

# IEOM

## 5th South American International Conference on Industrial Engineering and Operations Management

*Bogota, Colombia*

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Venue: Doubletree by Hilton

May 7–9, 2024

### ORGANIZER



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**IEOM Society**

"Achieving and Sustaining Operational Excellence"

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**Industrial Engineering and Operations Management Society International**

IEOM Society International, a 501(c)(3) non-profit organization, 21411 Civic Center Dr., Suite 205, Southfield, Michigan 48076, USA, Phone: 1-248-450-5660, Email: [info@ieomsociety.org](mailto:info@ieomsociety.org)

# Welcome to the 5<sup>th</sup> South American International Conference on Industrial Engineering and Operations Management, Bogota, Colombia

## Dear Conference Attendees:

On behalf of the IEOM Society International, we would like to welcome you to the 5th South American International Conference on Industrial Engineering and Operations Management, Bogota, Colombia, May 7-9, 2024, hosted by Fundación Universitaria Internacional De La Rioja (UNIR), Bogotá, Colombia, Universidad Católica de Colombia and Institución Universitaria Colegios de Colombia (UNICOC). The Venue is Doubletree by Hilton Bogota. This unique international conference provides a forum for academics, researchers, and practitioners from many industries to exchange ideas and share recent developments in the fields of industrial engineering and operations management. This diverse international event provides an opportunity to collaborate and advance the theory and practice of major trends in industrial engineering and operations management. There were more than 250 papers/abstracts submitted from 30 countries. After a thorough peer-review process, more than 150 have been accepted for presentation and publication. The program includes many cutting-edge topics of industrial engineering and operations management.

This conference will address many of the issues concerning continuous improvement for quality and service. Our keynote speakers will address some of these issues:

- Flor Nancy Díaz Piraquive, Rectora, Fundación Universitaria Internacional de La Rioja (UNIR), Bogota, Colombia
- Dr. Juan Sebastian Sánchez, Prof. of Industrial Engineering, Universidad Católica de Colombia and Universidad de Los Andes, Bogota, Colombia
- Eng. Javier Arturo Moreno Carvajal, Dean, School of Engineering, Institución Universitaria Colegios de Colombia – UNICOC, Bogota, D.C., Capital District, Colombia
- Dr. Luis Rabelo, Professor, Department of Industrial Engineering & Management Systems, University of Central Florida, Orlando, FL, USA
- Jesús María Velásquez-Bermúdez, Founder and Chief Scientific Officer, CSO, Hypothalamus Artificial Intelligence Inc. (HAI Ai), Tabio, Cundinamarca, Colombia
- Dr. Miguel Ángel Gómez Martínez, Research Professor, Departamento de ingeniería, Universidad de Guanajuato, Guanajuato, Mexico
- Dr. Wilmer Garzón Alfonso, Full Professor in the Computer Department, Director of Data Science Master Program, Escuela Colombiana de Ingeniería, Bogotá, Colombia
- Dr. Luis Gabriel Marín Collazos, Profesor Planta Temporal, Departamento de Electrónica, Facultad de Ingeniería, Bogotá, D.C Colombia
- Dr. Ximena Córdova Vallejo, PhD, Profesora, Colegio de Ciencias e Ingenierías, Universidad San Francisco de Quito, Quito, Ecuador
- Professor William E. Mosquera Laverde, Director of Organizations and Strategic Group 4.0 category A1. Colombia, Business Administration Program, Faculty of Administrative and Accounting Economic Sciences, Cooperative University of Colombia, Bogotá. Colombia
- Dr. Eddy Morris, Director de Educación Ejecutiva ESAN, Director de la Maestría en Dirección de TI-Director de la Maestría en Project Management, ESAN, Peru
- Dr. Julián Arellana, Dean, College of Engineering & Associate Prof., Dept. of Civil and Environmental Engineering, Universidad del Norte, Barranquilla, Colombia
- Arvey Alfonso Granada Calderon, Operations Manager, La Unión Coffee Farm, Pereira, Risaralda, Colombia Quality, Reliability and Maintenance
- Dr. Nubia Milena Velasco Rodríguez, Director of Doctorate in Administration, Master of Research in Administration, Universidad de los Andes, Bogotá, Colombia
- Dr. Ing. Adriana Esguerra Arce, Docente, Directora del Centro de Estudios en Gestión de Tecnología e Innovación, Directora del Grupo de Investigación CIMSER, Decanatura de Ingeniería Industrial, Escuela Colombiana de Ingeniería Julio Garavito, Bogotá, D.C., Colombia
- Professor Camilo Alarcon Nieto, Fundacion UNIR Colombia and Researcher leader in entrepreneurship and technology adoption
- Dr. Jorge Andrés Vivares Vergara, Research Professor, Universidad Nacional Abierta y a Distancia (UNAD), Bogotá, Colombia
- Dr. William J. Guerrero, Associate Professor, Head of the Research Group on Logistic Systems and Head of the IT and Process Optimization Department, Universidad de la Sabana, Bogota, D.C., Capital District, Colombia
- Dr. Johanna Trujillo Díaz, Investigador en Estancia Post Doctoral – Proyecto Orquídeas, Facultad de Ciencias Económicas y Administrativa, Universidad Cooperativa de Colombia, Bogotá, Colombia
- Mohammad Islam, Associate Director, Optum – United Healthcare Inc., New Jersey, United States of America
- Rafael Forero Vargas, Food Safety & Quality Manager Colombia, Rich's Product Corporation, Bogotá, Colombia

The conference has plenaries addressing Global Engineering Education, Global Industry Solutions, Global Supply Chain and Logistics, and Global Lean Six Sigma and Operations Excellence. Additionally, it includes four panel sessions covering Women in Industry and Academia, Industrial Engineering and Operations Management Education and Curriculum Improvement, and a Diversity & Inclusion Panel sponsored by Ford Motor Company. The conference further enriches the experience with four workshops focused on enhancing student learning and assessment, delving into Six Sigma methodologies, exploring AI & machine learning, and delving into project management strategies. These diverse sessions and workshops collectively contribute significant value to attendees, fostering knowledge exchange and professional development.

The IEOM Society extends its appreciation to the conference chairs, program chairs and technical chairs. The IEOM Society also expresses its sincere thanks to our sponsors, university partners, organizational collaborators, exhibitors, authors, reviewers, keynote speakers, panelists, track chairs, advisors, the local committee, and the numerous volunteers whose dedicated contributions of time and talent have played a pivotal role in ensuring the resounding success of this distinctive international conference.

Wishing you a wonderful and enriching experience at the conference!



**Dr. Johanna Trujillo Díaz**  
Investigador en Estancia Post Doctoral - Proyecto Orquídeas, Universidad Cooperativa de Colombia, Bogotá, Colombia



**Prof. Jaime Díaz Ortiz**  
Dean, Faculty of Engineering Universidad Católica de Colombia Bogota, Colombia



**Eng. Javier Arturo Moreno Carvajal**  
Dean, School of Engineering Institución Universitaria Colegios de Colombia – UNICOC, Chía, Colombia



**Dr. Ahad Ali**  
Conference Co-Chair Associate Professor and Director of IE Program, Lawrence Tech Univ., USA Executive Director, IEOM



**Prof. Don Reimer**  
Program Co-Chair Chief Operating Officer IEOM Society International Southfield, Michigan, USA

## Keynote Speakers

**Tuesday, May 7, 2024**

**Conference Welcome Addresses and Opening: Tuesday, May 7, 2024, 10:00 – 10:30 am**



**Dra. Flor Nancy Díaz Piraquive**  
**Rectora**  
**Fundación Universitaria Internacional de La Rioja (UNIR)**  
**Bogota, Colombia**

Doctor in Computer Engineering, Information and Knowledge Society from the Pontifical University of Salamanca. Diploma of Advanced Studies (DEA) in Knowledge Management Research, Intellectual Capital and Corporate Social Responsibility. Specialist in Project Preparation and Development, as well as in Information Systems Project Management from the Universidad del Rosario. Diploma in Telecommunications Management, Management of Research Projects in Science, Technology and Innovation and in Bibliometrics. Economist from the Catholic University of Colombia.

Academically, she is the Rector of the International University Foundation of La Rioja UNIR, she has held management positions such as: Rector, Academic Vice-Rector, Research Vice-Rector, Academic Planning, Financial – Administrative Management and Quality Management among others. She has served as Visiting Professor at different national and international universities. She has been a main teacher at the universities of

Rosario, EAN, América, Francisco José de Caldas District, Nariño, Mariana, UPTC and Católica de Colombia among others. She has supported the ESTIC School of the Colombian National Police in teaching and research. She has received academic and business recognitions: Cun Laude, Sapiens Research-Direction of the Best Research Groups, Academic Excellence, Research Excellence and a Whole Life Project, among the most important.

Professionally, she has developed in public and private entities, nationally and internationally in the telecommunications, construction and infrastructure, ICT services, and industrial sectors. Her work as a management and organizational consultant stands out in different areas: Project Management, Knowledge Management, Business Models, Strategic Planning, Management Indicators, Quality, Service Audit and Change Management in companies that provide infrastructure services and that involve the use and appropriation of Information and Communications Technologies ICT.

As a Researcher she has worked in different lines, among which IT Project Management, Innovation Management, Knowledge Management, Comprehensive Management and Dynamics of Business Organizations stand out. She has been Director of the Strategy, Creativity and Innovation Research Groups – GIECI and Business Management and Innovation Management – GEGI. She has been a leader of research hotbeds in Knowledge Management for the Management of Organizations and Management of Organizational Changes.

Additionally, she has written books on formulation, evaluation, project management and knowledge management, as well as a good number of scientific publications in high-impact indexed journals related to business and organizational management. She leads, as principal researcher, projects in cooperation with other universities and companies in the Services, Construction and Infrastructure, Industrial and Health sectors, as a cooperation strategy for the strengthening and positioning of research. This has helped it to be categorized in Minciencias.

**Opening Keynote: Tuesday, May 7, 2024, 10:30 – 11:00 am**



**Dr. Juan Sebastián Sánchez Gómez**  
**Professor, Department of Industrial Engineering**  
**Universidad Católica de Colombia and Universidad de Los Andes**  
**Bogotá, Colombia**

Professor Sánchez-Gómez is a biomedical engineer, lawyer, magister in Education, magister in Public Policy, and a doctoral student in Industrial and Systems Engineering at Universidad de Los Andes. He has worked as a professor of civil and telematics engineering at the Universidad Distrital, professor of Industrial engineering at the Universidad El Bosque, professor of Environmental engineering at the Universidad de Cundinamarca and pedagogue of educational innovations at the Center for Innovation in Technology and Education (ConectaTE) at the Universidad de Los Andes. He has experience in research and project management in education and innovation with ICT, and he has certificates in the English, Portuguese and French languages. He has been a designer of courses and educational programs, leader of national (CNA) and international accreditation (ABET), pedagogue, and teacher trainer in secondary education. Actually, he is a professor of industrial engineering at the Universidad Sergio Arboleda and a professor of Systems engineering at the Universidad de Los Andes.

**Keynote: Tuesday, May 7, 2024, 11:00 – 11:30 am**



**Javier A. Moreno C, MSc.**  
**Associate Professor and Dean, School of Engineering**  
**Institución Universitaria Colegios de Colombia – UNICOC**  
**President COPASST – Unicoc Chía, Cundinamarca, Colombia**

*The conference will be in the area of innovation applied to OSH with the conference “Determination of thermal stress in welders with Infrared Thermography”.*



Javier Moreno is an Associate Professor and Dean of the School of Engineering, and president of the COPASST at Institución Universitaria Colegios de Colombia – Unicoc, Chía Cundinamarca, Colombia. He holds a Bachelor of Science degree in Industrial Engineer and a Master in Industrial Engineering from Pontificia Universidad Javeriana (PUJ). He is Health, Safety, Environment, and Quality - HSEQ Internal Auditor, with studies in Ergonomics and Human Factors at Harvard University. Mr. Moreno has worked on ergonomics projects with the Center for Ergonomics Studies at PUJ, for Oil&Gas and Health industries, and has taught courses in Occupational Health and Safety, Ergonomics, Quality Management, Strategic Management and Environmental Management and Sustainable Development at the Sabana, Santo Tomás, Unicoc and Católica Universities. He has worked in quality and process control and in management positions in different Energy, Minning and Commercial companies and in Higher Education Institutions. Mr. Moreno represents his Institution as a member of the Network of Engineering Deans and the Network of Directors of Industrial Engineering of Asociación Colombiana de Facultades de Ingeniería – ACOFI.

**Keynote: Tuesday, May 7, 2024, 11:30 am – 12:00 pm**

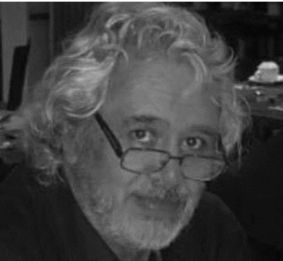


**Dr. Luis Rabelo**  
**Professor**  
**Department of Industrial Engineering & Management Systems**  
**University of Central Florida**  
**Orlando, FL, USA**

Dr. Luis Rabelo received the BS in Electro-Mechanical Engineer from the Technological University of Panama in 1983, an MS in Electrical Engineering from the Florida Institute of Technology in 1987 Master's and Doctorate in Engineering Management from the University of Missouri. He was a Postdoc at the University of Missouri in Nuclear Engineering. Dr. Rabelo received a dual MS in Systems and Management from the Massachusetts Institute of Technology. He has worked for the Advanced Technology Group (Goodrich) and Honeywell Laboratories. Dr. Rabelo was a NASA Fellow from 2002 to 2005, and a Project Manager at NASA from 2009 to 2011. He is currently Professor in the Industrial Engineering and Management Systems Department at UCF. He is also the Undergraduate Coordinator. He has written more than 300 articles and a book in Artificial Intelligence. He has been

the principal advisor for 39 Master's students and 29 PhDs. He received the award for the Best Scientific Article of the Year 2004 from the Society of Automotive Engineers, received the distinction "ONE NASA" in 2006. He was the recipient of the Fulbright Distinction in 2008. In November 2008, he received the honor of the Technological University of Panama (UTP) of being the 2008 Distinguished Alumni. In 2011, he was the Henaac Award Winner in Education. In 2013 and 2018, he received the Forest R. McFarland Award from the Society of Automotive Engineering (SAE). Lately, he received the SAE Russell S. Springer Award for his article on the modeling of space operations systems in 2017.

**Keynote: Tuesday, May 7, 2024, 12:00 – 12:30 pm**



**Jesús María Velásquez-Bermúdez**  
**Founder and Chief Scientific Officer, CSO**  
**Hypothalamus Artificial Intelligence Inc. (HAI Ai)**  
**Tabio, Cundinamarca, Colombia**

His professional life begins in 1970 when worked as a Computer Programmer (17 years old). First Professional Optimization Model (20 years old). 1975: Engineering and Master's degree, (22 years old, in 1975). Thesis in Stochastic Optimization applied to Water Resources. Researcher and Professor at Simon Bolívar University, Venezuela (22 years old, 1975-1982). Researcher in Math Modeling. Postgraduate Professor in Uncertainty Dynamic Systems (Kalman Filter and Extensions), and Large-Scale Optimization. Graduate Studies in Water

Resources Planning and Engineering. Founder and Math Modeler Manager at PDC Ingeniería (25 years old). Algorithms based on Benders Multilevel Partitioning and Decomposition. Primal-Dual Simplex Bounded Algorithm with the base inverse in product form and multipricing. System Programmer of the MODCOMP CLASSIC Computer. 1984-1978: Implementation of SCADA Systems using MODCOMP CLASSIC Computers at ECOPETROL Products Terminal in Mancilla, Colombia, and ORINOCO Steel (SIDOR), Venezuela. 1985: Graduate Studies in Economics at Los Andes University, Colombia (32 years old). 1985-1990: Founder and General Manager of Muebles Scalia Ltda., Colombia. 1990-1991: Professor of Optimization in Los Andes University. 1991-2021: Founder and Chief Scientific at DecisionWare Ltda. (38 years old). Creation of OPTEX, Optimization Expert System (38 years old in 1991), the Artificial Intelligence that make Artificial Intelligences. Management of multiple international projects for the development of mathematical modeling software, and consulting services, more than 100. Doctor in Engineering. Universidad Nacional de Colombia Campus Medellín (54 years old). Thesis in Large Scale Stochastic Optimization and Risk Management. 2000-2008: Founder and President of Colombian Society for Operations Research (SOCIO). Organization of SOCIO Congresses of (2001,2002 and 2003), participants (approx.): 130, 500, and 1000. Chair del XVIII CLAIO (2008), more than 1000 participants. His actual work begins in 2021: Founder and Chief Scientific Officer at HYPOTHALAMUS Artificial Intelligence (68 years old). R&D+i activities topics: i) Artificial Brains, it may be the big short-term disruption in AI, main topics: Artificial Hypothalamus, Mathematical Neural Nets, An Autonomous Mathematical Language for Robots based on Mathematical Programming and Artificial Hippocampus; and ii) Large-Scale Parallel Optimization Algorithms, Parallel Optimization algorithms, to accelerate the solution of large-scale mathematical problems, by partitioning and decomposing of complex systems, to build artificial cortex for the artificial brains.

**Keynote: Tuesday, May 7, 2024, 12:30 – 1:00 pm**



**Dr. Miguel Ángel Gómez Martínez**  
**Research Professor**  
**Departamento de ingeniería**  
**Universidad de Guanajuato**  
**Guanajuato, Mexico**

**Title: Optimization of main back assembly times of an appliance plant**

Dr. Miguel Ángel Gómez Mtz. Born in Salamanca Gto., He graduated as an Electrical Engineer from the Faculty of Mechanical, Electrical and Electronic Engineering (FIMEE) of the University of Gto in 1998. He obtained a Master's

degree in Sciences from the Technological Institute of Morelia in the area of electrical systems. in 2001, and the degree of Doctor of Science in Electrical Engineering at the Universidad Michoacana de San Nicolás de Hidalgo in 2006. His areas of interest are: The stability and simulation of Highly Non-linear systems applying the theory of bifurcations and chaotic processes., Analysis and design of Renewable Electric Energy Sources, Optimization of industrial processes and Energy quality. He has also collaborated as a professor and researcher at the Morelia Technological Institute (ITM), at the Center for Professional Studies of Salamanca (CEPSA), at the Universidad Michoacana de San Nicolás de Hidalgo (UMSNH), at the Superior Technological Institute of the South (ITSUR), at the Technological Institute of Higher Studies of Irapuato (ITESI), at the Lasalle Bajío University and is currently Professor-Researcher at the University of Guanajuato. He has been Coordinator of the educational program of the Bachelor of Electrical Engineering on several occasions, Planning Coordinator of the Irapuato-Salamanca Campus , member of the technical and academic committee of the EGEL (General Graduate Examination of Electrical Engineering), accredited evaluator of the CACEI and CONACyT and founding member of the IIITEC (International Institute of Innovation and Technology). In the industrial field, he has collaborated on various projects with companies such as the Federal Electricity Commission (CFE), IMEXA SA de CV, Altos Hornos de Monterrey, Monsanto and Whirlpool, he was Head of the department of contests and contracts of the company Reparaciones Industriales de Salamanca (RIDESA) S.A. De C.V. He also has several publications in journals and conferences both nationally and internationally, he is a member of the IEEE since 2002 and is a member of the SIN (National System of Researchers) level.

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Lunch Break: 1:00 – 2:00 pm

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## Afternoon Keynotes – May 7, 2024

**Keynote: Tuesday, May 7, 2024, 2:00 – 2:30 pm**



**Dr. Wilmer Garzón Alfonso**  
**Full Professor in the Computer Department**  
**Director of Data Science Master Program**  
**Escuela Colombiana de Ingeniería**  
**Bogotá, Colombia**

**Title: Distributed Collaboration for Biomedical Analyses, además adjunto descripción de mi perfil**

Wilmer Garzón Alfonso is a full professor in the Computer Department at the Escuela Colombiana de Ingeniería, Bogotá, where he is the Director of Data Science master program. He is a PhD from at IMT Atlantique (Nantes – France) and Escuela Colombiana de Ingeniería. He holds a Master of Science in Computer Engineering at the University of Puerto Rico. He received a B.Sc. in computer science in 2006 and his B.Sc. in Mathematics in 2008 from Escuela Colombiana de Ingeniería. His areas of interest include data analytics, data mining, learning techniques, distributed systems applications, and formal methods.

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**Keynote: Tuesday, May 7, 2024, 2:30 – 3:00 pm**



**Luis Gabriel Marín Collazos, Ph.D.**  
**Temporary Staff Teacher**  
**Electronics department**  
**Faculty of Engineering**  
**Bogotá, D.C. Colombia**

**Title: Microgrid Planning based on Artificial Intelligence Techniques**

Luis Gabriel Marín Collazos: Doctor in Electrical Engineering from the University of Chile, with extensive research experience. His main research interest focuses on the development of control strategies for the operation and coordination of microgrids or energy communities and the development of methodologies for the modeling and prediction of renewable energy resources and electrical demand. His research interest is also focused on microgrid planning considering the effect of the uncertainty of renewable resources and demand as a strategy to reduce carbon emissions, and on the development of methodologies for the transition to resilient energy distribution systems. Based on microgrids. The above is because it is convinced that the integration of distributed energy resources into the national electrical system will generate multiple benefits for end users, network operators and the environment. Doctor Marín has worked as a professor/researcher at different universities in the country and as research coordinator of the engineering faculty. He was also included as a postdoctoral researcher at the Universidad de los Andes. Currently, he is a Professor in the Department of Electronics at the Pontificia Universidad Javeriana.

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**Keynote: Tuesday, May 7, 2024, 3:00 – 3:30 pm**





**Ximena Córdoba Vallejo, PhD**  
**Profesora**  
**Colegio de Ciencias e Ingenierías**  
**Universidad San Francisco de Quito**  
**Quito, Ecuador**

Dr. Ximena M. Córdoba is a groundbreaking scholar in mathematics and industrial engineering. She made history as the first woman to graduate in Mathematics from the National Polytechnic School in Quito, Ecuador. Her academic journey led her to earn Master's degrees in Quality, Management, and Productivity, as well as Actuarial Science, from Iowa State University, and a Ph.D. in Industrial Engineering from Wichita State University in the USA. Currently, she serves as the President of the Higher Education Quality Assurance Council (CACES) of Ecuador. Dr. Córdoba is also a Full Professor at the Universidad San Francisco de Quito, at the Industrial Engineering Department, specializing in optimization, ergonomics, and project management. From 2015 to 2020, she served as the Vice Chancellor (Provost) of the Universidad San Francisco de Quito, becoming the first woman to hold this position and bringing about significant improvements in teaching and administration. In 2015, she co-founded the "Women in Science and Engineering" (WISE) project to encourage more women to pursue STEM fields. Her impact extends internationally through collaborations, including research on CO2 measurements in vulnerable environments like the Galapagos Islands. Her research focuses on Green Supply Chains and Ergonomics, using modeling and optimization techniques. Currently, she's involved in developing new accreditation models for the Higher Education System of the Country. Dr. Córdoba's contributions also include serving as the editor of the Industrial and Systems Engineering Review (ISER) and participation in various boards of directors for organizations such as Mujeres por Mujeres, the Transfer and Technology Center (CTT-USFQ), Tecniseguros, the Ecuadorian Society of Actuaries of Ecuador.

**Keynote: Tuesday, May 7, 2024, 3:30 – 4:00 pm**



**Professor William E. Mosquera Laverde**  
**Director of Organizations and Strategic Group 4.0 category A1. Colombia**  
**Director of the Course Design of Organizational Processes, USA**  
**Business Administration Program**  
**Faculty of Administrative and Accounting Economic Sciences**  
**Cooperative University of Colombia**  
**Bogotá. Colombia**

William E. Mosquera is a Chemical Engineer from the National University of Colombia in 1993; He is a specialist in distance education from UNAD in 2000, also a Master in Environmental Management from the Universidad de la Andes in 2014, currently a PhD student in engineering: industry and organizations at the National University of Colombia, leader of the Organizations and Organizations research group. O.E. strategy 4.0 categorized A1 in Colombia for 6 years; For more than 15 years he has taught environmental management courses and organizational process design in the business administration program at the Universidad Cooperativa de Colombia. He has been the manager of the company JULMAT Comercializadores since 2000 in the infrastructure sector in technical and architectural finishes.

