



# IEOM Society

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## 2021 IEOM Awards – 6<sup>th</sup> North American Monterrey Conference

### **IEOM Distinguished Academic Leadership Award**

Dr. Jose Benito Flores-Juarez, Dean of Engineering and Technologies School, University of Monterrey, México

### **IEOM Distinguished Industry Leadership Award**

Dr. Manuel Montoya, General Director of the Automotive Cluster of Nuevo León (CLAUT)

### **IEOM Distinguished Educator Award**

Dr. José Ignacio Huertas, Professor, School of Engineering and Sciences, Energy and Climate Change Research Group, Instituto Tecnológico y Estudios Superiores de Monterrey, Campus Monterrey, Nuevo León, Mexico

Dr. Juan Baldemar Garza-Villegas, Professor, Engineering Department, University of Monterrey, México

Dr. Jesús Fabián López-Pérez, Professor, Universidad Autonoma de Nuevo Leon (UANL)

### **Distinguished Industry Achievement Award**

Ing. Mónica Rodríguez, Automotive Cluster of Nuevo León CLAUT

John Ramiro Agudelo, Mechanical Engineering Professor, Universidad de Antioquia, Colombia

Franco Omar Ramos Langer, Channel Technical and Business Enablement Manager, Siemens Digital Industries Software, Digital Factory Division, Siemens DI Mesoamérica, Querétaro, México

Josep Miquel Piqué Huerta. PhD, HVAC at Carrier, President of Technova Barcelona – La Salle Innovation Park, Manager of Internationalization and Innovation – La Salle URL, Barcelona, Spain

### **Distinguished Professor Award**

Dr. Fernando González Aleu, Associate Professor, Department of Engineering, University of Monterrey, México

Juan Carlos Rodríguez, Master Degree's Professor at IBERO: Universidad Iberoamericana, Ciudad de México

Francisco Javier Solorio Ordaz, Universidad Nacional Autónoma de México

### **Outstanding Professor Award**

Dr. John Ramiro Agudelo, Professor, Universidad de Antioquia, Colombia

Dr. Refugio Chávez-Hernández, Computer Science and Industrial Engineering Department, University of Monterrey, México

Dr. Marco Antonio Vildoso Flores, Secretary for Advance FIT Engineering Studies, San Sebastian University, Santiago, Chile

### **Outstanding Professor in Business Management**

Dr. Federico Guadalupe Figueroa Garza, FACPYA, Universidad Autonoma de Nuevo Leon (UANL), Mexico

Dr. William Henry Steinwascher Sacio, University of Monterrey, México

### **Outstanding Professor in Logistics and Supply Chain**

Dr. José Luis Martínez Flores, Professor, Graduate School in Logistics and Supply Chain Management, Universidad Popular Autónoma del Estado de Puebla (UPAEP), Mexico

Dr. Jose Manuel Sanchez, Professor of Production and Operations Management; Logistics and Supply Chain Management at the Graduate School of Engineering at the Instituto Tecnológico y de Estudios Superiores de Monterrey (ITESM), Mexico

### **Outstanding Professor in Lean Six Sigma**

Dr. Jamison Kovach, PMI Houston Endowed Professor in Project Management and Director of the University of Houston College of Technology's Lean Six Sigma Program, University of Houston, Texas, USA

Dr. Edgardo J. Escalante-Vázquez, PhD, MBB, Professor Emeritus in Industrial Engineering, Tecnológico de Monterrey, Mexico

### **Outstanding Professor in Innovation**

Dr. Azael Capetillo, Research Professor on topics of Innovation and Technology Management, and Product Development and Director of the Innovation GYM for pre-incubator, Tecnológico de Monterrey, Mexico

### **Outstanding Professor in HF**

Dr. María Mayela Terán Cázares, FACPYA, Universidad Autonoma de Nuevo Leon (UANL), Mexico

Dr. Cristian Rusu, Full Professor and Head of the Research Group in Human-Computer Interaction "UseCV", School of Informatics Engineering, Pontificia Universidad Católica de Valparaíso, Chile

**IEOM Outstanding Researcher Award**

Dr. Ricardo Ambrocio Ramírez-Mendoza, Dean of Research, Tecnológico de Monterrey  
Dr. Demófilo Maldonado, Engineering Mechanic and Electric Department, University of Monterrey

