

**SmartTech-IC 2024**  
**Fourth International Conference on Smart Technologies, Systems and Applications**  
**Quito - Ecuador**  
**Conference Final Program**

Monday, December 02	
08:00 - 09:00	Registration
09:00 - 10:00	Conference Opening: Aula Magna
10:00 - 11:00	Keynote: Prof. Pablo Paredes, Ph.D Aula Magna
11:00 - 11:30	Coffee Break
	<div style="display: flex; justify-content: space-between;"> <div style="width: 48%;"> <p style="text-align: center;"><b>Session I: Smart Systems</b> (Auditorium: Candido Rada)</p> </div> <div style="width: 48%;"> <p style="text-align: center;"><b>Session II: Smart Technologies</b> (Auditorium: Oscar Romero)</p> </div> </div>
11:30 - 11:50	<div style="display: flex; justify-content: space-between;"> <div style="width: 48%;"> <p><b>ID 11: "An intelligent mobile navigation system for visually impaired people using computer vision and deep learning for multi-label classification in park environments"</b> Remigio Hurtado and Christian Delgado</p> </div> <div style="width: 48%;"> <p><b>ID 5: "ChatBanker: A chatbot for efficient management of bank documents"</b> Jorge Cordero, Edgar Martínez, Jandri Villavicencio and Luis Rodrigo Barba Guamán</p> </div> </div>
11:50 - 12:10	<div style="display: flex; justify-content: space-between;"> <div style="width: 48%;"> <p><b>ID 21: "Detection of DDoS Attacks in Computer Networks Using Deep Learning"</b> Jimmy Calle, Rodolfo Bojorque, Andrea Plaza and Pilar Morquecho</p> </div> <div style="width: 48%;"> <p><b>ID 9: "Smart Irrigation Technology, ensuring water availability: automated approach for greenhouse water management"</b> Paola Paola Duque-Sarango, Kevin Robles and Sebastian Cédillo</p> </div> </div>
12:10 - 12:30	<div style="display: flex; justify-content: space-between;"> <div style="width: 48%;"> <p><b>ID 28: "Detection of Automatically Generated Texts: A Classification-Based Approach and Text Features".</b> César Espin-Riofrio, Joel Alejandro Barba-Salazar, Edison Cruz-Navarrete, Mariuxi Del Carmen Toapanta Bernabé, Oswaldo Vergara-Bello, Pamela Carriel-Castillo, Irving Garzón-Soledispa and Arturo Montejo-Ráez</p> </div> <div style="width: 48%;"> <p><b>ID 35: "Leveraging Web Scraping to Identify Opportunities for Young Talent to UK Digital Manufacturing"</b> Priyesh Dhole, Imtiaz Hussain Khan, Imtiaz Ali Khan and Karl Warner</p> </div> </div>
12:30 - 14:00	Luch
14:00 - 15:00	Keynote: Prof. Teodiano Freire, Ph.D Aula Magna
	<div style="display: flex; justify-content: space-between;"> <div style="width: 48%;"> <p style="text-align: center;"><b>Session III: Smart Trend &amp; Applications</b> (Auditorium: Candido Rada)</p> </div> <div style="width: 48%;"> <p style="text-align: center;"><b>Session IV: Smart Health</b> (Auditorium: Oscar Romero)</p> </div> </div>
15:00 - 15:20	<div style="display: flex; justify-content: space-between;"> <div style="width: 48%;"> <p><b>ID 145: "A Unified Multi-Platform IoT Architecture Leveraging gRPC for Seamless Integration of LoRaWAN, MQTT, and HTTP Protocols"</b> Erwin J. Sacoto-Cabrera, Gabriel Chuchuca, Malki Yupanki, Javier Martínez and Jefferson Reyes</p> </div> <div style="width: 48%;"> <p><b>ID 63: "Enhanced Breast Cancer Detection Using Filter-Augmented DenseNet169: Outperforming Traditional CNN Models with Few-er Epochs"</b> Anahí Vaca Fiallos, Paula Pozo Coral, Sisa Lluilema Lluilema, Diego Almeida-Galárraga, Andrés Tirado-Espín, Kevin Landázuri, Lenin Ramírez-Cando, Fernando Villalba-Meneses and Carolina Cadena-Morejón</p> </div> </div>
