



Empowering Engineering Education: Breaking barriers through research and innovation

SUNDAY, March 10, 2024

09:00AM - 10:30AM
Track 1
ONLINE oral presentations livestream on zoom Track 1
Session Manager: Galileo Staff.



ONLINE English & Spanish Workshop #1



Chair: Mario Chong

Workshop: Applications of IOT for non interconnected zones (Paper # 886)

Albania 04:00PM	Argentina 12:00PM	Australia 11 Mar, 01:00AM	Bolivia 11:00AM	Brazil 12:00PM
Canada 08:00AM	Chile 12:00PM	China 11:00PM	Colombia 10:00AM	Ecuador 10:00AM
Germany 04:00PM	Greece 05:00PM	Honduras 09:00AM	India 08:30PM	Indonesia 10:00PM
Ireland 03:00PM	Israel 05:00PM	Japan 11 Mar, 12:00AM	Macao 11:00PM	Mexico 09:00AM
New Zealand 11 Mar, 04:00AM	Peru 10:00AM	Philippines 11:00PM	Poland 04:00PM	Portugal 03:00PM
Puerto_Rico 11:00AM	Senegal 03:00PM	Spain 04:00PM	Tunisia 04:00PM	United Kingdom 03:00PM
USA (CDT) 11:00AM	USA (PDT) 09:00AM	USA (EDT) 12:00PM		

Local Time	Presentation	Speaker Time
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09:00AM

Colombia 10:00AM

Speakers: Ana Luna, Francisco Jose Mercado Rivera, Jhorman Villanueva Vivas, Juan Manuel Nuñez, Karla Nathalia Triana Ortiz, Mario Chong, Rafael Ricardo Renteria Ramos

Authors: Rafael Ricardo Renteria Ramos, Ana Luna, Mario Chong, Karla Nathalia Triana Ortiz, Jhorman Villanueva Vivas, Juan Manuel Nuñez, Francisco Jose Mercado Rivera

Abstract: *This workshop encapsulates the synergistic role of Edge Computing and the Internet of Things in enhancing data processing and connectivity in unconnected areas. Edge Computing, by decentralizing data processing, facilitates local data collection and analysis, thus reducing reliance on long distance network connections. IoT complements this by integrating smart devices for data collection and transmission, enabling autonomous operation. Together, these technologies enable real-time data analysis, crucial for quick decision making. The workshop will cover a comprehensive understanding from the physical layer to the application layer of an Edge-IoT architecture, catering to the unique challenges of unconnected areas. In addition, the workshop will also contribute insights pertinent to countries where energy and communication networks are not yet interconnected. This will encompass strategies and solutions tailored for the implementation of Edge Computing and IoT technologies in regions lacking infrastructure. These insights are particularly vital for countries striving to leapfrog to advanced technological capabilities despite infrastructural limitations.*

Resume: **Rafael Ricardo Rentería Ramos:**
Industrial Engineer, Doctor in Economic Sciences, specializing in demography and population dynamics modeling, full-time professor at the Universidad Nacional Abierta de Colombia, and researcher in related topics in Data Sciences, Machine Learning, Bioinformatics, and Biostatistics. Postdoctoral in network analysis and statistical methods applied to health. Coordinator of the Scient Metrics Observatory of the UNAD. He has developed several models from the complexity sciences for the technology watch processes in different organizations.

Ana Eugenia Luna:
Associate Dean of Business Engineering and full-time professor and researcher at



Empowering Engineering Education: Breaking barriers through research and innovation

SUNDAY, March 10, 2024

Universidad del Pacífico, Academic Department of Engineering, Lima, Peru. She holds a Ph.D. and a degree in Physical Sciences from the University of Buenos Aires (UBA-Argentina). In her research field, she worked in the Solid Lasers Division at DEILAP, CONICET. Within the area of Photonics, she was dedicated to modeling the structural color generation in one of the beetle species endemic to southern Argentina and Chile, using genetic algorithms. She also worked as a professor at the University of Buenos Aires, teaching several courses in the area of Higher Laboratories in the Department of Physics of the Faculty of Exact and Natural Sciences. She is current an adhering researcher at the Universidad Nacional Mayor de San Marcos (Lima-Peru).

C. Mario Chong:

Full-time professor and researcher at Universidad del Pacífico. He holds a Ph.D. in Business Management from Universidad Nacional Mayor de San Marcos, a Master in Industrial Engineering and a Master in Systems Engineering, and an Industrial Engineer Degree from Universidad de Lima. He has a certification in Supply Chain Management from the Massachusetts Institute of Technology (MIT). He has experience developing research projects related to business, such as business strategy, supply chain, operations, global business, agribusiness, and rural associativity.

Karla Nathalia Triana Ortiz:

Full-time professor and researcher at Universidad Nacional Abierta de Colombia. She holds a Master, Specialization, and International Business and Management degree. With five years of experience as a professor of several courses for the Industrial Engineering program in innovation, entrepreneurship, and business administration topics.

