Institute of Technology

IEEM22-F-0117/Industry 5.0: From Manufacturing Industry to Sustainable Society
Misbah Iqbal¹, Carman Ka Man Lee*¹, J.Z. Ren¹
¹The Hong Kong Polytechnic University, Hong Kong SAR
IEEM22-F-0096/Integrated Scheduling of Production and Material Delivery in a Make-to-order Flow Shop
Tianning Liang¹, Liping Zhou², Zhabin Jiang¹
¹Shanghai Jiao Tong University, China

IEEM22-F-0385/Application of Machine Learning for Sustainability in Manufacturing Supply Chain Industry 4.0 Perspective: A Bibliometric Based Review for Future Research
Alok Yadav¹, Rajiv Kumar Garg², Anish Kumar Sachdeva¹
¹Dr. B. R. Ambedkar National Institute of Technology Jalandhar, India

IEEM22-F-0129/The Application of Business Process Re-engineering at a Fashion Retailer: A Case Study
Kem Ramdass¹, Nita Sukdeo²
¹University of South Africa, South Africa
²University of Johannesburg, South Africa

IEEM22-F-0140/Barriers to Additive Manufacturing Implementation in Plastic Waste Management – A Case Study from a Developing Economy
Banusha Aruchunarasa¹, W. Madushan Fernando¹, R. Niles Perera¹, Amila Thibotuwawa¹, R.M. Chandima Ratnayake²
¹University of Moratuwa, Sri Lanka
²University of Stavanger, Norway

IEEM22-F-0324/Industry 4.0 and Indian SMEs: A Study of Espousal Challenges using AHP Technique
Anish Kumar Sachdeva¹, Vinay Kumar Sharma², Lakhwinderpal Singh²
¹Dr. B. R. Ambedkar National Institute of Technology Jalandhar, India
²Dr. B.R. Ambedkar National Institute of Technology, India

Engineering Education and Training
2022-12-09 11:00 AM-01:00 PM Room 401

Session Chair(s): Yves DE SMET, Université Libre de Bruxelles
Bheki MAKHANYA, University of Johannesburg

IEEM22-F-0070/Board Game as Financial Literacy Education Media for Indonesian High School Students
Rabendra Yudistira Alamin¹, Ellya Zulaikha¹, I Ketut Gunarta¹
¹Institut Teknologi Sepuluh Nopember, Indonesia

IEEM22-F-0316/Malaysian Working Women’s Mental Health in the SME Sector
Nor Farhani Zaidi¹, Ming Foong Lee²
¹Universiti Tun Hussein Onn Malaysia, Malaysia
²Malaysia

IEEM22-F-0081/Evaluation of Student Learning Success When Using Augmented Reality Experiences in Engineering Education
Carsten Stechert¹, Mohamed Habib Yengui¹
¹Ostfalia University, Germany
IEEM22-F-0131/Microlearning in Human-centric Production Systems
Elisa Roth†, Mirco Moencks†, Gunter Beitingler2, Arne Freigang2, Thomas Bohne†
1University of Cambridge, United Kingdom
2Siemens AG, Germany

IEEM22-F-0390/Preference Forecasting Proposal for Career Development Service Design From Engineering Educators’ Perspective
Anies Faziehan Zakaria†, Mohamad Fariz Mohamed Nasir2, Mohd Syafiq Syazwan Mustafa3, Ummu Sakinah Subri4
1Universiti Kebangsaan Malaysia, Malaysia
2Universiti Teknologi Malaysia Kuala Lumpur, Malaysia
3Universiti Tun Hussein Onn Malaysia, Malaysia
4Universiti Sains Malaysia, Malaysia

IEEM22-F-0247/Improvement of Inspection Training Tools and Validation of the Accuracy of Machine Learning Discriminant Models Using the Results
Shingo Kubota†, Masatsuki Sugitani†, Riku Akaishi†, Harumi Haraguchi‡
1Ibaraki University, Japan

Big Data and Analytics 1
2022-12-09 11:00 AM-01:00 PM Room 402

Session Chair(s): Yi-Hui LIANG, I-Shou University
Yonas Zewdu AYELE, Østfold Univeristy College

IEEM22-F-0426/Relating the Use of Different Type of HR Analytics in Different Strategic Firms with the Use of Social Media within the Organization
Sonal Gupta†, R.R.K. Sharma‡
1Indian Institute of Technology Kanpur, India

IEEM22-A-0075/Exploring Customer Value for Healthcare Industry in Taiwan Using Fuzzy C-means and Decision Tree Methods
Yi-Hui Liang†
1I-Shou University, Taiwan

IEEM22-A-0114/A Deep Learning Approach to Cross-cultural TV Series Analysis: Measuring the Impact of Gender and Emotion Display on Shot Scale Distribution
Landry Digeon†, Anjal Amin
1University of Maryland, Baltimore County, United States
2The Mobius Trip, United States
Oral Presentations

IEEM22-F-0118/A Systematic Assessment of Genetic Algorithm (GA) in Optimizing Machine Learning Model: A Case Study from Building Science
Abdulrahim Ali#+1, Raja Jayaraman1, Elie Azar2, Andrei Sleptchenko1
1Khalifa University, United Arab Emirates
2Carleton University, Canada

IEEM22-F-0466/Improving a Recommendation Engine for Traditional Trade Between Wholesalers and Retailers Using Association Rules
Krisda Chugh#+1, Nantachai Kantanantha1
1Chulalongkorn University, Thailand

IEEM22-A-0065/Enhancing Awareness Using Serious Game
Brendan Chan†1, Linda William#1
1Temasek Polytechnic, Singapore

Operations Research 5
2022-12-09 11:00 AM-01:00 PM Room 403

Session Chair(s): Anand Jacob ABRAHAM, Indian Institute of Technology Kharagpur
Siddhartha PAUL, Swiggy, Bundl Technologies

IEEM22-A-0042/Optimized Drone Deployment Plan For Last-mile Delivery
Oqais Tanvir#+1, Gaurav Kumar1, Akhilesh Kumar2, Sri Krishna Kumar1
1Indian Institute of Technology Kharagpur, India
2Indian Institute of Management Raipur, India