15:20 - 15:40	<div style="display: flex; justify-content: space-between;"> <div style="width: 48%;"> <p><b>ID 73: "Analysis of the production process in the tanning industry based on simulation methods"</b> Jorge Morales, John Reyes, Renato Reyes, Rosa Chango, Jean Pierre Martínez, Diego Constante and Jomayra Molina</p> </div> <div style="width: 48%;"> <p><b>ID 149: "Mobile Application for an Integrated Portable Medical Assistant"</b> Leonardo Israel Ormaza Siguenza, Ana Cecilia Villa Parra and Teodiano Freire Bastos</p> </div> </div>
15:40 - 16:00	<div style="display: flex; justify-content: space-between;"> <div style="width: 48%;"> <p><b>ID 7: "Numerical Analysis by CFD of the Boiling Process and the Behavior of Aluminum Oxide Nanoparticles in Refrigerants R600a and R290"</b> Jaime Salinas, Fernando Toapanta-Ramos and William Diaz</p> </div> <div style="width: 48%;"> <p><b>ID 56: "Parkinson's Disease Detection Using Improved AlexNet Convolutional Neural Network"</b> Ariel Miranda, Camila Usama, Kevin Samaniego, Ricardo Moreira, Fernando Villalba, Paulo Navas, Andrés Tirado-Espín, Carolina Cadena, Diego Almeida-Galárraga and Paulina Vizcaino-Imacaña</p> </div> </div>
16:00 - 16:30	Coffee Break
16:30 - 16:50	<div style="display: flex; justify-content: space-between;"> <div style="width: 48%;"> <p><b>ID 36: "Analysis of data gaps in multiparametric dataset for seismic and volcanic monitoring networks"</b> Santiago Arrais and Luis Urquiza</p> </div> <div style="width: 48%;"> <p><b>ID 135: "Rapid and Accurate Detection of Heart Failure: Integration of Echocardiograms and Clinical Data through neural networks."</b> Victor Manuel Arrobo Sarango, Jeremy Fabrizio Carlosama Quinatoa, Diego Almeida-Galárraga, Andrés Tirado-Espín, Kevin Landázuri-Cortez, Lenin Ramírez-Cando, Fernando Villalba-Meneses and Carolina Cadena-Morejón</p> </div> </div>
16:50 - 17:10	<div style="display: flex; justify-content: space-between;"> <div style="width: 48%;"> <p><b>ID 78: "Analysis of physical and chemical indicators in the community of San Pablo Urco-Cantón Cayambe to evaluate the state of soil degradation in high mountain grasslands"</b> Freddy Vicente Cuarán Sarzosa, Alejandra Monserrath Cuacés Morocho, Katherine Fernanda Molina Molina and Diana Elizabeth García Tumipamba</p> </div> <div style="width: 48%;"> <p><b>ID 148: "Automatic Detection of Architectural Distortion in Digital Breast Tomosynthesis using Real-Time Object Detection Models"</b> Christopher Huilca and Fabián Narváez</p> </div> </div>

17:10 - 17:30	<b>ID 151: "Analysis of Stabilization Control in a Hexapod Robot: An Approach Utilizing MPU6050 and Kalman Filtering"</b> Dennys Baez, Julio Montesdeoca, Cisne Ortega, Luis Serpa, Walter Orozco and Juan Marcos Toibero	<b>ID 62: "Comparison of Machine Learning and Dimensionality Reduction Algorithms in the Classification of Myoelectric Hand Gestures for Prosthetic Control"</b> Brad Joffre Timana Flores, Henry David Velasco Rojano, Diego Almeida-Galárraga, Andrés Tirado-Espín, Carolina Cadena-Morejón, Kevin Landazuri-Cortez, Lenin Ramírez-Cando and Fernando Villalba-Meneses
