

2020 IEEE XXVII International Conference on Electronics, Electrical Engineering and Computing (INTERCON 2020)

**Lima, Peru
3-5 September 2020**



**IEEE Catalog Number: CFP20D62-POD
ISBN: 978-1-7281-9378-6**

**Copyright © 2020 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:	CFP20D62-POD
ISBN (Print-On-Demand):	978-1-7281-9378-6
ISBN (Online):	978-1-7281-9377-9

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

DYNAMIC ANALYSIS ASSOCIATED TO POWER PLANTS AND OVERHEAD LINES FAILURE	1
<i>R. Arias, J. Mejía</i>	
A CUP ANEMOMETER USING 3D ADDITIVE MANUFACTURING.....	5
<i>Jafet Santivañez Gutarra, José Armando Gastelo-Roque, Jean Sulluchuco</i>	
PARAMETRIC IDENTIFICATION OF AN ACTIVE MAGNETIC BEARING SYSTEM USING NARMAX MODEL	9
<i>Jherson A. Miranda, Edgar A. Manzano</i>	
MOBILE ADVERTISING IN PERU: THE IMPACT OF SMS ADVERTISING ON SALES AND CUSTOMER EXPERIENCE	13
<i>Frank Andrade-Chaico, Laberiano Andrade-Arenas</i>	
APPLICATIONS OF DEMAND RESPONSE ON SMART GRIDS	17
<i>Hermom Leal Moreira, Nelson Kagan</i>	
2-DOF PID CONTROL OF THE ANGULAR POSITION OF AN INDUSTRIAL PLANT EMULATOR.....	21
<i>D. Shatwell, F. Salazar, Arturo Rojas-Moreno</i>	
REQUIREMENTS FOR A NEW PERUVIAN ELECTRONIC IDENTITY CARD	25
<i>Erik Papa Quiroz, Alvaro Cuno, Edgar Sarmiento, Ever Cruzado</i>	
REAL-TIME MODEL REFERENCE ADAPTIVE FUZZY CONTROL OF A 3DOF ROBOT ARM.....	29
<i>Hubert Ventura-Hinostrroza, Arturo Rojas-Moreno</i>	
DEEP LEARNING TO PREDICT OUTPATIENT VISITS BY RESPIRATORY ILLNESSES IN A HIGH PM10 ENVIRONMENT	33
<i>Judith Betetta-Gomez, Carlos Medina-Ramos, Irene Tafur-Anzualdo, Flor De Maria Diaz-Diaz</i>	
MIXED REALITY SYSTEM FOR EDUCATION AND INNOVATION IN PREHOSPITAL INTERVENTIONS AT PERUVIAN FIRE DEPARTMENT	37
<i>José Morales-Mere, Juan J. Chessa, Ricardo Palomares, José Cornejo</i>	
USING WEATHER PREDICTIONS IN A GRID FOR EFFICIENT REGIONAL WIND POWER DENSITY FORECASTING	41
<i>Ismael Sánchez, Miguel G. Lobo</i>	
POSITION CONTROL OF A 2DOF ROTARY TORSION PLANT USING A 2DOF FRACTIONAL ORDER PID CONTROLLER.....	45
<i>O. Salazar-Aquino, J. Pampamallco-Jara, A. Rojas-Moreno</i>	
ASYNCHRONOUS BUNDLED-DATA PIPELINE CRYPTOGRAPHIC ARCHITECTURE WITH RDI COUNTERMEASURE	49
<i>Diego A. Silva, Duarte L. Oliveira, Gracieth C. Batista</i>	
CONVERTING SYNCHRONOUS DIGITAL SYSTEMS TO ASYNCHRONOUS SYSTEMS USING LOCAL-CLOCK.....	53
<i>Duarte L. Oliveira, Gabriel C. Duarte, Gracieth C. Batista, Nicolly N. M. Cardoso</i>	