Jhorman Villanueva Vivas:

Electronic and Telecommunications Engineer, Master in Engineering with a focus on computer science from the Universidad Autónoma de Occidente, certified AWS Solutions Architect. With four years of experience as a full-time professor and researcher at the National Open and Distance University, specializing in topics related to the Internet of Things and cloud computing.

Juan Manuel Nuñez:

Electronic and Telecommunications Engineer, Master degree in Engineering with an emphasis in mechatronics from the Universidad Autónoma de Occidente. Ph.D. candidate in Computer Engineering at the University of Salamanca. Professor and researcher at the University of Salamanca, Universidad Abierta y a Distancia UNAD, and Universidad Autónoma de Occidente. Areas of interest: Hardware development, precision agriculture, IoT (Internet of Things).

Francisco Jose Mercado:

Mechatronic engineer and Doctor in engineering from the Universidad Autónoma de Occidente, part-time professor at the Universidad Nacional Abierta y a Distancia and Universidad Autónoma de Occidente, researcher in product development, Additive Manufacturing, and Artificial intelligence. With five years of experience as a professor of several courses for Engineering programs.

Agenda: A. Firstblock–Presentation–20 minutes

- Welcome
- Speakers and participants presentation
- Workshop agenda
- Understanding the relevance of IoT in this era

B. Second block – IoT fundamentals – 40 minutes

- Python Language Basics



Empowering Engineering Education: Breaking barriers through research and innovation

SUNDAY, March 10, 2024

- Python in IoT
- Hardware in IoT-Edge
- C. Third Block – Integration of Software and Hardware – 40 minutes**
- Hardware and software integration.
- Protocols IoT-Edge
- Handling non-interconnection.
- Treatment of the data obtained.
- Online and offline data treatment

The workshop will last 90 minutes and will be conducted according to the agenda

10:30AM - 12:00PM

Track 1

ONLINE oral presentations livestream on zoom Track 1

Session Manager: Galileo Staff.



ONLINE Spanish Workshop #2

Chair: Roberto Portillo



Workshop: Educational Innovation through Generative Artificial Intelligence: Tools, Opportunities, and Challenges (Paper # 911)

Albania 05:30PM	Argentina 01:30PM	Australia 11 Mar, 02:30AM	Bolivia 12:30PM	Brazil 01:30PM
Canada 09:30AM	Chile 01:30PM	China 11 Mar, 12:30AM	Colombia 11:30AM	Ecuador 11:30AM
Germany 05:30PM	Greece 06:30PM	Honduras 10:30AM	India 10:00PM	Indonesia 11:30PM
Ireland 04:30PM	Israel 06:30PM	Japan 11 Mar, 01:30AM	Macao 11 Mar, 12:30AM	Mexico 10:30AM
New Zealand 11 Mar, 05:30AM	Peru 11:30AM	Philippines 11 Mar, 12:30AM	Poland 05:30PM	Portugal 04:30PM
Puerto_Rico 12:30PM	Senegal 04:30PM	Spain 05:30PM	Tunisia 05:30PM	United Kingdom 04:30PM
USA (CDT) 12:30PM	USA (PDT) 10:30AM	USA (EDT) 01:30PM		

Local Time	Presentation	Speaker Time
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10:30AM

Guatemala 10:30AM

Speakers: Hector R. Amado-Salvatierra, Rocael Hernández-Rizzardini

Authors: Miguel Morales-Chan, Hector R. Amado-Salvatierra, Rocael Hernández-Rizzardini

Abstract: *The integration of Artificial Intelligence (AI) into the field of education is an unprecedented trend with the potential to revolutionize teaching approaches and significantly improve the overall learning experience. This workshop offers an opportunity for a strategic implementation of generative artificial intelligence in higher education, demonstrating its capacity to substantially enhance the creation and customization of digital educational materials. It is essential for educators to possess the capacity to utilize generative artificial tools, specifically when it comes to developing prompts for Large Language Models (LLMs). In addition to fostering a more interactive learning environment, these LLMs are driving the transition to educational systems that are more autonomous and adaptable. An in-depth exploration of the pragmatic and ethical aspects of AI implementation is undertaken to equip educators with the necessary knowledge and skills to employ AI in a responsible manner, thereby cultivating an engaging and equitable learning environment.*

Resume: **Miguel Morales-Chan:**

Miguel Morales-Chan is Ph.D. in Information and Knowledge Engineering from the



Empowering Engineering Education: Breaking barriers through research and innovation

SUNDAY, March 10, 2024

University of Alcalá, Spain. He also has a Master degree in Educational Planning and Management from Universidad Galileo, and a Master in Production and Management of e-Learning Projects from Universidad Carlos III de Madrid, Spain. Currently, he serves as the Director of the Digital Education Area and Coordinator of MOOC production at Universidad Galileo for edX. He is the author of the book "Discover the Power of ChatGPT in the Classroom: 90 Templates for Creating Effective Prompts for Teaching".

