2012 9th International Conference on Electrical Engineering, Computing Science and Automatic Control

(CCE 2012)

Mexico City, Mexico
26 – 28 September 2012
Program

Automatic Control (AC)

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Session AC1: Distributed parameter systems
Wednesday September 26, 2012
12:00-13:20
Session Chair: Dr. Isaac Chairez

1.1 12:00-12:20 Delayed-error Equations for Controller Design
Araceli Gárate-Garcia, Susana Vázquez-Vallín and Luis A. Márquez-Martínez

1.2 12:20-12:40 On the Practical Stability for a class of Switched Systems
Carlos Manuel Perez, Alexander Poznyak and Vadim Azhmyakov

1.3 12:40-13:00 Neuro-Observer based in Backstepping Technique for Distributed Parameters Systems
Rita Q. Fuentes, Isaac Chairez and Alexander Poznyak

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Session AC2: Linear systems
Wednesday September 26, 2012
15:00-16:00
Session Chair: Dr. José Fermi Guerrero Castellanos

2.1 15:00-15:20 Self-Triggered Control for the Stabilization of Linear Systems
Sylvain Durand, Jose Fermi Guerrero Castellanos and Rogelio Lozano-Leal

2.2 15:20-15:40 A parametrization of all one parameter stabilizing controllers and a mixed sensitivity problem, for square systems
René Galindo Orozco and Cutberto Daniel Conejo Rosas

2.3 15:40-16:00 Quadratic Stability Methodology by Parameter Dependent State Feedback for LPV Systems
Eduardo Martinez Zambrano and René Galindo Orozco
Program

3  Session AC3: Optimization and optimal control  
Wednesday September 26, 2012  
17:30-18:50  
Session Chair: Dr. Vadim Azhmyakov

3.1 17:30-17:50  Practical Stability of Control Processes Governed by Semi-explicit DAEs  
Raymundo Juárez, Vadim Azhmyakov and Alexander Poznyak

3.2 17:50-18:10  A Robust Dynamic Controller for a Class of Nonlinear Systems with Sample-Data Outputs  
Manuel Mera, Alex Poznyak, Vadim Azhmyakov and Andrey Polyakov

3.3 17:50-18:10  A Robust Dynamic Controller for a Class of Nonlinear Systems with Sample-Data Outputs  
Manuel Mera, Alex Poznyak, Vadim Azhmyakov and Andrey Polyakov

3.4 18:10-18:30  Optimal growth by Dynamic Programming approach for reduced system for the Microalgae Culture.  
Irlandi Gutiérrez Carmona, Jorge Antonio Torres Muñoz and Alma Rosa Domínguez Bocanegra

4  Session AC4: Tracking  
Wednesday September 26, 2012  
12:00-13:20  
Session Chair: Dr. Eduardo Aranda/M.Sc. Jaime González Sierra

4.1 12:00-12:20  Discontinuous H∞-Control of Mechanical Manipulators with Frictional Joints  
Oscar Montano and Yury Orlov

4.2 12:20-12:40  Experimental Comparison Between Discrete- and Continuous-Time Controllers for Multi-Agent Robots Systems  
Eduardo Aranda-Bricula, David Ernesto Hernández-Mendoza and Guillermo Rey Peñaloya Mendoza
Program

4.3 12:40-13:00  Attitude Observer and Trajectory Tracking for a Group of Unicycle-Type Robots  
Jaime González-Sierra, Eduardo Aranda-Briciaire and Hugo Rodríguez-Cortés

5  Session AC5: Autonomous vehicles
Wednesday September 26, 2012
15:00-16:00
Session Chair: Dr. Jorge Torres

5.1 15:00-15:20  Modeling and control of a vertical take-off airplane  
Victor Rosas, Rogelio Lozano, Jorge Torres and Zizilia Zamudio

5.2 15:20-15:40  State Estimation for a Bio-Inspired Hovering Robot Equipped with an Angular Sensor  
Rodrigo Munguía and Augustín Manecy

5.3 15:40-16:00  Depth control using artificial vision with time-delay of an AUV  
Eduardo Campos, Jorge Antonio Torres, Sabine Mondié and Rogelio Lozano

6  Session AC6: Mechanical systems
Wednesday September 26, 2012
17:30-18:50
Session Chair: Dr. Sergio Salazar

6.1 17:30-17:50  Modeling and Control of a Lower Limb Exoskeleton with two degrees of freedom  
Ricardo Lopez, Sergio Salazar, Jorge Torres and Rogelio Lozano

6.2 17:50-18:10  Stability analysis and experiments for a force augmenting device  
Suresh Kumar Gadi, Rogelio Lozano, Rubén Garrido and Antonio Osorio