**Innovation and Entrepreneurship Award**

Dr. Juan Ignacio González, Professor, Engineering Management, University of Monterrey, México  
Gustavo Alvarez, for his solutions toward sustainable mobility in university communities (bikes, buses). Ecuador. RELIEVE  
Dr. Adriana Vargas Martínez, Researcher, Automotive Consortium for Cyberphysical Systems, School of Engineering and Sciences, Tecnológico de Monterrey, Mexico

**IEOM Woman in Industry and Academia Award**

Dr. Nicole Rodriguez van den Branden, Vice President & Chief Technology Officer, AT&T México  
Lydia Gutierrez, President, Hacienda Mexican Foods, Detroit, Michigan, USA

**IEOM Global Project Management Education Award**

Dr. Timothy Anderson, Chair, Engineering and Technology Management Department, Portland State University, Portland, Oregon, USA

**IEOM Global Engineering Education Award**

Alma Gonzalez, Ph.D., Principal Consultant, STRATHA Learning Corporation, Mexico  
Felipe Gómez Gallo, President at SPEED, Vice President for Student Affairs at IFEEES, Trainee, United Nations Institute for Training and Research (UNITAR), Bogota, Colombia

**IEOM Global Business Management Education Award**

Dr. Luis Villarreal Villarreal, Director /Dean, Facultad de Contaduría Pública y Administración (FACPYA), Universidad Autonoma de Nuevo Leon (UANL), Mexico  
Dr. Federico Trigos, Professor of Business Analytics and Director of the Master in Manufacturing Management, EGADE Business School, ITESM, Monterrey, Mexico and Member of the Mexican Academy of Science

**IEOM Industry 4.0 Award**

Ricardo Apaez, Innovation Director, Cluster Automotriz de Nuevo Leon, CLAUT, Monterrey, México  
Reynol Eloy Villarreal Gonzalez, Facultad de Contaduría Pública y Administración (FACPYA), Universidad Autonoma de Nuevo Leon (UANL), Mexico

**Industry Solutions Award**

Mariela Cerrada, Full Professor in Mechatronics, Universidad Politécnica Salesiana, Quito, Ecuador  
José Alfredo Galván Galván, Division Director. Engineering and Sciences School, Monterrey Campus at Tecnológico de Monterrey, Mexico  
Dra. Natalia Navarrete, Chassis Technologies for EVs – Commercial Vehicles, Metalsa, Monterrey, NL, Mexico

**Industry Solutions in automotive industry Award**

Adrián Siller, General Director, SISTEMAS Automotrices De Mexico S.A. DE C.V. (SISAMEX), Mexico

**Lean Six Sigma Award**

Sergio Laria, General Director, Meritor, Mexico  
Ana Lucia Arango Montoya, Senior Project Management, Ceiba Software, Medellín, Antioquia, Colombia

**Business Management Teaching Award**

Dra. María de Jesús Araiza, Universidad Autonoma de Nuevo Leon (UANL), México  
Dr. Osmar Arandia, Postgraduate Director at the Business School, University of Monterrey, México

**Teaching Excellence Award**

Dr. Eugenia Suarez Moran, Research Professor, Universidad Panamericana, Zapopan, Jalisco, Mexico

**Teaching Excellence Award in HF**

María Mayela Terán Cázares, Facultad de Contaduría Pública y Administración (FACPYA), Universidad Autonoma de Nuevo Leon (UANL), México

**Teaching Excellence Award in OM**

Dr. Diego Alberto Oliva, Associate Professor, Universidad de Guadalajara, CUCEI, Guadalajara y alrededores, México

**Teaching Excellence Award in IE**

Dr. Patricia Eugenia Sortillón González, Universidad de Sonora, Hermosillo, Sonora, Mexico  
Fabiola Sánchez Galván, Instituto Tecnológico Superior de Tantoyuca

**Teaching Excellence Award in SCM**

Teresa Verduzco-Garza, Computer Science and Industrial Engineering, University of Monterrey, México  
Dr. Ana Julia Acevedo Urquiaga, Docente-investigador, Directora Grupo Investigación Desarrollos Industriales y SST, Fundación Universitaria San Mateo, Bogota, D.C., Capital District, Colombia

### Teaching and Learning Award

Arturo Realyvasquez Vargas, Department of Industrial Engineering, Tecnológico Nacional de México/I.T. Tijuana, Tijuana, Baja California, Mexico

### IEOM Distinguished Service Award

Dr. Luz María Valdez de la Rosa, Professor in Engineering Management, School of Engineering & Technologies University of Monterrey, México