A DESIGN FLOW FOR SYNTHESIS OF QUASI DELAY INSENSITIVE COMBINATIONAL CIRCUITS.....	57
<i>Vitor L. V. Torres, Duarte L. Oliveira, Gracieth C. Batista, Orlando Verducci</i>	
A TOOLS FLOW FOR EXTENDED BURST-MODE STATE MACHINES DESIGN WITH ENHANCED ROBUSTNESS.....	61
<i>Duarte L. Oliveira, Orlando Verducci, Gracieth C. Batista, Diego A. Silva</i>	
DESIGN OF A LASER POINTER FOLLOWER ROBOT.....	65
<i>Facundo García-Cardenas, Nelson Soberón, Cristian Amaya, Victor Murray</i>	
DESIGN OF WEARABLE SOFT ROBOTIC SYSTEM FOR MUSCLE STIMULATION APPLIED IN LOWER LIMBS DURING LUNAR COLONIZATION.....	69
<i>Victor Tiellacuri, Gustavo Jamanca Lino, Aurora B. Diaz, José Cornejo</i>	
PI LQR CONTROL OF MIMO TIME-DELAY PROCESSES SUBJECT TO OUTPUT DISTURBANCES.....	73
<i>Arturo Rojas-Moreno</i>	
PREDICTIVE LQR CONTROL OF MIMO TIME-DELAY PROCESSES POSSESSING OUTPUT DISTURBANCES.....	77
<i>Arturo Rojas-Moreno</i>	
REAL-TIME SIGN LANGUAGE RECOGNITION.....	81
<i>Cristian Amaya, Victor Murray</i>	
DECENTRALIZED CONTROL OF A WATER TANK USING MBPC CONTROL.....	85
<i>S. Ayala-Cabrera, G. Perez-Valenzuela, J. Pampamallco-Jara, A. Rojas-Moreno</i>	
A COMPARISON BETWEEN OPTIMAL LQR CONTROL AND LQR PREDICTIVE CONTROL OF A PLANAR ROBOT OF 2DOF.....	89
<i>A. Ortega-Vidal, F. Salazar-Vasquez, A. Rojas-Moreno</i>	
EMPIRICAL QUANTIFICATION AND UNCERTAINTY ASSESSMENT OF SO ₂ AND PM _{2.5} EMISSION FACTORS OF POWER PLANTS IN CHILE.....	93
<i>Eduardo Toloza, Juan Carlos Muñoz, Nelson Ballester, Enzo Sauma</i>	
USE OF THE PREISACH AND L2P MODELS TOGETHER FOR GREATER CONFIDENCE IN HYSTERESIS CURVES AT DIFFERENT FREQUENCIES.....	97
<i>Moisés Arthur Pereira Borges, Demetrius Barahuna Guimarães Bezerra, Omar Alexander Chura Vilcanqui, Luiz Alberto Luz De Almeida</i>	
IMPROVEMENT OF POWER QUALITY FOR OPERATION OF THE GRID-CONNECTED PHOTOVOLTAIC ENERGY SYSTEM CONSIDERING THE IRRADIANCE UNCERTAINTY.....	101
<i>Julio Fredy Chura Acero, Henry Pizarro Viveros, Norman Jesús Beltrán Castañón, Reynaldo Condori Yucra</i>	
SYSTEM IDENTIFICATION MODELS' FIT USING ERROR HISTOGRAM ANALYSIS AND THE HAMPEL FILTER AS COMPUTATIONAL TOOLS.....	105
<i>Redy Risco, Daniel Pérez, Luis Casaverde</i>	
DETERMINE THE NUMBER OF PATCHES IN A MICROSTRIP ANTENNA ARRAY FOR A STANDARD 802.11N ADAPTER.....	109
<i>Eudes Rigoberto Apaza Estaño, Luis Enrique Baca Wiesse, Christian Augusto Romero Goyzueta</i>	