IEEM22-F-0464/Mean-variance and Safety-first Portfolio Selection Utilizing Historical Returns of Forbes Asia’s Fab50 Companies
Gerlyn Altes†1, Michael Young#, Yogi Tri Prasetyo1, Reny Nadlifatin2
1Mapúa University, Philippines
2Institut Teknologi Sepuluh Nopember, Indonesia

IEEM22-F-0108/Extension of the PROMETHEE Method to the Multicriteria Dual Clustering Problem
Yves De Smet#+1
1Université Libre de Bruxelles, Belgium

IEEM22-F-0272/Decision Support System for Selecting Robot Systems for Pick-and-place Operation of Robot Manipulator
Yushi Oyama#+1, Tatsushi Nishi1, Ziang Liu1, Md Moktadir Alam1, Tomofumi Fujiwara1
1Okayama University, Japan
Oral Presentations

IEEM22-F-0350/Barriers to The Transition from Supply Chain 4.0 (SC4.0) To Supply Chain 5.0 (SC5.0)
Arshil Ahmad#1, Hisham Fazal Syed¹, Jay Jayantkumar Joshi¹, Sharfuddin Khan¹
¹University of Regina, Canada

IEEM22-F-0460/Analysis of Mean – Variance Theory and Safety-first Model for Portfolio Selection on Non-fungible Tokens (NFTs) and Collectibles
Justine Kyle Chan¹, Michael Young#¹, Yogi Tri Prasetyo¹, Reny Nadlifatin²
¹Mapúa University, Philippines
²Institut Teknologi Sepuluh Nopember, Indonesia

IEEM22-A-0043/A Flow-based Formulation for Parallel Machine Scheduling Using Decision Diagrams
Roel Leus#², Daniel Kowalczyk¹, Christopher Hojny², Stefan Ropke³
¹KU Leuven, Belgium
²Eindhoven University of Technology, Netherlands
³Technical University of Denmark, Denmark

Systems Modeling and Simulation 3
2022-12-09 11:00 AM-01:00 PM Room 404

Session Chair(s): Abdul-Wahid SAIF, King Fahd University of Petroleum and Minerals

Abdul-Wahid Saif#¹
¹King Fahd University of Petroleum and Minerals, Saudi Arabia

IEEM22-F-0229/Simulation for Modeling and Analysis of Burn Center
Akshay Vilas Upasany#¹, Anurendra Singh², Gurkirat Wadhwa¹, Jayendran Venkateswaran¹, Gopika Vinod²
¹Indian Institute of Technology Bombay, India
²Homi Bhabha National Institute, India

IEEM22-F-0268/Epidemiological Model of COVID-19 based on Evolutionary Game Theory: Considering the Viral Mutations
Yu Nishihata#¹, Ziang Liu¹, Tatsushi Nishi¹
¹Okayama University, Japan

IEEM22-F-0420/Stability Analysis of Emission-based Production and Inventory Control Systems (EPICS)
Rishav Deval#², Jayendran Venkateswaran¹
¹Indian Institute of Technology Bombay, India
IEEM22-A-0105/Minimizing the Motion Risk of Floating Wind Turbines: A Case Study Based on Mooring Assessment in Vietnam
Hien Hau Pham#1, Dang Thi Thanh Huyen+1, Yi Liu Liu2
1Hanoi University of Civil Engineering, Viet Nam
2Norwegian University of Science and Technology, Norway

IEEM22-F-0082/Energy Losses Analysis for Electrical Grid Systems
Indra Gunawan#1, Ashraf Zaghwan1
1The University of Adelaide, Australia

Supply Chain Management 5
2022-12-09 11:00 AM-01:00 PM Room 405

Session Chair(s): Fazleena BADURDEEN, University of Kentucky
Lina GOZALI, Tarumanagara University

IEEM22-F-0311/Decision Analysis Considering Government Double Subsidy and CSR under Green Technology R&D Uncertainty
Nan Chen*1, Jianfeng Cai1, Lei Gao1
1Northwestern Polytechnical University, China

IEEM22-F-0319/Analyzing Barriers Towards Implementing Circular Economy in Healthcare Supply Chains
Kartika Alfiina*1, R.M. Chandima Ratnayake2, Dermawan Wibisono1, Mursyid Hasan Basri1, Nur Budi Mulyono1
1Bandung Institute of Technology, Indonesia
2University of Stavanger, Norway

IEEM22-F-0345/Capacity Planning of the Semiconductors Manufacturing Supply Chain: A Decision Method and Application
Jun-Der Leu*1, Fei-Pai Liu+1
1National Central University, Taiwan

IEEM22-F-0351/Challenges in the Transition from Supply Chain 4.0 to Supply Chain 5.0
Tanveer Chowdhury*1, Kabita Bhowmik1, Akshith S. Naidu1, Sharfuddin Khan1
1University of Regina, Canada

IEEM22-F-0361/A Joint Economic Lot Size Model for a Single-manufacturer, Multiple Retailers, and Multi-product with Electric Trucks and Drone
Ivan Darma Wangsa*1, Iwan Vanany2, Nurhadi Siswanto1
1Institut Teknologi Sepuluh Nopember, Indonesia

IEEM22-A-0113/Developing Resilient and Sustainable Supply Chains: Key Requirements and Future Directions
Fazleena Badurdeen*1, Gisele Guedes1, Angela Reamber1
1University of Kentucky, United States
Oral Presentations

IEEM22-F-0075/Incentive Strategy Considering Observation Period to Manage Supply Disruption under Uncertain Demand
Lingzi Li1, Shuangshuang Dong1, Meimei Zheng1, Wei Weng2
1Shanghai Jiao Tong University, China
2Kanazawa University, Japan

Crisis Management
2022-12-09 11:00 AM-01:00 PM Room 406

Session Chair(s): Yogi Tri PRASETYO, Mapúa University
Ardiyansyah YATIM, Universitas Indonesia