### **Wednesday, May 8, 2024**

**Keynote V: Wednesday, May 8, 2024, 10:00 – 10:30 am**



**Eddy Morris, Ph.D.**  
**Director de Educación Ejecutiva ESAN**  
**Director de la Maestría en Dirección de TI-Director de la Maestría en Project Management**  
**ESAN University**  
**Lima, Peru**

PhD. Máster Universitario en Gestión de TIC y Máster en Gestión de Tecnologías de Información de La Salle – Universitat Ramon LLull, Barcelona España. Programa Avanzado en Finanzas de ESAN. Bachiller en Ingeniería de Sistemas de la UNI. Director de Educación Ejecutiva de ESAN y de las Maestrías en Dirección de Tecnologías de Información y de Project Management de ESAN. Actualmente director de Educación Ejecutiva de ESAN y de las Maestrías en Dirección de Tecnologías de Información y de Project Management de ESAN. Consultor internacional de diversas empresas y organismos internacionales. Su experiencia en consultoría comprende empresas como Grupo Romero, Grupo Wong, IBM, Grupo San Fernando, Interbank, Backus, BCR, entre otras. Ph. D. por La Salle – Universitat Ramon LLull, Barcelona España. Máster Universitario en Gestión de TIC y Máster en Gestión de Tecnologías de Información por La Salle – Universitat Ramon LLull, Barcelona España. Experiencia: Ha asesorado a empresas e instituciones como Grupo Romero, Grupo Wong, IBM, Grupo San Fernando, Nabisco, Interbank, Backus, BHP Billiton Tintaya, BCR, Cancillería, Petroperú, Telefónica, Coca Cola, SMP, Coltex, entre otras. Además, ha sido director del MBA de ESAN.

**Keynote V: Wednesday, May 8, 2024, 10:30 – 11:00 am**



**Dr. Julián Arellana**  
**Dean, College of Engineering**  
**Associate Professor, Department of Civil and Environmental Engineering**  
**Universidad del Norte, Barranquilla, Colombia**

**Education:**

Ph.D. Pontificia Universidad Católica de Chile (2012)

M.Sc. Pontificia Universidad Católica de Chile (2012)

BSc. Civil Engineering, Universidad del Norte (2004)

Honors and Awards: Distinguished student, Universidad del Norte, Silver Medal for academic excellence, Universidad del Norte, Assistant and Instructor scholarships, Pontificia Universidad Católica de Chile, Francisco Jose de Caldas scholarship, Bicentennial Generation Winner of the Overseas Internship Competition for PhD Students, Pontificia Universidad Católica de Chile. Outstanding Teaching Assistant Award, School of Engineering, Pontificia Universidad Católica de Chile, Erasmus+ Mobility Fund, Universidad de Cantabria, Scientific merit medal, Universidad del Norte, ANPET Scientific Production Award 2020, Best paper in ANPET conference, Brasil, ANPET Scientific Production Award 2022, Best paper in ANPET conference, Brasil. Research topics of interest: Transport planning, transport modelling, transport economics, sustainable transport, econometrics, active transport, travel behaviour, discrete choice experiments. Academic Experience: Universidad del Norte (Since 2012) Member of the Directive Board, Ingeniería y Consultoría FARO SAS (Since 2015), Director of research and graduate studies, College of Engineering, Universidad del Norte (2017-2021), Civil engineering graduate programs coordinator, Universidad del Norte Visiting Scholar, Universidad de Cantabria (2019), Guest lecturer, Visiting Scholar, University of Leeds (2011). Author of Research papers.

**Keynote VI: Wednesday, May 8, 2024, 11:00 – 11:30 am**



**Arvey Alfonso Granada Calderon**  
**Operations Manager**  
**La Unión Coffee Farm**  
**Pereira, Risaralda, Colombia**

**Keynote VII: Wednesday, May 8, 2024, 11:30 am – 12:00 pm**



**Dr. Nubia Milena Velasco Rodríguez**  
**Director of Doctorate in Administration**  
**Master of Research in Administration**  
**Universidad de los Andes**  
**Bogotá, Colombia**

***Regenerative Supply Chains***

Ph.D. Automatique et Informatique Appliquées – Université de Nantes – Nantes, France, M.Sc. Industrial Engineering – Universidad de los Andes – Bogotá, Colombia. B.Sc. Chemical Engineering – Universidad Nacional de Colombia- Bogotá, Colombia. She has been working at Universidad de Los Andes, in the School of Management, and her research field is Supply Chain Management since 2003. Her research work has focused on logistics and supply chain problems. All this uses Operational Research techniques to solve, more specifically, problems related to health systems and transportation logistics. She leads a group of students who are working with several hospitals and health center.

**Keynote VIII: Wednesday, May 8, 2024, 12:00 – 12:30 pm**



**Dr. Ing. Adriana Esguerra Arce, Dr. Ing. Docente**  
**Directora del Centro de Estudios en Gestión de Tecnología e Innovación**  
**Directora del Grupo de Investigación CIMSER**  
**Decanatura de Ingeniería Industrial**  
**Escuela Colombiana de Ingeniería Julio Garavito**  
**Bogotá, D.C., Colombia**

***Presentation title: Challenges of sustainable manufacturing***

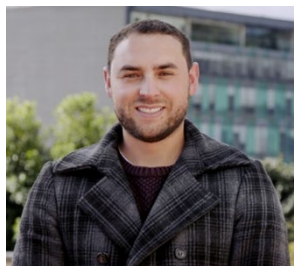
Academic and professional profile: Materials engineer with a master's degree and doctorate in Engineering from the Universidad del Valle. Its work areas are manufacturing processes and the synthesis and characterization of



materials, giving prevalence to the recovery of solid waste. She is an Associate Professor of the Center for Technology and Innovation Studies of the Colombian School of Engineering Julio Garavito, and director of the CIMSER Research Group.

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**Keynote VIII: Wednesday, May 8, 2024, 12:30 – 1:00 pm**



**Professor Camilo Alarcon Nieto**  
**Assistant Professor, Fundacion UNIR Colombia**  
**PhD Candidate in Management**  
**Researcher leader in entrepreneurship and technology adoption**

Camilo Alarcón Nieto is an academic and professional world with a strong foundation in Industrial Engineering and Economics. He is an assistant professor in the Department of Economics and Management at Fundación UNIR Colombia. He also serves as the lead researcher on entrepreneurial intention among university students and technology adoption in the health sector for low-income populations. He is nearing the completion of his Ph.D. in Administration at Universidad de los Andes, following his achievement of a Master's degree in Applied Economics from Universidad EAFIT. His extensive career as both a consultant and an academic is marked by a significant

focus on data analytics, enabling him to optimize business and economic strategies effectively. This expertise has been applied successfully in various international projects and academic settings, showcasing his adeptness at managing and adapting complex knowledge to diverse scenarios. In his consultancy role, particularly as a Junior Consultant at Ayala Consulting, Camilo played a critical part in the data analysis for Malawi's Cash Transfer Lean Season project. His work there demonstrated his exceptional ability to apply economic theories in challenging international environments. Furthermore, as a university professor at Universidad Los Libertadores and UNIR, Camilo teaches fundamentals of economics, macroeconomics, and general economic history. His teaching method effectively integrates monetary theory with practical applications.

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**Thursday, May 9, 2024**

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**Keynote: Thursday, May 9, 2024, 10:00 – 10:30 am**



**Dr. Jorge Andrés Vivares Vergara**  
**Research Professor**  
**Universidad Nacional Abierta y a Distancia (UNAD)**  
**Bogotá, Colombia**

***Presentation Title: 21st Century Industrial Engineering: Perspectives and Challenges for Emerging Countries***

Jorge Andrés Vivares Vergara is an Industrial Engineer, MSc. and Ph.D. in Industry and Organizations from the National University of Colombia. He is currently a research professor at UNAD. He has professional experience in companies (8 years), coupled with academic experience in Colombian universities and other countries (7 years), covering areas such as human resource management, decision making, operations management, and strategy. His scientific production includes fourteen articles, three books, two book chapters and multiple conference papers, in journals and publishers such as Springer, International Journal of Operations & Production Management, Journal

of Manufacturing Technology Management, Innovar Journal, Management Letters, among others. Dr Vivares has also carried out action research projects with some companies.

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**Keynote: Thursday, May 9, 2024, 10:30 – 11:00 am**



**Dr. William J. Guerrero**  
**Associate Professor and Head of the Research Group on Logistic Systems**  
**Head of the IT and Process Optimization Department**  
**Universidad de la Sabana, Bogota, Colombia**

***Presentation Title: Current Challenges in Humanitarian Logistics and Disaster Risk Management***

Industrial Engineer with a doctorate in Optimization and reliability of Industrial Systems and more than 10 years of experience in research and consulting in digital transformation and Operations Management applied to the development of innovative solutions for hospital/humanitarian logistics. Leader of the logistics systems research group at the Faculty of Engineering of the University of La Sabana. His research interests are supply chain design and management and transportation optimization, data analysis, and experience in international research and

innovation projects in developing economy contexts.

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**Keynote: Thursday, May 9, 2024, 11:00 – 11:30 am**



**Dr. Johanna Trujillo Díaz**  
**Investigador en Estancia Post Doctoral - Proyecto Orquídeas**  
**Facultad de Ciencias Económicas y Administrativa**  
**Universidad Cooperativa de Colombia, Bogotá, Colombia**

**Keynote Presentation Title: Design of a platform using Artificial Intelligence to formulate projects for raising the economics of Colombian Indigenous focusing on gender, case of study Pijaos women in Ataco – Tolima - Colombia**

Industrial Engineer, master in industrial engineering, and a Ph.D. in Strategic Planning and Technology Management. She has 16 years as a researcher and professor, and 8 years working as an administrative and financial director. She holds the first postdoctorate in the analysis of data on COVID vaccination in Colombia, and the second is in the design of a platform using Artificial Intelligence to formulate projects for raising the economics of Colombian Indigenous focusing on gender. On the one hand, in this field, she has worked in multidisciplinary research, applying tools for decision-making in logistics, transportation, supply chain, data science, big data, artificial intelligence, and technology development, where she has been a leader and co-researcher of these research projects. As a result, I have some scientific publications: a) two books, (the first is on applications of stochastic models and simulation; the second is about measuring efficiency using the data envelopment analysis (DEA) technique); b) 30 articles and book chapters, some of these are indexed and others for dissemination; and c) presentations at national and international congresses.

**Keynote: Thursday, May 9, 2024, 11:30 am – 12:00 pm**

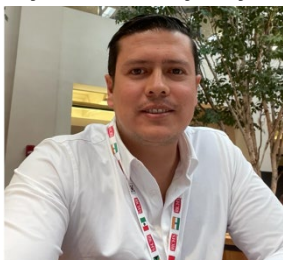


**Mohammad Islam**  
**Associate Director**  
**Optum – United Healthcare Inc.**  
**New Jersey, United States of America**

**“Unraveling Machine Learning & Deep Learning: From Data to Intelligence”**

Mohammad Islam serves as an Associate Director at the UnitedHealth Group USA. He specializes in application and web-based software development, as well as machine learning and deep learning models and their practical applications. Mohammad holds a U.S. patent for a wireless GPS mapping device and has contributed articles to esteemed publications such as ASCE and CSCE. With a keen strategic mindset and a robust IT and Engineering background, Mohammad brings extensive experience in team management, technical leadership, and coaching. He excels in connecting individuals and teams with the right tools and products to optimize effectiveness and efficiency for their mission. With nearly 20 years of experience in IT Program and Portfolio management, spanning agile, SDLC, Kanban, and Scrumban methodologies, Mohammad believes that leveraging AI wisely can lead humanity to unprecedented heights. Before joining UnitedHealth in 2018, Mohammad held positions at Bank of America, Merrill Lynch, Walmart, and the United Nations.

**Keynote: Thursday, May 9, 2024, 12:00 – 12:30 pm**



**Rafael Forero Vargas**  
**Food Safety & Quality Manager Colombia**  
**Rich's Product Corporation**  
**Bogotá D.C, Colombia**

Rafael is an industrial microbiologist from Pontificia Universidad Javeriana and holds a master's degree in business administration. With 14 years of experience in the food industry (powder beverages, coffee, dairy, tin shop, culinary, cheeses, UHT & pastries), primarily in quality and production areas. He has implemented and standardized strategic plans and effective methodologies to achieve goals in the organizations where he has worked. He utilizes tools such as TPM, Lean, and Six Sigma to optimize, maintain, and enhance management and culture in organizations.

He has led the implementation of autonomous maintenance and TPM quality pillars in different factories (Panama and Colombia) and companies, as well as achieving recognized external certifications for the food industry through teamwork and a focus on results.

**Keynote: Thursday, May 9, 2024, 12:30 – 1:00 pm**



**Professor Andrés Felipe Santos H.**  
**Profesor asociado de planta de la decanatura de Ingeniería Industrial**  
**Centro de Estudios en gestión y optimización de operaciones**  
**Investigador del grupo CIMSER**  
**Escuela Colombiana de Ingeniería**  
**Bogotá, Colombia**

Industrial engineer from Escuela Colombiana de Ingeniería Julio Garavito, with experience in production systems, planning, and logistics management in the steel sector. Master's in Business Management from Colegio Mayor de Nuestra Señora del Rosario. Director of the logistics management diploma for the Colombian armed forces, coordinator of the technological mission from Brazil with the Tolima governorship. Associate professor at Escuela Colombiana de Ingeniería teaching courses such as Work Study, Production Planning, Plant Design, Supply Chain Management, and Factory Physics. Guest lecturer at HAN University Netherlands. Invited speaker at the Industrial

and Systems Engineering Research Conference with the paper “On Modeling of Logistic Overnight in Airlines” Canada, 2014; at the Hamburg International Conference of Logistics 2017 with the paper “Production Flow valuation through VSM modeling: An industry case study” Germany, 2017; at the Hamburg International Conference of Logistics 2018 with the paper “Design of an added plan with social responsibility” Germany, 2018; at the Hamburg International Conference of Logistics 2019 with the paper “Design of a self-regulating planning model” Germany, 2019; and at the Hamburg International Conference of Logistics 2022 with the presentation “Digital transformation of planning in the pharmaceutical sector.” Author of the chapter “Emerging Inventory Planning” in the text “Operations Management – Recent Advances and New Perspectives” 2024.





# Powering Engine and Drivetrain Solutions

## Continuous Innovation



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At Eaton, we are continually pursuing new ideas with our current and future technologies to help customers meet their goals. Our valvetrain solutions such as cylinder deactivation and hollow engine valves that are engineered to deliver efficient performance while withstanding the extreme heat requirements. Our supercharger technologies for advanced boosting provide the instant throttle response and improved fuel efficiency customers desire. We are constantly innovating differentiated technologies to provide advanced solutions for the industry and our customers.

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## Workshops

Tuesday, May 7, 2024, 4:00 – 6:00 pm (Onsite Room 2)

### Innovation and Entrepreneurship Workshop

Workshop Facilitator: Professor Don Reimer, Lawrence Tech, MI, USA

Each team will develop an idea to solve an engineering problem that may have commercial potential. They will develop a business plan using the business model canvas. *Teams will compete for prizes with best ideas and best commercial potentials. Students need to bring their laptops.*

Innovation and Entrepreneurship Workshop – A hands-on interactive learning experience

This workshop has been designed to encourage participants in a hands-on interactive learning experience on the development of the entrepreneurial mindset

#### Topics:

- Idea Generation
- Opportunity Recognition
- Ventura Creation
- Value Creation
- Understanding and working with the Business Model Canvas as a validation tool
- Identifying “Customer Segments” and the “Customer Archetype”
- Introduction to the Business Planning Process
- Presentation and Recognition (Prizes)
- Join us for an exciting and interactive learning experience on how to make your dream a reality.



**Professor Donald M. Reimer**

Chief Operating Officer  
IEOM Society International  
Southfield, Michigan, USA

Donald M. Reimer is an adjunct faculty at the A. Leon Linton Department of Mechanical Engineering in College of Engineering at Lawrence Tech in Southfield, Michigan. He coordinates the Certificate of Entrepreneurial Engineering Skills. Mr. Reimer holds a Bachelor of Science degree in Industrial Management from Lawrence Technological University and a Master of Arts degree in Political Science from University of Detroit/Mercy. He is a Certified Management Consultant with over 35 years of experience in working with closely-held businesses. He has taught courses in entrepreneurship, strategic management, corporate entrepreneurship and innovation for engineers. Mr. Reimer is a member of the Lawrence Tech Kern Campus Committee, Coordinator of the Lawrence Tech Innovation Encounter. He is faculty Advisor of the Collegiate Entrepreneurs' Organization. Mr. Reimer serves

as a Kern Fellow of The Kern Family Foundation, Co-Direct of the Coleman Fellows Program, member of the National Collegiate Entrepreneurs' Organization Faculty Advisory Council and is a member of the American Society of Engineering Education. He has operated his own consulting company – The Small Business Strategy Group for 23 years. He published numerous articles on small business, entrepreneurship and strategic thinking. He has received several awards and recognition by local, state and federal agencies for his work in entrepreneurship and minority business development. Mr. Reimer served as member of the Minority Economic Development Committee of New Detroit. Mr. Reimer is member of the Small Business Advisory Council of the Detroit Regional Chamber of Commerce. Mr. Reimer is a member of Advisory Board of the Milwaukee Junction Small Business Assistance Center. He is also a member of the Applied Innovation Alliance. Mr. Reimer serves as a KEEN Fellow for The Kern Family Foundation and is a member of United States Association of Small Business and Entrepreneurship.

### Six Sigma Certification Workshop

Wednesday, May 8, 2024, 8:00 – 10:00 am (Onsite Room 2)

**Speaker: Dr. Ahad Ali, Lawrence Technological University, Southfield, Michigan, USA**

#### Six Sigma Certification Topics

- Six Sigma Fundamentals

#### Define

- Project Charter, Process Maps, SIPOC, Matrix Diagrams, Critical to Quality (CTQ) Metrics, and DPMO, Pareto Chart and SIPOC

#### Measure

- Process analysis, Statistics and Distribution
- Data collection and analysis
- Gage Repeatability and Reproducibility (R&R)
- Process capability
- X-Bar Charts, Run Charts, MA Charts, EWMA Charts, Attribute Charts and Spaghetti Diagrams

#### Analyze

- Value Stream Map and Hypothesis Testing
- Regression Analysis
- Cause & Effect Diagrams
- ANOVA and Confidence Interval

#### Improve

- Lean Tools to reduce NVA: 5S, Kaizen, Seven Zeros, TPS Principles, FMEA, and Simulation
- DOE, SPC, ANOVA

#### Control

- Control Plan, SPC
- Tracking, DFS



**Dr. Ahad Ali**

Associate Professor

Director of Bachelor of Science in Industrial Engineering

Director, Master of Science in Industrial Engineering

Director of Smart Manufacturing and Lean Systems Research Group

A. Leon Linton Department of Mechanical, Robotics and Industrial Engineering

Lawrence Technological University, Southfield, Michigan, USA

Executive Director, IEOM Society International

Dr. Ahad Ali is an Associate Professor and Director of Bachelor of Science in Industrial Engineering and Master of Science in Industrial Engineering in the A. Leon Linton Department of Mechanical, Robotics and Industrial Engineering at the Lawrence Technological University, Michigan. Dr. Ali is the Director of Smart Manufacturing and Lean Systems Research Group. He earned B.S. in Mechanical Engineering from Khulna University of Engineering and Technology, Bangladesh, Masters in Systems and Engineering Management from Nanyang Technological University, Singapore and Ph.D. in Industrial Engineering from University of Wisconsin-Milwaukee. Dr. Ali is the Executive Director of IEOM Society and Conference Chair of the Sixth International Conference on Industrial Engineering and operations Management, Kuala Lumpur 2016. He advised six doctorate students in Doctor of Engineering in Manufacturing Systems. Dr. Ali has published journal and conference papers. He was past President of IIE Lean Division. Dr Ali has done research projects with Chrysler, Ford, DTE Energy, Delphi Automotive System, GE Medical Systems, Harley-Davidson Motor Company, International Truck and Engine Corporation (ITEC), National/Panasonic Electronics, and Rockwell Automation. His research interests include quality, reliability, six sigma, manufacturing, simulation, optimization, scheduling, maintenance, e-manufacturing, lean, CAE and GD&T and. He is a member of ASEE, IEEE, IEOM, INFORMS, and SME.

Wednesday, May 8, 2024, 2:00 – 6:00 pm (Onsite Room 2)

## Project Management Workshop

Leading with Emotional Intelligence: A Seminar for Industrial Engineers

**Dr. Tony Prensa, PhD, MBA, PMP, CB-PMO, CCP, ITIL, 6σ**

Chief Executive Officer &amp; Founder

TP Global Business Consulting, LLC

Orlando, Florida, USA

Dr. Prensa is a highly accomplished executive and leader of project management office (PMO), project/portfolio management, information systems and technologies, combines a Doctorate in Organizational Leadership with a major in Information Systems and Technologies, Certified PMO Professional, Authorized PMO Instructor, Certified Project Management (PMP), and ITILIV certification with extensive experience managing and overseeing large information systems projects/programs, strategic planning, and seamless IT implementations. Adept at reengineering business processes, change management and IT infrastructure with business visions to drive profitability, efficiency, and growth within the organization. Proficient at ensuring all processes comply with regulatory requirements and IT governance practices. Excellent communicator with strong influencing and problem-solving skills. Strong leadership skills and demonstrated ability to lead team members and external business contacts including stakeholders such as consultants, partners and vendors. Demonstrated track record of delivery of multiple technical and business projects on time and within budget. Experience in full-lifecycle project management methodologies and tools. Dr. Prensa has been involved with the Project Management Institute for more than twenty-five years. He served a vice president of PMI Puerto Rico Chapter from 1998-2000. He also volunteered in many activities to promote project management and participated of writing PMP exam questions workshop in Dallas, Texas in 2002. Dr. Prensa has helped hundreds of project management professionals to get prepared for the PMP exam. Dr. Prensa has taught project management for several universities in the country, including Virginia Technical University, Grand Canyon University, Colorado Technical University, University of Phoenix and currently teaching for Walden University. With more than 25 years of teaching experience in various formats, face-to-face and virtual. Dr. Prensa has developed techniques to connect with learners and students in the most efficient way. Dr. Prensa has extraordinary people skills, he always puts people first.

# STEPPING INTO AI & MACHINE LEARNING - Workshop

INSTRUCTOR-LED WORKSHOP WITH HANDS-ON TRAINING

2:00 - 6:00 pm, May 9, 2024 - Room 2

Get hands-on experience with the latest AI tools and technologies in our intensive workshop, designed and delivered by an industry experienced professional, Mohammad Islam. In this workshop your training



will provide you with the tools to:

- Develop intelligent machine learning models with Python
- Data exploration and visualization
- Identify significances between supervised versus unsupervised ML
- Building supervised/unsupervised models
- Get an introduction to as well explore the world of Neural networks
- Build image recognition models

Upon course completion you will be able to:

- Understand the beneficial roles Machine Learning and Artificial Intelligence play in modern society
- Describe with clarity supervised and unsupervised machine learning
- Implement linear and polynomial regression models
- Implement (model using) K means clustering
- Describe deep learning versus machine learning
- Know the importance of model image recognition

## About the Trainer

Mohammad Islam brings over 20 years of diverse industry experience to his role as Associate Director at UnitedHealth Group, USA. His background spans insurance, finance, retail, humanitarian, and manufacturing, equipping him with a unique perspective and adaptability. As an engineer and software expert, he boasts over 15 years of IT portfolio/program management expertise, including agile, SDLC, RAD, and kanban methodologies. Recognized by certifications like Data Scientist in Python, AI Toolkit Scikit Learn, Tensor flow and Keras, SPC®, PMP®, ACP®, and CSM®, his previous roles include working with Bank of America - Merrill Lynch, Walmart, and the United Nations WFP. Mohammad's leadership extends beyond technical expertise, managing in-house and offshore teams across Russia, India, Ireland, Italy, and the US. Additionally, he holds a US patent on wireless GPS mapping and has published in prestigious journals like ASCE and CSCE.