6.3 18:10-18:30  A Model Matching for the Stabilization of the Two Wheels Inverted Pendulum  
Oscar Octavio Gutiérrez-Frías and Alberto Luviano-Juárez
7 Session AC7-AC8: Electromechanical systems/Neural networks, Fuzzy logic
Thursday September 27, 2012
9:00-11:00

7.1 9:00-9:20 Digital Simulation of the Conventional DTC with Fuzzy Speed Regulator for PM Synchronous Motor Drives
Roberto Morales-Caporal, Rafael Ordoñez-Flores, Edmundo Bonilla-Huerta, Omar Sandre-Hernández and Ricardo Alvarez Salas

7.2 9:20-9:40 Optimization of Hybrid Mechanical Systems
Arturo Gil, Vadim Azhmyakov and Mikhail Basin

7.3 9:40-10:00 Closed-loop identification analysis of a DC servomechanism: A Passive Approach
Roger Miranda Colorado, José Luis Luna Pérez, Augusto Acuña Leal and Liborio Bortoni Anzures

7.4 10:00-10:20 Nonlinear Control for Plants with Partial Information via Takagi-Sugeno models: an Application on the Twin Rotor MIMO System
Temoatzin González, Pedro Rivera and Miguel Bernal

7.5 10:20-10:40 Inverse Optimal Neural Control with Speed Gradient for a Power Electric System with Changes in Loads
Enrique A. Lastire, Alma Y. Alanis and Edgar N. Sanchez

7.6 10:40-11:00 FPGA-Based Space Vector PWM with Artificial Neural Networks
Joycer Osorio, Pedro Ponce and Arturo Molina

8 Session AC9: Failure detection and identification
Thursday September 27, 2012
12:30-13:30
Session Chair: Dr. Ofelia Begovich

8.1 12:30-12:50 Using a Realization Technique for System Identification: Application on a Hydraulic Testbed
Brian Manuel González-Contreras, Isaac Hilario-Contreras, Miguel Angel Carrasco-Aguilar and Leticia Flores-Pulido
8.2 12:50-13:10 Leak Isolation with Temperature Compensation in Pipelines. Alejandro Pizano and Ofelia Begovich


9 Session AC10: Sliding mode control Thursday September 27, 2012 15:00-16:00 Session Chair: Dr. Rubén Garrido

9.1 15:00-15:20 HOSM Block Control of SPIM Guillermo Rubio, Juan D. Sanchez, Jose M. Cañedo and Alexander G. Loukianov

9.2 15:20-15:40 Super-Twisting Sensorless Control of Linear Induction Motors Alexander Loukianov, Jorge Rivera, Alma Alanis and Juan José Raygoza

9.3 15:40-16:00 Super-Twisting Sliding Mode Control of Synchronous Motors Jediel Machín Almeida, Alexander Loukianov and Jose Manuel Cañedo Castañeda

10 Session AC11: Power systems Thursday September 27, 2012 17:30-18:50 Session Chair: Dr. Jorge Dávila

10.1 17:30-17:50 Robust Quasi-Continuous Sliding-Mode Control of a Variable-Speed Wind Turbine Jován O. Mérida, Jorge A. Dávila and Luis T. Aguilar
Program

10.2 17:50-18:10 Discontinuous Output Regulation for a DC-to-AC Boost Converter
Alexander Loukianov, Jorge Rivera, Florentino Chavira and Susana Ortega

10.3 18:10-18:30 Evaluating the Performance of the BTB Converter under Unbalanced Voltage Sags
Ricardo Sierra, Janeth Alcalá, Víctor Cardenas, Javier Perez-Ramirez and Ana Rivera

10.4 18:30-18:50 Linear State Estimation Model Using Phasor Measurement Unit (PMU) Technology
Sandeep Soni, Sudhir Bhil, Dhirendra Mehta and Sushama Wagh

Biomedical engineering (BIO)

11 Session BIO1: Biomedical engineering
Wednesday September 26, 2012
12:00-13:20
Session Chair: Dr. Juan Manue Gutiérrez Salgado

11.1 12:00-12:20 Method for Automatic Detection and Classification of N1 and P2 Auditory Evoked Potentials in EEG recordings
Jennifer Ladd Parada and Carlos Alvarado Serrano

11.2 12:20-12:40 Time and Amplitude Relationships of the Ballistocardiogram in Vertical and Horizontal Direction
Pablo Luna-Lozano and Carlos Alvarado-Serrano

11.3 12:40-13:00 A Simplified Method for Numerically Solving the Impedance Equation in the Plane
Ariana Bucio, Raul Castillo-Perez, Marco Ramirez and Cesar Marco Antonio Robles

11.4 13:00-13:20 Characterization and testing of PZLT ferroelectric ceramics with two Pt implants
Carlos Gonzalez and Ernesto Suaste
12  Session BIO2: Biomedical engineering  
Wednesday September 26, 2012  
15:00-16:00  
Session Chair: Dr. Marco Ramirez T.