IEEM22-F-0133/Developing Organizational Resilience Model to Sustain Business Performance
Jonny *#1, Dave Mangindaan1
1Bina Nusantara University, Indonesia

IEEM22-F-0474/The Impact of COVID-19 Pandemic on Airport: An Empirical Study of Service Quality, Customer Satisfaction, and Travel Intention for Sustainable Airport Operations
Yogi Tri Prasetyo*1, Darlene Gayle D. Dela Fuente1, Thanatorn Chuenyindee2, Reny Nadlifatin3, Satria Fadil Persada4
1Mapúa University, Philippines
2Navaminda Kasatriyadhiraj Royal Air Force Academy, Thailand
3Institut Teknologi Sepuluh Nopember, Indonesia
4Bina Nusantara University, Indonesia

IEEM22-F-0209/Supply Chain Disruptions during the COVID-19 Pandemic in General Trading Companies
Anton Sukoco1, Iwan Vanany*#1, Jerry Dwi Trijoyo Purnomo1
1Institut Teknologi Sepuluh Nopember, Indonesia

IEEM22-A-0099/Is Voluntary Construction Dispute Mediation Necessary?
Nan Cao*#1, Sai On Cheung1
1City University of Hong Kong, Hong Kong SAR

IEEM22-F-0033/Concept for the Identification of Governmental Needs for Actions within the Technology Transfer of Deep Tech
Günther Schuh1, Tim Latz*#2
1RWTH Aachen University, Germany
2Fraunhofer Institute for Production Technology IPT, Germany

Service Innovation and Management 1
2022-12-09 11:00 AM-01:00 PM Room 407

Session Chair(s): Venkateswarlu NALLURI, Chaoyang University of Technology
Ewilly Jie Ying LIEW, Monash University
IEEM22-F-0005/Exploring the Relationship Among Experience Marketing, Customer Loyalty on Purchase Intention- A Case Study of Banking Sector
Venkateswarlu Nalluri*1, Long-Sheng Chen*1
1Chaoyang University of Technology, Taiwan

IEEM22-F-0071/The Strategic Role of Design of Identity Management and Reputation in Indonesia Higher Education Institutions
Putri Dwitasari*1, Ellya Zulaikha1, Syarifa Hanoum1
1Institut Teknologi Sepuluh Nopember, Indonesia

IEEM22-F-0137/Older Adults' Evaluations of Mobile Apps: Insights from a Mobility App-based Solution
Clarice Sze Wee Chua1, Weng Marc Lim1, Pei-Lee Teh*2, Sonja Pedell3
1Swinburne University of Technology, Malaysia
2Monash University, Malaysia
3Swinburne University of Technology, Australia

IEEM22-F-0225/Four Initiatives to Standardize Warehouses to Increase Digitalization and Automation
Tine Meidahl Münsberg*1, Lars Hvam1, Sofie Amalie Lundsteen1, Mads Støjler-Hønberg1, Maximilian Csik1, Lydia Tsintzou1
1Technical University of Denmark, Denmark

IEEM22-F-0339/Adoption of Industry 4.0 in the TIC Industry: Systematic Review
Norton H. Y. Yuen*1, Fanny Tang1, Chi Ho Li2
1Hong Kong Metropolitan University, Hong Kong SAR
2The Open University of Hong Kong, Hong Kong SAR

Technology and Knowledge Management 5
2022-12-09 11:00 AM-01:00 PM Room 408

Session Chair(s): Pei-Lee TEH, Monash University
Iori NAKAOKA, Seijoh University

IEEM22-F-0280/Exploring the Relationships Between Artificial Intelligence Transparency, Sources of Bias, and Types of Rationality
Laura Valtonen*1, Saku Mäkinen2
1Tampere University, Finland
2University of Turku, Finland

IEEM22-F-0282/Public Acceptance of Electric Vehicles in Indonesia
Karsi Widiawati*1, Bertha Maya Sopha*1, Fakhri Wardana1
1Universitas Gadjah Mada, Indonesia
IEEM22-F-0312/Organizational Structure for Improving R&D Exploration Degree of ICT Companies
Iori Nakaoka1+, Yunju Chen2, Yousin Park3, Hirochika Akaoka4, Seigo Matsuno5
1Seijo University, Japan
2Shiga University, Japan
3Prefectural University of Hiroshima, Japan
4Kyoto Sangyo University, Japan
5National Institute of Technology, Ube College, Japan

IEEM22-F-0151/Technology Adoption in Teaching and Learning Within Online Environment
Irshaad Mahomed1+, Wilson Maladzhi1
1University of South Africa, South Africa

IEEM22-F-0313/A Review of Innovation Alliances from Game Theory Perspective
Lei Gao1+, Jianfeng Cai1, Zhengfeng Li1
1Northwestern Polytechnical University, China

IEEM22-F-0332/The Adoption Speed of Scientific Knowledge: The Moderating Role of Path Dependency on Scientific Knowledge
Chia-I Kuo1+,
1Providence University, Taiwan

Jae Hoon Jung1+, Byungun Yoon1
1Dongguk University, Korea, South

Manufacturing Systems 5
2022-12-09 11:00 AM-01:00 PM Room 409

Session Chair(s): R.M. Chandima RATNAYAKE, University of Stavanger
Carman Ka Man LEE, The Hong Kong Polytechnic University

IEEM22-F-0087/Experimental Investigation of Magnetic Force-assisted Powder-mixed EDM for Aluminium Based Metal Matrix Composite
Ram Sajeevan1+, Avanish Kumar Dubey2
1Maha Maya Polytechnic of Information Technology, India
2Motilal Nehru National Institute of Technology, India
Oral Presentations

IEEM22-F-0448/The Impact of the COVID-19 Pandemic on the Organizational Commitment in Semiconductor Industry: The Mediator Effect of the Job Satisfaction
Yogi Tri Prasetyo,#1, Ardyvin Kester S. Ong#1, Alaissa Marie A. Cagubcob#1, Thanhorn Chuenyindee#2, Reny Nadlifatin#3, Satria Fadil Persada#3
1Mapúa University, Philippines
2Navaminda Kasatriyadhiraj Royal Air Force Academy, Thailand
3Institut Teknologi Sepuluh Nopember, Indonesia
4Bina Nusantara University, Indonesia