# AI

Artificial  
Intelligence

VS

# ML

Machine  
Learning

VS

# DL

Deep  
Learning

VS

# DS

Data  
Science



Explore machine learning and artificial intelligence with Leap Learning hands-on program that will be developed and taught by industry experienced professional.

The program will introduce you to

- Developing intelligent machine learning with Python
- Data exploration and visualization techniques
- Building supervised/unsupervised models
- Building an image recognition model

## FROM DATA TO INTELLIGENCE: A COMPREHENSIVE DIVE INTO ANALYSIS, ML, & AI

- **Artificial Intelligence, Machine Learning and Deep Learning - Concepts and Terminology**
  - AI Types, ML/DL by examples, ML vs. DL & bringing them together.
- **Why ML/DL is popular in recent years?**
  - Industry use cases, Gartner: 2020/2021 Emerging Technologies
- **Machine Learning**
  - Structured unstructured data, ML offerings, cloud based offerings, Python based libraries, traditional software development vs. machine learning.
- **Machine Learning Techniques**
  - Supervised vs. Unsupervised learning, Regression vs. Classification, Clustering vs. Association, Model Development, Data split, Test/Training model, Model evaluation, Algorithms: linear regression, logistic regression, Support vector machines, K-Nearest neighbors, Decision trees.
- **Hands on**
  - In-depth style guide for DS projects, Pandas, NumPy, Seaborn, Matplotlib's on data cleaning, data analysis, build model & visualization.

**AI & Machine Learning Workshop**  
May 9, 2024, 2:00 - 6:00 pm

Mohammad Islam  
Associate Director  
Optum – United Healthcare Inc.  
New Jersey, United States of America



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### Conference Chairs

Dr. Johanna Trujillo Díaz  
Investigador en Estancia Post Doctoral – Proyecto Orquídeas  
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Bogotá, Colombia

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Director of Industrial Engineering Program  
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 Dr. Moacyr Machado Cardoso Junior, Instituto Tecnológico de Aeronáutica, São José dos Campos, SP, Brazil  
 Dr. Olufemi Adetunji, University of Pretoria, South Africa  
 Dr. Oscar A. Vásquez-Bernal, Universidad Nacional Abierta y a Distancia UNAD – Colombia  
 Dr. Patrícia Andrea do Prado Rios – University of York, UK  
 Dr. Ricardo Alexandre Diogo, Professor Adjunto, PUCPR - Pontifícia Universidade Católica do Paraná, Curitiba, Paraná, Brazil  
 Dr. Ricardo Pimenta IBICT/UFRRJ  
 Dr. Roberto Antonio Martins, Federal University of Sao Carlos (UFSCar), Sao Carlos, SP, Brazil  
 Dr. Rodrigo Caiado, Universidade Federal Fluminense, Brazil  
 Dr. Sandro Breval, Universidade Federal do Amazonas  
 Dr. Symone Gomes Soares Alcalá, Federal University of Goiás, Campus Aparecida de Goiânia, Brazil  
 Dr. Umar AL-Turki, King Fahd University of Petroleum and Minerals, Saudi Arabia  
 Dr. Úrsula Maruyama, Centro Federal de Educação Tecnológica Celso Suckow da Fonseca, Rio de Janeiro Area, Brazil  
 Dr. Vicente Ramírez Núñez Universidad Austral de Chile  
 Dr. Victor H. Molina, Director of Innovation and Entrepreneurship, Technical University of Ambato, Ambato, Ecuador  
 Dr. Wladimir Henriques Motta CEFET/RJ (Pró-reitoria de Pós-graduação)  
 Dr. Enzo Morosini Frazzon, Federal University of Santa Catarina (UFSC), Florianópolis, Brazil  
 Dra. Lorena Bearzotti Pontifícia Universidad Católica de Valparaíso, Chile  
 Dra. Patrícia Silva Ferreira, IFRJ (Federal Institute of Technological Education of Rio de Janeiro)  
 Ebert Brea, School of Industrial Engineering (SIE), Catholic University Andrés Bello (UCAB), Caracas, Venezuela  
 Eduardo Redondo National University of Asuncion, Faculty of Engineering, Asuncion, Paraguay  
 Elena Espinoza Ríos, Universidad Continental, Peru  
 Franklin Cordova-Buiza, Research Teacher, Department of Industrial Engineering, Universidad Norte, Peru  
 Guilherme Tortorella, Universidade Federal de Santa Catarina, Brazil  
 Héctor Bravo, Universidad Nacional de Ingeniería, Lima, Peru

Herman Nina Hanco Universidad Nacional de San Antonio Abad del Cusco, Cusco, Peru  
 Hugo Chacón Moscoso, Universidad de San Martín de Porres, Peru, Lima  
 Juan Jeús Arenas Pontificia Universidad Católica del Perú San Miguel, Lima Peru  
 Katherine Becerra Universidad Peruana de Ciencias Aplicadas, Lima, Peru  
 Lauro Enciso Rodas, Universidad Nacional de San Antonio Abad del Cusco, Cusco, Peru  
 Luis Alberto Zuloaga Rotta, Universidad Nacional de Ingeniería, Lima, Perú  
 Mario C. Vélez G., Universidad EAFIT, Colombia  
 Martín R. Dorante, Universidad Católica Andrés Bello (UCAB), Caracas 1020, Venezuela  
 Mga William Eduardo Mosquera Laverde, Universidad Cooperativa de Colombia  
 Milton Mauricio Herrera, Faculty of Economic Sciences, Center of Research in Economic Sciences, Universidad Militar Nueva Granada, Bogotá, Colombia  
 Milton Mauricio Herrera, Universidad Militar Nueva Granada, Bogotá, Colombia  
 Monica Giuliano, Universidad Nacional de Hurlingham, Argentina  
 Paloma María Teresa Martínez Sanchez – Universidad El Bosque, Bogotá, Colombia  
 Peter Fernandes Wanke, Universidade Federal do Rio de Janeiro  
 Rebeca Caceres UMIP, Ancon, Panama  
 Ricardo Alexandre Diogo, Professor Adjunto, PUCPR – Pontifícia Universidade Católica do Paraná, Curitiba, Paraná, Brazil  
 Rodrigo Ruiz, CTI Renato Archer, Campinas, Brazil  
 Victor H. Molina, Director of Innovation and Entrepreneurship, Technical University of Ambato, Ambato, Ecuador  
 William Eduardo Mosquera Laverde, Universidad Cooperativa de Colombia

**International Committee**

Dr. Soumaya Yacout, École Polytechnique de Montréal, Canada  
 Dr. Abdelaziz Berrado, The Ecole Mohammadia d'Ingénieurs (EMI), Rabat, Morocco  
 Dr. Abdul Talib Bon, Universiti Tun Hussein Onn Malaysia  
 Dr. Abdur Rahim, University of New Brunswick, Canada  
 Dr. Ahm Shamsuzzoha, University of Vaasa, Finland  
 Dr. Alireza Ghasemi, Dalhousie University, Halifax, NS, Canada  
 Dr. Amjad Gawanmeh, Electrical and Computer Engineering, Khalifa University of Science and Technology, Abu Dhabi, UAE  
 Dr. Armesh Telukdarie, University of Johannesburg, South Africa  
 Dr. Arun Kumar, Royal Melbourne Institute of Technology (RMIT) University, Australia  
 Dr. Chan Chee-Ming, Universiti Tun Hussein Onn Malaysia  
 Dr. Charles Mbohwa, University of Johannesburg, South Africa  
 Dr. Docki Saraswati, Universitas Trisakti, Jakarta, Indonesia  
 Dr. Gerard O'Connor, Adelaide and Meath Hospital, Dublin, Ireland  
 Dr. Hamid R. Parsaei, Texas A&M University, College Station, USA  
 Dr. Hamid Seifoddini, University of Wisconsin-Milwaukee, USA  
 Dr. Henk Zijm, University of Twente, Netherlands  
 Dr. Ho Hwi Chie, Bina Nusantara University (Binus), Indonesia  
 Dr. Humberto Alvarez Universidad Tecnológica de Panama  
 Dr. Ilham Kissani, Al Akhawayn University, Ifrane, Morocco  
 Dr. Indra Gunawan, The University of Adelaide, Australia  
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 Dr. Jose Arturo Garza-Reyes, University of Derby, UK  
 Dr. Kannan Govindan, University of Southern Denmark, Denmark  
 Dr. Kashif Saleem, King Saud University, Riyadh, Saudi Arabia  
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 Dr. Li Zheng, Tsinghua University, China  
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 Dr. Patrícia Andrea do Prado Rios – University of York, UK  
 Dr. Rosemary Seva, De La Salle University – Manila, Philippines  
 Dr. Salah Elaskari, Industrial Engineering Department, University of Tabuk, Saudi Arabia  
 Dr. Sharan Shetty, Manipal International University, Putra Nilai, Malaysia  
 Dr. Shekar Babu, Founding Head, AMRITA School of Business, Bangalore, India  
 Dr. Suat Kasap, Industrial Engineering, American University of the Middle East, Kuwait  
 Dr. Umar AL-Turki, King Fahd University of Petroleum and Minerals, Saudi Arabia  
 Dr. Wichai Chattinnawat, Chiang Mai University, Thailand

# IEOM Global Lean Six Sigma and Operations Excellence

## Plenary Speakers

8:00 – 9:45 am, TUESDAY, Onsite Room 1

Session Chair: Ivanhoe Rozo-Rojas, Professor and Director, Industrial Engineering, Universidad Católica de Colombia, Bogota, Colombia

8:00 – 8:20 am



**Alberto Poveda Caputo**  
**Innovation & Operational Excellence Senior Master**  
**General Motors**  
**Bogota, Colombia**

Presentation Title: Innovation: The Engine of Change

Alberto Poveda Caputo holds a Bachelor's degree and a Master's degree in Industrial Engineering with a focus on Operations Research from Universidad de los Andes (Bogotá, Colombia). He has over 10 years of experience driving operational excellence and continuous improvement across diverse industries. Currently, as an Innovation & Operational Excellence Senior Master at General Motors South America, Alberto spearheads high-impact projects yielding \$22.5M in cost savings/revenue growth. He also advises on strategy and champions OpEx training, resulting in over 600 certifications. Mr. Poveda Caputo is a Certified Operational Excellence Master from General Motors (GM). Additionally, he possesses a Black Belt Lean Six Sigma certification from Arizona State University (ASU). Furthermore, Mr. Poveda Caputo is a Certified Manager of Quality & Organizational Excellence from the American Society for Quality (ASQ), and a Certified Internal Quality Auditor under ISO 9001:2008, showcasing his deep understanding of quality management systems and best practices.

8:20 – 8:40 am

**Paola Cruz Díaz**  
**Directora Ejecutiva**  
**Lean Six Sigma Institute LATAM**  
**Bogota, Colombia**

8:40 – 9:00 am

**Lina María Gómez Cortés**  
**Professor, Universidad de La Sabana**  
**Co fundadora y COO, Tech, Social, Agro and Arts**  
**Bogotá, Colombia**

9:00 – 9:20 am

9:20 – 9:40 am



**Ivanhoe Rozo-Rojas**  
**Professor**  
**Director, Industrial Engineering**  
**Universidad Católica de Colombia**  
**Bogota, Colombia**

Ivanhoe Rozo-Rojas is a professor at the Universidad Católica de Colombia in the Faculty of Engineering at Bogota (Colombia). He leads the Industrial Engineering program and belongs to the Research Group of Production. Mr. Rozo-Rojas holds a Bachelor of Industrial Engineering from Universidad Santo Tomás (Bucaramanga, Colombia), a master's in quality and management systems from Universidad Santo Tomás (Bucaramanga, Colombia), and he currently studies the PhD in Engineering at Universidad Nacional de Colombia (Bogota, Colombia). He got the Black Belt Lean Six Sigma certification by The Council for Six Sigma Certification. His teaching courses are related to Lean Six Sigma, Quality Control, and Management Systems in bachelor, specialization, and master's degrees. He has developed various projects in healthcare organizations applying operational excellence approaches with collaboration of other academic and business. He served as consultant of organizations for getting certifications and improving its processes. He served as Co-chair of the International Conference on Industrial Engineering and Operations Management Bogota 2024.



# IEOM Global Engineering Education

## Plenary Speakers

8:00 – 9:45 am, THURSDAY, May 9, Onsite Room 1

Chair: Dr. Mario Chauca, Ricardo Palma University, Surco, Lima, Perú

### Speaker I

**Magda Monroy**  
Decana Facultad de Ingeniería Industrial  
Universidad Santo Tomás  
Professor Jaime Díaz Ortiz

### Speaker II

**Dean**  
Faculty of Engineering  
Universidad Católica de Colombia  
Bogotá, Colombia

### Speaker III

**Diana Patricia Diaz Velandia**  
Coordinateur de projection sociale et extension  
Fundación Universitaria Internacional de La Rioja (UNIR)  
Bogotá, Colombia

### Speaker IV



**Dr. Oscar A. Vasquez-Bernal**  
Associate Professor, School of Basic Sciences, Technology and Engineering  
Universidad Nacional Abierta y a Distancia  
Bogotá Colombia

Oscar A. Vasquez-Bernal is an Associate Professor in the School of Basic Sciences, Technology and Engineering at Universidad Nacional Abierta y a Distancia, Bogotá Colombia. He earned his BS in industrial engineering from Universidad Antonio Nariño, Colombia, and his Master's in business administration from UNAD Florida USA. He is presently a PhD candidate in engineering at Universidad Nacional de Colombia. He has published several journal articles and conference papers. Professor Vasquez-Bernal has been involved in projects with manufacturing and engineering companies. He is a management consultant in quality assurance, project management and safety management. He has taught courses in entrepreneurship, strategy and corporate logistics and innovation for engineers; his research interests include certification, accreditation, multi-criteria decision analysis and optimisation. He is a member of NFPA, LACCEI and IEEE.

### Speaker V



**Ahad Ali, Ph.D.**  
Associate Professor  
Director, Bachelor of Science in Industrial Engineering  
Director, Master of Science in Industrial Engineering  
A. Leon Linton Department of Mechanical, Robotics and Industrial Engineering  
Lawrence Technological University, Southfield, Michigan, MI 48075, USA  
Founder and Executive Director of IEOM Society International

**Ahad Ali** is an Associate Professor and Director of Industrial Engineering Programs (BSIE & MSIE), Director of Graduate Certificate in Lean Six Sigma and Director of Smart Manufacturing and Lean Systems Research Group, A. Leon Linton Department of Mechanical, Robotics and Industrial Engineering at the Lawrence Technological University, Southfield, Michigan, USA. He established Siemens Electro-Matic Industrial Engineering Lab at LTU in 2019. Dr. Ali was the primary author of the ABET self-study report of the BSIE Program at LTU in 2022. He earned B.S. in Mechanical Engineering from Khulna University of Engineering and Technology (KUET), Bangladesh, Masters in Systems and Engineering Management from Nanyang Technological University, Singapore and Ph.D. in Industrial Engineering from University of Wisconsin-Milwaukee, USA. Dr. Ali was Assistant Professor in Industrial Engineering at the University of Puerto Rico - Mayaguez, Visiting Assistant Professor in Mechanical, Industrial and Manufacturing Engineering at the University of Toledo and Lecturer in Mechanical Engineering at the Bangladesh Institute of Technology, Khulna. He received an Outstanding Professor Award of the Industrial Engineering Department, University of Puerto Rico -Mayaguez, (2006-2007). He has published 60 journal and 150 conference papers. Dr Ali has conducted research projects with Chrysler, Ford, DTE Energy, New Center Stamping, Whelan Co., Delphi Automotive System, GE Medical Systems, Harley-Davidson Motor Company, International Truck and Engine Corporation (ITEC), National/Panasonic Electronics, and Rockwell Automation. His research interests include manufacturing systems modeling, simulation and optimization, intelligent scheduling and planning, artificial intelligence, predictive maintenance, e-manufacturing, and lean manufacturing. He supervised 11 doctoral students. Dr. Ali has involved with many international conference committees. He is the Founder of IEOM Society International and serving as an Executive Director. Dr. Ali serves as a Conference Co-Chair of the International Conference on Industrial Engineering and Operations Management and organized events in Dhaka, Kuala Lumpur, Istanbul, Bali, Dubai, Orlando, Detroit, Rabat, UK, Bogota, Paris, Washington, DC, Pretoria, Bangkok, Pilsen, Toronto, Costa Rica, Sao Paulo, India, Riyadh, Manila and Sydney. He is a member of IEOM, INFORMS, SME and IEEE.

# IEOM Global Industry Solutions

## Plenary Speakers

8:00 – 9:45 am, WEDNESDAY, Onsite Room 1  
Session Chair: Dr. Rodrigo Luiz Gigante

8:00 am – 8:20 am (Wednesday, May 8)

**Iván Andrés Ramírez Pinzón**  
Associate Professor  
Postdoctoral Researcher  
Advisor  
Bogota, Colombia

Presentation Title: Telecommunications Infrastructure and Information Regime

8:20 am – 8:40 am (Wednesday, May 8)

**Miryam Liliana Chaves Acero**  
Doctora en Ingeniería Mecánica y Fabricación  
Experta en Inteligencia Artificial aplicada a procesos y neurociencias  
Fundación Universitaria Internacional de La Rioja (UNIR)  
Bogota, Colombia

8:40 am – 9:00 am (Wednesday, May 8)

**Dr. Rodrigo Luiz Gigante**  
Coordinator of Production Engineering  
FACENS University  
Sorocaba, SP, Brazil

9:00 am – 9:20 am (Wednesday, May 8)

9:20 am – 9:40 am (Wednesday, May 8)



**Aracelli Centeno Sanchez**  
Business Process Manager  
Cleaning and Beauty Products  
Peru

### Bio

Informatics Engineering of University of Ricardo Palma, with specializations in Business Process Management, Risk Management, Project Management and Data Analytics, with master's in business administration at University of Illinois Urbana Champaign. In 15 years of experience in information analytics, business process, process improvement project. Business Practice Consulting, data analysis, and insight identification and analysis. I have worked in industries such as technology, bank, government, transportation and pharmaceutical. I have been participated in process improvement teams, business, improvement project assessment, I know the business core and I have given recommendations to implement in the short and medium time.

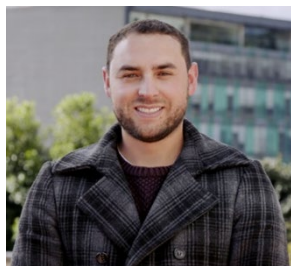


# IEOM Global Innovation and Entrepreneurship

**Plenary Speakers** - 2:00 – 3:45 pm, WEDNESDAY, Onsite Room 1

Session Chair: Professor Camilo Alarcon Nieto

2:00 pm – 2:20 pm (Wednesday, May 8)



**Professor Camilo Alarcon Nieto**  
**Assistant Professor**  
**Fundacion UNIR Colombia**  
**PhD Candidate in Management**  
**Researcher leader in entrepreneurship and technology adoption**

Camilo Alarcón Nieto is an academic and professional world with a strong foundation in Industrial Engineering and Economics. He is an assistant professor in the Department of Economics and Management at Fundación UNIR Colombia. He also serves as the lead researcher on entrepreneurial intention among university students and technology adoption in the health sector for low-income populations. He is nearing the completion of his Ph.D. in Administration at Universidad de los Andes, following his achievement of a Master's degree in Applied Economics from Universidad EAFIT. His extensive career as both a consultant and an academic is marked by a significant focus on data analytics, enabling him to optimize business and economic strategies effectively. This expertise has been applied successfully in various international projects and academic settings, showcasing his adeptness at managing and adapting complex knowledge to diverse scenarios. In his consultancy role, particularly as a Junior Consultant at Ayala Consulting, Camilo played a critical part in the data analysis for Malawi's Cash Transfer Lean Season project. His work there demonstrated his exceptional ability to apply economic theories in challenging international environments. Furthermore, as a university professor at Universidad Los Libertadores and UNIR, Camilo teaches fundamentals of economics, macroeconomics, and general economic history. His teaching method effectively integrates monetary theory with practical applications.

2:20 pm – 2:40 pm (Wednesday, May 8)



**Professor William E. Mosquera Laverde**  
**Director of Organizations and Strategic Group 4.0 category A1. Colombia**  
**Director of the Course Design of Organizational Processes, USA**  
**Business Administration Program**  
**Faculty of Administrative and Accounting Economic Sciences**  
**Cooperative University of Colombia**  
**Bogotá. Colombia**

William E. Mosquera is a Chemical Engineer from the National University of Colombia in 1993; He is a specialist in distance education from UNAD in 2000, also a Master in Environmental Management from the Universidad de la Andes in 2014, currently a PhD student in engineering: industry and organizations at the National University of Colombia, leader of the Organizations and Organizations research group. O.E. strategy 4.0 categorized A1 in Colombia for 6 years; For more than 15 years he has taught environmental management courses and organizational process design in the business administration program at the Universidad Cooperativa de Colombia. He has been the manager of the company JULMAT Comercializadores since 2000 in the infrastructure sector in technical and architectural finishes.

2:40 pm – 3:00 pm (Wednesday, May 8)

**Dr. Fáber D. Giraldo**  
**Vice-chancellor of Research**  
**Universidad del Quindío**  
**Armenia, Quindío, Colombia**

3:00 pm – 3:20 pm (Wednesday, May 8)



**Professor Carlos Gualdrón, MSc.**  
**Professor of Project Management**  
**Professor Industrial Engineering – Faculty of Engineering**  
**Technological University of Bolívar**  
**Colombia, South America**

Industrial Engineer from the University of La Sabana (Colombia), Master in Project Management from BPP University (London-UK). He works on Project Management issues in different sectors of the national economy. Additionally, he is part of the Caribbean chapter of the PMI, based on international standards for project management. He has advised several projects on the strategic management and development of Business Case. He currently works as a Professor at the Technological University of Bolívar, where he is in charge of several research projects for the Master's Degree in Project Management. Among them, projects with the Cartagena Chamber of Commerce and with the district of the city of Cartagena stand out.

3:20 pm – 3:40 pm (Wednesday, May 8)



**Professor Donald M. Reimer**  
**Chief Operating Officer, IEOM Society International**  
**Southfield, Michigan, USA**

Donald M. Reimer is an adjunct faculty at the A. Leon Linton Department of Mechanical Engineering in College of Engineering at Lawrence Tech in Southfield, Michigan. He coordinates the Certificate of Entrepreneurial Engineering Skills. Mr. Reimer holds a Bachelor of Science degree in Industrial Management from Lawrence Technological University and a Master of Arts degree in Political Science from University of Detroit/Mercy. He is a Certified Management Consultant with over 35 years of experience in working with closely-held businesses. He has taught courses in entrepreneurship, strategic management, corporate entrepreneurship and innovation for engineers. Mr. Reimer is a member of the Lawrence Tech Kern Campus Committee, Coordinator of the Lawrence Tech Innovation Encounter. He is faculty Advisor of the Collegiate Entrepreneurs' Organization. Mr. Reimer serves as a Kern Fellow of The Kern Family Foundation, Co-Direct of the Coleman Fellows Program, member of the National Collegiate Entrepreneurs' Organization Faculty Advisory Council and is a member of the American Society of Engineering Education. He has operated his own consulting company – The Small Business Strategy Group for 23 years. He published numerous articles on small business, entrepreneurship and strategic thinking. He has received several awards and recognition by local, state and federal agencies for his work in entrepreneurship and minority business development. Mr. Reimer served as member of the Minority Economic Development Committee of New Detroit. Mr. Reimer is member of the Small Business Advisory Council of the Detroit Regional Chamber of Commerce. Mr. Reimer is a member of Advisory Board of the Milwaukee Junction Small Business Assistance Center. He is also a member of the Applied Innovation Alliance. Mr. Reimer serves as a KEEN Fellow for The Kern Family Foundation and is a member of United States Association of Small Business and Entrepreneurship.

# IEOM Supply Chain and Logistics

## Plenary Speakers

4:00 – 5:45 pm, THURSDAY, Onsite Room 1

Session Chair: Professor Andrés Felipe Santos H.