<b>Tuesday, December 03</b>		
08:30 - 09:00	<b>Registration</b>	
09:00 - 10:00	<b>Keynote: Prof. Alberto López, Ph.D</b> <b>Aula Magna</b>	
	<b>Session V: e-Learning and Informatics</b> <b>(Auditorium: Candido Rada)</b>	<b>Session VI: Smart Health</b> <b>(Auditorium: Oscar Romero)</b>
10:00 - 10:20	<b>ID 129: "Evaluating Word Embedding Models in Ecuadorian Legal Texts: A Comparison of CBOW and Skip-gram for Semantic Analysis"</b> Christian Salamea and Wilfredo Martel	<b>ID 18: "Use of Virtual Reality and Mixed Reality for Learning Abdominal Biology"</b> Karin Correa, Luis Navia, Johnnanthan Velez, Andrés Vivas and Jairo Alfonso Vásquez-López
10:20 - 10:40	<b>ID 6: "Implementation of Educational Resources Adapted to the VARK Learning Styles of Students in Higher Education"</b> Jorge Cordero and Germanía Rodríguez Morales	<b>ID 23: "A Comprehensive Approach to Blood Glucose Prediction: A Multi-Branch Network"</b> Jose Yáñez, Luis Zhinin-Vera and Fernando Gonzales
10:40 - 11:00	<b>ID 66: "Digital Ecosystems in University Institutions: a systematic mapping of literature"</b> Gonzalo Guamo Escaleras, Germanía Rodríguez-Morales and Samanta Cueva Carrión	<b>ID 51: "Latent Semantic Analysis for statistical analysis of cancer distribution"</b> Gabriel Stomovitz
11:00 - 11:30	<b>Coffe Break</b>	
11:30 - 11:50	<b>ID 103: "Exams as a Service: Synergies between ChatGPT, and Cloud Computing for Education"</b> Gustavo Navas, Julio Ricardo Proaño Orellana, Rogelio Orizondo and Alex Terreros	<b>ID 97: "Attention based Tri-decoder Framework for Segmentation and Classification of Nuclei in Bladder Histology"</b> Sadia Jabbar Anwar, Ibtihaj Ahmad, Umar Saleem, Saleem Riaz and Ying Li
11:50 - 12:10	<b>ID 110: "Characterization of the graduation profile of the Software and Telematics programs from UTEQ: Analyzing Educational Outcomes with Industry Demands."</b> Cristian Zambrano-Vega, María Isabel Chévez, Emilio Zhuma, Oscar Moncayo, Byron Oviedo and Aldo Valadez Dorado	<b>ID 144: "A Comparative Analysis of Super-resolution approaches based on Generative Adversarial Networks for Lung Nodules Detection"</b> Leonardo Pinango and Fabián Narváez
12:10 - 12:30	<b>ID 136: "Stimulation of spatial reasoning in children aged 6 to 7 using assistive technology, computer vision, and elements of Inca and Cañari cultures"</b> Christian Japón-Chavez, Vladimir Robles-Bykbaev, Ana Parra-Astudillo, Efrén Leandro Lema Condo, Dayanna Sánchez-Noboa and Yaroslava Robles-Bykbaev	<b>ID 147: "Evaluation of data enhancement strategies for contrast-enhanced mammography synthesis"</b> Cristian Restrepo, Kevin Osorno and Gloria Diaz
12:30 - 14:00	<b>Luch</b>	
14:00 - 15:00	<b>Keynote: Prof. Mario Aguilar</b> <b>Aula Magna</b>	
	<b>Session VII: Smart Systems</b> <b>(Auditorium: Candido Rada)</b>	<b>Session VIII: Smart Trend &amp; Applications</b> <b>(Auditorium: Oscar Romero)</b>
15:00- 15:20	<b>ID 102: "Application of large language models to solving differential equations: constructing baseline models with LSTM and GRU"</b> Anton Surkov, Vladimir Zakharov, Sergei Koltcov and Vera Ignatenko	<b>ID 32: "Application of Machine Learning Algorithms to Detect Fake News in the Peruvian Context"</b> Diego Yoshiro Dongo Esquivel, Efraina Gladys Cutipa Arapa and Rony Villafuerte Serna