IEEM22-F-0014/Factors Affecting Six Sigma Green Belt Deployment – Case of Company A
Vela Mazula#1, Alice Kabamba Lumbwe#1, Sambil Charles Mukwakungu#1, Nita Sukdeo#1
1University of Johannesburg, South Africa

IEEM22-F-0017/An Empirical Approach to the Implementation of Lean Manufacturing as a Strategy to Mitigate Industrial Waste in South Africa
Tshepiso Thobakgale#1, Eric Mikobi Bakama#1, Sambil Charles Mukwakungu#1, Nita Sukdeo#1
1University of Johannesburg, South Africa

IEEM22-F-0166/Social Media Product Data Integration with Product Lifecycle Management; Insights for Application of Artificial Intelligence and Machine Learning
Noushin Mohammadian#1, Nadhir Mechai#1, Omid Fatahi Valilai#1
1Jacobs University Bremen, Germany

IEEM22-F-0416/The Importance of Reliability Indicators in Preventative Maintenance
Magano Molefe#1, Anup Pradhan#1
1University of Johannesburg, South Africa

Information Processing and Engineering

Session Chair(s): Michel ALDANONDO, Toulouse University / IMT-Mines Albi

IEEM22-F-0391/Building a Natural Language Processing Model to Extract Order Information from Customer Orders for Interpretative Order Management
Mingyan Simon Lin#1, Clara Ga Yi Tang#1, Xing Jing Kom#1, Jia Yi Eyu#1, Chi Xu#2
1Singapore Institute of Manufacturing Technology, Singapore
2Agency for Science, Technology and Research (A*STAR), Singapore

IEEM22-F-0318/Development of a New Type of Carousel-based Compacted Work System for Mixed-model Assembly in Mechanical Engineering
Sven Hinrichsen#1, Alexander Nikolenko#1, Nils Beckmann#1, Frederic Meyer#1
1Ostwestfalen-Lippe University of Applied Sciences and Arts, Germany
Oral Presentations

IEEM22-A-0035/Building Facade Energetic Renovation: Towards a Façade Model to Feed Insulation Design Software
Michel Aldanondo*,1, Andrea Christophe1, Julien Lesbegueries1, Elise Vareilles1
1University of Toulouse, France

IEEM22-F-0020/Application of Identity Resolution System under Industrial Internet: Taking Cold Chain Traceability as an Example
Ruirui Wang†1, Ziding Meng†1, Yuguang Bao†, Xinguo Ming†1
1Shanghai Jiao Tong University, China

IEEM22-F-0226/Adaptive Genetic Algorithm Based S-box Design for Artificial Neural Network
Runtao Ren†1, Ban Yang‡, Raymond Y. K. Lau‡1
1City University of Hong Kong, Hong Kong SAR
2Xi’an University of Posts and Telecommunications, China

IEEM22-F-0338/Part Recognition in Additive Production Systems using a Computer-vision Approach
Günther Schuh1, Gerret Lukas1, Steffen Hohenstein1, Jan Marvin Schäfer*†1, Lukas Drescher†1
1RWTH Aachen University, Germany

Big Data and Analytics 2
2022-12-09 02:00 PM-03:30 PM Room 402

Session Chair(s): Landry DIGEON, University of Maryland, Baltimore County
Yun Prihantina MULYANI, Universitas Gadjah Mada

IEEM22-F-0174/Sentiment Analysis Model for KlikIndomaret Android App During Pandemic Using Vader and Transformers NLTK Library
Akhmad Ghiffary Budianto˚1, Budisantoso Wirjodirdjo˚2, Iffan Maflahah2, Diva Kurnianingtyas3
1Universitas Lambung Mangkurat, Indonesia
2Institut Teknologi Sepuluh Nopember, Indonesia
3Universitas Brawijaya, Indonesia

IEEM22-F-0203/Using Distance Measures and Cluster Algorithms for Production Logistics-oriented Evaluation of Products and Product Portfolios
Tim Kämpfer*‡1, Sven A. Klaßen1, Peter Nyhuis1
1Leibniz University Hannover, Germany

IEEM22-F-0293/Data-based Approach for Reducing Process Complexity in Parts Manufacturing
Günther Schuh†, Andreas Gütlaff†, Jan Maetschke†, Marius Krug*†1, Julius Breitung†1
1RWTH Aachen University, Germany
IEEM22-F-0356/Semantic Analysis Using GloVe for Onomatopoeia in Cosmetics Review
Misaki Murata1#, Takashi Ito1, Syohei Ishizu1
1Aoyama Gakuin University, Japan

IEEM22-F-0060/Process Model for the Data-driven Identification of Machine Function Usage for the Reduction of Machine Variants
Steffen Wagenmann1#, Artur Krause2, Simon Rapp1, Sebastian Huenemeyer3, Albert Albers1, Nikola Bursac4
1Karlsruher Institute of Technology, Germany
2TRUMPF Machine Tools SE + Co.KG, Germany
3Porsche AG, Germany
4Technical University of Hamburg, Germany

IEEM22-F-0032/Side-view Dimensional Profiling of Drive-through Vehicle and Features Extraction by Using LiDAR and Camera
Shek-Ping Li1#, Y. Y. Chan1, Yongshi Liang1, Yuk Ting Hester Chow1, H. Y. Ng1, Kin Lok Keung6
1The Hong Kong Polytechnic University, Hong Kong SAR

Operations Research 6
2022-12-09 02:00 PM-03:30 PM Room 403

Session Chair(s): Siddhartha PAUL, Swiggy, Bundl Technologies
Norbert TRAUTMANN, University of Bern

IEEM22-F-0236/Edge Encoded Attention Mechanism to Solve Capacitated Vehicle Routing Problem with Reinforcement Learning
Getu Fellek1#, Goytom Gebreyesus1, Ahmed Farid1, Shigeru Fujimura4, Osamu Yoshie1
1Waseda University, Japan