4:00 – 4:20 pm (Thursday, May 9)



**Professor Andrés Felipe Santos H.**  
**Profesor asociado de planta de la decanatura de Ingeniería Industrial**  
**Centro de Estudios en gestión y optimización de operaciones**  
**Investigador del grupo CIMSER**  
**Escuela Colombiana de Ingeniería**  
**Bogotá, Colombia**

Industrial engineer from Escuela Colombiana de Ingeniería Julio Garavito, with experience in production systems, planning, and logistics management in the steel sector. Master's in Business Management from Colegio Mayor de Nuestra Señora del Rosario. Director of the logistics management diploma for the Colombian armed forces, coordinator of the technological mission from Brazil with the Tolima governorship. Associate professor at Escuela Colombiana de Ingeniería teaching courses such as Work Study, Production Planning, Plant Design, Supply Chain Management, and Factory Physics. Guest lecturer at HAN University Netherlands. Invited speaker at the Industrial and Systems Engineering Research Conference with the paper "On Modeling of Logistic Overnight in Airlines" Canada, 2014; at the Hamburg International Conference of Logistics 2017 with

the paper "Production Flow valuation through VSM modeling: An industry case study" Germany, 2017; at the Hamburg International Conference of Logistics 2018 with the paper "Design of an added plan with social responsibility" Germany, 2018; at the Hamburg International Conference of Logistics 2019 with the paper "Design of a self-regulating planning model" Germany, 2019; and at the Hamburg International Conference of Logistics 2022 with the presentation "Digital transformation of planning in the pharmaceutical sector." Author of the chapter "Emerging Inventory Planning" in the text "Operations Management – Recent Advances and New Perspectives" 2024.

4:20 – 4:40 pm (Thursday, May 9)



**Luis Tarazona Torres**  
**Asistente Doctoral de Docencia de Ingeniería Industrial**  
**Investigador del Grupo de Investigación de Producción y Logística**  
**Universidad de los Andes**

**Luis Tarazona-Torres** is a Ph.D. Engineering student and master's in industrial engineering at Los Andes University (Colombia), Chemical Engineer at the National University of San Antonio Abad del Cusco (Peru). Teaching Assistant in the Department of Industrial Engineering at Los Andes University (Colombia). His research area is Production and Logistics, especially in industrial production planning and scheduling, the application of mathematical and metaheuristic models for scheduling optimization. He has extensive knowledge and interest in the scheduling of activities in the industry and its connection with the implementation of Industry 4.0 technology.

4:40 – 5:00 pm (Thursday, May 9)

**Johanna Caranton Diaz**  
**Professor of Industrial Engineering**  
**Fundación Universitaria Internacional de La Rioja (UNIR)**  
**Bogotá, Colombia**

5:00 – 5:20 pm (Thursday, May 9)

**Julián Ignacio López Arcos**  
**Mestre em Engenharia de Produção**  
**Universidade Federal de Itajubá Instituição**  
**Universidad Cooperativa de Colombia Endereço:**  
**Cali, Colombia**

5:20 – 5:40 pm (Thursday, May 9)



# Panel Sessions

## Global Engineering Education Panel

Tuesday, May 7, 2024, 2:00 – 3:45 pm – Room 2 (Onsite)

### Panel Chair



**Dr. Mario Chauca**  
**Advisor reviewer vice-rectorate of research and**  
**Researcher Professor at Ricardo Palma University**  
**Santiago de Surco, LI 15039, PERU**  
**Researcher of the RENACYT-CONCYTEC**  
**Executive Committee Member IFEES (2019-2021)**  
**Past Director Kenshu Kiokay del Peru-AOTS**  
**Past Steering Committee Member IEEE MWSCAS**

Mario Chauca is Executive Committee Member IFEES (2019-2021), was a Director of the AOTS-Kenshu Kiokay-Peru (2010-2014), member of the technical committees since 2010, invited by the University of Washington IEEE, in 2010 joined the Steering Committee of the IEEE-MWSCAS, and has participated in more than 30 committees in the European Union, Asia, Africa, America and Australia. All event proceedings are indexed in Scopus, journals and others database. Chauca was participant as speaker and Chair Session at WEE2019-Chennai (India), IEM2019-Toronto (Canada), WEEF2018-Albuquerque (USA), ICIMA2018-Penang (Malaysia), WEEF2017-Kuala Lumpur (Malaysia), CONeGOV2016-Florianopolis (Brazil), ISIT2014,17-Guanajuato (Mexico), MWSCAS2010-Washington (USA), JAIIO2009-Mar del Plata (Argentina), CONIELECOMP2007,9,10-Puebla (Mexico), SIE2004-Santa Clara (Cuba). He obtained a scholarship from the AOTS Tokyo (Japan), from the NIPA and Ministry of Science, ICT and Planning of the Future of Korea Seoul (Korea). He is a Consultant in Information and Communication Technologies, he was consultant in the project of United Nations-Inter-American Development Bank-Congress of the Republic of Peru and the Ministry of the Interior of Peru. He is a researcher by RENACYT-CONCYTEC in the Peruvian Government, adviser first award paper CONEIMERA2018, adviser of the First General Award Project for more than 5000 projects in the contest from the Romero Group, adviser for first projects in congress INTERCON, CONEIMERA, and was nominated for the Graña y Montero Prize for Research in Peruvian Engineering. Nominated Peruvian Research Southern Prize 2019 and nominated research award 2018 MEXICO. As author and advisor of papers he has more than 50 letters of acceptance, served organizer of international academic events, editor of proceedings, and advisor to the IEEE chapters at the National University of Callao and the Ricardo Palma University. He teaches at the postgraduate and undergraduate level, with 30 years of experience. He graduated as an Electronic Engineer from Ricardo Palma University in Lima Peru, obtained his Master's Degree in Business Administration with a mention in "Business Management" and his Doctorate in Education from San Luis Gonzaga National University.

### Panel Speaker I



**Dr. Juan Sebastian Sánchez**

Professor Sánchez-Gómez is a biomedical engineer, lawyer, magister in Education, magister in Public Policy, and a doctoral student in Industrial and Systems Engineering at Universidad de Los Andes. He has worked as a professor of civil and telematics engineering at the Universidad Distrital, professor of Industrial engineering at the Universidad El Bosque, professor of Environmental engineering at the Universidad de Cundinamarca and pedagogue of educational innovations at the Center for Innovation in Technology and Education (ConectaTE) at the Universidad de Los Andes. He has experience in research and project management in education and innovation with ICT, and he has certificates in the English, Portuguese and French languages. He has been a designer of courses and educational programs, leader of national (CNA) and international accreditation (ABET), pedagogue, and teacher trainer in secondary education. Actually, he is a professor of industrial engineering at the Universidad

Sergio Arboleda and a professor of Systems engineering at the Universidad de Los Andes.

### Panel Speaker II

**Prof. Jaime Roldan**  
**Department of Industrial Engineering**  
**Universidad America**  
**Bogota, Colombia**

### Panel Speaker III



**Professor Donald M. Reimer**  
**Chief Operating Officer, IEOM Society International**  
**Southfield, Michigan, USA**

Donald M. Reimer is an adjunct faculty at the A. Leon Linton Department of Mechanical Engineering in College of Engineering at Lawrence Tech in Southfield, Michigan. He coordinates the Certificate of Entrepreneurial Engineering Skills. Mr. Reimer holds a Bachelor of Science degree in Industrial Management from Lawrence Technological University and a Master of Arts degree in Political Science from University of Detroit/Mercy. He is a Certified Management Consultant with over 35 years of experience in working with closely-held businesses. He has taught courses in entrepreneurship, strategic management, corporate entrepreneurship and innovation for engineers. Mr. Reimer is a member of the Lawrence Tech Kern Campus Committee, Coordinator of the Lawrence Tech Innovation Encounter. He is faculty Advisor of the Collegiate Entrepreneurs' Organization. Mr. Reimer serves as a Kern Fellow of The Kern Family Foundation, Co-Direct of the Coleman Fellows Program, member of the

National Collegiate Entrepreneurs' Organization Faculty Advisory Council and is a member of the American Society of Engineering Education. He has operated his own consulting company – The Small Business Strategy Group for 23 years. He published numerous articles on small business, entrepreneurship and strategic thinking. He has received several awards and recognition by local, state and federal agencies for his work in

entrepreneurship and minority business development. Mr. Reimer served as member of the Minority Economic Development Committee of New Detroit. Mr. Reimer is member of the Small Business Advisory Council of the Detroit Regional Chamber of Commerce. Mr. Reimer is a member of Advisory Board of the Milwaukee Junction Small Business Assistance Center. He is also a member of the Applied Innovation Alliance. Mr. Reimer serves as a KEEN Fellow for The Kern Family Foundation and is a member of United States Association of Small Business and Entrepreneurship.

## Panel Speaker IV



**Javier A. Moreno C, MSc.**  
**Associate Professor and Dean, School of Engineering**  
**Institución Universitaria Colegios de Colombia – UNICOC**  
**President COPASST – Unicoc Chía, Cundinamarca, Colombia**

Javier Moreno is an Associate Professor and Dean of the School of Engineering, and president of the COPASST at Institución Universitaria Colegios de Colombia – Unicoc, Chía Cundinamarca, Colombia. He holds a Bachelor of Science degree in Industrial Engineer and a Master in Industrial Engineering from Pontificia Universidad Javeriana (PUJ). He is Health, Safety, Environment, and Quality – HSEQ Internal Auditor, with studies in Ergonomics and Human Factors at Harvard University. Mr. Moreno has worked on ergonomics projects with the Center for Ergonomics Studies at PUJ, for Oil & Gas and Health industries, and has taught courses in

Occupational Health and Safety, Ergonomics, Quality Management, Strategic Management and Environmental Management and Sustainable Development at the Sabana, Santo Tomás, Unicoc and Católica Universities. He has worked in quality and process control and in management positions in different Energy, Mining and Commercial companies and in Higher Education Institutions. Mr. Moreno represents his Institution as a member of the Network of Engineering Deans and the Network of Directors of Industrial Engineering of Asociación Colombiana de Facultades de Ingeniería – ACOFI.

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**Women in Industry and Academia (WIIA) Panel +  
 Diversity and Inclusion Panel Sponsored by Ford Motor Company**  
**Tuesday, May 7, 2024, 4:00 – 5:45 pm – Room 2 (Onsite)**

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## Panel Chair

**Valeria Mendoza Cortés**  
**MSc. Logística y Transporte – Administradora Logística**  
**Certified Internacional Forwarder and Sourcing Specialist**  
**Baker Hughes**  
**Bogotá, Colombia**

Logistics Administrator, bilingual with 90% English language skills (B2 Certificate). Recent experience in service logistics for the Oil, Gas & Energy sector. Specific competencies in materials planning for the Completion process. Creation and management of requisitions and purchase orders. Monitoring of imports and exports. Analysis and physical inventory counting. Generation of reports on open orders, requisitions, physical inventory and exports. Release of materials from physical inventory and intercompany articulation. Management of SAP – Purchasing and Materials Management Module. Knowledge in hospital logistics, reverse logistics, green logistics, entrepreneurship and marketing. Experience formulation and coordination of research projects. Skills in the preparation of scientific documents, presentations, reports, technical and administrative documents. Management of office tools (Word, Excel, Power Point). Logistics Administrator, bilingual with 90% English language skills (B2 Certificate). Recent experience in service logistics for the Oil, Gas & Energy sector. Specific competencies in materials planning for the Completion process. Creation and management of requisitions and purchase orders. Monitoring of imports and exports. Analysis and physical inventory counting. Generation of reports on open orders, requisitions, physical inventory and exports. Release of materials from physical inventory and intercompany articulation. Management of SAP – Purchasing and Materials Management Module. Knowledge in hospital logistics, reverse logistics, green logistics, entrepreneurship and marketing. Experience formulation and coordination of research projects. Skills in the preparation of scientific documents, presentations, reports, technical and administrative documents. Management of office tools (Word, Excel, Power Point).

## Panel Speaker I

**Eliana K. Acuna Cárdenas**  
**Fundación Santa Fe**  
**Bogotá, Colombia**

## Panel Speaker II

**Sonia Jaimes Suárez**  
**Professor**  
**Escuela Colombiana de Ingeniería Julio Garavito**  
**Bogotá, Colombia**

## Panel Speaker III



**Dr. Johanna Trujillo Díaz**  
**Investigador en Estancia Post Doctoral - Proyecto Orquídeas**  
**Facultad de Ciencias Económicas y Administrativa**  
**Universidad Cooperativa de Colombia**  
**Bogotá, Colombia**

Industrial Engineer, master in industrial engineering, and a Ph.D. in Strategic Planning and Technology Management. She has 16 years as a researcher and professor, and 8 years working as an administrative and financial director. She holds the first postdoctorate in the analysis of data on COVID vaccination in Colombia, and the second is in the design of a platform using Artificial Intelligence to formulate projects for raising the economics of Colombian Indigenous focusing on gender. On the one hand, in this field, she has worked in multidisciplinary research, applying tools for decision-making in logistics, transportation, supply chain, data science, big data, artificial intelligence, and technology development, where she has been a leader and co-researcher of these research projects. As a result, I have some scientific publications: a) two books, (the first is on applications of stochastic models and simulation; the second is about measuring efficiency using the data envelopment analysis (DEA) technique); b) 30 articles and book chapters, some of these are indexed and others for dissemination; and c) presentations at national and international congresses.

Panel Speaker IV



**Ximena Córdova Vallejo, PhD**  
**Profesora**  
**Colegio de Ciencias e Ingenierías**  
**Universidad San Francisco de Quito**  
**Quito, Ecuador**

Dr. Ximena M. Córdova is a groundbreaking scholar in mathematics and industrial engineering. She made history as the first woman to graduate in Mathematics from the National Polytechnic School in Quito, Ecuador. Her academic journey led her to earn Master's degrees in Quality, Management, and Productivity, as well as Actuarial Science, from Iowa State University, and a Ph.D. in Industrial Engineering from Wichita State University in the USA.

Currently, she serves as the President of the Higher Education Quality Assurance Council (CACES) of Ecuador. Dr. Córdova is also a Full Professor at the Universidad San Francisco de Quito, at the Industrial Engineering

Department, specializing in optimization, ergonomics, and project management.

From 2015 to 2020, she served as the Vice Chancellor (Provost) of the Universidad San Francisco de Quito, becoming the first woman to hold this position and bringing about significant improvements in teaching and administration.

In 2015, she co-founded the "Women in Science and Engineering" (WISE) project to encourage more women to pursue STEM fields. Her impact extends internationally through collaborations, including research on CO2 measurements in vulnerable environments like the Galapagos Islands.

Her research focuses on Green Supply Chains and Ergonomics, using modeling and optimization techniques. Currently, she's involved in developing new accreditation models for the Higher Education System of the Country.

Dr. Córdova's contributions also include serving as the editor of the Industrial and Systems Engineering Review (ISER) and participation in various boards of directors for organizations such as Mujeres por Mujeres, the Transfer and Technology Center (CTT-USFQ), Tecniseguros, the Ecuadorian Society of Actuaries of Ecuador.



# Parallel Sessions

All Times are in Bogota Time

**Tuesday, May 7, 2024**

	Room 1 Onsite	Room 2 Onsite	Room 3 Onsite	Room 4 Online
8:00	<b>Plenary: Global Lean Six Sigma &amp; Operations Excellence</b>	Supply Chain and Logistics Competition Lean Six Sigma Competition Doctoral and Masters Thesis Competitions		<b>Online Competitions</b> Undergraduate Student Paper Competition sponsored by Siemens
10:00	Welcome Address: Dra. Flor Nancy Diaz Piraquive, Rectora, Fundación Universitaria Internacional de La Rioja (UNIR), Bogota, Colombia			
10:30	Opening Keynote: Dr. Juan Sebastián Sánchez Gómez, Professor of Indsutrial Engineering, Universidad Católica de Colombia and Universidad de Los Andes, Bogota, Colombia			
11:00	Keynote: Engr. Javier Arturo Moreno Carvajal, Dean, School of Engineering, Institución Universitaria Colegios de Colombia – UNICOC, Bogota, D.C., Capital District, Colombia			<b>Online Competitions</b>  Lean Six Sigma Competition Senior Design Competition Simulation Competition SCM Competition MS Thesis Competition PhD Dissertation Competition
11:30	Keynote: Dr. Luis Rabelo, Professor, Department of Industrial Engineering & Management Systems, University of Central Florida, Orlando, FL, USA			
12:00	Keynote: Jesús María Velásquez-Bermúdez, Founder and Chief Scientific Officer, CSO, Hypothalamus Artificial Intelligence Inc. (HAI Ai), Tabio, Cundinamarca, Colombia			
12:30	Keynote: Dr. Miguel Ángel Gómez Martínez, Research Professor, Departamento de ingeniería, Universidad de Guanajuato, Guanajuato, Mexico			
1:00	Lunch Break – Buffet Lunch at Ballroom			
2:00	Keynote: Dr. Wilmer Garzón Alfonso, Full Professor in the Computer Department, Director of Data Science Master Program, Escuela Colombiana de Ingeniería, Bogotá, Colombia			Artificial Intelligence and Data Science
2:30	Keynote: Dr. Luis Gabriel Marín Collazos, Profesor Planta Temporal, Departamento de Electrónica, Facultad de Ingeniería, Bogotá, D.C Colombia			
3:00	Keynote: Dr. Ximena Córdova Vallejo, PhD, Profesora, Colegio de Ciencias e Ingenierías, Universidad San Francisco de Quito, Quito, Ecuador			
3:30	Keynote: Professor William E. Mosquera Laverde, Director of Organizations and Strategic Group 4.0 category A1. Colombia, Faculty of Administrative and Accounting Economic Sciences, Cooperative University of Colombia			
2:00	Keynotes	Undergraduate Student Paper Competition sponsored by Siemens	Global Engineering Education Panel	
4:00	<b>Innovation and Entrepreneurship Workshop</b>	Women in Industry and Academia (WIIA) Panel + Diversity and Inclusion Panel Sponsored by Ford Motor Company		<b>Online Competitions</b> Graduate Paper Competition High School Competition HF & Ergonomics Competition

**Wednesday, May 8, 2024**

	Room 1 Onsite	Room 2 Onsite	Room 3 Onsite	Room 4 Online
8:00	<b>Plenary: Global Industry Solutions</b>	<b>Six Sigma Workshop</b>	Operations Excellence	Undergraduate Research Competition sponsored by Daikin Applied (Online)
10:00	Keynote: Dr. Eddy Morris, Director de Educación Ejecutiva ESAN, Director de la Maestria en Dirección de TI-Director de la Maestria en Project Management, ESAN, Peru			
10:30	Keynote: Dr. Julián Arellana, Dean, College of Engineering and Associate Professor, Department of Civil and Environmental Engineering, Universidad del Norte, Barranquilla, Colombia			
11:00	Keynote: Arvey Alfonso Granada Calderon, Operations Manager, La Unión Coffee Farm, Pereira, Risaralda, Colombia			Quality, Reliability and Maintenance
11:30	Keynote: Dr. Nubia Milena Velasco Rodríguez, Director of Doctorate in Administration, Master of Research in Administration, Universidad de los Andes, Bogotá, Colombia			
12:00	Keynote: Dr. Ing. Adriana Esguerra Arce, Docente, Directora del Centro de Estudios en Gestión de Tecnología e Innovación, Directora del Grupo de Investigación CIMSER, Decanatura de Ingeniería Industrial, Escuela Colombiana de Ingeniería Julio Garavito, Bogotá, D.C., Colombia			
12:30	Keynote: Professor Camilo Alarcon Nieto, Fundacion UNIR Colombia and Researcher leader in entrepreneurship and technology adoption			
1:00	Lunch Break – Buffet Lunch at Ballroom			
2:00	<b>Plenary: Innovation &amp; Entrepreneurship</b>	<b>Project Management Workshop</b>	Manufacturing, Assembly and Design	Simulation, Optimization and Productivity Improvement
4:00	Manufacturing		Innovation	Design, Manufacturing and Safety

**Thursday, May 9, 2024**

	Room 1 Onsite	Room 2 Onsite	Room 3 Onsite	Room 4 Online
8:00	<b>Plenary: Global Engineering Education</b>	Business Management	Productivity	Competitions Grad, HF and High School
10:00	Keynote: Dr. Jorge Andrés Vivares Vergara, Research Professor, Universidad Nacional Abierta y a Distancia (UNAD), Bogotá, Colombia			Manufacturing, Assembly, Design, Supply Chain and Sustainability
10:30	Keynote: Dr. William J. Guerrero, Associate Professor, Head of the Research Group on Logistic Systems and Head of the IT and Process Optimization Department, Universidad de la Sabana, Bogota, D.C., Capital District, Colombia			
11:00	Keynote: Dr. Johanna Trujillo Díaz, Investigador en Estancia Post Doctoral – Proyecto Orquídeas, Facultad de Ciencias Económicas y Administrativa, Universidad Cooperativa de Colombia, Bogotá, Colombia			
11:30	Keynote: Mohammad Islam, Associate Director, Optum – United Healthcare Inc., New Jersey, United States of America			
12:00	Keynote: Rafael Forero Vargas, Food Safety & Quality Manager Colombia, Rich's Product Corporation, Bogotá			
1:00	Lunch Break – Buffet Lunch at Ballroom			
2:00	Technical Presentations	<b>AI &amp; Machine Learning Workshop: Instructor-Led Workshop with Hands-on Training</b>	Engineering Management	Business Management
4:00	<b>Plenary: Global SCM</b>		SCM and AI	Optimization
7:00 – 10:00 pm, May 9, 2024 – Awards Ceremony and Gala Dinner Buffet				



# May 7, 2024 (Tuesday)

## May 7, 2024 (Tuesday) - Session: 8:00 – 9:45 am

### 8:00 – 9:45 am, TUESDAY

### Onsite Room 1

Session Chair: Ivanhoe Rozo-Rojas, Professor and Director, Industrial Engineering, Universidad Católica de Colombia, Bogota, Colombia

#### Global Lean Six Sigma and Operations Excellence

8:00 – 8:20 am

Alberto Poveda Caputo  
Lean Six Sigma Black Belt and Process & Continuous Improvement Specialist  
Operational Excellence Master  
General Motors  
Bogotá, Colombia

8:20 – 8:40 am

Paola Cruz Díaz  
Directora Ejecutiva  
Lean Six Sigma Institute LATAM  
Bogota, Colombia

8:40 – 9:00 am

Lina María Gómez Cortés  
Professor, Universidad de La Sabana  
Co fundadora y COO, Tech, Social, Agro and Arts  
Bogotá, Colombia

9:00 – 9:20 am

9:20 – 9:40 am

Ivanhoe Rozo-Rojas  
Professor  
Director, Industrial Engineering  
Universidad Católica de Colombia  
Bogota, Colombia

### 8:00 – 9:45 am, TUESDAY

### Onsite Room 2

Session Chair: Dr. Juan S. Sánchez-Gómez, Professor, Industrial Engineering Program, Universidad Católica de Colombia, Bogota

#### Supply Chain and Logistics Competition

#### ID 197 Cadena de Fabricación y de Suministro Sostenible y Resiliente

Mario Fernando Ardila, Agroindustrial, Colombia

#### ID 204 Optimization Analysis of Cold Chain Intermodal Transport Scheme for Agricultural Products Based on Carbon Emissions

Ahmed Mehrem, Duisburg Essen University, Germany

#### ID 16 Reducing Carbon Emissions in Supply Chains

Melvin Drent, School of Industrial Engineering, Eindhoven University of Technology, Eindhoven, The Netherlands

#### Lean Six Sigma Competition

#### ID 116 Street Lighting Quality using Lean Six Sigma

Alejandro Gallegos Chocce, Professor, Industrial Engineering Department, University of Engineering and Technology – UTEC, Lima, Perú  
Blanca Harumi Palacios B. and Angela Milagros Tenorio B., Department of Industrial Engineering, University of Engineering and Technology – UTEC, Lima, Perú

### 8:00 – 9:45 am, TUESDAY

### Onsite Room 3

Session Chair: Ximena Córdova Vallejo, Profesora, Colegio de Ciencias e Ingenierías, Politécnico Universidad San Francisco de Quito, Ecuador