INTRUSION DETECTION AND PREVENTION SYSTEM FOR PRODUCTION SUPERVISION IN SMALL BUSINESSES BASED ON RASPBERRY PI AND SNORT	113
<i>Jose Emmanuel Cruz De La Cruz, Christian Augusto Romero Goyzueta, Cristian Delgado Cahuana</i>	
A NEW SPACE-VECTOR SELECTOR MODULATION FOR THE MODULAR MULTILEVEL CONVERTER APPLICATIONS.....	117
<i>Juan C. Colque, Ernesto Ruppert, I. Delgado-Hayta, José L. Azcue</i>	
AUTOMATIC RECOGNITION OF PERUVIAN CAR LICENSE PLATES.....	121
<i>Sebastian Escalante, Victor Murray</i>	
DESIGN, IMPLEMENTATION AND ECONOMIC ANALYSIS OF A 2.16 KW NETWORK CONNECTED PHOTOVOLTAIC SYSTEM (SFCR) WITH ANALYZED MICROINVERSOR IN THE GEOGRAPHICAL AND CLIMATOLOGICAL CONDITIONS OF THE CITY OF JULIACA	125
<i>Mary C. Vilca Choque, José Manuel Ramos Cutipa, Reynaldo Condori Yucra, Norman Jesus Beltrán Castañón</i>	
DEVELOPMENT OF A HYBRID SYSTEM FOR AUTOMATIC IDENTIFICATION OF BRUSHED DIRECT CURRENT MOTORS.....	129
<i>Franz Hamann, Gustavo Mesones</i>	
SPEED PERFORMANCE COMPARATIVE OF INDIRECT FIELD ORIENTED CONTROL BASED ON CURRENT MODEL FOR INDUCTION MOTORS IN EDUCATIONAL EQUIPMENT.....	133
<i>Paulo César Valencia-Manrique, Roger Jesus Coaquira-Castillo</i>	
DESIGN OF AN INSTRUMENTED SECURITY SYSTEM AND INTEGRATION TO A DCS PCS 7 MODULES USING MODBUS TCP / IP.....	137
<i>Antonio Francisco Soto-Cervantes, Roger Jesus Coaquira-Castillo</i>	
MILLIMETER-WAVE LINE-OF-SIGHT PROBABILITY MODELING FOR INSIDE METRO CARRIAGES SCENARIOS	141
<i>Carlos Ulloa, Jenny Luque, Mark Clemente-Arenas, Saúl Inca</i>	
LANGUAGE TECHNOLOGY INTO HIGH SCHOOLS FOR REVITALIZATION OF ENDANGERED LANGUAGES	145
<i>Luis Camacho, Rodolfo Zevallos</i>	
MECHATRONICS DEVELOPMENT OF TERRESTRIAL MOBILE ROBOT FOR EXPLORING AND MONITORING ENVIRONMENTAL PARAMETERS AT MINE ANALOGUE SITES USING IOT PLATFORM.....	149
<i>Cesar J. Muñoz Martinez, Robert Castro Salguero, Ricardo Palomares, José Cornejo</i>	
TELEPRESENCE TECHNOLOGICAL MODEL APPLIED TO PRIMARY EDUCATION.....	153
<i>David Yovera Chavez, Gonzalo Villena Romero, Alfredo Barrientos Villalta, Miguel Cuadros Gálvez</i>	
TABLETAP: A COLLABORATIVE WEB APPLICATION FOR LARGE SCREEN SURFACES DEVICES.....	157
<i>Eduardo Palomino, David Molina Espinoza, Alfredo Barrientos Padilla, Miguel Cuadros Galvez</i>	
DESIGN AND EXPERIMENTAL IMPLEMENTATION OF A PID-IMC CONTROLLER FOR A VCRS	161
<i>Laura Carrasco, Manuel Merino, William Ipanaqué</i>	