Héctor R. Amado-Salvatierra:

Héctor R. Amado-Salvatierra is Ph.D. from Universidad de Alcalá (Spain) and Computer Sciences Engineer from Universidad Galileo (Galileo). Currently, he is part of the GES Department at Universidad Galileo, Guatemala. He has been involved in international projects related to MOOCs, e-learning and accessibility, among the projects are the following: PROF-XXI, MOOC-MAKER (Erasmus+), ESVI-AL (ALFA III); RedAUTI, SOLITE (CYTED) and IDEAL-IST (Horizon 2020).

Rocael Hernández-Rizzardini:

Rocael Hernández-Rizzardini combines academic excellence with real-world business insights. At Galileo University, Rocael Hernández-Rizzardini serves as the Director of the GES department, steering its focus towards the concept of the Digital University. Under his leadership, diverse teams specialize in various facets of the digital domain: from learning and marketing to communications, technology, and research. As the CEO of a dynamic enterprise with extensive project experience spanning the USA, Canada, Europe, and Latam, Dr. Hernández-Rizzardini synergizes his academic and research background to champion purposeful innovation.

- Agenda:**
- 10 min Introduction to foundational concepts of GEN AI**
 - 20 min Effective Prompt creation**
 - 30 min Exploration of GEN AI tools: ChatGPT and Bard**
 - 20min Classification of Effective Prompts in education practices**
 - 10 min Challenges, ethical considerations and final discussion**
- The workshop will last 90 minutes and will be conducted according to the agenda*

2:30PM - 4:00PM

Track 1

IN PERSON oral presentations and online livestream on zoom Track 1

Session Manager: Galileo Staff.



HYBRID Spanish Workshop #3

Chair: Osvaldo Clua

Workshop: Culturally Relevant Pedagogy (Paper # 852)



Albania 09:30PM	Argentina 05:30PM	Australia 11 Mar, 06:30AM	Bolivia 04:30PM	Brazil 05:30PM
Canada 01:30PM	Chile 05:30PM	China 11 Mar, 04:30AM	Colombia 03:30PM	Ecuador 03:30PM
Germany 09:30PM	Greece 10:30PM	Honduras 02:30PM	India 11 Mar, 02:00AM	Indonesia 11 Mar, 03:30AM
Ireland 08:30PM	Israel 10:30PM	Japan 11 Mar, 05:30AM	Macao 11 Mar, 04:30AM	Mexico 02:30PM
New Zealand 11 Mar, 09:30AM	Peru 03:30PM	Philippines 11 Mar, 04:30AM	Poland 09:30PM	Portugal 08:30PM
Puerto_Rico 04:30PM	Senegal 08:30PM	Spain 09:30PM	Tunisia 09:30PM	United Kingdom 08:30PM
USA (CDT) 04:30PM	USA (PDT) 02:30PM	USA (EDT) 05:30PM		

Local Time | **Presentation**

2:30PM **Speaker:** Homero Murzi
Author: Homero Murzi



Empowering Engineering Education: Breaking barriers through research and innovation

SUNDAY, March 10, 2024

Abstract: *This workshop is designed to create a community of practice by bringing engineering educators who aspire to improve their teaching by acknowledging and supporting the cultural knowledge students possess. This workshop provides participants with an opportunity to engage in discussions regarding contemporary pedagogical practices actively and to think about how to use disruptive teaching strategies in engineering classrooms. Just as our engineering learning environments are complex, so are the individuals that comprise them. Everyone has visible as well as “invisible” cultural identities and backgrounds, and culturally relevant pedagogy (CRP) attends to those differences. Similarly, active learning seeks to engage learners in ways that are disruptive, engaging, and attentive to promote deep learning. Engineering educators should consider how cultural identity mediates the formation of engineering identity. This workshop will help engineering educators examine their instructional practices and how their cultural identity informs their teaching. This self-reflection will help instructors better utilize the cultural capital students possess to enhance engineering learning and identity.*

Resume: **Homero Murzi**

Dr. Homero Murzi is an Associate Professor in the Department of Engineering Education at Virginia Tech with honorary appointments at the University of Queensland (Australia) and University of Los Andes (Venezuela). Homero is the leader of the Engineering Competencies, Learning, and Inclusive Practices for Success (ECLIPS) Lab, a research community focused on studying contemporary and inclusive pedagogical practices, emotions in engineering, competency development, and understanding the experiences of Latinx and Native Americans in engineering from an asset-based perspective. Before coming to the United States, Homero had a tenured career for 14 years in Venezuela, where he developed several faculty development programs in the country. Homero serves as the American Society for Engineering Education (ASEE) Chair for the Commission on Diversity, Equity, and Inclusion (CDEI) and the Incoming Chair for the Research in Engineering Education Network (REEN). He holds degrees in Industrial Engineering (BS, MSc) from the National Experimental University of Táchira, Master of Business Administration (MBA) from Temple University, and Engineering Education (PhD) from Virginia Tech. will be provided with materials and a discussion-based learning environment will be promoted.

Agenda: **The total time of the workshop will be 70 minutes. The first part of this workshop will consist of part**
The workshop will last 90 minutes and will be conducted according to the agenda