Dr. Edgar M. A. Granda. Director of Masters in Engineering Management. University of Monterrey, Mexico

Dr. Jenny Díaz, Professor, Engineering Department, University of Monterrey, México

M.Sc. Karol Villarreal Zambrano, Engineering Department, University of Monterrey, México

### IEOM Outstanding Service Award

Dr. M. Affan Badar, CPEM, Professor, Applied Engineering and Technology Management Department, Indiana State University, Terre Haute, Indiana, USA

Dr. A. Mehran Shahhosseini, Professor, Applied Engineering and Technology Management Department, Indiana State University, Terre Haute, Indiana, USA

### IEOM Ambassador Award

Dra. Mónica Blanco, FACPYA, Universidad Autonoma de Nuevo Leon (UANL), México

Dr. Laura Peña-Parás, Mechanical and Electrical Engineering Department, University of Monterrey, México

### Outstanding Track Chair Award

Dr. José Daniel Morcillo. Civil and Management Engineering, University of Monterrey, México

Dr. Jesús Cruz-Álvarez, Autonomous University of Nuevo León, México

### IEOM Outstanding Student Academic Award

Sebastián Zazueta, University of Monterrey, México

### IEOM Outstanding Student Leadership Award

Sofía Martínez Tamez, University of Monterrey, México

## Completion Awards

### Undergraduate Student Paper Competition Sponsored by SIEMENS - Onsite

#### First Place Winner - Onsite

ID 487 Real-time Biofeedback System for Interactive Learning using Wearables and IoT

Milton O. Candela-Leal, Juan M. García-Briones, Gustavo Olivas-Martínez, Rafael Abrego-Ramos, Gabriela J. Álvarez-Espinoza, Diego M. Botín-Sanabria, Karen L. Rodríguez-Hernández, José F. Pachego-Quintana, Sofía Sampogna-Montemayor, Ruben Morales-Menendez, Ricardo A. Ramírez-Mendoza, Mauricio A. Ramírez-Moreno, Jorge de J. Lozoya-Santos

School of Engineering and Sciences, Tecnológico Monterrey, Monterrey, NL 64849, Mexico

Juan C. Tudón-Martínez. School of Engineering and Technologies, Universidad de Monterrey, San Pedro Garza García, NL 66238, Mexico

#### 2<sup>nd</sup> Place Winner - Onsite

ID 133 Understanding Makerspaces' Goals and Success

Laura A. Valadez Rojas and Azael Capetillo, School of Engineering and Sciences, Tecnológico Monterrey, Av. Eugenio Garza Sada 2501 Monterrey 64849, NL, México

#### 3<sup>rd</sup> Place Winner - Onsite

ID 255 Release and Start-up of the Stellantis DS Mirrors Production Line

Katía Mayela Lozano Ortiz, María Fernanda Vázquez Fernández, Alondra Valeria Salazar Orozco, Industrial and Systems Engineering Students, Universidad de Monterrey, Nuevo León, México

### Undergraduate Student Paper Competition Sponsored by SIEMENS - Online

#### First Place Winner - Online

ID 099 The Alternatives on Last Mile Delivery Logistics: Insights on Customers' Preferences Bruna Meire Kuhl Gomes

Cassiana Teza, Gabriel Cassino, Rodrigo Luiz Gigante, Henrique Ewbank, Facens University, Sorocaba, SP, Brazil

#### 2<sup>nd</sup> Place Winner - Online

ID 105 Investigating the Factors Affecting Lean Marketing Readiness in the Retail Sector in Sri Lanka

Apoorwamallanganthilake, Ruwan Wickramarachchi

Department of Industrial Management

University of Kelaniya, Sri Lanka

Undergraduate Student Paper Competition Sponsored by SIEMENS

#### 3<sup>rd</sup> Place Winner - Online

ID 413 Collaborative model between Data Analytics and PDCA for service level improvement in environmental consulting SMEs Juan

Carlos Quiroz-Flores and Martín Collao-Díaz, Faculty of Engineering and Architecture, Industrial Engineering Program, Universidad de Lima, Perú

GianellaChavez-Osorio and Sebastian Guillen-Valdivia, Faculty of Engineering, Industrial Engineering Program, Universidad Peruana de Ciencias, Aplicadas, Lima -Perú

3<sup>rd</sup> Place Winner - Online

ID 275 Determining Strategies for the Perfect Shade Mobile Application Using SWOT Analysis and Six Thinking Hats  
BryelleTimothy C. Nisperos, Joshua YñigoN. Pascual, Jerome Patrick S. Ramos, Grace Lorraine D. Intal, School of Information Technology, Mapua University, Makati, Philippines

