

2025 Global Medical Engineering Physics Exchanges/ Pan American Health Care Exchanges (GMEPE/PAHCE 2025)

**Mexicali, Mexico
7-11 April 2025**



**IEEE Catalog Number: CFP2518G-POD
ISBN: 979-8-3315-9697-2**

**Copyright © 2025 by the Institute of Electrical and Electronics Engineers, Inc.
All Rights Reserved**

Copyright and Reprint Permissions: Abstracting is permitted with credit to the source. Libraries are permitted to photocopy beyond the limit of U.S. copyright law for private use of patrons those articles in this volume that carry a code at the bottom of the first page, provided the per-copy fee indicated in the code is paid through Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923.

For other copying, reprint or republication permission, write to IEEE Copyrights Manager, IEEE Service Center, 445 Hoes Lane, Piscataway, NJ 08854. All rights reserved.

****** This is a print representation of what appears in the IEEE Digital Library. Some format issues inherent in the e-media version may also appear in this print version.***

IEEE Catalog Number:	CFP2518G-POD
ISBN (Print-On-Demand):	979-8-3315-9697-2
ISBN (Online):	979-8-3315-9696-5
ISSN:	2327-8161

Additional Copies of This Publication Are Available From:

Curran Associates, Inc
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: (845) 758-0400
Fax: (845) 758-2633
E-mail: curran@proceedings.com
Web: www.proceedings.com

CURRAN ASSOCIATES INC.
proceedings
.com

TABLE OF CONTENTS

Multiview Deep Neural Networks for Tumor Classification in Breast Imaging	1
<i>P. S. Maldonado-Salazar, W. Gómez-Flores</i>	
A Novel Curriculum Sampling Method for Hard Observations Classification in Breast Cancer Ultrasound	7
<i>Pedro Crosara Motta, Natanael Nunes De Moura Junior, Bruno R. S. Silva, Wagner Coelho De Albuquerque Pereira</i>	
Implementation of an Automatic Pointer Based on Eye Movement Tracking.....	12
<i>M. M. Sanchez Sanchez, H. A. Cortes Aguirre, A. S. Sanchez Sanchez</i>	
Analysis of the Electroporated Volume in Skeletal Muscle of a Murine Model for the Transfection Process.....	15
<i>C. A. Pérez Gutiérrez, C. E. Vera Tizatl, J. F. Córdova Manzo, M. I. Gutierrez, C. J. Trujillo Romero, A. Vera Hernández, L. Leija Salas, R. Mondragón Flores</i>	
Analysis of Generative Patterns in Image Generation with Autoencoders and BigGAN: Applications in Osteosarcoma	21
<i>F. Cortes, F. Soriano, N. Lopez, B. Mendez, A. Vera, L. Leija, R. Ortega-Palacios</i>	
Comparative Study of Conventionally Focused and Non-Diffracting Frozen Waves in Diffractive Environments for Biomedical Applications.....	27
<i>A. Rodríguez-Peña, A. Vera, L. Leija, M. I. Gutierrez</i>	
Modeling the Laser Flash Method for Thermal Characterization of Fat Tissue Mimicking Phantom	33
<i>M. Flores-Reyes, A. Vera-Hernández, L. Leija-Salas, M. I. Gutierrez, C. J. Trujillo-Romero</i>	
Image Processing Software to Quantify Cell Migration During Wound Healing Assay in Cancer Research	38
<i>A. Salazar-Mendoza, F. Verduzco-Valdez, M. Díaz-Inzunza, K. L. Ruiz-Castillo, J. C. García- Gallegos, A. López-Izquierdo</i>	
Low-Frequency Electromagnetic Stimulation as an Inhibitor for Cell Viability in Vitro on a MDA- MB-231 Cell Model.	40
<i>F. Verduzco-Valdez, J. Aguilar-Grajales, A. Salazar-Mendoza, M. Díaz-Inzunza, F. A. Solis- Dominguez, A. López-Izquierdo</i>	
Statistical Analysis of Clustering on Breast Cancer Cell Culture Images	42
<i>D. I. Maximiliano, S. M. Andrey, V. V. Fernando, G. V. Juan Pablo, H. M. Aseneth, L. I. Angelica</i>	
Comparison of a High-Precision and a Low-Cost VNA for Breast Cancer Ablation Studies	43
<i>J. E. Basurto Rangel, M. F. J. Cepeda Rubio, G. D. Guerrero López, J. I. Hernández Jáquez, F. Flores García, R. H. Sandoval Rodríguez, A. Vera Hernández, L. Leija Salas</i>	
Application of Simple Linear Phase Recursive Bandpass Filters for the Extraction of Electroencephalogram Waves.....	48
<i>M. E. Bravo-Zanoguera, J. A. Amezcua-Garcia, D. Cuevas-González, R. F. N. Murrieta-Rico</i>	
Evaluating the Discriminative Power of Cardiovascular and PPG-Derived Biomarkers for Blood Pressure Classification: A Machine Learning Approach	54
<i>Diana C. Martínez, Diego F. Villegas, José D. Sarmiento, Julián F. Bayona</i>	