15:20 - 15:40	<b>ID 128: "Polyglot Persistence in Heterogeneous NoSQL Database Systems with Python"</b> Diana Martinez-Mosquera, Rosa Navarrete, Lorena Recalde and Andres Andrade-Cabrera	<b>ID 24: "Optimizing Hydroponic Lettuce Cultivation: Design, Performance Evaluation, and Sustainability in Household Greenhouses"</b> Fernando Lozano, Marcelo Moya and Guillermo Mosquera
15:40 - 16:00	<b>ID 137: "Exploring New Horizons on the Interpretation of PCA using LLM for Data Analysis"</b> Victor Saquicela, Kenneth Samuel Palacio-Baus, Mercy Orellana and Mauricio Espinoza	<b>ID 54: "Computational Study of Nanotechnological Coatings to Minimize Corrosion in Galvanized Steel Elements of the Electrical Distribution Grid"</b> Julio Guerra, Jorge Lechón, Alejandro Palacios, Andrés Martínez, Eliana Ormeño-Mejía and Jhonny Barzola
16:00 - 16:30	<b>Coffe Break</b>	
16:30 - 16:50	<b>ID 13: "Anomaly Detection in Industrial Systems: Classical vs. Deep Learning Approaches with OPC-UA integration"</b> Henry Velesaca Lara, Domenica Carrasco, Angel Sappa, Juan A. Holgado-Terriza and Wilton Agila	<b>ID 74: "Predictive Model of TikTok Virality in the 2023 Ecuador Runoff Election"</b> Kenneth Danilo Cayo Tabango and Lucia Bernarda Rivadeneira Barreiro
16:50 - 17:10	<b>ID 100: "Consolidation of Biomimicry and Swarm-based Evolutional Algorithms with Supervised Learning Neural Network for Function Approximation"</b> Ck Wang	<b>ID 15: "Drone Detection and Antidrone System Using YOLO: An Effective Approach to Airspace"</b> Jaime Astudillo, Roberth Chachalo, Cristhian Iza and Luis Zhinin-Vera

17:10 - 17:30	<b>ID 161: "Detecting Fake News and Fact-Checking in Tweets Using Spanish Language Models: A Case Study with Ecuador Chequea and Ecuador Verifica"</b> Mariuxi Toapanta, Miguel Angel García Cumberas and L. Alfonso Ureña-López	<b>ID 90: "Creating a Botnet in a Virtual Environment: A Study Based on the Mirai Code"</b> Luis Anderson Coronel Rojas, Fabian Ranulfo Cuesta Quintero, Yesenia Areniz and Dewar Rico-Bautista
17:30 - 18:30	<b>Cultural Event "Noche Quiteña"</b>	
	<b>Wednesday, December 04</b>	
08:30 - 09:00	<b>Registration</b>	
09:00 - 10:00	<b>Keynote: Prof. Rafael Parra, Ph.D</b> <b>Aula Magna</b>	
	<b>Session IX: Smart Trend and Applications</b> <b>(Auditorium: Candido Rada)</b>	<b>Session X: Smart Trend and Applications</b> <b>(Auditorium: Oscar Romero)</b>
10:20 - 10:40	<b>ID 96: "Development of a Signal Acquisition and Processing System to Determine the Operating Characteristic Curve of Domestic Refrigerators Axial Fans"</b> Esteban Ordóñez, Nelson Jara, Fran Reinoso and Juan Cevallos	<b>ID 71: "Community-Based Adaptation to Climate Change in Ventanas Subtropical Zone: Validating Climate Projections with In-Situ Data"</b> Mariana Luna Cadena, Kevin Pacheco Proaño and Sheila Serrano Vincenti
10:40 - 11:00	<b>ID 125: "Developing an IoT System with LoRa and a Web Platform for Enhanced Early Detection of Forest Fires"</b> J.D. Armijos, C. Guerrero, Juan Pablo Bermeo and Luis Fernando Guerrero	<b>ID 150: "Improvement of the warehouse storage system of a biotechnology products importing company through the application of Lean Manufacturing."</b> Doris Jácome, William Quitiaquez, Erika Pilataxi and Cristian Leiva