IEEM22-F-0061/On Defining Industrial Agility as a Strategic Capability for Competitive Performance of Engineering Assets: An Industrial Eco-systems Perspective
Lucas Peter Hoej Brasen1#, Jayantha P. Liyanage2
1Aarhus University, Denmark
2University of Stavanger, Norway

IEEM22-F-0141/Applying a Capacitated Heterogeneous Fleet Vehicle Routing Problem with Multiple Depots Model to Optimize a Retail Chain Distribution Network
W. Madushan Fernando1, Amila Thibbotuwawa1, H. Niles Perera1, R.M. Chandima Ratnayake2
1University of Moratuwa, Sri Lanka
2University of Stavanger, Norway

IEEM22-A-0087/Inventory Model Under Trade Credit Policy and Uniformly Distributed Lead Time
Mohammed Darwish1#
1Kuwait University, Kuwait
IEEM22-F-0380/Layout Redesign of a Shipbuilding and Repair Plant
Jing Shun Leow#, Jing Shuo Leow#, Kuan Yew Wong¹, Hooi Siang Kang¹
¹Universiti Teknologi Malaysia, Malaysia

Healthcare Systems and Management
2022-12-09 02:00 PM-03:30 PM Room 404

Session Chair(s): Yogi Tri PRASETYO, Mapúa University
Liña GOZALI, Tarumanagara University

IEEM22-F-0036/Smart Wristwatch and Apps for Healthy People with
Congenital Diseases and a Healthy Lifestyle
Liña Gozali#, Geraldo Rafael¹, Caroline De Candira¹, Maslin Masrom²,
Ariawan Gunadi¹, Teuku Yuri M. Zagloel³
¹Tarumanagara University, Indonesia
²Universiti Teknologi Malaysia, Malaysia
³Universitas Indonesia, Indonesia

IEEM22-F-0205/Healthcare Facility Location Selection: A
Bibliometric Analysis and Scoping Review
Rentia Fourie#, Sara Grobbelaar¹
¹Stellenbosch University, South Africa

IEEM22-F-0297/A Rolling-based Multipeak Learning Model for
COVID-19 Pandemic Predicting
Dian Chen#, Liping Zhou¹
¹Shanghai Jiao Tong University, China

IEEM22-F-0321/Criteria Determination of Lean and Green Practices
Towards Sustainability for Secondary Hospitals in Thailand
Jaruda Ngamwititwong#, Ronnachai Sirovetnukul¹
¹Mahidol University, Thailand

IEEM22-F-0281/A Scoping Review and Critical Analysis of the
Literature Surrounding a Systems-thinking Approach to Realist
Evaluation, in the Context of Monitoring and Evaluation
Olivia Hitchcock#, Sara Grobbelaar¹, Euodia Vermeulen¹
¹Stellenbosch University, South Africa

IEEM22-F-0317/Optimization of Healthcare Problem using Swarm
Intelligence: A Review
Agus Wahyu Widodo¹, Diva Kurnianingtyas#, Wayan Firdaus Mahmudy¹
¹Universitas Brawijaya, Indonesia
Supply Chain Management 6
2022-12-09 02:00 PM-03:30 PM Room 405

Session Chair(s): Ziaul Haque MUNIM, University of South-Eastern Norway
Carmán Ka Man LEE, The Hong Kong Polytechnic University

Navid Julian Sardarabady*, John-Dean Kasher1, Simon Riedle1
1Duale Hochschule Baden-Württemberg Ravensburg, Germany

IEEM22-F-0408/Model for the Determining Number and Location of Food Loss Processing Facilities on the Food Supply Chain
Ika Deefi Anna*, Iwan Vanany*, Nurhadi Siswanto1
1Institut Teknologi Sepuluh Nopember, Indonesia

IEEM22-F-0415/Systematic Selection of Digitization Technologies in Transport Logistics Processes based on a Multi-criteria Decision Analysis
John-Dean Kasher*, Navid Julian Sardarabady1, Simon Riedle1, Markus E. Schatz1
1Duale Hochschule Baden-Württemberg Ravensburg, Germany

IEEM22-A-0045/Solving an Integrated Production and Distribution Problem
Rachida Benfedel*, Fayçal Belkaid1, Nadjib Brahimi2
1Manufacturing Engineering Laboratory of Tlemcen, Algeria
2Rennes School of Business, France

IEEM22-F-0458/Influence of the Degree of Centralization on the Decision Quality in Production Management
Günther Schuh1, Andreas Gützlaff1, Tino Xaver Schlosser*
1RWTH Aachen University, Germany

IEEM22-F-0237/Goal Programming Approach of a Multi-vehicle Routing Problem on Waste Collection Considering Economic, Environmental, Time, and Health Objectives
Madeline Tee*, Kent Louie Wong1, Dennis Cruz1
1De La Salle University, Philippines
Oral Presentations

E-Business and E-Commerce
2022-12-09 02:00 PM-03:30 PM Room 406

Session Chair(s): Irma MÄKÄRÄINEN-SUNI, Haaga-Helia University of Applied Sciences
Andrei O. J. KWOK, Monash University

IEEM22-F-0127/Mapping the Digital, Innovative Start-up Venture Creation Process
Irma Mäkäräinen-Suni1, Alan Pilkington2, Maria Granados2, Sergio de Cesare2
1Haaga-Helia University of Applied Sciences, Finland
2University of Westminster, United Kingdom

IEEM22-F-0139/Perceptions, Emotions and Motivations of Gig Workers: Insights from Malaysia
Borui Fang1, Ewilly Jie Ying Liew1, Andrei O. J. Kwok#1, Pei-Lee Teh1
1Monash University, Malaysia

IEEM22-F-0340/Customer's Usage and Brand Experience Toward Branded Mobile Payment Improve Continuous Usage Intention
Li-Ting Huang#1
1Chang Gung University, Taiwan

IEEM22-F-0373/Exploring Factors That Customers’ Concerns When Using the E-commerce Platform in Thailand
Jiramate Wadsuwan1, Pornwasin Sirisawat1, Tipavinee Suwanwong Rodbundith1
1Mae Fah Luang University, Thailand