3<sup>rd</sup> Place Winner - Online

ID 150 Designing a Data Governance Model to Implement GDPR in Sri Lankan Enterprises.  
P.A. Indhumini Ranathunga, and Ruwan Wickramarachchi, Dept. of Industrial Management, Faculty of Science, University of Kelaniya, Sri Lanka

### Undergraduate Research Competition - Onsite

First Place Winner

ID 272 The Incorporation of Eco-Friendly Light Vehicles in Logistics Distribution Models: A Systematic Review  
Sebastián Zazueta-Nassif, Roberto Galarza-Tamez, Vicente Montemayor-Villarreal, Industrial and Systems Engineering, Universidad de Monterrey, San Pedro Garza Garcia, Mexico  
Jenny Díaz-Ramírez, School of Engineering and Technologies, Universidad de Monterrey, San Pedro Garza Garcia, Mexico

2<sup>nd</sup> Place Winner

ID 274 Discrete Choice Models for Transportation Mode Choice: A Systematic Literature Review  
Juan Estrada-García, Juliana Figueroa, Ezequiel González, Jenny Díaz-Ramírez, Department of Engineering, Universidad de Monterrey San Pedro Garza García, Mexico

### Undergraduate Research Competition – Online

1st Place Winner - Online

ID 276 SAFE: Smart Application for Emergency  
John NicoloT. Cruz, Gabrielle Angelo D. Gabatin, John Gerick B. Gabunilas, and GlorenS. Fuentes, School of Information Technology, Mapua University, Makati City, Metro Manila, Philippines

2nd Place Winner - Online

Undergraduate Research Competition  
ID 335 Distraction and Driving Behavior of Young Indonesian Drivers: An Exploratory Study  
WinaD. Oktavia, Manik Mahachandra, Excel Verlieson, Industrial Engineering Department, Faculty of Engineering, DiponegoroUniversity, Semarang, Central Java 50269, Indonesia

3rd Place Winner - Online

ID 277 Online Scheduling System for Doctors and Patients in a Hospital  
Marion Rylan Q. De Guzman, JonnLouis N. Ordoñez, Ronald O. Somocierra, and GlorenS. Fuentes, School of Information Technology MapúaUniversity, Makati City, Metro Manila, Philippines

### Sr. Design Project CompetitionSponsored by Tooling Tech Group

First Place Winner

ID 211 Process Improvement for High Precision Components at Medical Devices Company (MDC)  
Gamaliel NegrónGuzmán, Joshua Ríos Vachierand JannettePérez-Barbosa, Department of Engineering  
Universidad Ana G. Méndez, Gurabo, Puerto Rico 00778, USA

2<sup>nd</sup> Place Winner

ID 021 Reciprocating sliding motion tribometerdesign  
DemófiloMaldonado Cortés, Dra. Laura Peña Parás, Mechanical and Electronics Department, University of Monterrey, Monterrey, México  
Lizbeth Pérez Alviso, Yadira LisseteRangel Acosta, JesúsRicardo Puente Martínez, Mechanical Engineering Students, Universidad de Monterrey, Monterrey, México

### High School STEM Competition

First Place Winner

ID 071 Determining SenecioElegansPopulation Size and Dispersion Patterns in order to Inform Volunteer Removal Efforts  
Tanisha Gupta, Stanford University Online High School, Redwood City, CA 94063, USA

Second Place Winner

ID 073 Relationship between Playing Video Games and Happiness  
Allie Lin, Stanford Online High School, Redwood City, CA, USA

Third Place Winner

ID 142 Analysis of the Correlation between Imposter Syndrome and Grade Level of Online High School Students  
Ester Weinhardt, Stanford Online High School, Redwood City, 94063 CA

## Graduate Student Paper Competition Sponsored by EATON Corporation - Onsite

### First Place Winner

ID 515 Efficient Cumulative Sum Chart for Monitoring Fraction Nonconforming

Fathy Alkhatib, Salah Haridy, Mohammad Shamsuzzamanc, Imad Alsyoufd, Department of Industrial Engineering and Engineering Management, University of Sharjah Sharjah, UAE

Ahmed Maged, Department of Systems Engineering and Engineering Management, University of Hong Kong Kowloon, Hong Kong, China