Development of a AD8233-Based EMG Sensor and Double Interrupt Sampling Technique in a Low-Cost Prototype for Biosignal Acquisition	55
<i>Juan C. Delgado-Torres, Daniel Cuevas-González, Juan Pablo García-Vázquez, Marco A. Reyna, Eladio Altamira-Colado, Luis Alfredo Padilla-López, Miguel Bravo-Zanoguera, Miriam Rendon-Rodriguez</i>	
Test Chamber for PM Monitoring Devices with a Python-Based GUI and Control System Using Wireless Connectivity.....	61
<i>Martín Aarón Sánchez-Barajas, Daniel Cuevas-González, Marco A. Reyna, Juan Pablo García-Vázquez, Eladio Altamira-Colado, Oscar E. Barreras, Miriam Rendon-Rodriguez</i>	
GoogleNet-Based Classification System for Knee Osteoarthritis Detection in Radiographic Images	62
<i>M. F. Pintor-Olvera, J. F. Córdova-Manzo, C. A. Pérez-Gutiérrez, A. Vera-Hernández, L. Leija-Salas, W. Gómez-Flores</i>	
Design, Simulation and Development of a Medium-Power Ultrasonic Generator for Bone Consolidation Therapy	68
<i>E. C. Barroso, A. J. Cañas, E. M. Hernández, M. F. Pintor, L. Leija, A. Vera, J. A. V. Pérez, N. V. Sanchez</i>	
Thermal Dose Analysis for High Intensity Focused Ultrasound Applications in Continuous and Pulsed Mode	74
<i>E. N. Taka, M. Sosa, W. C. A. Pereira, G. Cortela</i>	
Modeling the Ultrasound-Induced Heating in Bone and External Layers.....	79
<i>M. F. Pintor, E. C. Barroso, L. Leija, A. Vera, M. I. Gutiérrez, C. J. Trujillo</i>	
Estudio De Factibilidad Para La Aplicación De La Técnica De Ablación Por Microondas a Tejido Ex-Vivo De Mastectomías: A Study to See if Using Microwave Energy to Remove Tissue in Mastectomy Surgeries is a Good Idea.	84
<i>J. A. Neri, M. F. J. Cepeda. Rubio, G. D. G. López, J. I. Hernández Jáquez, F. G. Flores García, R. H. Sandoval Rodríguez, L. Leija, A. Vera Hernández</i>	
An Algorithm for Supervised Segmentation of Infrared Foot Sole Images Based on a Bayesian Classification Model.....	90
<i>J. Garduño-Aguirre, R. Bayareh-Mancilla, W. Gómez-Flores, A. Vera-Hernandez, L. Leija-Salas</i>	
Differential Hemodynamic Responses in Cortex to Horizontal Visual Scanning Measured with fNIRS	95
<i>M. A. Ramirez-Cruz, C. A. Reyes-Garcia, A. S. Sanchez-Sanchez</i>	

Author Index