IEEM22-F-0180/Assessing the Role of Minimum Viable Products in Digital Startups
Javaria Umbreen#1, Muhammad Zeeshan Mirza1, Yasir Ahmad1, Afshan Naseem1
1National University of Sciences & Technology, Pakistan

Service Innovation and Management 2
2022-12-09 02:00 PM-03:30 PM Room 407

Session Chair(s): Pittawat UEASANGKOMSATE, Kasetsart University
Ewilly Jie Ying LIEW, Monash University

IEEM22-F-0387/Understanding Challenges as Needs: Smartphone Usage Among Malaysian Older Women in Rural Areas
Ewilly Jie Ying Liew#1, Pei-Lee Teh1, Sooyeong Ewe1, Chooi Ling Chong1
1Monash University, Malaysia
Oral Presentations

IEEM22-F-0026/Evaluation of Subscription-based Sales of IoT-enabled Consumer Devices
Tatsuya Inaba*1
1Kanagawa Institute of Technology, Japan

IEEM22-F-0040/What Benefits Can SMEs in the Food Industry Gain from Innovative Products?
Pittawat Ueasangkomsat*1
1Kasetsart University, Thailand

IEEM22-F-0143/Local Governance of Future Regional Development in Remote Areas: Key Insights from a Co-creation Study in Sweden
Christine Große*1
1Mid Sweden University, Sweden

IEEM22-F-0227/A Scoping Review Investigating the Use of Outcome-based Models to Improve Healthcare Outcomes and Reduce Healthcare Spending
Grace Chidavaenzi*1, Sara Grobbelaar1, Faatiema Salie1
1Stellenbosch University, South Africa

Technology and Knowledge Management 6
2022-12-09 02:00 PM-03:30 PM Room 408

Session Chair(s): Günther SCHUH, RWTH Aachen University
Gitae KIM, Hanbat National University

IEEM22-A-0086/Business Models and Modularization as Enablers for the Circular Economy
Dag Raudberget*1
1Jönköping University, Sweden

IEEM22-F-0161/A Framework for Enhancement of Building Information Modeling using Internet of Things and Axiomatic Design Theory
Elham Zafarghandi*1, Alireza Haji1, Omid Fatahi Valilai*2
1Sharif University of Technology, Iran
2Jacobs University Bremen, Germany

IEEM22-F-0330/Human-Centered Machine Learning Implementation in Banking: Case Study in BRILink (BRI Branchless Banking) Agent Acquisition, Upgrade, and Activation
Faiq Iftirul Mahlidah*1, Agung Kharisma Sukarno1, Yoga Yustiawan1, M. Dendi Raditya Bakry1
1Bank Rakyat Indonesia, Indonesia
Intelligent Systems
2022-12-09 02:00 PM-03:30 PM Room 409

Session Chair(s): Dinh Son NGUYEN, The University of Danang, University of Science and Technology
Chien-Sing LEE, Sunway University

IEEM22-F-0002/Regression-based Business Decision Support: Application in Online Retail
Bhavesh Khatri¹, Mait Rungi²⁺¹
¹Estonian Entrepreneurship University of Applied Sciences, Estonia

IEEM22-F-0442/Systematic Literature Review of Real-time Risk Analysis of Autonomous Ships
Deepen Prakash Falari²⁺¹, Hyungju Kim², Choungho Choung³, Seong Na³
¹University of South-Eastern Norway (USN), Norway
²University of South-Eastern Norway, Norway
³Korea Register (KR), Korea, South

IEEM22-F-0432/COVCOUGH: An Artificial Intelligence Application to Detect COVID-19 Patients through Smartphone-recorded Coughs
Dinh Son Nguyen⁺¹, Khoa Tran Dang², Huyen Trang Ton Nu¹
¹The University of Danang, University of Science and Technology, Viet Nam
²Pham Ngoc Thachen University of Medicine, Viet Nam

IEEM22-F-0193/On Restricted Computational Systems, Real-time Multi-tracking and Object Recognition Tasks are Possible
Hamam Mokayed⁺¹, Thomas Clark², Lama Alkhaled¹, Mohamad Ali Marashli³, Hum Yan Chai⁴
¹Lulea University of Technology, Sweden
²Asia Pacific University, Malaysia
³City University of Hong Kong, Hong Kong SAR
⁴Universiti Tunku Abdul Rahman, Malaysia
Poster Presentations
Poster Presentations
2022-12-09 04:00 PM-05:30 PM

IEEM22-A-0001/Health Monitoring of Chain Driving Power System
Sang Kwon Lee+1
1Inha University, Korea, South

IEEM22-A-0041/A Surrogate Based Adaptive Annealing Genetic Algorithm to Support Production Planning and Scheduling in Smart Manufacturing
Ping Chong Chua+1, Seung Ki Moon+1, Yen Ting Ng2, Huey Yuen Ng3
1Nanyang Technological University, Singapore
2Agency for Science, Technology and Research, Singapore
3Singapore Institute of Manufacturing Technology, Singapore

IEEM22-A-0049/Gain Enhancement of Flexible Power Transfer Antenna using Frequency Compensation
JinHyoung Kim+1, KwonHong Lee1, Cheolung Cha1
1Korea Electronics Technology Institute, Korea, South

IEEM22-A-0050/A Digital Twin-based Approach to Identify Optimal Production Line Configuration in Smart Manufacturing
Jongsuk Lee+1, Seung Ki Moon1, Sumin Jeon2
1Nanyang Technological University, Singapore
2Hyundai Motor Group Innovation Center, Singapore

IEEM22-A-0060/Application of GPT3 to Closed-domain Question Answering for Problem and Solution in Computer Science
Satoru Yamamoto+1, Hajime Sasaki2
1Data Artist Inc., Japan
2The University of Tokyo, Japan

IEEM22-A-0074/Optimal Domestic Industry Correlation Structure for Circular Economy - A Case of Food/energy/water Nexus
Hsiao-Fan Wang+1
1National Tsing Hua University, Taiwan