## Doctoral Dissertation Competition sponsored by Airbus (Onsite)



**ID 70 Midiendo la capacidad de innovación en fincas productoras de café especial en Colombia**  
 Eyder James Ramirez Zuñiga, Hugo Castro Fernando Castro Silva and Ehidy Karime Garcia Cruz, Universidad EAN, Universidad Pedagógica y Tecnológica de Colombia, Universidad Nacional de Colombia, Colombia

## Masters Thesis Competition (Onsite)

**ID 30 Performance Innovation Measurement at the Territorial Level: It's Determinants in Developed Countries**  
 Erika Julieth Serrano Rodríguez and Luis Eduardo Becerra Ardila, School of Industrial and Business Studies, Physicomechanical Engineering Faculty, Industrial University of Santander, Bucaramanga, Colombia

**ID 149 Strategic Aeronautical Procurement: Case Study of Supplier Selection in the Colombian Air Force**  
 Bayron Steve Ruiz Niño, Captain, Mechanical Engineer, Aeronautical Logistics Directorate, Colombian Air Force, Bogotá D.C., Colombia  
 William Javier Guerrero Rueda, Professor, IT and Process Optimization Department, Engineering School, Universidad de la Sabana, Bogotá, Colombia

**8:00 – 11:00 am, TUESDAY**

**Online Room 4**

Session Chair: Prof. Vitor Mendes Caldana, Federal Institute of Sao Paulo (IFSP) – Sorocaba Campus, Sao Paulo, Brazil

## Undergraduate Student Paper Competition sponsored by Siemens (Online)

**ID 7 Coco Wipes: A Comparative Analysis During Post-Pandemic on the Environmental Efficiency of Wet Wipes Made from Coconut Fiber and the Current Wet Wipes**

Dantes, Mac Friedrich R., Garcia, Antonio Mari C., Gonzalez, Carlo C., Paguio, Alliyah Jade B., Marinell M. Santos  
 Department of Industrial Engineering, College of Engineering and Architecture Technological Institute of the Philippines – Quezon City  
 Cubao, Quezon City, Philippines  
 Engr. Ma. Teodora E. Gutierrez, Department of Industrial Engineering, College of Engineering and Architecture, Technological Institute of the Philippines – Quezon City, Cubao, Quezon City, Philippines

**ID 78 Importance of responsiveness in the quality of service in an HVAC maintenance company in metropolitan Lima applying the SERVQUAL model**

Anthony Allen Jaimes Villa and Juan Diego Oscco Moreno, Carrera de Ingeniería Industrial, Universidad de Lima, Lima, Peru  
 José Antonio Taquía Gutiérrez, Instituto de Investigación Científica, Universidad de Lima, Lima, Peru  
 Juan Manuel Machuca De Pina, Carrera de Ingeniería Industrial, Universidad de Lima, Lima, Peru

**ID 118 Analysis of the Determining Factors Toward the Adoption of Near-Field Communication (NFC) Tag-Based Fare Collection System in the Marikina Heights UV Express Terminal**

Jayvee V. Acosta, Alexandra Ysabel M. Briones, Aira Joy M. dela Rosa, Josiah Vince D. Evangelista and Nestor R. Ong, Department of Industrial Engineering, Faculty of Engineering, University of Santo Tomas, Manila, Philippines

**ID 23 Contest helped them acquire non-academic skills**

Nataly de los Angeles Perez Santana, Coordinación De Proyectos Y Concursos Estudiantiles, Universidad Iberoamericana Ciudad De México

**ID 27 Waste reduction through the use of Single Minute Exchange of Die in the cutting area in Small and Medium-sized Enterprises of the textile sector**

Alejandra Alvarado Saenz and Carlos Urbina Jibaja, Students, Industrial Engineering, University of Lima, Lima, Peru  
 Miguel Shinno Huamani, Professor, Industrial Engineering Department, Engineering School, University of Lima

**ID 45 Forecasting Models Used in the Tourism Sector: A Systematic Review of Literature**

Guillermo Huapaya and Aiko Makino, Facultad de Ingeniería, Universidad de Lima, Lima, Peru  
 Juan Manuel Machuca De Pina, Professor, Facultad de Ingeniería, Universidad de Lima, Lima, Peru

**ID 66 Enhancing Manufacturing Brick Production Performance in Bolivia: Leveraging Factory Physics and Simulation for Increased Efficiency**

Mariana Sánchez-Larrea, Bolivian Catholic University "San Pablo", Cochabamba, Bolivia  
 Boris Christian Herbas-Torrico, Tecnológico de Monterrey, Guadalajara, México

**ID 213 Operations Management in Servuccion Systems Case Study of the Gastronomic Sector in Cartagena (Colombia): A Systematic Review**

María Inés Díaz Santrich, CIPTEC Research Group – TIPS Research Incubator. Faculty of Engineering - Industrial Engineering Program - Technology in Industrial Production, Fundacion Universitaria Tecnológico Comfenalco, Cartagena de Indias, Colombia  
 Ivan Andres Rebolledo Polo, CIPTEC Research Group – TIPS Research Incubator. Faculty of Engineering - Industrial Engineering Program - Technology in Industrial Production, Fundacion Universitaria Tecnológico Comfenalco, Cartagena de Indias, Colombia  
 Hernando Garzón Saenz, CIPTEC Research Group - Faculty of Engineering - Industrial Engineering Program - Technology in Industrial Production, Fundacion Universitaria Tecnológico Comfenalco, Cartagena de Indias, Colombia  
 José Manuel Solana Garzón, CIPTEC Research Group- Faculty of Engineering - Industrial Engineering Program - Technology in Industrial Production, Fundacion Universitaria Tecnológico Comfenalco, Cartagena de Indias - Colombia

**ID 214 Operations Management in Servuccion Systems in Logistics Service Companies in Cartagena (Colombia): A Systematic Review**

Keily Andrea Caez Rojas, CIPTEC Research Group – TIPS Research Incubator. Faculty of Engineering - Industrial Engineering Program - Technology in Industrial Production, Fundacion Universitaria Tecnológico Comfenalco, Cartagena de Indias, Colombia  
 Ronaldo Nieto Trespacios, CIPTEC Research Group – TIPS Research Incubator. Faculty of Engineering - Industrial Engineering Program - Technology in Industrial Production, Fundacion Universitaria Tecnológico Comfenalco, Cartagena de Indias, Colombia

Hernando Garzón Saenz, CIPTEC Research Group - Faculty of Engineering - Industrial Engineering Program - Technology in Industrial Production, Fundacion Universitaria Tecnológico Comfenalco, Cartagena de Indias, Colombia  
 José Manuel Solana Garzón, CIPTEC Research Group- Faculty of Engineering - Industrial Engineering Program - Technology in Industrial Production, Fundacion Universitaria Tecnológico Comfenalco, Cartagena de Indias – Colombia

**ID 215 Operation Management in Servuccion Systems of the Hotel Sector of Cartagena de Indias (Colombia): A Systematic Review**

Juan Jose Galindo Martinez, CIPTEC Research Group – TIPS Research Incubator. Faculty of Engineering - Industrial Engineering Program - Technology in Industrial Production, Fundacion Universitaria Tecnológico Comfenalco, Cartagena de Indias, Colombia  
 Julio Rafael Ortega Romero, CIPTEC Research Group – TIPS Research Incubator. Faculty of Engineering - Industrial Engineering Program - Technology in Industrial Production, Fundacion Universitaria Tecnológico Comfenalco, Cartagena de Indias, Colombia  
 Hernando Garzón Saenz, CIPTEC Research Group - Faculty of Engineering - Industrial Engineering Program - Technology in Industrial Production, Fundacion Universitaria Tecnológico Comfenalco, Cartagena de Indias, Colombia  
 José Manuel Solana Garzón, CIPTEC Research Group- Faculty of Engineering - Industrial Engineering Program - Technology in Industrial Production, Fundacion Universitaria Tecnológico Comfenalco, Cartagena de Indias - Colombia

**ID 216 Operation Management in Servuccion Systems in the Educational Sector of Cartagena de Indias (Colombia): A Systematic Review**

Chelcy Liney Salas Llerena, CIPTEC Research Group – TIPS Research Incubator. Faculty of Engineering - Industrial Engineering Program - Technology in Industrial Production, Fundacion Universitaria Tecnológico Comfenalco, Cartagena de Indias, Colombia  
 Leonardo Adrián García Julio, CIPTEC Research Group – TIPS Research Incubator. Faculty of Engineering - Industrial Engineering Program - Technology in Industrial Production, Fundacion Universitaria Tecnológico Comfenalco, Cartagena de Indias, Colombia  
 Hernando Garzón Saenz, CIPTEC Research Group - Faculty of Engineering - Industrial Engineering Program - Technology in Industrial Production, Fundacion Universitaria Tecnológico Comfenalco, Cartagena de Indias, Colombia  
 José Manuel Solana Garzón, CIPTEC Research Group- Faculty of Engineering - Industrial Engineering Program - Technology in Industrial Production, Fundacion Universitaria Tecnológico Comfenalco, Cartagena de Indias - Colombia

**ID 218 Improvement of packing process in a production and marketing company producer of modular furniture based in Lean Manufacturing and Simulation**

Angélica Beatriz Otero Pechené, Farli Daniela Sánchez Serna, Laura Camila Obregón Pérez and Maritza Correa Valencia, Facultad de Ingeniería, Universidad Autonoma de Occidente, Cali, Colombia

**ID 240 Optimization of Time Efficiency in the CAPEX Purchasing Chain: A Simulation Study in the Mining Industry Using the Just-Time Method**

Marcelo Adrian Arteaga-Solano, Bachelor in Industrial Engineering, Facultad de Ingeniería, Universidad de Lima, Perú  
 Johan Anibal Cajachagua-Sauñi, Bachelor in Industrial Engineering, Facultad de Ingeniería, Universidad de Lima, Perú  
 Juan Carlos Quiroz-Flores, Research Professor, Facultad de Ingeniería, Universidad de Lima, Perú

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## May 7, 2024 (Tuesday) - Session: 10:00 am – 1:00 pm

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**10:00 am – 1:00 pm, TUESDAY**

**Onsite Room 1**

Keynote Moderator: Dr. Johanna Trujillo Díaz and Prof. Don Reimer

10:00 am: Welcome Address:

Dra. Flor Nancy Díaz Piraquive

Rectora, Fundación Universitaria Internacional de La Rioja (UNIR), Bogota, Colombia

10:30 am Opening Keynote:

Dr. Juan Sebastián Sánchez Gómez, Professor of Industrial Engineering

Universidad Católica de Colombia and Universidad de Los Andes, Bogota, Colombia

11:00 am Keynote:

Javier Arturo Moreno Carvajal, MSc

Dean, School of Engineering, Institución Universitaria Colegios de Colombia-UNICOC, Bogota, Colombia

11:30 am Keynote:

Dr. Luis Rabelo, Professor

Department of Industrial Engineering & Management Systems, University of Central Florida, Orlando, USA

12:00 pm Keynote:

Jesús María Velásquez-Bermúdez

Founder and Chief Scientific Officer, CSO, Hypothalamus Artificial Intelligence Inc. (HAI Ai), Tabio, Cundinamarca, Colombia

12:30 pm Keynote:

Dr. Miguel Ángel Gómez Martínez

Research Professor, Departamento de ingeniería, Universidad de Guanajuato, Guanajuato, Mexico

1:00 Lunch Break – Buffet Lunch

**11:00 am – 2:00 pm, TUESDAY****Online Competitions****Online Room 4**

Session Chair: Prof. Vitor Mendes Caldana, Federal Institute of Sao Paulo (IFSP) – Sorocaba Campus, Sao Paulo, Brazil

**Lean Six Sigma Competition sponsored by Tooling Tech Group****ID 210 Implementation of Lean Manufacturing Methodology to Increase Productivity in A Bakery Company**

Jimmy André Cárdenas Peña and Jhoel Oswaldo Veliz Veliz, Universidad de Lima, Industrial Engineering, Lima, Peru

**ID 226 Lean Six Sigma Logistics Model Aimed at Increasing Productivity Levels in ALMACAFE Processes**

Sandra Patricia Zapata Calambas, Industrial Engineer, MBA, Cali, Colombia

Claudia Cecilia Peña Montoya, Faculty of Engineering and Basic Sciences, Autonomous University of the West, Cali, Colombia

**Senior Design Project Competition sponsored by Tooling Tech Group****ID 34 BreezeGuard DualFan Hanger**

Sepideh Abolghasem, California State University, Northridge, United States

**Simulation Competition****ID 111 Stiffness Analysis of Hemp Stem Reinforced Concrete Composite Laminates**

Som R. Soni, AdTech Systems Research Inc., 1342 North Fairfield Road, Beavercreek, Ohio 45432, USA

Craig Schluttenhofer and Subramania I. Sritharan, Agricultural Research and Development Program (ARDP), Central State University, 1400 Brush Row Road, Wilberforce, OH 45384, USA

**Supply Chain and Logistics Competition****ID 69 Supply Chain Digital Twins: A Comprehensive Review and Case Studies**

Jacob Odisho, Mahek Karamchandani, Emma Swadley and Mohamed Awwad, Industrial and Manufacturing Engineering Department, California Polytechnic State University, San Luis Obispo, CA 93407, USA

Maximilian Püttner, Department of Engineering and Management, University of Applied Sciences Munich, Lothstraße 34, 80335 Munich, Germany

**ID 85 Enhancing Supply Chain Sustainability in Modern Manufacturing**

Silvia Carpitella, Sepideh Abolghasem and Krithik Reddy Kunta, Department of Manufacturing Systems Engineering and Management, California State University, Northridge, United States

**ID 77 Improvement Proposal Based on Machine Learning, Big Data and DDMRP to Improve Forecasting Compliance in a Consumer Goods Company**Mariscal Cruzado Diana Micaela and Gonzáles Jáuregui Bruni Piero, Carrera de Ingeniería Industrial, Universidad de Lima, Lima, Peru  
José Antonio Taquíá Gutiérrez, Instituto de Investigación Científica, Universidad de Lima, Lima, Peru**Masters Thesis Competition****ID 194 AI-based Drought Forecasting for Parametric Insurance**

Malcolm Tanyaradzwa Mathende, Belinda Ndlovu and Sibusisiwe Dube, National University of Science and Technology, Bulawayo, Zimbabwe

**ID 195 Optimizing Antiretroviral Therapy (ART) Adherence Through Predictive Analytics Using Machine Learning Techniques**

Nyasha Winnet Chiramba, Belinda Ndlovu and Sibusisiwe Dube, Department of Data Analytics and Informatics, Faculty of Applied Sciences National University of Science and Technology, Bulawayo, Zimbabwe, P.O Box AC939, Ascot, Bulawayo, Zimbabwe

**Doctoral Dissertation Competition sponsored by Airbus****ID 223 How can Self-Development Improve the Relationship between Human Error and Service Effectiveness in the Public Sector?**Achmad Mirza, Student in the Management Doctoral Program, Faculty of Economics, Universitas Sriwijaya, Palembang, INDONESIA  
Isnurhadi and Muhammad Ihsan Hadjri, Professor at the Faculty of Economics, Universitas Sriwijaya, Palembang, INDONESIA**ID 203 Smart Sustainable Supply Chain Management: How Smart Supply Chain Enables the Sustainable development of Supply Chains**

Laura Visintainer Lerman, Industrial Engineering Department, Engineering School, Federal University of Rio Grande do Sul, Porto Alegre, Brazil

**May 7, 2024 (Tuesday) - Session: 2:00 – 3:45 pm**



**2:00 – 3:45 pm, TUESDAY****Onsite Room 1**

Keynote Moderator: Dr. Javier Arturo Moreno Carvajal, Dean, School of Engineering, Institución Universitaria Colegios de Colombia – UNICOC, Bogota, D.C., Capital District, Colombia

2:00 pm

Keynote: Dr. Wilmer Garzón Alfonso

Full Professor in the Computer Department, Director of Data Science Master Program, Escuela Colombiana de Ingeniería, Bogotá, Colombia

2:30 pm

Keynote: Dr. Luis Gabriel Marín Collazos

Profesor Planta Temporal, Departamento de Electrónica, Facultad de Ingeniería, Bogotá, D.C Colombia

3.00 pm

Keynote: Ximena Córdova Vallejo, PhD

Profesora, Colegio de Ciencias e Ingenierías, Universidad San Francisco de Quito, Quito, Ecuador

3:30 pm

Keynote: Professor William E. Mosquera Laverde

Director of Organizations and Strategic Group 4.0 category A1. Colombia, Business Administration Program, Faculty of Administrative and Accounting Economic Sciences, Cooperative University of Colombia, Bogotá. Colombia

**2:00 – 3:45 pm, TUESDAY****Global Engineering Education Panel****Onsite Room 2**

Session Chair

Dr. Mario Chauca  
Advisor reviewer vice-rectorate of research and  
Researcher Professor at Ricardo Palma University  
Santiago de Surco, LI 15039, PERU  
Researcher of the RENACYT-CONCYTEC  
Executive Committee Member IFEES (2019-2021)  
Past Director Kenshu Kiokay del Peru-AOTS  
Past Steering Committee Member IEEE MWSCAS

Speaker I

Dr. Juan Sebastian Sánchez  
Professor of Industrial Engineering  
Universidad Catolica de Colombia  
Universidad de Los Andes

Speaker II

Prof. Jaime Roldan  
Department of Industrial Engineering  
Universidad America  
Bogota, Colombia

Speaker III

Professor Donald M. Reimer  
Chief Operating Officer, IEOM Society International  
Southfield, Michigan, USA

Panel Speaker IV

Dr. Javier Arturo Moreno Carvajal  
Dean  
School of Engineering  
Institución Universitaria Colegios de Colombia – UNICOC  
Bogota, D.C., Capital District, Colombia

2:00 – 5:00 pm, TUESDAY

Onsite Room 3

Session Chair: Professor Andrés Felipe Santos H., Escuela Colombiana de Ingeniería Julio Garavito

## Undergraduate Student Paper Competition sponsored by Siemens (Onsite)

### ID 10 Design of a Mobile Application 4.0 for the Prevention of Occupational Risks in Workers with Intellectual Disabilities in Logistics Operations in Refrigerated Warehouses

Jorge Enrique Portella Cleves, Juan Carlos Escobar Rodriguez, David Stevenson Guzmán Marín and Ilmer Cuello Garcia, SENA. Suomaya Research Group, Bogotá, Colombia

### ID 41 Optimizing Canine Nutrition: A Linear Programming Approach for Military Dogs' Diet

Oliver J. Saadia Harvy, Student, Industrial Engineering, Department of Chemical, Industrial and Food Engineering, Universidad Iberoamericana Mexico City, Mexico

Arturo Obregón Hochstrasser, Student, Finance, Department of Business Studies, Universidad Iberoamericana, Mexico City, Mexico

Oroselia Sánchez, Professor, Industrial Engineering, Department of Chemical, Industrial and Food Engineering, Universidad Iberoamericana Mexico City, Mexico

### ID 42 Simulation-Optimization of a Coffee Shop in Business District: A case study of Starbucks in Mexico City

Dylan Buzali, Santiago Muñiz, Santiago Elizondo and Oroselia Sánchez. Students, Industrial Engineering Department, Engineering School Universidad Iberoamericana, Mexico City, Mexico City, Mexico

Oroselia Sánchez, Professor, Industrial Engineering Department, Engineering School, Universidad Iberoamericana, Mexico City, Mexico

### ID 47 Most effective pitches against Ronald Acuña Jr.

Luis Ornelas and Guillermo San Román, Industrial Engineering Study Program, Universidad Iberoamericana, Mexico City, Mexico

Isidro Soria, Professor, Industrial Engineering, Department of Chemical, Industrial and Food Engineering, Universidad Iberoamericana, Mexico City, Mexico

### ID 61 Optimizing Streamer Success: Streaming Schedule Through Operations Research

Jeronimo Warnholtz and Sebastián Ruiz, Undergraduate Student, Industrial Engineering, Department of Chemical, Industrial and Food Engineering, Universidad Iberoamericana, Mexico City, CDMX 01376, MX

Isidro Soria, Professor, Industrial Engineering, Department of Chemical, Industrial and Food Engineering, Universidad Iberoamericana, Mexico City, Mexico

### ID 73 Implementación de herramientas Lean Manufacturing para la mitigación y aumento de la productividad en las MiPymes de la ciudad de Popayán

Nora Fernanda Arciniegas Sánchez, Professor, Industrial Engineering Program, Fundación Universitaria de Popayán, Popayán – Cauca, Colombia

Jean Michael Sampayo Reyes, Student, Industrial Engineering Program, Fundación Universitaria de Popayán, Popayán – Cauca, Colombia

### ID 114 Indicators in the Supply Chain Linkages in Food Distribution Companies: A literature review

Maria Camila Vanegas Escobar y Juan Sebastián Sánchez-Gómez, Engineering School, Universidad Católica, Bogotá, Colombia

### ID 213 Operations Management in Servuccion Systems Case Study of the Gastronomic Sector in Cartagena (Colombia): A Systematic Review

María Inés Díaz Santrich and Ivan Andres Rebolledo Polo, CIPTEC Research Group – TIPS Research Incubator. Faculty of Engineering - Industrial Engineering Program - Technology in Industrial Production, Fundacion Universitaria Tecnologico Comfenalco, Cartagena de Indias, Colombia

Hernando Garzón Saenz and José Manuel Solana Garzón, CIPTEC Research Group- Faculty of Engineering - Industrial Engineering Program - Technology in Industrial Production, Fundacion Universitaria Tecnologico Comfenalco, Cartagena de Indias - Colombia

### ID 214 Operations Management in Servuccion Systems in Logistics Service Companies in Cartagena (Colombia): A Systematic Review

Keily Andrea Caéz Rojas and Ronaldo Nieto Trespacios, CIPTEC Research Group – TIPS Research Incubator. Faculty of Engineering - Industrial Engineering Program - Technology in Industrial Production, Fundacion Universitaria Tecnologico Comfenalco, Cartagena de Indias, Colombia

Hernando Garzón Saenz and José Manuel Solana Garzón, CIPTEC Research Group- Faculty of Engineering - Industrial Engineering Program - Technology in Industrial Production, Fundacion Universitaria Tecnologico Comfenalco, Cartagena de Indias - Colombia

### ID 215 Operation Management in Servuccion Systems of the Hotel Sector of Cartagena de Indias (Colombia): A Systematic Review

Juan Jose Galindo Martinez and Julio Rafael Ortega Romero, CIPTEC Research Group – TIPS Research Incubator. Faculty of Engineering - Industrial Engineering Program - Technology in Industrial Production, Fundacion Universitaria Tecnologico Comfenalco, Cartagena de Indias, Colombia

Hernando Garzón Saenz and José Manuel Solana Garzón, CIPTEC Research Group- Faculty of Engineering - Industrial Engineering Program - Technology in Industrial Production, Fundacion Universitaria Tecnologico Comfenalco, Cartagena de Indias – Colombia

### ID 216 Operation Management in Servuccion Systems in the Educational Sector of Cartagena de Indias (Colombia): A Systematic Review

Chelcy Liney Salas Llerena and Leonardo Adrián García Julio, CIPTEC Research Group – TIPS Research Incubator. Faculty of Engineering - Industrial Engineering Program - Technology in Industrial Production, Fundacion Universitaria Tecnologico Comfenalco, Cartagena de Indias, Colombia

Hernando Garzón Saenz and José Manuel Solana Garzón, CIPTEC Research Group- Faculty of Engineering - Industrial Engineering Program - Technology in Industrial Production, Fundacion Universitaria Tecnologico Comfenalco, Cartagena de Indias - Colombia

**ID 218 Improvement of packing process in a production and marketing company producer of modular furniture based in Lean Manufacturing and Simulation**

Angélica Beatriz Otero Pechené, Farli Daniela Sánchez Serna, Laura Camila Obregón Pérez and Maritza Correa Valencia, Facultad de Ingeniería Universidad Autonoma de Occidente, Cali, Colombia

**ID 247 Optimization of Wood Log Cutting for Pallet Assembly Using Linear Programming Model**

Bruna Meire Kuhl Gomes and Rodrigo Luiz Gigante, Facens University, Sorocaba, São Paulo, Brazil

**2:00 – 3:45 pm, TUESDAY****Online Room 4**

Session Chair: Prof. Vitor Mendes Caldana, Federal Institute of Sao Paulo (IFSP) – Sorocaba Campus, Sao Paulo, Brazil