MISSION CRITICAL COMMUNICATION SYSTEM WITH COGNITIVE RADIO NETWORKS USING SDR.....	165
<i>Cadena Muñoz Ernesto, Pedraza Martínez Luis Fernando, Páez Parra Ingrid Patricia, Chica Pedraza Gustavo Alonso</i>	
DESIGN A PLL CONTROLLER USING A PARTICLE SWARM OPTIMIZATION ALGORITHM.....	169
<i>Lucas Lima Rodrigues, Ana Beatriz Alvarez, Omar A. Chura Vilcanqui, Huilman Sanca Sanca</i>	
FEATURE EXTRACTION WITH VIDEO SUMMARIZATION OF DYNAMIC GESTURES FOR PERUVIAN SIGN LANGUAGE RECOGNITION.....	173
<i>André Neyra-Gutiérrez, Pedro Shiguihara-Juárez</i>	
SMALL SIGNAL STABILITY ANALYSIS OF POWER SYSTEM OF AREQUIPA USING PSAT.....	177
<i>Alex Arturo Guzman Cruz, Alvaro Wilar Roque Canahuire</i>	
DYNAMIC-METHOD OF MEASURING NON-IONIZING RADIATION FOR MOBILE COMMUNICATIONS.....	181
<i>Javier Samaniego, Mariano Chuchon, Rolando Adriano, Saúl Inca</i>	
CONVOLUTIONAL NEURAL NETWORKS FOR THE HASS AVOCADO CLASSIFICATION USING LABVIEW IN AN AGRO-INDUSTRIAL PLANT.....	185
<i>Jose Emmanuel Cruz De La Cruz, Oscar Jhon Vera Ramirez</i>	
PERFORMANCE EVALUATION IN LIMA OF MPPT ALGORITHMS IMPLEMENTED OVER A LOW COST MICROCONTROLLER.....	189
<i>R. Adriano, A. Osorio, M. Quispe, J. E. Luyo</i>	
COMPUTATIONAL THINKING IN SCHOOL EDUCATION IN SOUTH AMERICA: SYSTEMATIC REVIEW OF THE LITERATURE.....	193
<i>Ronald Paucar Curasma, Herminio Paucar Curasma</i>	
IMPACT OF COVID-19 ON THE GHG EMISSIONS OF THE PERUVIAN INTERCONNECTED ELECTRICAL SYSTEM.....	197
<i>Kevin Hilares, Raul Vargas, José Armando Gastelo-Roque</i>	
CHARACTERIZATION OF DC CONVERTERS FOR ENERGY POWER SYSTEMS ON CUBESATS.....	201
<i>Daniel Naveda-Castillo, Luz Adanaque-Infante</i>	
LSTM PERFORMANCE ANALYSIS FOR PREDICTIVE MODELS BASED ON COVID-19 DATASET.....	205
<i>Isac Cruz-Mendoza, Jonathan Quevedo-Pulido, Luz Adanaque-Infante</i>	
DESIGN OF AN ANGLE TRACKING OBSERVER FOR RESOLVER SENSORS USING A TYPE-II SYSTEM AND ROOT LOCUS TECHNIQUE.....	209
<i>Polynne Modesto, Raymundo Cordero, André D'Estefani</i>	
ESTIMATION OF INCIDENT IRRADIANCE ON A PHOTOVOLTAIC PANEL BY THE INTERNAL DYNAMIC RESISTANCES METHOD.....	213
<i>Nelson R. Laura, I. Delgado-Huayta, José L. Azcue, Juan C. Colque</i>	
RADIAL POSITION CONTROL OF A BEARINGLESS MACHINE WITH ACTIVE DISTURBANCE REJECTION CONTROL.....	217
<i>Werbet L. A. Silva, Andres O. Salazar, Ronaldo José N. Cabral Neto, Elmer R. L. Villarreal</i>	

OMEGA-K ALGORITHM IMPLEMENTATION FOR LINEAR FREQUENCY MODULATED-CONTINUOUS WAVE SAR SIGNAL PROCESSING	221
<i>Jhohan Jancco Chara, Facundo Palomino Quispe, Roger Jesus Coaquira Castillo, Mark Clemente-Arenas</i>	
IDENTIFICATION OF INTERNAL FAILURE IN POWER TRANSFORMERS USING FUZZY LOGIC THROUGH THE DISSOLVED GAS ANALYSIS IN MINERAL INSULATING OIL	225
<i>Renzo Luigui Zarsosa Pacori, Josmell Henry Alva Alcántara</i>	
ANALYSIS OF THE IMPLEMENTATION OF BLOCKCHAIN AS A MECHANISM FOR DIGITAL AND TRANSPARENT FOOD TRACEABILITY IN PERUVIAN SOCIAL PROGRAMS	229
<i>Daniel Pérez, Redy Risco, Luis Casaverde</i>	
IMPLEMENTING WLAN-IOT CONTROL SYSTEM FOR BREWING FERMENTATION THROUGH RASPBERRY PI.....	233
<i>Alberth Tamo, Alexander Hilario-Tacuri</i>	
A VIBRATORY CONVEYING SYSTEM FOR AUTOMATIC SORTING OF LIMA BEANS THROUGH IMAGE PROCESSING	237
<i>Hugo Injante, Esteban Gutiérrez, Leonardo Vinces</i>	
GRID CONNECTED OF 12/8 SWITCHED RELUCTANCE GENERATOR THROUGH THE QUASI Z SOURCE INVERTER.....	241
<i>Elmer O. H. Catata, Ivan Delgado Huayta, J. L. Azcue-Puma, Ernesto Ruppert Filho</i>	
DEEP LEARNING MODEL TO IDENTIFY COVID-19 CASES FROM CHEST RADIOGRAPHS.....	245
<i>Matías Cam Arellano, Oscar E. Ramos</i>	
DEVELOPMENT OF A WEARABLE MOTION CAPTURE SYSTEM TO EVALUATE THE KNEE JOINT ANGLE DURING STAIR-CLIMBING IN HEMIPLEGICS.....	249
<i>Luis Fernando Nestares, Rocio Callupe</i>	
SCALPEL REGION DETECTION BASED ON THE LOCATION OF COLOR MARKS AND EDGE DETECTION	253
<i>Juan Carlos Suárez-Quispe, Oscar E. Ramos</i>	
LOW COST SEMI-INDUSTRIAL 3GDL CNC VERTICAL MILLING CENTER DESIGN WITH NON-FERROUS METAL MACHINING CAPABILITY	257
<i>Satoshi Shimabukuro, Piero Díaz, Leonardo Vinces</i>	
DESIGN OF A MULTI-HOLE CYLINDRICAL EXTRUDER, DRIVEN BY A LINEAR ACTUATOR AND USED FOR THE FORMATION OF BAKERY DOUGH.....	261
<i>César Padilla, Aida Vivanco, Leonardo Vinces, Mirko Klusmann</i>	
DESIGN OF A SYSTEM FOR THE EXTERNAL WASHING AND WINDING OF FIRE HOSES COMPOSED OF A POLYESTER AND RUBBER JACKET.....	265
<i>Gustavo Alonso Paredes Farfan, Felix Moises Neira Verastegui, Leonardo Nikolai Vinces Ramos, José Fortunato Oviden Martínez</i>	
ANALYSIS ABOUT THE APPLICATION OF FREQUENCY-DOMAIN MULTIPLEXING IN DATA ACQUISITION FOR VECTOR CONTROL.....	269
<i>Polynne Modesto, Thyago Estrabis, Raymundo Cordero</i>	