### 2<sup>nd</sup> Place Winner

ID 195 Increasing Profitability through the Implementation of an Integrated BSC-OKR Model in a Digital Agency: The Peruvian Case

Iyari Rojas-Chipana, Nicolas Aguilar-Pelizzoli, Juan Carlos Quiroz-Flores, Martín Collao-Díaz and Alberto Flores-Pérez, Facultad de Ingeniería y Arquitectura, Universidad de Lima, Lima, Perú

### 3<sup>rd</sup> Place Winner

ID 186 Application of Lean Manufacturing tools to decrease non-conforming products in a zinc refinery

Alberto Flores-Pérez, Juan Quiroz-Flores, Facultad de Ingeniería y Arquitectura, Universidad de Lima, Lima, Perú

Iván De Fuentes Pérez, Independent mechanical project consultant, Industrial Engineering Program, University of Applied Sciences, Perú

## Graduate Student Paper Competition Sponsored by EATON Corporation - Online

### First Place Winner -Online

ID 377 A Hybrid Artificial Neural Network and Logistics Regression Model for Fashion Sales Strategies Prediction

Rifdah Zahabiyah and Andi Cakravastia, Industrial Engineering Program, Faculty of Industrial Technology, Bandung Institute of Technology, Bandung, Indonesia

### 2<sup>nd</sup> Place Winner -Online

ID 374 The Analysis on Factors influencing the Use of Mobile Payment System Among Generation Z in Indonesia

Kurnia Fajar Afgani, School of Business and Management, Institut Teknologi Bandung

Dematria Pringgabayu, Politeknik Pajajaran ICB, Bandung, Indonesia

Emilia Fitriana Dewi, School of Business and Management, Institut Teknologi Bandung

Octaviani Ratnasari Santoso, Politeknik Pajajaran ICB, Bandung, Indonesia

Zxavian Zebadia Simorangkir, School of Business and Management, Institut Teknologi Bandung, Indonesia

### 3<sup>rd</sup> Place Winner - Online

ID 497 Service Quality Assessment of Local Government Units' COVID Pandemic Response using Factor Analysis

Gabriel C. Bucu, Department of Industrial and Systems Engineering, De La Salle University, Taft Avenue, Manila, 1002, Philippines and Department of Industrial Engineering, University of Santo Tomas, España Boulevard, Sampaloc, Manila, 1008, Philippines

Ariel A. Salvador Jr., Department of Industrial and Systems Engineering, De La Salle University, Taft Avenue, Manila, 1002, Philippines

Department of Industrial Engineering, University of Santo Tomas, España Boulevard, Sampaloc, Manila, 1008, Philippines

## Master Thesis Competition

### First Place Winner

ID 128 Data Driven Supply Chain Optimization a Case Study

Sandra N. Garza Almazán and Edgar M.A. Granda Gutiérrez, Department of Engineering, Universidad de Monterrey, Monterrey, Nuevo León 66238, México

### 2<sup>nd</sup> Place Winner

ID 397 The Stakeholders' Perceptions on Critical Success Factors for Construction Projects

Gomolemo Lovell Phetlhu, Faculty of Engineering and the Built Environment, University of Johannesburg, Gauteng, South Africa

### 3<sup>rd</sup> Place Winner

ID 475 Modelo para detectar el estado glucémico en pacientes sanos.

Luis Alejandro Guzmán Rangel, UDEM, Mexico

## Doctoral Dissertation Competition

### First Place Winner

ID 351 Real-world Vehicle Emissions in Mexico

Antonio E. Mogro and José Ignacio Huertas, School of Engineering and Science, Tecnológico Monterrey, Monterrey, Mexico

### 2<sup>nd</sup> Place Winner

ID 417 Medical Surge Capability: An Intelligent Framework for Improving Hospital Emergency Department Operations

Egbe-Etu Etu, Department of Marketing and Business Analytics, San Jose State University, San Jose, CA 95192, USA

Leslie Monplaisir, Celestine Aguwa, Sara Masoud, Department of Industrial & Systems Engineering, Wayne State University, Detroit, USA

Suzan Arslanturk, PhD, Department of Computer Science, Wayne State University, Detroit, MI 48202, USA

Joseph Miller, MD, Department of Emergency Medicine, Henry Ford Hospital, Detroit, MI 48202, USA

### 3<sup>rd</sup> Place Winner

ID 390 The effect of Organizational Culture Dimensions on Work Engagement and Burnout during COVID-19 pandemic

Cynthia Karyna López-Botello, Adriana Segovia-Romo and Joel Mendoza-Gómez, Facultad de Contaduría Pública y Administración Universidad Autónoma de Nuevo León, Nuevo León, México

### 3<sup>rd</sup> Place Winner

ID 418 A Framework to Foster Innovation-Driven Enterprises Creation in the University, the Case of Monterrey Region in Mexico.