**Artificial Intelligence and Data Science****ID 14 Visualizing Bike-Sharing Data in Urban Environments**

Ahmed Yasin Alkarboly, Forerunner Advanced Systems & Solutions, Dallas, TX 75081, USA

**ID 19 COVID-19 Epidemiological Analysis, Recovery Strategy, and Future Forecasts in Saudi Arabia: Analysis of Sustainability Study by Artificial Intelligence**

Tasnim M Adi, Doha A Al-Alatiq, Rasha A Al-Shamrani, Almaha B AlKhabti, Wejdan H Alkhathami and Mona H Alfweah, Undergraduate Student in Industrial Engineering, Department, College of Engineering, University of Bisha, Bisha 61922, Saudi Arabia  
Khaled Ali Abuhasel, Full Professor in Industrial Engineering, Department, College of Engineering, University of Bisha, Bisha 61922, Saudi Arabia

**ID 62 Scaling-up Manufacturing Processes for Competitiveness Using Intelligent Reference Models**

Julio Macedo, Institut Strategies Industrielles, Montreal (QC), H3H1R6, Canada

**ID 63 Time Series Electricity Consumption Forecast in the Philippines using Multivariate PROPHET**

Joaquin Carlos Castro, James Russel Cinense and Joshua Christian Cortez, College of Computer Studies, Angeles University Foundation MacArthur Highway, Angeles City, Pampanga, Philippines  
Dr. James Esquivel, Professor of Computer Science, College of Computer Studies Program Chair, Angeles University Foundation MacArthur Highway, Angeles City, Pampanga, Philippines

**ID 205 La Inteligencia Artificial como Fenómeno Social: Un Acercamiento Desde la Noción de Sintopia**

Víctor Manuel Reyes Espino and Víctor Hugo Jiménez Arredondo, Departamento de Arte y Empresa, División de Ingenierías Campus Irapuato-Salamanca, Universidad de Guanajuato, México

**ID 217 Neural Network Model for Improving Vulnerable Road User Safety**

Carlos Antonio Marino, CENTRUM Católica Graduate Business School, Lima, Peru  
Pontificia Universidad Católica del Perú, Lima, Peru

**ID 26 State-of-the-art discussion and evaluation on Artificial Intelligence applied to quality assurance using Assembly Assistance Systems**

Isabel Caroline Gomes Giannecchini, Technology College (FT) - University of Brasília, Brasília, DF 70910-900, Brazil  
Sanderson César Macêdo Barbalho, Industrial Engineering Department, Technology College (FT) - University of Brasília, Brasília, DF, Brazil

**May 7, 2024 (Tuesday) - Session: 4:00 – 5:45 pm****4:00 – 5:45 pm, TUESDAY****Onsite Room 1****Innovation and Entrepreneurship Workshop**

Professor Donald M. Reimer  
President, The Small Business Strategy Group, Detroit, Michigan, USA  
Adjunct Faculty – A. Leon Linton Department of Mechanical Engineering  
Lawrence Technological University, Southfield, Michigan, USA  
Chief Operating Officer, IEOM Society

**4:00 – 5:45 pm, TUESDAY****Onsite Room 2**

Session Chair:

## Women in Industry and Academia (WIIA) Panel + Diversity and Inclusion Panel Sponsored by Ford Motor Company

Panel Chair

Valeria Mendoza Cortés  
MSc. Logística y Transporte – Administradora Logística  
Certified Internacional Forwarder  
Sourcing Specialist  
Baker Hughes  
Bogota, Colombia



## Panel Speaker I

Eliana K. Acuna Cárdenas  
Fundación Santa Fe  
Bogotá, Colombia

## Panel Speaker II

Sonia Jaimes Suárez  
Professor  
Escuela Colombiana de Ingeniería Julio Garavito  
Bogotá, Colombia

## Panel Speaker III

Dr. Johanna Trujillo Díaz  
Investigador en Estancia Post Doctoral - Proyecto Orquídeas  
Facultad de Ciencias Económicas y Administrativa  
Universidad Cooperativa de Colombia  
Bogotá, Colombia

## Panel Speaker IV

Ximena Córdova Vallejo, PhD  
Profesora  
Colegio de Ciencias e Ingenierías  
Universidad San Francisco de Quito  
Quito, Ecuador

**4:00 – 5:45 pm, TUESDAY****Onsite Room 3**

Session Chair:

**Undergraduate Student Paper Competition Continue****4:00 – 5:45 pm, TUESDAY****Competitions****Online Room 4**

Session Chair: Dr. Mizanur Rahman, IEOM Australia

**Graduate Student Paper Competition sponsored by Eaton Corporation****ID 37 Factors Considered by Holiday Makers in Selecting a Guesthouse in the Post-Covid-19 Pandemic Era**

Bheki B.S Makhanya, Postgraduate School of Engineering Management, Faculty of Engineering and the Build Environment, University of Johannesburg, PO Box 524, Auckland Park 2006, South Africa

**Human Factors and Ergonomics Competition sponsored by CINTAS****ID 5 Naylea Maybet Perez Medina**

Faculty of Engineering and Architecture, University of Lima, Lima, 1501, Perú  
Gabriela Zuñiga Valdivia, Faculty of Engineering and Architecture, University of Lima, Lima, 1501, Perú

**ID 119 Meditation Leads to Integrity and Acceptance**

Som R. Soni and Gita D. Soni, AdTech Systems Research Inc., 1342 North Fairfield Road, Beavercreek, Ohio 45432 USA

**ID 129 Lab-Tested: How Laboratory Design Affects The Performance of UST Chemical Engineering Students**

Renzo Miguel M. Lanip, Therese Adrienne M. Macawile, Czarina Danielle B. Mendoza, and Damirson A. Co, PIE, Department of Industrial Engineering, University of Santo Tomas, España Boulevard, Sampaloc, Manila, 1008, Philippines

**High School STEM Competition****ID 24 Can LLMs Have a Fever? Investigating the Effects of Temperature on LLM Security**

Chan Xing Yu, James, Chan Si Yu, David and Chow Ban Hoe, River Valley High School, Singapore 649961  
Poh Hui-Li Phyllis, Member of Technical Staff, DSO National Laboratories, Singapore 118230

# May 8, 2024 (Wednesday)

## May 8, 2024 (Wednesday) - Session: 8:00 – 9:45 am

### 8:00 – 9:45 am, WEDNESDAY

### Plenary – Indsutry 4.0

### Onsite Room 1

Session Chair: Dr. Rodrigo Luiz Gigante

8:00 am – 8:20 am (Wednesday, May 8)

Iván Andrés Ramírez Pinzón  
Associate Professor  
Postdoctoral Researcher  
Advisor  
Bogota, Colombia

Presentation Title: Telecommunications Infrastructure and Information Regime

8:20 am – 8:40 am (Wednesday, May 8)

Miryam Liliana Chaves Acero  
Doctora en Ingeniería Mecánica y Fabricación  
Experta en Inteligencia Artificial aplicada a procesos y neurociencias  
Fundación Universitaria Internacional de La Rioja (UNIR)  
Bogota, Colombia

8:40 am – 9:00 am (Wednesday, May 8)

Dr. Rodrigo Luiz Gigante  
Coordinator of Production Engineering  
FACENS University  
Sorocaba, SP, Brazil

9:00 am – 9:20 am (Wednesday, May 8)

9:20 am – 9:40 am (Wednesday, May 8)

Aracelli Centeno Sanchez  
Business Process Manager  
Cleaning and Beauty Products  
Peru

### 8:00 – 9:45 am, WEDNESDAY

### Onsite Room 2

## Six Sigma Certification Workshop

Dr. Ahad Ali  
Associate Professor  
Director of Bachelor of Science in Industrial Engineering  
Director, Master of Science in Industrial Engineering  
Director of Smart Manufacturing and Lean Systems Research Group  
A. Leon Linton Department of Mechanical, Robotics and Industrial Engineering  
Lawrence Technological University, Southfield, Michigan, USA  
Executive Director, IEOM Society International

### 8:00 – 9:45 am, WEDNESDAY

### Operations Excellence

### Onsite Room 3

Session Chair: Ali Ardalan, Information Technology and Decision Sciences Department, Old Dominion University, Norfolk, VA 23529, USA

#### ID 91 Gamification as a Competitive Advantage within Organizations, Case Study in Mexico

Víctor Hugo Jiménez Arredondo, Rocío Alfonsina Lizárraga Morales, Luis Enrique Rosas Collazo and Yareli Vianey Bravo Cuevas, Art and Management Department, University of Guanajuato, Guanajuato, Mexico

#### ID 93 Social Networks and Digital Platforms in the 20th Century as a Business Model in Mexico

Juan Manuel Rodríguez García, Miguel Ángel Gómez Martínez and Josué Julián Moreno López, Art and Management Department, University of Guanajuato, Guanajuato, Mexico

#### ID 94 A Methodology for The Redesign Supply Chains in The Context of Global Peacekeeping Operations

Jaqueline Ferronato, Universitat Oberta de Catalunya, Barcelona, Spain  
Jairo R. Montoya-Torres, Universidad de La Sabana, Chia, Cundinamarca, Colombia

**ID 87 Global Information Systems Education in Support of Global Supply Chain Management**

Roya Ardalan and Ali Ardalan, Information Technology and Decision Sciences Department, Strome College of Business, Old Dominion University  
Norfolk, VA 23529, USA

**8:00 – 11:00 am, WEDNESDAY****Online Room 4**

Session Chair: Prof. Vitor Mendes Caldana, Federal Institute of Sao Paulo (IFSP) – Sorocaba Campus, Sao Paulo, Brazil

**Undergraduate Research Competition sponsored by Daikin Applied (Online)****ID 75 Developing A Strategy Map: Improving Customer Experience by Adopting the Servqual Model Of Online Banking Services For Generation X**

Emmanuel C. Magadia, Nemuel M. Moreto, Immanuel A. Salipsip and Drenn Rafael C. Santos, Department of Industrial Engineering, University of Santo Tomas, España Boulevard, Sampaloc, Manila, 1008, Philippines  
Gabriel C. Bucu, Department of Industrial Engineering, University of Santo Tomas, España Boulevard, Sampaloc, Manila, 1008, Philippines  
Department of Industrial and Systems Engineering, De La Salle University, Taft Avenue, Manila, 1002, Philippines

**ID 82 Leveraging Human-Robot Collaborative Systems in Quality 4.0: The Case of Fasteners in Door Assembly**

Mariana Carmona Prantl Padilla and Pablo Segura, Chemical, Industrial and Food Engineering Department, Division of Science, Art and Technology, Universidad Iberoamericana, Ciudad de México, México City, México

**ID 120 Determining Environmental Factors Affecting Academic Performance of 4th Year Industrial Engineering Students: An Experimental Student**

Lloyd D. Atienza, Scheneil Mae A. Belmonte, Carl Joaquin Campos and Jose Jhudiel M. Canlas, Department of Industrial Engineering, University of Santo Tomas, España Boulevard, Sampaloc, Manila, 1008, Philippines  
Engr. Jesselyn B. Alcain, MS, Faculty, Industrial Engineering Department, University of Santo Tomas, España Boulevard, Sampaloc, Manila, 1008, Philippines

**ID 125 Evaluation of the Environmental Impact of Medical Waste in Health Centers in Peru**

Alexia Ximena Trujillo-Moscoso and Camila Paredes-Schmidt, Bachelor in Industrial Engineering, Facultad de Ingeniería, Universidad de Lima, Perú  
Juan Carlos Quiroz-Flores, Research Professor, Facultad de Ingeniería, Universidad de Lima, Perú

**ID 130 Enhancing the Composting Process of Organic Waste through Machine Learning Techniques: A Comprehensive Bibliometric Analysis**

Carmen Andia-Ramirez and Paola Navarro-Huanca, Bachelor's degree in Industrial Engineering, Facultad de Ingeniería, Universidad de Lima Lima, Perú  
Juan Carlos Quiroz Flores, Research Professor, Facultad de Ingeniería, Universidad de Lima, Lima, Perú

**ID 134 A Comparative Analysis of Online Banking and Mobile Wallet Services by Customers in the National Capital Region**

Nichelle Nadine E. Dioneda, Joshua Peter D. Duco, Andre Luigi D. Elagio and Alexandra P. Sy, Department of Industrial Engineering, University of Santo Tomas, España Boulevard, Sampaloc, Manila, 1008, Philippines  
Carlos P. Lugay, Ph. D, PIE, ASEAN Engr., Professor, Industrial Engineering Department, University of Santo Tomas, Manila, Philippines

**ID 135 A Comparative Analysis of Online Banking and Mobile Wallet Services by Customers in the National Capital Region**

Nichelle Nadine E. Dioneda, Joshua Peter D. Duco, Andre Luigi D. Elagio and Alexandra P. Sy, Department of Industrial Engineering, University of Santo Tomas, España Boulevard, Sampaloc, Manila, 1008, Philippines  
Carlos P. Lugay, Ph. D, PIE, ASEAN Engr., Professor, Industrial Engineering Department, University of Santo Tomas, Manila, Philippines

**ID 196 Enhancing Productivity and Sustainability in the Peruvian Textile Industry: A Lean Green Approach for Small and Medium Enterprises**

Sebastian Delgado-Angeles, Bachelor in Industrial Engineering, Facultad de Ingeniería, Universidad de Lima, Perú  
Alessandra Da-Silva-Huayta, Bachelor in Industrial Engineering, Facultad de Ingeniería, Universidad de Lima, Perú  
Juan Carlos Quiroz-Flores, Research Professor, Facultad de Ingeniería, Universidad de Lima, Perú

**ID 200 Optimizing Productivity in the Animal Feed Industry: A Lean Approach for Enhanced Efficiency and Quality Assurance**

Jenny Elizabeth Jaico-Carranza, Bachelor in Industrial Engineering, Facultad de Ingeniería, Universidad de Lima, Perú  
Eduardo Manuel Olivos-Valdivia, Bachelor in Industrial Engineering, Facultad de Ingeniería, Universidad de Lima, Perú  
Martin Fidel Collao-Diaz, Research Professor, Facultad de Ingeniería, Universidad de Lima, Perú

**ID 43 Alternatives of Sustainable Energy Sources for The Automotive Sector**

Abid Al Hossain, IUBAT, Bangladesh

**ID 241 Enhancing Profitability in a Peruvian Construction Company: A Lean Manufacturing and Human Resources Approach**

Claudia Rodríguez-Noe, Bachelor in Industrial Engineering, Facultad de Ingeniería, Universidad de Lima, Perú  
Nicolle Rodríguez-Risco, Bachelor in Industrial Engineering, Facultad de Ingeniería, Universidad de Lima, Perú  
Juan Carlos Quiroz-Flores, Research Professor, Facultad de Ingeniería, Universidad de Lima, Perú

**ID 244 Assessment Of Ride-Hailing Apps Using Customer Satisfaction Framework For University Of Santo Tomas Engineering Students**

Justin Mark S. Agno, Alexandrei Matthew O. Castillo Josemaria Franco, and Nestor R. Ong, Department of Industrial Engineering, Faculty of Engineering, University of Santo Tomas, Espana Blvd., 1008, Manila, Philippines

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**May 8, 2024 (Wednesday) - Session: 10:00 am – 1:00 pm**


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**10:00 am – 1:00 pm, WEDNESDAY****Onsite Room 1**

Keynote Moderator: Dr. Juan Sebastian Sánchez, Professor of Industrial Engineering, Universidad Católica de Colombia and Universidad de Los Andes, Bogotá, Colombia

10:00 am

Keynote: Dr. Eddy Morris

Director de Educación Ejecutiva ESAN, Director de la Maestría en Dirección de TI-Director de la Maestría en Project Management, ESAN, Peru

10:30 am

Keynote: Dr. Julián Arellana

Dean, College of Engineering and Associate Professor, Department of Civil and Environmental Engineering, Universidad del Norte, Barranquilla, Colombia

11:00 am

Keynote: Arvey Alfonso Granada Calderon

Operations Manager, La Unión Coffee Farm, Pereira, Risaralda, Colombia

11:30 am

Keynote: Dr. Nubia Milena Velasco Rodríguez

Director of Doctorate in Administration, Master of Research in Administration, Universidad de los Andes, Bogotá, Colombia

12:00 pm

Keynote: Dr. Ing. Adriana Esguerra Arce, Docente

Directora del Centro de Estudios en Gestión de Tecnología e Innovación, Directora del Grupo de Investigación CIMSER, Decanatura de Ingeniería Industrial, Escuela Colombiana de Ingeniería Julio Garavito, Bogotá, D.C., Colombia

12:30 pm

Keynote: Professor Camilo Alarcon Nieto

Fundacion UNIR Colombia, Researcher leader in entrepreneurship and technology adoption

1:00 Lunch Break – Buffet Lunch at Ballroom

**11:00 am – 1:00 pm, WEDNESDAY****Online Room 4**

Session Chair: Session Chair: Prof. Vitor Mendes Caldana, Federal Institute of Sao Paulo (IFSP) – Sorocaba Campus, Sao Paulo, Brazil

### Quality, Reliability and Maintenance

#### **ID 39 Failure Mode and Effects Analysis to Improve Locomotive Subsystem Reliability**

Bheki B.S Makhanya, Postgraduate School of Engineering Management, Faculty of Engineering and the Build Environment, University of Johannesburg, PO Box 524, Auckland Park 2006, South Africa

#### **ID 89 Proposal to improve the maintenance system in telescopic cranes based on preventive maintenance to reduce costs**

Guzmán Pipa, Manuel; Huaranga Angulo, Renato Alonso; Noriega-Aranibar and María Teresa, Career of Industrial Engineering, Faculty of Engineering and Architecture, University of Lima, Lima-Perú

#### **ID 90 Proposal to improve the maintenance system in telescopic cranes based on preventive maintenance to reduce costs**

Guzmán Pipa, Manuel; Huaranga Angulo, Renato Alonso; Noriega-Aranibar and María Teresa, Career of Industrial Engineering, Faculty of Engineering and Architecture, University of Lima, Lima-Perú

#### **ID 117 Critical resource management strategy measures in the maintenance management of public assets**

Khotso Dithebe, Wellington Didibhuku Thwala and Clinton Aigbavboa, University of South Africa, University of Walter Sisulu and University of Johannesburg, South Africa

#### **ID 133 A Comparative Analysis of Online Banking and Mobile Wallet Services by Customers in the National Capital Region**

Nichelle Nadine E. Dioneda, Joshua Peter D. Duco, Andre Luigi D. Elagio and Alexandra P. Sy, Department of Industrial Engineering, University of Santo Tomas, España Boulevard, Sampaloc, Manila, 1008, Philippines



Carlos P. Lugay, Ph. D, PIE, ASEAN Engr., Professor, Industrial Engineering Department, University of Santo Tomas, Manila, Philippines

**ID 84 A Bibliometric Review on Augmented Intelligence Systems Enabled by Industry 4.0 Technologies**

Mariannys Rodríguez-Gasca and Flávia Motta Corvelho, Department of Mechanical Engineering, University of Brasilia, Brasilia-DF, 70910-900, Brazil

Sanderson César Macêdo Barbalho, Department of Industrial Engineering University of Brasilia, Brasilia-DF, 70910-900, Brazil

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## May 8, 2024 (Wednesday) - Session: 2:00 – 3:45 pm

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**2:00 – 3:45 pm, WEDNESDAY**

**Plenary**

**Onsite Room 1**

### Plenary Speakers Innovation and Entrepreneurship

Topics:

Innovation  
Entrepreneurship  
Business Management

Session Chair: Professor Camilo Alarcon Nieto

2:00 pm – 2:20 pm (Wednesday, May 8)

Professor Camilo Alarcon Nieto  
Assistant Professor  
Fundacion UNIR Colombia  
PhD Candidate in Management  
Researcher leader in entrepreneurship and technology adoption

2:20 pm – 2:40 pm (Wednesday, May 8)

Professor William E. Mosquera Laverde  
Director of Organizations and Strategic Group 4.0 category A1. Colombia  
Director of the Course Design of Organizational Processes, USA  
Business Administration Program  
Faculty of Administrative and Accounting Economic Sciences  
Cooperative University of Colombia  
Bogotá. Colombia

2:40 pm – 3:00 pm (Wednesday, May 8)

Dr. Fáber D. Giraldo  
Vice-chancellor of Research  
Universidad del Quindío  
Armenia, Quindío, Colombia

3:00 pm – 3:20 pm (Wednesday, May 8)

Professor Carlos Gualdrón, MSc.  
Professor of Project Management  
Professor Industrial Engineering – Faculty of Engineering  
Technological University of Bolivar  
Colombia, South America

3:20 pm – 3:40 pm (Wednesday, May 8)

Professor Donald M. Reimer  
Chief Operating Officer  
IEOM Society International  
Southfield, Michigan, USA

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**2:00 – 3:45 pm, WEDNESDAY**

**Onsite Room 2**

### Project Management Workshop Leading with Emotional Intelligence: A Seminar for Industrial Engineers

Dr. Tony Prensa, PhD, MBA, PMP, CB-PMO, CCP, ITIL, 6σ  
Chief Executive Officer & Founder  
TP Global Business Consulting, LLC  
Orlando, Florida, USA

**2:00 – 3:45 pm, WEDNESDAY****Onsite Room 3**

Session Chair: Peter Poon Chong, University of the West Indies, St. Augustine, Trinidad, West Indies

**Manufacturing, Assembly and Design****ID 28 Cargo Craft - Innovative Toolbox for Economy Cars**

Nitin Jadhav, Cal State Northridge, United States

**ID 32 BreezeGuard DualFan Hanger**

Christian Chamoun, Justin Lee, Karim Omar, Sankalp Pala and Ali Pacaci, Department of Manufacturing Systems Engineering and Management, California State University Northridge, Northridge, CA, USA

Sepideh Abolghasem, Professor, Department of Manufacturing Systems Engineering and Management, California State University Northridge Northridge, CA 91330, USA

**ID 86 Steelpan Sinking Quality Approach Employing Dynamic Nonlinear Finite Element Method**

Peter Poon Chong, Department of Mechanical and Manufacturing Engineering, Faculty of Engineering, University of the West Indies, St. Augustine, Trinidad, West Indies

**ID 146 Open Innovation Applications in Tourism**

Paula Robayo-Acuña, Business School, Fundación Universitaria Konrad Lorenz, Bogotá, Colombia  
Odette Chams-Anturi, Department of Economic Science, Universidad de la Costa, Barranquilla, Colombia

**2:00 – 3:45 pm, WEDNESDAY****Online Room 4**

Session Chair: Prof. Vitor Mendes Caldana, Federal Institute of Sao Paulo (IFSP) – Sorocaba Campus, Sao Paulo, Brazil

**Simulation, Optimization and Productivity Improvement****ID 72 System Dynamics Approach: Enhancing the Traffic Condition in Consolacion, Cebu**

Marie Clarice P. Arong, Sheena Marie E. Buot, Ahya Mae K. Lucero and Felaiyn P. Oyao, Student, Bachelor of Science in Industrial Engineering Cebu Technological University – Main Campus, M.J. Cuenco Avenue Cor. R. Palma Street, Cebu City, Philippines  
Engr. Jerpri T. Medillo, Instructor at Industrial Engineering Department, Cebu Technological University – Main Campus, M.J. Cuenco Avenue Cor. R. Palma Street, Cebu City, Philippines

**ID 126 Warehouse Efficiency Improvement Model Applying Lean Manufacturing Methodology in a Roller Shade Company**

Adrián Humberto Cuenca Bazán and César Augusto Arrunátegui Vásquez, Escuela de Ingeniería, Universidad de Lima, Lima

**ID 193 Proposal to Improve the Productivity of T-shirts through Lean Manufacturing Tools in an SME of the Textile Sector**

Elizabeth Reyna-Medina, Valeria Quispe-Quispe and Carlos Urbina-Rivera, Faculty of Engineering and Architecture, University of Lima, Peru

**ID 20 Improvement proposal for the reduction of time in reception and picking processes through systematization in a logistics operator**

Diego Zavaleta Leon, Mateo Zuloeta Ortiz, Students of engineering, Industrial Engineering Department, University of Lima, Peru  
Paul Angello Sanchez Soto, Master's degree in supply chain management, University of Lima, Peru