11:00 - 11:30	<b>Coffe Break</b>	
11:30 - 11:50	<b>ID 109: "Enhancing Cellular Line Representation with Transformer-Based Text Embeddings for Precision Drug Repositioning"</b> Ivan Carrera, Jefferson Criollo and Inês Dutra	<b>ID 44: "Design and Implementation of an Augmented Reality System for the EPN Museum"</b> Julio Pérez, Carlos Gallardo, Marcelo Pozo and Erika Cachago
11:50 - 12:10	<b>ID 99: "Annotation method for tweets in Spanish about corruption in Peru"</b> Daniel Contreras Ruiz, Johann Idrogo Diaz, Carlos Canepa Perez and Yudi Guzmán Monteza	<b>ID 25: "Software tool for control and manipulation of a real Puma robot"</b> Hernan Trullo, Oscar Vivas and Juan Villa
12:10 - 12:30	<b>ID 126: "Building a Traffic Database for Vehicle Detection: A YOLO-NAS Based Approach"</b> Miguel Flores, Luis Lapo, Ramiro Torres, Ramon Mollineda and Erik Maila	<b>ID 101: "Digital Twin for a Semiautomatic Carbonated Water Packaging Machine"</b> Martín Puente, Marcelo Moya, Guillermo Mosquera, Faruk Abedrabbo and Kleber Castro
12:30 - 14:00	<b>Luch</b>	
14:00 - 15:00	<b>ELECTRONIC POSTERS SESSIONS</b>	
	<b>Session XI: Smart Systems</b> <b>(Auditorium: Candido Rada)</b>	<b>Session XII: Smart Health</b> <b>(Auditorium: Oscar Romero)</b>
15:00 - 15:20	<b>ID 108: "Developing a LoRaWAN-based Data Acquisition Device Empowered by AI"</b> Menno Faber, Jair Silva, Helder Rocha and Marcelo Segato	<b>ID 55: "Enhancing Rehabilitation with EMG-Driven Hand Gesture Recognition Using SVM, KNN, and MLP"</b> Francis Andaluz, Gabriela Cevallos, Milena Salvador, Paulo Navas, Andrés Tirado-Espín, Fernando Villalba, Carolina Cadena, Diego Almeida and Paulina Vizcaíno-Imacaña
15:20- 15:40	<b>ID 140: "A Low Power Non-Invasive Wrist-Based Approach for Glucose Monitoring"</b> Luz M. Tobar-Subia-Contento, Raúl Vargas, Lenny Alexandra Romero and Sonia H. Contreras-Ortiz	<b>ID 120: "A Prototype for Sedentary Posture Monitoring Using a Chair and Headband Sensor System"</b> Rebeca Daza, Pablo Cevallos and Diana Arce
15:40 - 16:00	<b>ID 155: "Literature Reviews with AI: Leveraging Research Rabbit and BERT-Based Models for Efficient Retrieval and Topic Clustering"</b> Andres Andrade-Cabrera, Carlos Ayala-Tipan, Gabriela Suintaxi and Lorena Recalde	<b>ID 117: "Medical Waste Data Analysis in Ecuador using Sparse HJ-Biplot and Clustering Techniques"</b> Mayra Tualombo, Isidro Amaro and Zenaida Castillo
16:00 - 16:30	<b>Coffee Break</b>	
16:30 - 16:50	<b>ID 47: "Implementation of IoT flowmeters and water leak detection at the ESPE Armed Forces University in test blocks"</b> David Vinicio Carrera-Villacrés, Patricio Xavier Guaján-Pozo, Shyrley Nicole Mora-Paz, Karen Mishell Silva-Quilumbango and Carlos Anibal Vega-Mayorga	<b>ID 64: "Control Design and Validation of Gait Analysis with the Robogait Mobile Robotic Platform"</b> Diego Guffanti, Alberto Brunete, Miguel Hernando Gutierrez, David Álvarez and Nelson Gutiérrez
16:50 - 17:10	<b>ID 94: "Security Vulnerability Testing Architecture in IoT Based on a Honeypot"</b> Darwin Omar Alulema Flores and Mayerly Saenz	<b>ID 22: "Zigbee Mesh Network Architecture for Drones: Integration and Testing Based on the IEEE 802.15.4 Standard"</b> Darwin Omar Alulema Flores and Mayerly Saenz
	<b>Conference Closing: Cultural Event</b>	