Alejandro Téllez Girón Barrera and David Güemes Castorena, School of Engineering and Sciences, Tecnológico Monterrey, NL, Mexico

## Human Factors and Ergonomics Competition

### First Place Winner

ID 426 Social Media Consumption Pattern Of Generation Z In Malang Towards The Preservation Of Malangan Masks  
Erika Danny Mulyadi, Communication Science Department, Faculty of Economics and Communication, Bina Nusantara University  
Jakarta 11480, Indonesia  
Yanuarita Kusuma Permata Sari, Communication Science Department, Faculty of Economics and Communication, Bina Nusantara  
University, Jakarta 11480, Indonesia

### 2nd Place Winner

ID 022 The Accuracy of Dynamic Simulation with the Use of TSB within JACK Siemens PLM software  
Xiaoxu Ji, Justo Hernandez, Emily Schweitzer and Alexa Littman, Department of Biomedical, Industrial and Systems Engineering, Gannon  
University, Erie, PA 16541, USA

### 3rd Place Winner

ID 432 Human Resource 4.0: A vision of a technological tool to assess and foster employee engagement  
Juliana Salvadorinho, Andreia Vitória, João Marques, Celeste Varum, Carlos Ferreira, Leonor Teixeira, Department of Economics,  
Management, Industrial Engineering and Tourism (DEGEIT), Research unit in Governance, Competitiveness and Public Policies  
(GOVCOPP), Department of Social, Political and Territorial Sciences (DSPTS), Institute of Electronics and Informatics Engineering of Aveiro  
(IEETA), University of Aveiro, Aveiro, Portugal

## Supply Chain and Logistics Competition

### First Place Winner

ID 144 Evaluation of the Feasibility of Centralization of Warehouses in the Construction Company VIDUSA  
Ana Paula Ocañas Morales, Brando M. Rodríguez Vallejo, Ricardo C. Lozano Cantú, Business Management Engineering, Industrial and  
Systems Engineering, Industrial and Systems Engineering, University of Monterrey, México  
Refugio Chávez Hernández, Doctorate in Supply Chain Management and Logistics, University of Monterrey, México

### 2<sup>nd</sup> Place Winner

ID 613 LAC pilot project for green last-mile urban freight delivery services  
Prato Daniel<sup>1</sup>, Reinoso Camila<sup>1</sup>, <sup>1</sup>Latin-American Center For innovation in Logistics, Bogotá, Colombia

### 3rd Place Winner

ID 265 Raw Material Supply Configuration with Short Shelf Life in a Production Scenario MTS/MTO Minimizing Operational Risk and Cost  
Lucas Ramírez Ramírez, Engineering Magister Program Student, Universidad de Antioquia, Medellín, Colombia  
Carmen Elena Patiño Rodríguez, Industrial Engineering Department, Universidad de Antioquia, Medellín, Colombia  
Gloria Milena Osorno Osorio, Industrial Engineering Program, Unidad Central del Valle del Cauca, Tuluá, Colombia

## Supply Chain and Logistics Competition

### First Place Winner

ID 094 Establishing Risks of Food Supply Chains for Small and Medium Food Manufacturing Companies in Malaysia  
Siti Aishah Hadawiah Ahmad and Mohd Nizam Ab Rahman, Department of Mechanical and Manufacturing, The National University of  
Malaysia, Selangor, Malaysia  
Ariff Azly Mohamed, Department of Business and Management, Universiti Teknologi Mara, Selangor, Malaysia

## Poster Competition

### First Place Winner

ID 564 Statistical Analysis Methods changed from Traditional to a Continuous Annealing Heat Treatment in a Copper Wire Drawn Machine  
Francisco Antonio Perales Carballedo, UPAEP University, México  
José Luis Martínez Flores, UPAEP University, México

## Best Track Papers

### Best Track Paper - Artificial Intelligence

ID 308 A Classification Model based Spaced Repetition Approach using Facial Expressions and Hand Over Face (HOF) Gestures  
D. M. S. P. Dissanayaka and K. Wijayasiriwardhane, Dept. of Industrial Management, Faculty of Science, University of Kelaniya, Sri Lanka