12.1  15:00-15:20 Modification of the Germination and the Total Length of Wheat Seedling by an Infrared-Continuous Wave Semiconductor Laser.  
Mauricio Hernández, Alexandre Michtchenko and Olga Budagovskaya

12.2  15:20-15:40 Laser Diagnostics of Fruits In Storage  
Alexandre Michtchenko, Mauricio Hernández and Olga Budagovskaya

12.3  15:40-16:00 Tumor Breast Phantom vs Breast Phantom Microwave Ablation: Thermal Experimentation and Electric Property Measurements  
Rocio Ortega, Lorenzo Leija and Arturo Vera

13  Session BIO3: Biomedical engineering  
Wednesday September 26, 2012  
17:30-18:50  
Session Chair: Dr. Roberto Muñoz Guerrero

13.1  17:30-17:50 Enhancing Ultrasound Images using the Recursive p-step Unbiased FIR Filter  
Luis Javier Morales-Mendoza, René Fabián Vazquez-Bautista, Celia Calderón-Ramón, Efren Morales-Mendoza, Yuriy Shmaliy and Jaime Martínez-Castillo

13.2  17:50-18:10 Pressure Distribution Analysis of Focused Shock Wave by Using Finite Element Method  
Angélica Báez, Pablo Rogelio Hernández, Arturo Vera, Eladio Cardiel and Lorenzo Leija

13.3  18:10-18:30 High-intensity Focused Ultrasound Thermal Mapping by using a Thermocouple embedded in a Tissue-Mimicking Material  
Raquel Martínez, Arturo Vera and Lorenzo Leija
Experimental Determination of the Amplitude Attenuation Coefficient of Ultrasound in Pure Water: a Comparison between Some Pulse Techniques  
Daniel Novelo Galicia, Arturo Vera Hernández and Lorenzo Leija Salas

Computer science and computer engineering (COMP)

Session COMP1-COMP2: Engineering and application
Thursday September 27, 2012 9:00-11:00
Session Chair: Dr. Francisco Rodríguez/Dr. Amilcar Meneses

A Novel Adaptive Filtering for Audio Signals Using Artificial Hydrocarbon Networks  
Hiram Ponce Espinosa, Pedro Ponce Cruz and Arturo Molina Gutiérrez

Communication-aware Scalability Analysis Based on Critical Path  
Yufei Lin, Yuhua Tang, Yun Liu and Xinhai Xu

Application of Tabu Search for Transmission Expansion Planning considering Power Quality Aspects  
Sigridt García-Martínez, Elisa Espinosa-Juárez and J. Jesús Rico-Melgoza

A Vision Interface System to Predict the Visual Output of different Retinal Architectures  
Edgar Yair Bautista López, Laura Cristina García Villalpando, José Antonio Loaiza Brito, Luis Niño de Rivera Y Oyarzábal and Ricardo Israel Calzada Salas

Artificial Neural Networks as Auxiliary Tools in the Diagnosis of Malnutrition Related Diseases  
Antonio Arista-Jalife and H.A. Arista-Viveros

Optimal Detection of Multiplicative Watermarks in Laplacian Channels  
Mario González-Lee, Luis Javier Morales-Mendoza, René Fabián Vazquez-Bautista and Efren Morales-Mendoza
15  Session COMP3: Programming and web services  
Thursday September 27, 2012  
12:30-13:30  
Session Chair: Dr. Oliver Schütze  

15.1  12:30-12:50  UML Model of a standard API for cloud computing application development  
Miguel Felipe Perez Escalera and Miguel Angel León Chávez  

15.2  12:50-13:10  A Game Theoretic Approach for Modeling Optimal Data Sharing on Online Social Networks  
Charles Kamhoua, Kevin Kwiat and Joon Park  

15.3  13:10-13:30  Building Topic Maps from Relational Databases  
Adan Jose-Garcia, Ivan Lopez-Arevalo and Victor Sosa-Sosa  

16  Session COMP4: Optimization and evolutionary computing  
Thursday September 27, 2012  
15:00-16:00  
Session Chair: Dr. Luis Gerardo de la Fraga  

16.1  15:00-15:20  Towards Type-Safe and Context-based Behavior Adaptation  
Changpeng Zhu, Yinliang Zhao and Bo Han  

16.2  15:20-15:40  Grasp Quality for the Object Transportation by Communities of Mobile Robots  
Ezra Federico Parra-González and José Gabriel Ramírez-Torres  

16.3  15:40-16:00  Improvement of Voltage Sags Indices by Applying a Reconfiguration Technique Based on Genetic Algorithms  
Elisa Espinosa and Jorge Lucio  

17  Session COMP5: Mathematical Methods  
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Session Chair: Dr. Guillermo Morales  