IEEM22-F-0077/Multistage Configuration Systems Used to Streamline the Construction Value Chain
Irene Campo-Gay+1, Lars Hvam1, Anders Haug2
1Technical University of Denmark, Denmark
2University of Southern Denmark, Denmark

IEEM22-F-0083/Prediction of Returns of Taiwan 50 Index Constituents Using Random Forest Algorithm
Wen-Ping Chao+1, Keng-Chieh Yang2, Yu-Min Hong3, Chyan Yang3
1Shu-Te University, Taiwan
2National Kaohsiung University of Science and Technology, Taiwan
3National Yang Ming Chiao Tung University, Taiwan
IEEM22-F-0085/Heuristic Decision for Static and Dynamic Service Facility Location in Agricultural Maintenance Service Network
Weibo Ren¹, Yaoguang Hu¹
¹Beijing Institute of Technology, China

IEEM22-F-0089/Identification of Factors Affecting the Adoption of Home Intelligent Robots
Danping Lin¹, Shuang Wu¹, Lingchao Zhu¹
¹Shanghai Maritime University, China

IEEM22-F-0092/Traceable and Privacy-preserving Blockchain System Architecture for Remanufacturing Reverse Supply Chain
Qiaolun Gu², Tiegang Gao²
¹Tianjin University of Technology and Education, China
²Nankai University, China

IEEM22-F-0095/Reform and Innovation of Undergraduate Graduation Project (Thesis) Based on AHP Fuzzy Grey Comprehensive Method
Meijuan Gao¹, Xiaoxiao Xie¹, Maosen Fu²
¹Northwestern Polytechnical University, China

IEEM22-F-0101/Bitcoin Data Analysis Using Deep Learning and Statistical Modeling
Joel Liu¹, Zijiang Yang¹, Younes Benslimane²
¹York University, Canada

IEEM22-F-0103/Application of the Multistage One-shot Decision-making Approach to a Museum Investment Decision
Mohammed Al-Shanfari²
¹Yokohama National University, Japan

IEEM22-F-0109/Identification of Factors Affecting the Application of Additive Manufacturing Technology in Mass Customization Based on Structural Equation Model
Danping Lin¹, Yuting Zhang¹, Ben Jiang¹
¹Shanghai Maritime University, China

IEEM22-F-0156/Research on the Product Design of Wood Identification based on Electronic Nose
Chenhao Li¹, Jinchun Wu¹, Chengqi Xue¹
¹Southeast University, China

IEEM22-F-0175/Applying Three Deep Learning Techniques to Predicting Stock Price
Chia Chun Kao¹, Chieh-Yow ChiangLin¹, Keng-Chieh Yang¹
¹National Kaohsiung University of Science and Technology, Taiwan

IEEM22-F-0188/Optimal Dual-objective Inventory Strategies for a Two-echelon Capacitated Supply Chain
Lang Xiong¹, Tingting Xiao¹
¹Harbin Institute of Technology, China
IEEM22-F-0197/Mapping the Literature on Ecosystem Coopetition: A Bibliometric Analysis from 1993-2021
Xiao Sun#*, Suli Zheng¹, Luqi Yang¹
¹China Jiliang University, China

IEEM22-F-0201/An ERP-based Icon Contour Similarity Perception Research
Yixuan Zhou¹, Haiyan Wang², Lulu Gan¹, Jinchun Wu¹, Chengqi Xue¹
¹Southeast University, China

IEEM22-F-0219/Applying Refined Kano Model to Classify and Rank Customer Requirements, Case Study: Automotive Industry in Portugal
Ahmad Hariri**, Jose Pedro Teixeira Domingues¹, Paulo Sampaio¹
¹University of Minho, Portugal

IEEM22-F-0234/ Research on the Joint Strategy of Advance Selling and Resalable Return for Upgrading Products
Xiaowen Sun¹, Qing Xia¹
¹Guangdong University of Education, China

IEEM22-F-0239/Study on Simulation and Fatigue Assessment Method for Shipbuilding Manual Operation in Narrow Space
Junqi Cai¹, Xiumin Fan², Xu Yang¹, Qichang He¹
¹Shanghai Jiao Tong University, China

IEEM22-F-0242/Short-term Prediction of Outbound Container Arrival Quantity Based on KNN with Deep Learning in Container Terminals
Wuyin Wang¹, Wei Qin², Shitong Shen¹
¹Shanghai Jiao Tong University, China

IEEM22-F-0250/Research on Lean Logistics Performance Evaluation Index System of Tobacco Commercial Enterprises in the Context of National Unified Market
Yong Zhao¹, Jiangtao Xia², Caihong Liu²
¹Shaanxi Provincial Tobacco Company Xi’an Branch, China
²Northwestern Polytechnical University, China

IEEM22-F-0265/A Research Framework of the Influencing Factors of Overseas Patent Application
Xiaohan Zhang**, Suli Zheng¹, Xiaoran Chang¹
¹China Jiliang University, China

IEEM22-F-0266/Prioritizing Customer Requirements for Science and Technology Service Platform Based on Improved TF-IDF and Sentiment Analysis
Yushan Xu¹, Chu Zhang², Wenyan Song¹
¹Beihang University, China
IEEM22-F-0276/Reinforcement Learning-based Job Shop Scheduling for Remanufacturing Production
Yue Bai#, Yaqiong Lv†
†Wuhan University of Technology, China

IEEM22-F-0291/Supply Chain Quality Management and Industry 5.0: A Literature Review and Analysis
Joana Lazzaris#, Andre M. Carvalho‡, Maria do Sameiro Carvalho†
†University of Minho, Portugal
‡Polytechnic Institute of Cávado and Ave, Portugal

IEEM22-F-0309/RF MEMS Resonance Sensor for Measuring Microplastics Concentration
JinHyoun Kim#, KwonHong Lee‡, Cheolung Cha†, Yongtaek Hong‡
†Korea Electronics Technology Institute, Korea, South
‡Seoul National University, Korea, South

IEEM22-F-0327/Sorting System for Ship Outfitting Pipes Based on Enhanced Object Detection
Kunbo Li†, Xu Yang†, Xiumin Fan‡
†Shanghai Jiao Tong University, China
‡Shanghai Jiao Tong University, China