### Best Track Paper - Technology Management

ID 094 Curriculum Revision of a Ph.D. program in Technology Management to Keep it Relevant and Manageable  
A. Mehran Shahhosseini, M. Affan Badar, Farman A. Moayed, James N. McKirahan, and Cindy L. Crowder  
College of Technology, Indiana State University, Terre Haute, IN 47809, USA

### Best Track Paper - Automation and Control

ID 245 Biodynamic Suspension Model in a Comfort-Oriented QoV Control System  
Abelardo Rodríguez-Moreno, E.A. Sánchez-Segoviano, L.A. Santa Cruz, and L.C. Félix-Herrán, School of Engineering and Sciences  
Tecnológico Monterrey, Hermosillo, SON, 83000, Mexico  
Jorge de-J. Lozoya-Santos, School of Engineering and Sciences, Tecnológico Monterrey, Monterrey, NL, 64849, Mexico  
Juan C. Tudón-Martínez, División de Ingeniería y Tecnología, Universidad de Monterrey, Monterrey, NL, 66238, México

**Best Track Paper - Construction Management**

ID 034 AHP Method for Supply Chain Management Performance Measurement in Construction (Study Case: Bridge Project)  
Anita Mustikasari, Management Department, Yogyakarta State University, Indonesia  
Naniek Utami Handayani, Industrial Engineering Department, Diponegoro University, Prof. Soedarto, S.H., Semarang, 50275, Indonesia  
Mochammad Agung Wibowo, Civil Engineering Department, Diponegoro University, Prof. Soedarto, S.H., Semarang, 50275, Indonesia  
Chemink Sugondo Simanungkalit, Industrial Engineering Department, Diponegoro University, Prof. Soedarto, S.H., Semarang, Indonesia

**Best Track Paper - Competitiveness and Value Chain**

ID 145 Strategic Value Propositions to Increase Competitiveness in a Tourism Cluster  
Teresa Verduzco-Garza, Industrial Engineering, Engineering School, University of Monterrey UDEM, San Pedro Garza Garcia, NL, México  
J. Gerardo Rodríguez Beltrán and José Pablo Nuño de la Parra, Popular Autonomous University of Puebla UPAEP Puebla, Pue, Mexico

**Best Track Paper - Data Analytics and Big Data**

ID 521 An aggregated time series forecasting model for the health and wellness sector: case of a Brazilian retail company  
Carlos Ernani Fries and Vitor Rodrigues, Department of Production and Systems Engineering, Federal University of Santa Catarina, Florianópolis, SC, Brazil

**Best Track Paper - Data Analytics and Big Data**

ID 419 Dimensionality Reduction and Text Mining for Smart Content Filtering of an Online Health Forum  
Reinaldo Sanchez-Arias, Roberto Batista, Levi C. Nicklas, Department of Data Science and Business Analytics, Florida Polytechnic University, Lakeland, USA  
Peter Akioyamen, The School of Mathematical and Statistical Sciences, Western University, Ontario, Canada

**Best Track Paper - Engineering Management**

ID 126 A Cost-Benefit Approach to Thermo-Processing Equipment Safety Regulation Analysis  
Motshumi Joseph Diphare, Hannelie Nel and Jan-Harm C. Pretorius, Postgraduate School of Engineering Management  
University of Johannesburg, Johannesburg, South Africa

**Best Track Paper - Entrepreneurship and Innovation**

ID 143 Design methods and challenges of open innovation: collaborative and multidisciplinary processes.  
Felipe Torres Benoni, Civil Engineering Department, University of Santiago, Ave. Libertador Bernardo O'Higgins 3363, Santiago, Chile  
Roberto Duran Novoa, Engineering Design Department, Federico Santa Maria Technical University, Ave. Vicuña Mackenna, Santiago, Chile

**Best Track Paper - Entrepreneurship and Innovation**

ID 369 Implementation of MSMEs Competitiveness Improvement Model to Strengthen Entrepreneurial Aspects in Malang City  
Ajeng Mira Herdina, Riesta Devi Kumalasari, Priska Arindya Purnama and Murniati, Entrepreneurship Department, BINUS Business School Undergraduate Program, Bina Nusantara University, Jakarta, Indonesia