17.1  17:30-17:50  On the Design of Special Hash Functions for Multiple Hash Tables  
Eleazar Jimenez Serrano
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<th>Batch source-code plagiarism detection using an algorithm for the bounded longest common subsequence problem</th>
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<td>Dynamic Web Services Selection Using a Hidden Markov Model</td>
<td>Daniel G. Cantón Puerto, Victor Uc Cetina and Francisco Moo Mena</td>
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Solid-state materials, electron devices and integrated circuits (SSM)

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Ehecatl Joel Chavez-Martinez, Moises Chavez-Martinez and Marco Antonio Gurrola-Navarro

18.6 10:40-11:00  4-Bit Arithmetic Logic Unit (ALU) based on Neuron MOS Transistors
Eleazar Cortes, Mario Reyes, Luis Flores and Alejandro

19  Session SSM3-Semiconductor Device Modeling
Thursday September 27, 2012
12:30-13:30
Session Chair: Dr. Gabriel Romero

19.1 12:30-12:50  Transport of heat and electricity in p-n semiconductor structures
Yuri G. Gurevich and Igor Lashkevych

19.2 12:50-13:10  Simple Mathematical Model for Solar Cell Development Forecasting
Gaspar Casados-Cruz and Arturo Morales-Acevedo

19.3 13:10-13:30  An Approach: FPGA based Dynamically Reconfigurable Architecture to enable several scheme controls for Power Converters
Eber Espino, Domingo Torres and Serge Weber

20  Session SSM4-Applied Semiconductor Technology
Thursday September 27, 2012
15:00-16:00
Session Chair: Dr. Felipe Gómez

20.1 15:00-15:20  Micropulsed system for studying thermal properties of metallic nano-films at room conditions
J. M. Lugo, V. Rejon and A. I. Oliva

20.2 15:20-15:40  Power-Quality Model Based on IGBT Dynamic-Conduction for Non-Polluting Lighting Applications
Roberto Baca, Jose Eduardo Huerta, Jose Alberto Andraca and Ramon Peña
20.3 15:40-16:00  Automation of a crystal growth system by the liquid phase epitaxy technique  403
Francisco De Anda and Francisco Sánchez

21  Session SSM5-Synthesis and Characterization of Semiconductor Materials
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Heberto Gómez, Jose L. Gonzalez, Gonzalo A. Torees, M. De La L. Olvera and Arturo Maldonado

21.3 18:10-18:30  Characterization and Fabrication of SiOx Nano-metric Films, obtained by Reactive Sputtering  419
Jesus Alarcón Salazar, Mariano Aceves Mirajes, Sergio Roman López and Ciro Falcony

22  Session SSM6-Synthesis and Characterization of Semiconductor Materials
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9:00-10:00
Session Chair: Dr. Mauricio Ortega

22.1 9:00-9:20  Effect of Doping Concentration and Substrate Temperature on the Physical Properties of Indium-doped Zinc Oxide Thin Films  424
Rajesh Roshan Biswal, Arturo Maldonado and Maria De La Luz Olvera
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<td>Veronica Rivera-Silva, Alonso Millan-Mejia and Ramon Gutierrez-Castrejon</td>
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24.3 9:40-10:00  A New AUV Configuration With Four Tilting Thrusters: Navigation and Hover Tasks.  
Ivan Torres, Jorge Torres and Rogelio Lozano

25  Session MEC2-Electromechanical Systems  
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12:30-13:50  
Session Chair: Dr. Daniel Melchor

25.1 12:30-12:50  Metronome Synchronization using Feedback Control  
Israel Lugo Cardenas, Miguel Luis Ramirez Barrios, Guadalupe Maldonado Montiel, Alberto Soria Lopez and Juan Carlos Martínez García

25.2 12:50-13:10  Experimental Comparison of Control Techniques for a Permanent Magnet Synchronous Motor  
Christian Noe Huerta-Saucedo, Ricardo Alvarez-Salas, John Alexander Cortes- Romero, Victor Cardenas, Roberto Morales Caporal and Felipe Pazos

Ricardo Alvarez Salas, Miguel Angel Esparza Gurrola, Homero Miranda Vidales, Eduardo Cabal Yepez, Arturo Garcia Perez, Rene De Jesus Romero Troncoso and Roque Osornio Rios

25.4 13:30-13:50  2-D High Precision Laser Sensor for Detecting Small Defects in PCBs  
Daniel Lopez-Escogido and Adriano De Luca
Program

Interactive Design and Manufacturing (IDM)

26  IDM-Interactive Design and Manufacturing
Friday September 28, 2012
12:30-13:50
Session Chair: Dr. Amilcar Meneses

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26.4  13:30-13:50  Comparison of Satellite Antenna Feeders for Fixed Applications  512
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