**ID 18 Production Management Model to Increase Efficiency in the Cotton Garment Manufacturing Process Applying MPS Kaizen and SMED Tools in a SME in the Textile Sector**

Juan Sebastian Naranjo-Torres, Pablo Benjamin Izaguirre-Bendezu and Jorge Antonio Corzo-Chavez, Carrera de Ingeniería Industrial, Facultad de Ingeniería, Universidad de Lima, Lima, Peru

**ID 113 Proposal for Implementing a Data Classification Model for the Supply Chain in a Food Company Based on Artificial Intelligence**

Hector Valverde Acuña, Bsc, Industrial Engineering Student, Engineering School, Lima University, Lima, Peru  
Diego Vilela Gutierrez, Bsc, Industrial Engineering Student, Engineering School, Lima University, Lima, Peru

**ID 65 Improvement of a Bolivian telecommunications company's occupational health and safety system: program development based on the 5S**

Boris Christian Herbas-Torrico, Technologic of Monterrey, Guadalajara, México  
Luciana Galindo-Borda, Bolivian Catholic University, Cochabamba, Bolivia

**ID 17 Production Management Model for Increase Efficiency by Applying Lean Manufacturing Tools as Standardized Work, Autonomous Maintenance and SLP in a Plastic Bottle Company**

Ana Maria Meza-Cardenas and Jorge Antonio Corzo-Chávez, Facultad de Ingeniería, Universidad de Lima, Perú

**ID 243 Education for Sustainable Development: challenges and opportunities for Production Engineering courses**

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## May 8, 2024 (Wednesday) - Session: 4:00 – 5:45 pm

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**4:00 – 5:45 pm, WEDNESDAY****Manufacturing****Onsite Room 1**

Session Chair: Paulo R. Figueroa Torrez, Escuela de Ingeniería Industrial, Pontificia Universidad Católica de Valparaíso, Valparaíso, Chile

**ID 4 Optimization of the Machining Parameters for the Difficult to Cut Materials through Machine Learning Applications: A Review**  
Semir Saleh (PhD Candidate), Mechanical Engineering, Ankara Yıldırım Beyazıt University, Ankara, Turkey

**ID 33 AUTOBVM**

Kevin Hernandez, Alexander Garcia, Tatsuro Kajioka, Daniel Cuara, Jeffrey Liu and Sepideh Abolghasem, Department of Manufacturing Systems Engineering and Management, California State University Northridge, Northridge 91330, California, USA

**ID 46 Optimization Model for Cell Formation Problem Incorporating Systemic Reliability**

Paulo R. Figueroa Torrez, Escuela de Ingeniería Industrial, Pontificia Universidad Católica de Valparaíso, Valparaíso, Chile  
Orlando M. Durán Acevedo, Escuela de Ingeniería Mecánica, Pontificia Universidad Católica de Valparaíso, Valparaíso, Chile

**ID 258 Designing a Planning Model For the Hub of a Colombian Cargo Airline Using a Genetic Algorithm for Flower Transportation.**

Andres Felipe Santos and Natalia Camacho Franco, Industrial Engineering, Escuela Colombiana de Ingeniería Julio Garavito, Bogotá, Colombia

**4:00 – 5:45 pm, WEDNESDAY****Onsite Room 2****Project Management Workshop**

Leading with Emotional Intelligence: A Seminar for Industrial Engineers

Dr. Tony Prensa, PhD, MBA, PMP, CB-PMO, CCP, ITIL, 6σ  
Chief Executive Officer & Founder  
TP Global Business Consulting, LLC  
Orlando, Florida, USA

**4:00 – 5:45 pm, WEDNESDAY****Innovation****Onsite Room 3**

Session Chair: Garcia, California State University, Northridge, United States

**ID 209 Hydrate Holder - Auto Water Bottle Holder**

Nitin Jadhav and Dr. Sepideh Abolghasem Ghazvini, Century Engineering – President, MSE 488B - Senior Design, Cal State Northridge, USA

**ID 29 AUTOBVM**

Garcia, California State University, Northridge, United States

**4:00 – 5:45 pm, WEDNESDAY****Design, Manufacturing and Safety****Online Room 4**

Session Chair: Dr. Mizanur Rahman, IEOM Australia

**ID 71 Redesigning Classroom Locker-Chair Hybrids: An Innovative Design Thinking Approach Adopting Origami-Based Engineering Design**

Raphael S. Butron, Bren Omer M. Hipolito, Cris Jefferson M. Juan and Mikaela Joy M. Noveno, Department of Industrial Engineering, University of Santo Tomas, España Boulevard, Sampaloc, Manila, 1008, Philippines  
Gabriel C. Bucu, Department of Industrial Engineering, University of Santo Tomas, España Boulevard, Sampaloc, Manila, 1008, Philippines  
Department of Industrial and Systems Engineering, De La Salle University, Taft Avenue, Manila, 1002, Philippines

**ID 127 Occupational health and safety management system for an automotive paint sales company based on the international standard ISO 45001-2018**

Jorge Pacheco Zevallos, Maribel Espinoza Noa, Nicol Flores Ruiz, Ariet Salvatierra Hilares, Mg. Victor Thompson Schreiber and Dr. Juan Gómez Meza, Industrial Engineering College, Ricardo Palma University, Santiago de Surco, Lima, Perú

**ID 132 Correlations and Group Differences: Factors Influencing Undergraduate Students' Perceived Academic Performance**

Von Anthony S. Alonzo, Stephen Paolo A. Salting, Darrel Austin B. Sanchez and Guenevere M. Tan, Department of Industrial Engineering, University of Santo Tomas, España Boulevard, Sampaloc, Manila, 1008, Philippines  
Engr. Jesselyn B. Alcaín, MS, Faculty, Industrial Engineering Department, University of Santo Tomas, Manila, 1008, Philippines

**ID 206 Ergonomic Model to Reduce the Development of Musculoskeletal Disorders in the Process of Production of Empanadas in a SME**

Mariel Pinche Ruiz, Engineering School, University of Lima, Peru  
Rodrigo Alonso Ventura Paredes, Engineering School, University of Lima, Peru  
Wilfredo R. Hernandez Gorriti, Engineering School, University of Lima, Peru

**ID 6 Lean Manufacturing to Reduce Delivery Time to the Order Pick Up Point in a Delivery Service Company**

Vicente Jose Arnaez Eguiguren, University Student, Faculty of Civil and Industrial Engineering, Universidad de Lima, Peru

**ID 123 Onway: Web and Mobile-Based Delivery Management System**

Aki G. Terada, Angeles University Foundation, Philippines

Nicole Frankie D, Angeles University Foundation, Philippines

Ryan Matthew C. Masanque, Angeles University Foundation, Philippines

Jonilo C. Mababa, Dit, Angeles University Foundation, Philippines

**ID 122 A Brewing Solution: Utilizing Spent Coffee Grounds as An Alternative Biomass Fuel**

Gerald M. Araco, Francis Miguel C. Flores, Andre Louis C. Ollica, Ralph Daniel C. Paglinawan and Damirson A. Co, MSIE, PIE, Department of Industrial Engineering, University of Santo Tomas, España Blvd., Sampaloc, Manila, Philippines

**ID 198 Why is My Package Not Here Yet? A Factor Analysis on the Last Mile Delivery Process of 3PL Companies as Partner Couriers of E-Commerce Companies in the National Capital Region, Philippines**

Hans Gabriel T. Garsain, John Andrei P. Peradilla, An Kristen C. So and Damirson A. Co MSIE, PIE, Department of Industrial Engineering, Faculty of Engineering, University of Santo Tomas, España Blvd., 1008, Manila, Philippines

## May 9, 2024 (Thursday)

### May 9, 2024 (Thursday) - Session: 8:00 – 9:45 am

8:00 – 9:45 am, THURSDAY

Plenary

Onsite Room 1

### Global Engineering Education

Session Chair

Dr. Mario Chauca  
Professor at Engineering Faculty  
Ricardo Palma University  
Surco, Lima, Perú

Speaker I

Magda Monroy  
Decana Facultad de Ingeniería Industrial  
Universidad Santo Tomás  
Professor Jaime Díaz Ortiz

Speaker II

Professor Jaime Díaz Ortiz  
Dean  
Faculty of Engineering  
Universidad Católica de Colombia  
Bogota, Colombia

Speaker III

Diana Patricia Diaz Velandia  
Coordinateur de projection sociale et extension  
Fundación Universitaria Internacional de La Rioja (UNIR)  
Bogota, Colombia

Speaker IV

Dr. Oscar A. Vasquez-Bernal  
Associate Professor  
School of Basic Sciences, Technology and Engineering  
Universidad Nacional Abierta y a Distancia  
Bogotá Colombia

Speaker V

Ahad Ali, Ph.D.  
Associate Professor  
Director, Bachelor of Science in Industrial Engineering  
Director, Master of Science in Industrial Engineering  
Director, Graduate Certificate in Lean Six Sigma  
Director, Smart Manufacturing and Lean Systems Research Group



Coordinator, Siemens Electro-Matic Industrial Engineering Lab  
A. Leon Linton Department of Mechanical, Robotics and Industrial Engineering  
Lawrence Technological University, Southfield, Michigan, MI 48075, USA  
Founder and Executive Director of IEOM Society International

**8:00 – 9:45 am, THURSDAY**

**Business Management**

**Onsite Room 2**

Session Chair: David Agustin Verdecia Torres, Department of Mechanical Engineering, University of Technology, Jamaica

**ID 38 Evaluation of the Environmental Energetic Sustainability of the Bayamo Municipality**

David Agustin Verdecia Torres, Department of Mechanical Engineering, University of Technology, Jamaica

**ID 150 Strategies for Etaa Maintenance Management**

David Hernandez Mora, Juan David Lopez Montealegre and Lesly Karina Sánchez, Universidad Central, programa de ingeniería mecánica, Bogotá, Colombia

**ID 88 Occupational Health Perspectives: Comparative Analysis between the Formal and Informal Construction Sector in Colombia**

Anamaria Franco-Leyva and Oscar Moreno-Torres, Civil Engineering Faculty, Engineering Faculty, University Cooperativa de Colombia, Santa Marta, Colombia

**ID 40 Factores Determinantes En El Proceso De Transformación Digital Basado En Capacidades Dinámicas Para Las Pymes**

Daniela del Pilar Mesa Hernández, Escuela de Estudios Industriales y Empresariales, Universidad Industrial de Santander, Ingeniería Industrial Bucaramanga, Colombia  
Luis Eduardo Becerra Ardila, Profesor Titular Escuela de Estudios Industriales y Empresariales, Universidad Industrial de Santander, Ingeniería Industrial, Bucaramanga, Colombia

**8:00 – 9:45 am, THURSDAY**

**Productivity**

**Onsite Room 3**

Session Chair: Cristian Rincón Guio, Corporación Universitaria Minuto de Dios – UNIMINUTO, Bogotá, Colombia

**ID 128 Add/Delete Rules for Modifying the Typical Course Offering Pattern in a Degree Program**

Manohar S. Madan, Information Technology and Supply Chain Management Department, Mitchell E. Daniels, Jr. School of Business  
Purdue University, West Lafayette, Indiana, USA  
Kingsley Gnanendran, Operations and Analytics Department, University of Scranton, Scranton, Pennsylvania, USA

**ID 212 Analysis of production performance of steel strips in Slitter line of manufacturing company**

María de los Ángeles Martínez-Mercado, Azucena Minerva García-León, Daniela del Carmen Bacre-Guzmán and Elva Patricia Puente-Aguilar, School of Chemical Science, Professors of Industrial Engineering and Management, Universidad Autónoma de Nuevo León, San Nicolás de los Garza, Nuevo León, México

**ID 219 Logistic Flow Control System for the Dispatch-Reception Process in Pharmaceutical Sector Companies**

Sandra Biviana Bustamante Londoño and Maritza Correa Valencia, Facultad de Ingeniería, Universidad Autonoma de Occidente, Cali, Colombia

**ID 207 Forging Resilience in Manufacturing Strategy: An Interdisciplinary Approach in a VUCA World**

Cristian Rincón Guio, Industrial Engineering Department, Engineering Faculty, Corporación Universitaria Minuto de Dios – UNIMINUTO, Bogotá, Colombia

**8:00 – 9:45 am, THURSDAY**

**Online Room 4**

Session Chair: Prof. Vitor Mendes Caldana, Federal Institute of Sao Paulo (IFSP) – Sorocaba Campus, Sao Paulo, Brazil

**Graduate Student Paper Competition sponsored by Eaton Corporation**

**ID 37 Factors Considered by Holiday Makers in Selecting a Guesthouse in the Post-Covid-19 Pandemic Era**

Bheki B.S Makhanya, Postgraduate School of Engineering Management, Faculty of Engineering and the Build Environment, University of Johannesburg, PO Box 524, Auckland Park 2006, South Africa

**High School STEM Competition**

**ID 24 Can LLMs Have a Fever? Investigating the Effects of Temperature on LLM Security**

Chan Xing Yu, James, Chan Si Yu, David and Chow Ban Hoe, River Valley High School, Singapore  
Poh Hui-Li Phyllis, Member of Technical Staff, DSO National Laboratories, Singapore

**ID 68 Upgrading legacy systems for Industry 4.0 with Node-RED and OPC-UA**

Daniel Ribeiro de Sousa and Eduardo Paciência Godoy, Scientific Initiation Program PIBIC Junior CNPQ/Reitoria UNESP, São Paulo State University (UNESP) – Sorocaba Campus, Sorocaba, Sao Paulo, Brazil  
Vitor Mendes Caldana, Professor, Industry Department, Federal Institute of Sao Paulo (IFSP) – Sorocaba Campus, Sorocaba, Sao Paulo, Brazil

**Human Factors and Ergonomics Competition sponsored by CINTAS**

**ID 5 Improvement in The Cutting Area to Increase Labor Productivity in The Company Airin S.A. Using Work Design And 5s Tools**

Naylea Maybet Perez Medina, Faculty of Engineering and Architecture, University of Lima, Lima, 1501, Perú  
Gabriela Zuñiga Valdivia, Faculty of Engineering and Architecture, University of Lima, Lima, 1501, Perú

**ID 119 Meditation Leads to Integrity and Acceptance**

Som R. Soni and Gita D. Soni, AdTech Systems Research Inc., 1342 North Fairfield Road, Beavercreek, Ohio 45432 USA

**ID 129 Lab-Tested: How Laboratory Design Affects the Performance of UST Chemical Engineering Students**

Renzo Miguel M. Lanip, Therese Adrienne M. Macawile, Czarina Danielle B. Mendoza, and Damirson A. Co, PIE, Department of Industrial Engineering, University of Santo Tomas, España Boulevard, Sampaloc, Manila, 1008, Philippines

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**May 9, 2024 (Thursday) - Session: 10:00 am – 1:00 pm**

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**10:00 am – 1:00 pm, THURSDAY****Onsite Room 1**

Keynote Moderator: Professor Ivanhoe Roza Rojas, Head/Director of Industrial Engineering, Universidad Católica de Colombia, Bogota and Professor Don Reimer

10:00 am

Keynote: Dr. Jorge Andrés Vivares Vergara

Research Professor, Universidad Nacional Abierta y a Distancia (UNAD), Bogotá, Colombia

10:30 am

Keynote: Dr. William J. Guerrero

Associate Professor, Head of the Research Group on Logistic Systems and Head of the IT and Process Optimization Department, Universidad de la Sabana, Bogota, D.C., Capital District, Colombia

11:00 am

Keynote: Dr. Johanna Trujillo Díaz

Investigador en Estancia Post Doctoral – Proyecto Orquídeas, Facultad de Ciencias Económicas y Administrativa, Universidad Cooperativa de Colombia, Bogotá, Colombia

11:30 am

Keynote: Mohammad Islam

Associate Director, Optum – United Healthcare Inc., New Jersey, United States of America

12:00 pm

Keynote: Rafael Forero Vargas

Food Safety &amp; Quality Manager Colombia, Rich's Product Corporation, Bogotá, Colombia

12:30 Keynote:

1:00 – 2:00 – Lunch Buffet

**10:00 am – 1:00 pm, THURSDAY****Online Room 4**

Session Chair: Laura Visintainer Lerman, PhD

**Manufacturing, Assembly, Design, Simulation, Supply Chain and Sustainability****ID 245 Process Improvement: Strategic Approach to Enhance Productivity in the Plastic Bottle Cap Secondary Process Using ProModel**

Maricar M. Navarro, Professor, Industrial Engineering Department, Engineering School, Technological Institute of the Philippines, Quezon, City, Philippines

Jerico Ovrey M. Nunag, Nafcyka Chryssyl S. Paderes, Kyla Nicole G. Paner, Miguel Enzo D. Retirado, and Shayne B. Rosete, Industrial Engineering Program, Technological Institute of the Philippines, Quezon City, Philippines

**ID 246 Enhancing Productivity by Optimizing Facility Layout in a Garment Manufacturing Company in Angono, Rizal Using ProModel Simulation**

Maricar M. Navarro, Professor, Industrial Engineering Department, Engineering School, Technological Institute of the Philippines, Quezon, City, Philippines

Jacklyn Hazel V. Ballais, Fritz S. Chua, Janelle Anne C. Estera, Michaela Theresa D. Landicho, Randel Gerard Mosuela and Kyla Nicole G. Paner, Industrial Engineering Department, Technological Institute of the Philippines, Cubao Quezon City, Philippines

**ID 67 Improving Manufacturing Layout: A Bolivian Food Company's Experience with Factory Physics and Simulation**

Boris Christian Herbas-Torrico, Tecnológico de Monterrey, Guadalajara, México

Oscar Roberto Luján Sainz, Universidad Católica Boliviana "San Pablo", Cochabamba, Bolivia

**ID 44 Mejora de la productividad en los procesos de manufactura de una empresa de confección empleando 5S, Kanban y SMED**

Paola Bendeú-Santivañez, Universidad Continental, Peru  
 Anyela Vilchez-Aquino, Universidad Continental, Peru  
 José Velásquez-Costa, Universidad Continental, Peru  
 Herbert Vilchez, Universidad Continental, Peru

**ID 115 Structural Analysis of Driveshaft of an Electric Vehicle Using Aluminum Alloy 7075**

Babs, V. Omidiji, Mechanical Engineering Department, Obafemi Awolowo University, Nigeria  
 Ayodele, A. Daniyan, Materials Science and Engineering Department, Obafemi Awolowo University, Nigeria  
 Kunle, M. Oluwasegun, Department of Mechanical and Manufacturing Engineering, University of Manitoba, Winnipeg, Manitoba, Canada  
 Timilehin, J. Oladokun and D. Egbibunmi, Mechanical Engineering Department, Obafemi Awolowo University, Nigeria

**ID 147 The Systematic Design and Manufacturing of 'Mr. Money Manager'- An Advanced Money Management Device**

Mubtasim Rubaet, Md Shoaib Mahmud, Mosleh Uddin Ahmed Mukit, Md. Soadul Haque Mithu, Mehrab-Al-Islam and Md. Istiaque Ahammed Sakib, Department of Industrial and Production Engineering, Military Institute of Science and Technology. Dhaka-1216, Bangladesh

**ID 202 A Study of LTC410 Composite Mold System to Improve Mold Manufacturing Process in Aerospace Industry**

Phongchai Jittamai and Kanin Runggrattanachavala, School of Industrial Engineering, Institute of Engineering, Suranaree University of Technology Nakhon Ratchasima, 30000, Thailand

**ID 208 Sustainability in the context of the Smart Supply Chain: A natural language processing approach**

Laura Visintainer Lerman, Industrial Engineering Department, Engineering School, Federal University of Rio Grande do Sul, Porto Alegre, Brazil  
 Daisy Valle Enrique, Industrial Engineering Department, Engineering School, Universidade Beira Interior, Covilhã, Portugal  
 Wagner Henz Schettert, Senior Software Architect, SAP, São Leopoldo, Brazil

**ID 222 Determining the Drivers of Food Waste along the Supply Chain in Indonesian Cities**

Atikha Sidhi Cahyana  
 Department of System and Industrial Engineering, Institut Teknologi Sepuluh Nopember. Surabaya, Indonesia  
 Department of Industrial Engineering, Universitas Muhammadiyah Sidoarjo. Sidoarjo. Indonesia  
 Iwan Vanany, Niniet Indah Arvitrida  
 Department of System and Industrial Engineering, Institut Teknologi Sepuluh Nopember. Surabaya, Indonesia

**ID 224 Green hydrogen and supply chain management through natural language processing approach**

Laura Visintainer Lerman, Industrial Engineering Department, Engineering School, Federal University of Rio Grande do Sul, Porto Alegre, Brazil  
 Daisy Valle Enrique, Industrial Engineering Department, Engineering School, Universidade Beira Interior, Covilhã, Portugal  
 Wagner Henz Schettert, Senior Software Architect, SAP, São Leopoldo, Brazil

**May 9, 2024 (Thursday) - Session: 2:00 – 3:45 pm****2:00 – 3:45 pm, THURSDAY****Technical Presentations****Onsite Room 1**

Session Chair:

**2:00 – 3:45 pm, THURSDAY****Onsite Room 2**

**2:00 - 6:00 pm, May 9, 2024 - Room 2**  
**STEPPING INTO AI & MACHINE LEARNING Workshop:**  
**INSTRUCTOR-LED WORKSHOP WITH HANDS-ON TRAINING**

**Mohammad Islam**  
**Associate Director**  
**Optum – United Healthcare Inc.**  
**New Jersey, United States of America**

**2:00 – 3:45 pm, THURSDAY****Engineering Management****Onsite Room 3**

Session Chair: Luis Francisco Lillo Otárola, Pontificia Universidad Católica de Valparaíso, Valparaíso, Chile

**ID 31 Sustainable Institutional Investors: Influence on Financial and Socio-Environmental Performance Indicators**

Alejandro J. Useche, PhD, Associate Professor, School of Management,  
 Fernando Juárez, PhD, Full Professor, School of Management, Universidad del Rosario, Calle 200, Autopista Norte, Bogota, Colombia  
 Jennifer Martínez-Ferrero, PhD, Full Professor, Instituto Multidisciplinar de Empresa (IME), Universidad de Salamanca, Campus Miguel de Unamuno, FES 37007, Salamanca, Spain  
 Emma García-Meca, PhD, Full Professor, Department of Economics, Accounting and Finance, Universidad Politécnica de Cartagena  
 Pza. del Cronista Isidoro Valverde, C.P. 30202, Cartagena, Spain

**ID 219 Logistic Flow Control System for the Dispatch-Reception Process in Pharmaceutical Sector Companies**

Sandra Biviana Bustamante Londoño and Maritza Correa Valencia, Facultad de Ingeniería, Universidad Autónoma de Occidente  
 Cali, Colombia

**ID 211 Exploring Augmented Reality in Industry 5.0: A Systematic Literature Review on Human-Machine Interaction, Manufacturing, and Industrial Safety**

Lauren Genith Isaza Dominguez, Professor, Faculty of Engineering, Corporación Universitaria Minuto de Dios (UNIMINUTO) - Sede Rectoría Virtual, Villavicencio, Colombia

**ID 83 Comprehensive indicators in wine filtration: Adoption in the Chilean industry, challenges, and development of a predictive model for operational decision-making**

Luis Francisco Lillo Otárola, Hanns de la Fuente Mella and Jose Ceroni Diaz, Escuela de ingeniería Industrial, Pontificia Universidad Católica de Valparaíso, Valparaíso, Chile

**2:00 – 3:45 pm, THURSDAY****Business Management****Online Room 4**

Session Chair: Prof. Vitor Mendes Caldana, Federal Institute of Sao Paulo (IFSP) – Sorocaba Campus, Sao Paulo, Brazil

**ID 124 A Comparative Analysis of Online Banking and Mobile Wallet Services by Customers in the National Capital Region**

Nichelle Nadine E. Dioneda, Joshua Peter D. Duco, Andre Luigi D. Elagio and Alexandra P. Sy, Department of Industrial Engineering, University of Santo Tomas, España Boulevard, Sampaloc, Manila, 1008, Philippines

Carlos P. Lugay, Ph. D, PIE, ASEAN Engr., Professor, Industrial Engineering Department, University of Santo Tomas, Manila, Philippines