**Best Track Paper - Systems Dynamics**

ID 328 Systemic analysis of the electrification of last-mile freight transport  
Julieth Stefany García Collazos, Facultad de Minas, Universidad Nacional de Colombia, Medellín, Colombia  
Laura Milena Cárdenas, Facultad de Ingeniería, Universidad de Antioquia, Medellín, Colombia  
Carlos Jaime Franco, Facultad de Minas, Universidad Nacional de Colombia, Medellín, Colombia

**Best Track Paper - Lean Six Sigma**

ID 214 Productivity Improvement in a Sugar Company: A Lean management approach  
Maximiliano Arroyo Ulloa, Faculty of Engineering, Universidad Católica Santo Toribode Mogrovejo, Chiclayo, Peru  
Lucio Llantop Mendoza, Universidad Católica Santo Toribode Mogrovejo, Chiclayo, Peru, Lima, Peru  
Javier Beltran Reyes, Business Intelligence Department, Comercio-Group, Lima, Peru

**Best Track Paper - Logistics**

ID 166 Developing a Performance Measurement Framework for Logistics Service Providers  
Paitoon Varadejsatitwong, Ruth Banomyong and Puthipong Julagasigorn, Thammasat Business School, Thammasat University, Bangkok, Thailand

**Best Track Paper - Supply Chain Management**

ID 268 Two Decades of Closed-loop Supply Chain: A Bibliometric Analysis  
Imnatila Ponggen, Department of Operations Management, Indian Institute of Management Ranchi, Jharkhand-834008, India

**Best Track Paper - Quality and Reliability**

ID 523 Monitoring Multi-Attribute Characteristics using a Combined Scheme of np and EWMA Charts  
Farah Alyassi, Salah Haridy, Mohammad Shamsuzzaman and Imad Alsyouf  
Department of Industrial Engineering and Engineering Management  
University of Sharjah, Sharjah 27272, United Arab Emirates

**Best Track Paper - Production Planning and Management**

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Selowa Brian Tumiso, Bakama, Eric Mikobi and Khathutshelo Mushavhanamadi, Quality and Operations Management Department, University of Johannesburg, South Africa

**Best Track Paper - Energy (and Energy Efficiency)**

ID 496 Microgrid Supplier Selection Problem Considering Euclidean Distance and Ideal Vector System  
Trinidad Reyes and Jose F. Espiritu, Industrial Manufacturing and System Engineering Department, The University of Texas at El Paso, El Paso, TX, 79968, USA

**Best Track Paper - Materials Engineering**

ID 090 Enhancement of Corrosion Resistance of Hot-Dip Galvanized Carbon Steel by Low Amount of Ni Addition  
Rafael Gonzalez-Parra, Arturo Barba-Pingarrón, Raúl Valdez-Navarro, Alba Covelo-Villar, Miguel A. Hernández-Gallegos  
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Fernando Gonzalez-Aleu, Department of Computer Systems and Industrial Engineering, Universidad de Monterrey, San Pedro Garza García, NL, 66238, México  
Jesus Vazquez-Hernandez, Innovation and Strategy, Advanced Value Chain Institute, San Pedro Garza García, NL., 66250, Mexico  
Mario Alberto Del Valle Velez, Vicepresidente, Asociación de Exbecarios de Mexico en Japón, Miguel Hidalgo, Ciudad de México, Mexico

**Best Track Paper - Environmental Engineering**

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Adrián Salvador Morales García, Jorge Luis García Alcaraz and Yashar Aryanfar, Department of Electric Engineering and Computers Sciences, Autonomous University of Ciudad Juarez, Ciudad Juárez 32310, Mexico  
José Roberto Díaz Reza, Department of Industrial Engineering, Tecnológico Nacional de México/I.T. Ciudad Juárez, Ciudad Juárez, Mexico  
Ari Happonen, LUT School of Engineering Science, LUT University, Lappeenranta 53850, Finland  
Julio Blanco Fernández, Department of Mechanical Engineering, University of La Rioja, Logroño, 26006, Spain

**Best Track Paper - Digital Transformation of Business Models**

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Mariana Carvalho, Department of Economics, Management, Industrial Engineering and Tourism (DEGEIT), University of Aveiro, Portugal  
Leonor Teixeira, Institute of Electronics and Informatics Engineering of Aveiro (IEETA), Department of Economics, Management, Industrial Engineering and Tourism (DEGEIT), University of Aveiro 3810-193, Aveiro, Portugal

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Gustavo Alvarez-Coello, Andrés Idrovo-Pauta, Daniel Cordero-Moreno, and Efrén Fernández-Palomeque  
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