SINGLE-TRIAL P300 CLASSIFICATION USING DEEP BELIEF NETWORKS FOR A BCI SYSTEM.....	273
<i>Sergio A. Cortez, Christian Flores, Javier Andreu-Perez</i>	
CONTROL AND MONITORING ONLINE OF A DRYER FOR INDUSTRIAL FISHMEAL PROCESS.....	277
<i>Jayro Paiva, Juan Soto, Jose Manrique, William Ipanaqué</i>	
AN ACOUSTIC MODEM APP AS A REMOTE TEACHING RESOURCE.....	281
<i>Jesus Maldonado, Mario Revollo, Hernan Chambi, Alexander Hilario-Tacuri</i>	
OPTIMIZATION OF A BALANCED ANTIPODAL VIVALDI ANTENNA FOR DUAL POLARIZATION GROUND PENETRATING RADAR.....	285
<i>Marco Antonio Pumallica-Paro, Jorge Arizaca-Cusicuna, Milton Velasquez-Curo, Mark Clemente-Arenas</i>	
SILICON PHOTONICS FOUNDRY-ORIENTED Y-JUNCTION OPTIMIZATION.....	289
<i>Juan M. De La Cruz-Coronado, Roy Prosopio-Galarza, Ruth E. Rubio-Noriega</i>	
DISTANCE TO OBJECT ESTIMATION BASED ON SOFTWARE DEFINED RADIO USRP USING PYTHON.....	293
<i>Diego Armando Mora-Huaman, Facundo Palomino Quispe, Roger Jesus Coaquira-Castillo, Mark Clemente-Arenas</i>	
SERIES-FED PATCH ANTENNA ARRAY AT 28 GHZ FOR 5G APPLICATIONS.....	297
<i>Dennis Noel Arizaca-Cusicuna, Jorge Luis Arizaca-Cusicuna</i>	
PROTOTYPE FOR PERUVIAN SIGN LANGUAGE TRANSLATION BASED ON AN ARTIFICIAL NEURAL NETWORK APPROACH.....	301
<i>José Enrique Mejía Gamarra, Martín Alonso Salazar Cubas, Junior David Sosa Silupú, Carlos Enrique Córdova Chirinos</i>	
COMPARISON OF GB-SAR IMAGING ALGORITHMS FOR A LANDSLIDE MONITORING APPLICATION.....	305
<i>Luis De La Cruz, Marco A. Milla</i>	
EVALUATION OF THE PEAK-SUN HOUR ON A TILTED SURFACE IN THE CITY OF JULIACA.....	309
<i>Ubaldo Yancachajlla Tito, Lelia Quispe-Huaman, Oliver-Amadeo Vilca-Huayta</i>	
EFFECT OF VARIATIONS OF DELAYS AND SENSITIVITIES IN THE PREDICTIVE CONTROL MPC-GPC APPLIED TO THE GRINDING IN MINERAL CONCENTRATING PLANT.....	313
<i>Juan Tisza, David Ortega</i>	

Author Index