

# **2018 IEEE 1st Colombian Conference on Applications in Computational Intelligence (ColCACI 2018)**

**Medellin, Colombia  
16 – 18 May 2018**



**IEEE Catalog Number: CFP18O64-POD  
ISBN: 978-1-5386-6741-5**

**Copyright © 2018 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:	CFP18O64-POD
ISBN (Print-On-Demand):	978-1-5386-6741-5
ISBN (Online):	978-1-5386-6740-8

**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](mailto:curran@proceedings.com)  
Web: [www.proceedings.com](http://www.proceedings.com)

CURRAN ASSOCIATES INC.  
**proceedings**  
.com

# TABLE OF CONTENTS

<b>ABOUT THE USAGE OF SYSTEM IDENTIFICATION METHODOLOGIES FOR CLIMATE RISKS ANALYSIS ALONG THE PERUVIAN COAST</b> .....	1
<i>H. Nieto-Chaupis</i>	
<b>CONTINUOUS SURVEILLANCE BY TELE-CONSULTS BASED ON MONTE CARLO ALGORITHMS TO ANTICIPATE AND LESSEN RISK LEVELS DUE TO TYPE-2 DIABETES COMPLICATIONS</b> .....	5
<i>H. Nieto-Chaupis</i>	
<b>ARE TELECONSULTS ENOUGH EFFICIENT TO TACKLE THE PROGRESS OF TYPE-2 DIABETES AND DEPRESS IN ADULT PATIENTS?</b> .....	10
<i>H. Nieto-Chaupis</i>	
<b>APPLYING DATA MINING TECHNIQUES TO PREDICT STUDENT DROPOUT: A CASE STUDY</b> .....	14
<i>B. Perez, C. Castellanos, D. Correal</i>	
<b>SINGLE PIXEL SPECTRAL IMAGE FUSION WITH SIDE INFORMATION FROM A GRAYSCALE SENSOR</b> .....	20
<i>A. Jerez, H. Garcia, H. Arguello</i>	
<b>OPTIMAL SIZING OF ELECTRICAL DISTRIBUTION NETWORKS CONSIDERING SCALABLE DEMAND AND VOLTAGE</b> .....	26
<i>E. Inga, M. Campaña, R. Hincapié</i>	
<b>A SYSTEMATIC LITERATURE REVIEW OF HARDWARE NEURAL NETWORKS</b> .....	32
<i>D. Parra, C. Camargo</i>	
<b>APPLICATION OF TRANSFER LEARNING FOR OBJECT RECOGNITION USING CONVOLUTIONAL NEURAL NETWORKS</b> .....	38
<i>N. D. Salazar, J. A. L. Sotelo, G. A. S. Gomez</i>	
<b>A COMPUTER TOOL FOR CURRENT SELECTIVE HARMONIC ELIMINATION TECHNIQUE APPLIED IN LOW VOLTAGE POWER SYSTEMS</b> .....	44
<i>A. P. B. Riveros, F. E. M. Lopez, O. D. F. Cediel</i>	
<b>MULTI-LEVEL IMAGE SEGMENTATION IN SLIT-LAMP IMAGES: A COMPARISON BETWEEN TWO MACHINE LEARNING TECHNIQUES</b> .....	50
<i>H. I. Morales-Lopez, I. Cruz-Vega, J. M. Ramirez-Cortes, H. Peregrina-Barreto, J. Rangel-Magdaleno</i>	
<b>CORN CLASSIFICATION USING DEEP LEARNING WITH UAV IMAGERY. AN OPERATIONAL PROOF OF CONCEPT</b> .....	56
<i>F. Trujillano, A. Flores, C. Saito, M. Balcazar, D. Racoceanu</i>	
<b>MAPREDUCE AND SPARK-BASED ARCHITECTURE FOR BI-CLASS CLASSIFICATION USING SVM</b> .....	60
<i>M. A. Giraldo, J. F. Duitama, J. D. Arias-Londoño</i>	
<b>LEARNING FROM MULTIVARIATE DISCRETE SEQUENTIAL DATA USING A RESTRICTED BOLTZMANN MACHINE MODEL</b> .....	66
<i>J. Hernandez, A. G. Abad</i>	
<b>IMPLEMENTATION OF A NEURAL CONTROL SYSTEM BASED ON PI CONTROL FOR A NON-LINEAR PROCESS</b> .....	72
<i>D. F. Sendoya-Losada, D. C. Vargas-Duque, I. J. Ávila-Plazas</i>	
<b>COMPARISON OF EVOLUTIONARY ALGORITHMS FOR ESTIMATION OF PARAMETERS OF THE EQUIVALENT CIRCUIT OF AN AC MOTOR</b> .....	78
<i>G. A. Ramos, J. A. Lopez</i>	
<b>ON THE VARIANCE OF A FUZZY NUMBER BASED ON THE YAGER INDEX</b> .....	83
<i>J. C. Figueroa-García, J. J. Soriano-Mendez, M. A. Melgarejo-Rey</i>	
<b>NONLINEAR LOADS DETERMINATION USING HARMONIC INFORMATION IN PHOTOVOLTAIC GENERATION SYSTEMS</b> .....	88
<i>J. D. F. Velandía, A. D. Orjuela-Cañón, H. I. T. Escobar</i>	
<b>Author Index</b>	