IEEM22-F-0333/Optimization of Fighter Head-up Display Layout Based on Fitness Function
Jiaxin He†, Yafeng Niu†, Xiaoyue Tian†, Wenjun Yang‡
†Southeast University, China
‡National Key Laboratory of Science and Technology on Aircraft Control, China

IEEM22-F-0335/A Multi-stage 6D Object Pose Estimation Method of Texture-less Objects Based on Sparse Line Features
Xu Yang†, Kunbo Li†, Xiumin Fan‡, Hongwei Zhang‡, Hengling Cao‡
†Shanghai Jiao Tong University, China
‡Jiangnan Shipyard (Group) Co., Ltd., China

IEEM22-F-0348/Effective Analysis and Investigation in COVID-19 Prevention Policies Based on Population Dynamics Modeling and Simulation
Mulan Song†, Xuejian Gong†, Yiyun (Cindy) Fei†, Jianyuan Peng†, Jianxin (Roger) Jiao†
†Georgia Institute of Technology, United States

IEEM22-F-0366/Research on BOM Prediction for Cutterhead System of TBM based on Quality Function Deployment
Jian Shi†, Yongchao Zhu‡, Wuhong Wang†, Yue Pan†, Tao Zhou‡, Yaoguang Hu†
†Beijing Institute of Technology, China
‡China Railway Engineering Equipment Group Co., Ltd., China
IEEM22-F-0375/An Integrated Digital Twin Simulation and Scheduling System under Cyber-physical Digital Twin Environment
Weidong Lin*1
1Singapore Institute of Technology, Singapore

IEEM22-F-0404/Factors Affecting Perceived Decision Making Among Filipinos in National Elections: An Integration of Theory of Planned Behavior and Behavioral Decision Theory
Xiarlene Joyce Cañares1, Lady Lalaine Estipular1, Tisha May Protacio1, Betsy Dhanna Ramos*1, Yoshiki Kurata*1, Joehanna Ngo1
1University of Santo Tomas, Philippines

IEEM22-F-0423/Energy-conscious Single-machine Scheduling Problem with Release Dates under Time-of-use Electricity Tariffs
Nan Li*1, Peng Wu*1, Yun Wang1, Junheng Cheng2
1Fuzhou University, China
2Fujian Normal University, China

IEEM22-F-0428/Political Connection, Technological Innovation Capability and Business Performance of Latecomer Firms in Emerging Economy
Tianwei Huang*1, Xiaoya Yang1, Yufei Liu*2, Haibing Liu1
1Wuhan University of Science and Technology, China
2Zhejiang University, China

IEEM22-F-0430/The Impact of E-commerce Delivery Alternatives on Urban Freight Movements and Cost: A Carrier Perspective
Wilna Bean*1, Elizna Cilliers1
1University of Pretoria, South Africa

IEEM22-F-0431/Text Mining for Exploring UX Issues of Qualitative Think Aloud Data on EV Sound
Cai Wang*1, Soo Yeon Kim1, Yein Song1, Sungho Kim1, Minsik Choi1, Donghoon Seu1, Myung Hwan Yun*1
1Seoul National University, Korea, South

IEEM22-F-0478/Challenges of Digital Twin Application in Manufacturing
Christian Kober*1, Marc Fette1, Jens Peter Wulfsberg1
1Helmut Schmidt University, Germany

IEEM22-F-0037/User-based Battery Swapping Strategy in an Electric Bike-sharing System
Hang Yang*1, Wei Qin1, Yaoming Zhou*1
1Shanghai Jiao Tong University, China

IEEM22-F-0102/A Dynamic Maintenance Task Scheduling Method Considering Maintenance Mode
Danping Lin*1, Shu Chu*1, Leilei Wei1
1Shanghai Maritime University, China
### Poster Set-Up

Friday 09 December 2022, 4pm to 5:30pm  
Outside Meeting Rooms 401 to 404; 406 to 410

#### Row 1 Posters

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#### Row 2 Posters

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### Schedule

- **Poster Set-Up**: 1pm to 3pm  
  Information & Assistance – See Help Desk

- **Poster Session**: 4pm to 5:30pm  
  Presenter Attendance Required

- **Poster Tear-Down**: 5:30pm to 6pm.  
  After this time, any posters left on the panels will be discarded
Guidelines for Presenters
1. Oral Presentations

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. Making the Presentation Onsite

i. Prepare Your Presentation
Length of presentation material should be in accordance with your time allotted. Total duration including Q&A and speaker changeover is 15 minutes for each talk. Please refer to the Final Schedule for actual presentation times. You are kindly requested to be at the presentation room at least 15 minutes before the session starts.

ii. Determine Your Audio-Visual Needs
Each meeting room comes 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.

iii. 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.

iv. Give Your Presentation
Be considerate to the other speakers and audience by staying within your allocated time. The allocated time for your presentation includes a discussion and a 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 reported in your abstract/paper submission. At the end of the meeting, all presentation files will be destroyed.
Guidelines for Presenters

2. Poster Presentations
   a. **Poster Session - Friday, 9 December 2022 from 4pm to 5:30pm**
      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.

   b. **Each presenter is provided with a 1m x 2.5m high poster panel.**
      i. Place your Paper ID, Paper Title 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, e-mails and address information must be provided in case the viewer is interested 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.
Five Big Reasons for Attending IEEM

1. Meet Like-Minded People and Industry Peers
2. Expand Knowledge and Find Solution to Problems
3. Present Your Ideas and Work to Others
4. For People to Meet You
5. Publishing Your Research is Important

Submission Format

Option 1 – Submit A Full Paper
Full papers are reviewed and included in the conference proceedings for submission to the IEEE for publishing on Xplore. Choose this option if publishing your research is important.

Option 2 – Submit Abstract Only
We understand that for many researchers, submitting a full paper can be a daunting task. This resource is designed for authors whose big reasons exclude publishing.

Review
All submissions will be peer reviewed by up to five reviewers and authors notified of the review outcome starting 17 August 2023.

Deadlines

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