**ID 131 An Investment Feasibility Appraisal for Frozen Processed Food Factory Projects**

Hairiza and Erlinda Muslim, Professional Engineer Program, Universitas Indonesia, Depok, Indonesia

**ID 136 Segmenting QRIS Users using Cluster Analysis in Indonesia**

Salwa Nahlya Tazkia, Rahmat Nurcahyo and Muhammad Habiburrahman, Department of Industrial Engineering, Universitas Indonesia Depok, West Java 16424, Indonesia

**ID 201 Economic Evaluation and Risk Identification of the Work Plan for Gas Turbine Compressor Engine Exchange on Offshore Platform in Field X**

Firman Santya Budi and Armand Omar Moeis, Professional Program for Engineers, University of Indonesia, Depok, Indonesia

**ID 79 Analysis of Simulation Platforms in System Dynamics for Decision Making**

Laura Herrera Giraldo, Laura Milena Cárdenas Ardila, Department of Industrial Engineering, University of Antioquia, Medellín, Colombia

**ID 217 Neural Network Model for Improving Vulnerable Road User Safety**

Carlos Antonio Marino, CENTRUM Católica Graduate Business School, Lima, Peru and Pontificia Universidad Católica del Perú, Lima, Peru

**ID 22 Sargassum Management and Uses in the Caribbean: A Review**

Emely Polet Valenzuela, Gustavo A. Montero Ogando and Eduardo J. Castillo Fatule, School of Industrial Engineering, Universidad Nacional Pedro Henríquez Ureña, Santo Domingo, Dominican Republic

**ID 60 Policy analysis in System Dynamics Models through Reinforcement Learning Exploration**

Juan Sebastián Jaén-Posadaa, Juan C. Españaab, Carlos E. Vasquezc and Esteffany Peñad, abcd ALIADO - Analytics and Research for Decision Making, Department of Industrial, Engineering, Universidad de Antioquia, Calle 67 No., 53-108, Antioquia, 50010, Medellin, Colombia

**May 9, 2024 (Thursday) - Session: 4:00 – 5:45 pm****4:00 – 5:45 pm, THURSDAY****Plenary****Onsite Room 1****Global Supply Chain and Logistics**

Session Chair: Professor Andrés Felipe Santos H., Escuela Colombiana de Ingeniería

May 9, 4:00 – 5:40 pm – Meeting Room 1 (Onsite)

4:00 – 4:20 pm (Thursday, May 9)

Professor Andrés Felipe Santos H.  
Profesor asociado de planta de la decanatura de Ingeniería Industrial  
Centro de Estudios en gestión y optimización de operaciones  
Investigador del grupo CIMSER  
Escuela Colombiana de Ingeniería  
Bogotá, Colombia

4:20 – 4:40 pm (Thursday, May 9)

Luis Tarazona  
University of Los Andes  
Bogotá, Colombia

4:40 – 5:00 pm (Thursday, May 9)

Johanna Caranton Diaz



Professor of Industrial Engineering  
Fundación Universitaria Internacional de La Rioja (UNIR)  
Bogota, Colombia

5:00 – 5:20 pm (Thursday, May 9)

Julián Ignacio López Arcos  
Mestre em Engenharia de Produção  
Universidade Federal de Itajubá Instituição  
Universidad Cooperativa de Colombia Endereço:  
Cali, Colombia

5:20 – 5:40 pm (Thursday, May 9)

**4:00 – 5:45 pm, THURSDAY**

**Onsite Room 2**

**2:00 - 6:00 pm, May 9, 2024 - Room 2**  
**STEPPING INTO AI & MACHINE LEARNING Workshop:**  
**INSTRUCTOR-LED WORKSHOP WITH HANDS-ON TRAINING**

**Mohammad Islam**  
Associate Director  
Optum – United Healthcare Inc.  
New Jersey, United States of America

**4:00 – 5:45 pm, THURSDAY**

**SCM and AI**

**Onsite Room 3**

Session Chair:

**4:00 – 5:45 pm, THURSDAY**

**Optimization**

**Online Room 4**

Session Chair: Prof. Vitor Mendes Caldana, Federal Institute of Sao Paulo (IFSP) – Sorocaba Campus, Sao Paulo, Brazil

**ID 112 Use of Library for Promoting Students' Learning**

Mani Ram Sharma and Yan Bahadur Budha, Nepal

**ID 225 Integration of Pedagogical Practices and Assessment Methods to Foster Sustainable Competencies in Engineering Education**

Laura Visintainer Lerman, Paula Kvitko de Moura, Maria Cannarozzo Tinoco, Industrial Engineering Department, Engineering School, Federal University of Rio Grande do Sul, Porto Alegre, Brazil

**ID 74 Developing Service Recovery Strategies Through Students' Commuting Experience Using Servqual Model**

Angelo P. Castillo, Sofia Nicole G. De Ramos and Clarence Edward G. Dimal, Department of Industrial Engineering, University of Santo Tomas, España Boulevard, Sampaloc, Manila, 1008, Philippines  
Gabriel C. Bucu, Department of Industrial Engineering, University of Santo Tomas, España Boulevard, Sampaloc, Manila, 1008, Philippines  
Department of Industrial and Systems Engineering, De La Salle University, Taft Avenue, Manila, 1002, Philippines

**ID 21 "Status of Surface Water at Three Selected Areas of Coastal Guyana and the treatment of the respective water with a suitable adsorbent"**

Raymond Jagessar, University of Guyana, Guyana

**ID 121 Operational Risk Management of Loading and Unloading Operations in Container Terminal Service Company**

Eileen Onggaria and Armand Omar Moeis, Professional Engineer Program, Faculty of Engineering, University of Indonesia, Depok, Indonesia

**ID 148 Inventory Management Optimization Model in A Restaurant Applying Inventory Control and Lean Manufacturing**

Juan Carlos Bustamante Sosa, Facultad de Ingeniería Industrial, Universidad de Lima, Lima, Perú  
Fabrizio Joaquín Salazar Pérez, Facultad de Ingeniería Industrial, Universidad de Lima, Lima, Perú  
Richard Meza Ortiz, Senior Lecturer, Facultad de Ingeniería Industrial, Universidad de Lima, Lima, Peru

**ID 76 Innovation in Beekeeping: A Literature Review under Brazilian Background**

Isabella Mendes da Silva, Civil and Environmental Engineering Department, University of Brasília, Brasília, Brasil  
Sanderson César Macêdo Barbalho, Industrial Engineering Department, University of Brasília, Brasília, Brasil

**May 9, 2024 (Thursday) - Session: 7:00 – 10:00 pm**

**Gala Dinner – Awards Recognition**



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## 6<sup>th</sup> South American Conference on Industrial Engineering and Operations Management

Sorocaba, Sao Paulo, Brazil, April 8-10, 2025

Host: Facens University

Conference Chair: Dr. Rodrigo Luiz Gigante, Coordinator of Production Engineering, FACENS University, Sorocaba, Sao Paulo, Brazil

## 15th International Conference on Industrial Engineering and Operations Management

Singapore, February 18-20, 2025

Host : Singapore University of Social Sciences (SUSS)

Conference Chair: Associate Professor Tan Yan Weng, Head, Logistics and Supply Chain Management Programme, School of Business, Singapore University of Social Sciences, Singapore

<http://ieomsociety.org/singapore2025/>



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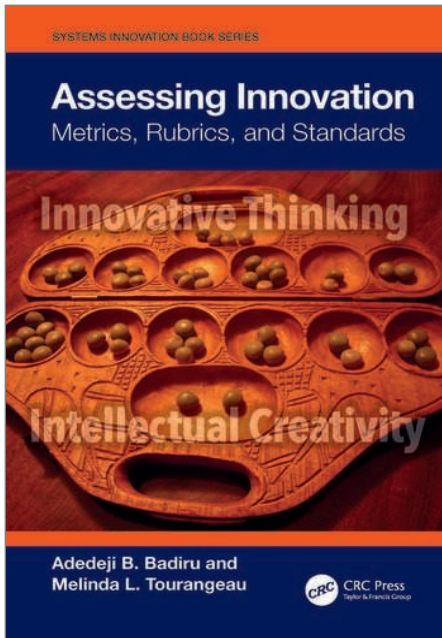
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| 4. Canada             | 14. Malaysia    | 24. South Africa        |
| 5. Chile              | 15. Mexico      | 25. Spain               |
| 6. Colombia           | 16. Nepal       | 26. Thailand            |
| 7. Dominican Republic | 17. Netherlands | 27. Trinidad and Tobago |
| 8. Ecuador            | 18. Nigeria     | 28. Turkey              |
| 9. Germany            | 19. Peru        | 29. United States       |
| 10. Guyana            | 20. Philippines | 30. Zimbabwe            |

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# Assessing Innovation

## Metrics, Rubrics, and Standards

**Adedeji B. Badiru, Melinda Tourangeau**

We cannot effectively manage and control what we cannot measure and assess. Lack of appropriate assessment tools and measures have been cited as a reason for project failures, in terms of cost, schedule, and quality. This book launches the methodology for assessing innovation using relevant and sustainable metrics, rubrics, and standards.

Assessing Innovation: Metrics, Rubrics, and Standards, provides a new view for embracing innovation and establishing a quantitative basis for determining innovation progress. It bridges innovation with practice through a systems view while incorporating the nonnegotiable human element and the different roles innovative members carry out. This book offers standards that will guide readers as they tackle sustaining innovation and leverages Badiru's Umbrella Model in the process.

The inclusion of methodologies suitable for determining where and when innovation is happening, and to what extent it is currently being carried out, make this a unique book, along with being the only book that addresses innovation metrics, rubrics, and standards in an integrated fashion. Seen as a way to help advance the diverse pursuit of innovation, this book is an ideal read for those in engineering, business, industry, academia, government, and the military.

**Adedeji B. Badiru** is a Professor of Systems Engineering at the Air Force Institute of Technology and a registered professional engineer. He is also a fellow of the Institute of Industrial Engineers and Fellow of the Nigerian Academy of Engineering. Dr. Badiru has a BS degree in Industrial Engineering, an MS in Mathematics, an MS in Industrial Engineering from Tennessee University, and a PhD in Industrial Engineering from the University of Central Florida. He is the author of several books and technical journal articles and has received several awards and recognitions for his accomplishments. He is also a series editor for CRC Press/Taylor and Francis.

**Melinda L. Tourangeau** is the Executive Director of the RVJ Institute, a 501 c (3) center of excellence and research institute dedicated exclusively to excellence in the electromagnetic environment. She possesses advanced degrees in Electrical Engineering and Business Administration and is currently pursuing a PhD in Education with an emphasis on organizational systems. Ms. Tourangeau is considered a subject matter expert in Electromagnetic Warfare and Electromagnetic Spectrum Operations. She has authored numerous reports for the Department of Defense and US Congress and given presentations to audiences in Europe, Hawaii, Canada, and the United States. Her background emphasizes electro-optics, lasers, and semiconductor physics, as well as organizational and leadership systems. Her career includes serving as a Department of Defense program manager for critical Electromagnetic Warfare programs and serving in the U.S. Air Force.

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If you have ever thought of writing a book in your area of expertise, this is your chance  
Please contact Cindy Renee Carelli, Executive Editor, CRC Press/Taylor and Francis at [cindy.carelli@taylorandfrancis.com](mailto:cindy.carelli@taylorandfrancis.com)

If you are interested in writing a book for the Systems Innovation Book Series <https://www.routledge.com/Systems-Innovation-Book-Series/book-series/CRCSYSINNOV> please contact Dr. Adedeji Badiru, Professor of Systems Engineering, Air Force Institute of Technology, at [deji@badiru.com](mailto:deji@badiru.com)



## Visit to Universities in Colombia, March 2024



























# IEOM Student Chapters around World

<b>Algeria</b>			84. Ramaiah University of Applied Sciences	164. Pontificia Universidad Católica del Perú (PUCP)
1. Adrar University			85. Nawab Shah Alam Khan College Eng & Tech (NSAKCET)	165. Universidad Privada del Norte (UPN)
<b>Australia</b>			86. Global Institute Of Eng and Technology, Hyderabad	166. Universidad Continental (UContinental)
2. Queensland University of Tech., Brisbane			87. VNR Vignana Jyothi Institute of Eng and Technology	167. Universidad de Ingeniería y Tecnología (UTEC)
3. UNSW-Canberra			88. Siddhartha Institute of Engineering & Technology	168. Universidad Nacional de Ingeniería (UNI)
4. University of Melbourne			89. Osmania University – The University College of Eng	169. University of San Martin de Porres (USMP)
5. University of Wollongong			90. VJTI Mumbai – Veermata Jijabai Technologic. Institute	<b>Philippines</b>
6. University of Adelaide			91. BML Munjal University, Gurugram, India	170. Bulacan State University, Malolos City, Bulacan
<b>Bahrain</b>			92. AKTU University, Kanpur, India	171. LPU Laguna
7. University of Bahrain			93. Mufakkhamjah College of Eng. and Tech, Hyderabad	172. Mapua University
<b>Bangladesh</b>			94. Methodist College of Engineering and Technology	173. De La Salle University (DLSU) Manila
8. Ahsanullah University of Sci & Tech (AUST)			95. Vardhaman College of Engineering	174. Adamson University
9. Bangladesh Institute of Management (BIM)			<b>Indonesia</b>	175. CEBU Technological University
10. Bangladesh University of Textiles (BUTEX)			96. Atma Jaya Catholic University	176. University of San Jose-Recoletos
11. BUET			97. Bina Nusantara University (Binus), Indonesia	<b>Portugal</b>
12. CUET			98. Institut Teknologi Bandung	177. ISEL – Instituto Superior De Engenharia de Lisboa
13. Daffodil International University (DIU)			99. Institut Teknologi Sepuluh Nopember (ITS)	<b>Qatar</b>
14. DUET, Gazipur			100. Sampoerna University, Jakarta	178. Qatar University
15. European University of Bangladesh			101. Shipbuilding Institute of Polytechnic Surabaya	<b>Saudi Arabia</b>
16. International Islamic University of Chittagong			102. Tarumanagara University	179. Alfaisal University
17. IUBAT			103. UIN Sultan Syarif Kasim, Riau	180. Effat University
18. Jessore University of Science and Technology			104. Universitas Diponegoro (Undip)	181. King Abdulaziz University (KAU)
19. Khulna University (KU)			105. Universitas Gadjah Mada (UGM)	182. King Abdulaziz University, Rabigh
20. Khulna University of Eng and Tech (KUET)			106. Universitas Iqra Baru	183. King Fahd Univ of Petroleum and Minerals (KFUPM)
21. Military Institute of Science and Technology			107. UIN Sunan Kalijaga, Yogyakarta	184. King Khalid University, Abha
22. National Institute of Textile Eng &Res (NITER)			108. Universitas Islam Negeri Alauddin Makassar	185. King Saud University (KSU)
23. Rajshahi University (RU)			109. Universitas Sebelas Maret (UNS), Surakarta	186. Umm Al-Qura University (UQU)
24. SUST			110. University of Indonesia	187. Princes Nourah University (PNU)
25. University of Chittagong			111. Universitas Sumatera, Utara Medan	188. Prince Sattam Bin Abdulaziz University
26. World University Bangladesh (WUB)			112. Narotama University, Surabaya	189. Prince Sultan University (PSU)
27. BAUST			113. Universitas Pakuan, Bogor	190. Taibah University
28. American International University-Bangladesh (AIUB)			114. Trilogi University	191. University of Tabuk
<b>Botswana</b>			<b>Iran</b>	192. Taibah University
29. University of Botswana			115. MehrAstan University, Guilan	193. University of Business and Technology
<b>Brazil</b>			116. University of Evyanekey	194. King Khalid University, Abha
30. Federal University of Sao Carlos (UFSCar)			117. Technical and Vocational University (TVU)	195. University of Bisha
31. Federal University of Santa Catarina (UFSC)			<b>Iraq</b>	196. Taif University
32. University of Sao Paulo (USP) – Sao Carlos			118. Babylon University	<b>South Africa</b>
33. Federal Institute of Sao Paulo, Sorocaba			<b>Israel</b>	197. Durban University of Technology (DUT)
34. FACENS University, Sorocaba			119. Sapir Academic College	198. Tshwane University of Technology (TUT)
<b>Canada</b>			120. Shamon College of Engineering (SCE), Ashdod	199. University of Johannesburg (UJ)
35. Concordia University			<b>Italy</b>	200. University of South Africa (UNISA)
36. Humber Institute of Tech and Adv Learning			121. University of Bologna	201. Vaal University of Technology (VUT)
37. Polytechnic Montreal			122. University of Salento	<b>Sri Lanka</b>
38. University of New Brunswick at Fredericton			<b>Japan</b>	202. University of Kelaniya
39. University of Waterloo			123. Ashikaga University	203. University of Peradeniya
40. University of Windsor			<b>Jordan</b>	<b>Sudan</b>
<b>Colombia</b>			124. Hashemite University	204. Sudan University of Science and Tech Khartoum
41. Fundación Univ. Tecn. Comfenalco, Cartagena, Bolívar			<b>Kenya</b>	<b>Thailand</b>
42. University of Rosario, Bogota			125. Kenyatta University, Nairobi	205. Chulalongkorn University, Bangkok
43. University of Quindío			<b>Libya</b>	206. Chiang Mai University
44. Universidad de San Buenaventura, Cali, Valle			126. Libyan Academy	<b>Turkey</b>
45. Institución Universitaria Colegios de Colombia			<b>Malaysia</b>	207. Turkish-German University
46. Escuela Colombiana de Ingeniería Julio Garavito			127. Universiti Malaysia Sabah (UMS)	<b>UAE</b>
47. Universidad Católica de Colombia			128. Universiti Putra Malaysia (UPM)	208. University of Science & Technology of Fujairah
48. Universidad Santo Tomás de Aquino			129. Universiti Teknologi Malaysia (UTM)	<b>UK</b>
49. Fundación Universitaria Internacional de La Rioja			130. Universiti Tun Hussein Onn Malaysia (UTHM)	209. University of Derby
50. Universidad América			131. Universiti Utara Malaysia (UUM)	210. University of the West of England, Bristol
51. Universidad Militar Nueva Granada (UMNG)			<b>Mexico</b>	<b>USA</b>
52. Universidad Cooperativa de Colombia (UCC)			132. Instituto Politécnico Nacional (IPN), Mexico	211. Central Connecticut State University
<b>Costa Rica</b>			133. Universidad del Caribe, Cancun	212. Eastern Michigan University
53. University of Costa Rica			<b>Morocco</b>	213. Lawrence Technological University, Michigan
<b>Czech Republic</b>			134. Akhawayn University	214. University of the District of Columbia
54. University of West Bohemia, Pilsen			135. Ecole Mohammadia d'Ingénieurs (EMI)	215. Indiana State University
<b>Ecuador</b>			136. Sidi Mohamed Ben Abdellah University of Fez	216. Florida Polytechnic University
55. Technical University of Ambato			137. N. School of Appl Sci. Kenitra, Ibn Tofail Univ	217. Buffalo State College
<b>Egypt</b>			138. Ecole Supérieure De Technologie, Fez	218. Southern Arkansas University
56. Zagazig University			<b>Mozambique</b>	219. Western Michigan University
57. Fayoum University			139. Eduardo Mondlane University	220. Loyola University Chicago
58. British University in Egypt			<b>Namibia</b>	221. Minnesota State University, Mankatoo
<b>Ethiopia</b>			140. National Univ. of Sci. and Tech. in Windhoek	222. Central State University
59. Bahir Dar Institute of Technology			<b>Nepal</b>	223. University of Central Florida
<b>Finland</b>			141. Kathmandu University	<b>Venezuela</b>
60. University of Vaasa			142. Tribhuvan University	224. Catholic University Andrés Bello, Caracas
<b>France</b>			<b>Nigeria</b>	<b>Vietnam</b>
61. IESEG School of Management			143. Covenant University	225. CFVG, Ho Chi Minh City, Vietnam
62. Lorraine University, Metz			144. University of Ibadan	<b>Zambia</b>
<b>Ghana</b>			145. University of Nigeria, Nsukka	226. University of Zambia
63. Technological Education Institute (TEI), Larissa			146. University of Benin	227. Copperbelt University
<b>Greece</b>			147. Olabisi Onabanjo University	228. Evelyn Hone College
64. Accra Technical University			<b>Oman</b>	<b>Zimbabwe</b>
<b>Haiti</b>			148. Sultan Qaboos University	229. University of Zimbabwe, Harare
65. Université Quisqueya			149. Middle East College	230. National University of Science and Technology
<b>India</b>			<b>Pakistan</b>	231. Harare Institute of Technology (HIT)
66. College of Eng and Tech, Bhubaneswar, Odisha, India			150. Dawood University of Eng and Technology, Karachi	232. Women's University in Africa (WUA)
67. College of Engineering Guindy, Chennai			151. Government College University Faisalabad	233. Chinhoyi University of Technology (CUT)
68. Guru Nanak Dev Engineering College			152. Mehran University of Eng and Tech, Jamshoro, Sindh	<b>High School Chapters</b>
69. Pandit Dendayal Petroleum Univ., Gujrat			153. Riphah International University, Lahore Campus	234. Bay Area of San Francisco & San Jose, CA
70. P.D.A. College of Engineering, Gulbarga			154. University of Engineering and Technology, Lahore	235. Arongghata, Khulna, Bangladesh
71. Vellore Institute of Technology			155. UOT – Nowshera	
72. Vidya Jyothi Institute of Technology, Hyderabad			156. Information Technology Univ. of the Punjab, Lahore	
73. Universal College of Eng & Tech (UCET), Guntur			<b>Papua New Guinea</b>	
74. National Institute of Technology (NIT), Warangal			157. Papua New Guinea University of Technology	
75. Jawaharlal Nehru Technological University Hyderabad			<b>Paraguay</b>	
76. IITS, India			158. National University of Asuncion	
77. Birla Institute of Tech & Sciences (BITS Pilani)			159. Universidad del Cono Sur de las Américas	
78. Amrita School of Business – Bangalore			<b>Peru</b>	
79. Amrita school of Arts and Sciences, Mysuru			160. National Univ of San Antonio Abad, Cusco	
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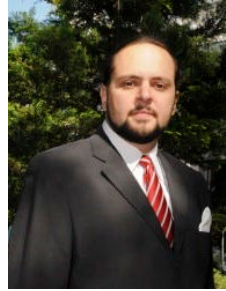
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# Upcoming IEOM Conferences



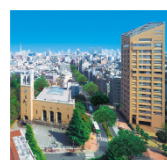
**9<sup>th</sup> North American Conference on Industrial Engineering and Operations Management**  
**Washington, DC, USA, June 4-6, 2024**  
 Host: University of the District of Columbia (UDC)  
 Venue: UDC Campus, 4200 Connecticut Ave NW



**7<sup>th</sup> European Conference on Industrial Engineering & Operations Management**  
**Augsburg / Munich, Germany**  
**July 16-18, 2024**  
 Host: Augsburg Technical University



**5<sup>th</sup> Asia Pacific Conference on Industrial Engineering and Operations Management**  
**Sept. 10-12, 2024, Tokyo, Japan**  
 Host: Hosei University, Venue: Waseda Univ.



**Industrial Engineering and Operations Management Annual World Congress**  
**October 9-11, 2024, Detroit, USA**  
 Venue: Lawrence Technological University



**3<sup>rd</sup> Australian Conference on Industrial Engineering and Operations Management**  
**Sydney, Australia, Sept. 24-26, 2024**  
 Venue: Hotel in Sydney  
 Host: University of Wollongong Australia



UNIVERSITY OF WOLLONGONG AUSTRALIA



**15<sup>th</sup> International Conference on Industrial Engineering and Operations Management**  
**February 18-20, 2025, Singapore**  
 Host: Singapore University of Social Sciences



## 6<sup>th</sup> South American IEOM Conference



**Sorocaba, Sao Paulo, Brazil, May 13-15, 2025**

Host and Venue: Facens University, Sorocaba, Brazil

Conference Chair: Dr. Rodrigo Luiz Gigante, Coordinator of Production Engineering, FACENS University, Sorocaba, Sao Paulo, Brazil

**Industrial Engineering and Operations Management Society International**

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