

2016 International Automatic Control Conference (CACCS 2016)

**Taichung, Taiwan
9 – 11 November 2016**



**IEEE Catalog Number: CFP1623V-POD
ISBN: 978-1-5090-4109-1**

**Copyright © 2016 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:	CFP1623V-POD
ISBN (Print-On-Demand):	978-1-5090-4109-1
ISBN (Online):	978-1-5090-4108-4

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

DESIGN FOR MICROCONTROLLER-BASED PHOTOVOLTAIC MONITORING SYSTEM USING MATLAB/SIMULINK	1
<i>Chih-Han Huang ; Yu-Hui Lian ; Huan-Liang Tsai</i>	
REAL-TIME AND LOW-MEMORY MULTI-FACE DETECTION SYSTEM DESIGN BASED ON NAIVE BAYES CLASSIFIER USING FPGA	7
<i>Yon-Ping Chen ; Chong-Hsien Liu ; Kuan-Yu Chou ; Shun-Yi Wang</i>	
LOW-COST FACE RECOGNITION SYSTEM BASED ON EXTENDED LOCAL BINARY PATTERN	13
<i>Yong-Ping Chen ; Qi-Hui Chen ; Kuan-Yu Chou ; Ren-Hau Wu</i>	
COMPARISON OF ODOMETRY TECHNIQUES FOR VEHICLE NAVIGATION	19
<i>Shang-Lin Yu ; Da-Wun Tsou ; Jyh-Ching Juang</i>	
ROLL ANGLE CONTROL USING OPPOSITE SIDE ROTOR HUB MOMENT FOR HOVERING TILT ROTOR AIRCRAFT ON ONE SIDE ROTOR LIFT VARIATION	25
<i>Yasuhiro Osa ; Shigeru Uchikado ; Kanya Tanaka</i>	
THE ANALYSIS OF PERMISSIBLE QUALITY INDICES OF THE SYSTEM WITH AFFINE UNCERTAINTY OF CHARACTERISTIC POLYNOMIAL COEFFICIENTS	30
<i>S. A. Gayvoronskiy ; T. Ezangina ; I. Khozhaev</i>	
CONTROLLER DESIGN METHOD ACHIEVING MAXIMIZATION OF CONTROL BANDWIDTH BY USING NYQUIST DIAGRAM	35
<i>Kazuki Nakamura ; Kazuhiro Yubai ; Daisuke Yashiro ; Satoshi Komada</i>	
A DIRECT TUNING OF DISTURBANCE OBSERVER FROM EXPERIMENTAL DATA EVALUATING NOISE REJECTION	41
<i>Naoya Iwamoto ; Kazuhiro Yubai ; Daisuke Yashiro ; Satoshi Komada</i>	
MULTIVARIABLE CONTROLLER TUNING BASED ON SENSITIVITY SHAPING USING INPUT/OUTPUT DATA	47
<i>Keita Takewaka ; Kazuhiro Yubai ; Daisuke Yashiro ; Satoshi Komada</i>	
MODELLING HUMAN BEHAVIOUR IN SMART HOME ENERGY MANAGEMENT SYSTEMS VIA MACHINE LEARNING TECHNIQUES	53
<i>Devanshi Gariba ; Bhautik Pipaliya</i>	
AN ECO-CRUIISING CONTROL SYSTEMS USING NONLINEAR PREDICTIVE CONTROL APPROACH	59
<i>Yu-Chen Lin ; Hsiang-Chieh Hsu ; I-Chun Kuo</i>	
FLIGHT CONTROL OF A TILT-ROTOR QUADCOPTER VIA SLIDING MODE	65
<i>Chih-Chen Yih</i>	
VISION-BASED ROBOTIC SYSTEM FOR POLYHEDRAL OBJECT GRASPING USING KINECT SENSOR	71
<i>Pablo Gonzalez ; Ming-Yang Cheng ; Wei-Liang Kuo</i>	
AN IMPROVED INVERSE KINEMATICS SOLUTION OF 6R-DOF ROBOT MANIPULATORS WITH EUCLIDEAN WRIST USING DUAL QUATERNIONS	77
<i>Leoro Josuet ; Betancourt Carlos ; Lin Hsien-I ; Hsiao Te-Sheng ; Wang Chun-Sheng</i>	
ANALYSIS AND COMPENSATION OF COGGING EFFECT IN PERMANENT MAGNET SYNCHRONOUS MOTORS	83
<i>Rui-Wen Chen ; Yusie Rizal ; Ming-Tzu Ho</i>	
ANALYSIS OF ELECTROENCEPHALOGRAPHY ALTERATION DURING SUSTAINED CYCLING EXERCISE USING POWER SPECTRUM AND FRACTAL DIMENSION	89
<i>Szu-Yu Lin ; Chii-Wen Jao ; Po-Shan Wang ; Yu-Te Wu</i>	
AN ANC SYSTEM WITH DUAL FEEDBACK CONTROL	95
<i>Keng-Wei Liang ; Jwu-Sheng Hu</i>	
PRECISION SINUSOIDAL TRACKING FOR GALVANOMETER SCANNER WITH SMITH PREDICTOR-BASED ADAPTIVE SLIDING MODE CONTROL	100
<i>Wei-Chih Liu ; Da-Wei Liu ; Jim-Wei Wu ; Kuang-Yao Chang ; Meng-Hao Chou ; Li-Chen Fu</i>	
ENGINE CONTROLLER SYSTEM OF HYBRID POWERED MULTI-ROTOR SYSTEM	106
<i>Chin E. Lin ; Kai-Ti Jhuang ; Thanakorn Supsukbaworn</i>	
SYNCHRONIZATION OF NOVEL FUZZY-MODEL-BASED SYSTEMS	112
<i>Shih-Yu Li ; Shun-Hung Tsai ; Chin-Sheng Chen</i>	

DESIGN OF STATE-FEEDBACK QUADRATIC REGULATOR FOR POLYNOMIAL SYSTEMS USING SUM-OF-SQUARES APPROACH	116
<i>Tanagorn Jennawasin ; David Banjerdpongchai</i>	
DESIGN OF SUPERVISORY CASCADE MODEL PREDICTIVE CONTROL FOR INDUSTRIAL BOILERS	122
<i>Pongsorn Keadtipod ; David Banjerdpongchai</i>	
DATA-DRIVEN TUNING OF STATE FEEDBACK GAINS WITH STABILITY CONSTRAINT USING EXPERIMENTAL DATA	126
<i>Shogo Aoki ; Kazuhiro Yubai ; Daisuke Yashiro ; Satoshi Komada</i>	
DESIGN OF LINEAR MODEL PREDICTIVE CONTROL FOR LEVEL CONTROL PROCESS WITH OUTPUT FEEDBACK FROM WIRELESS TRANSMITTER	132
<i>Podcharapol Suwannik ; Tanagorn Jennawasin ; David Banjerdpongchai</i>	
AUTOMATIC FOLLOWING IN A SHEET METAL BENDING PROCESS	137
<i>Hsien-I Lin ; Diego Hidalgo Carvajal</i>	
A NOVEL LOCALIZATION APPROACH TOWARDS ANCHOR TO NODE IN WIRELESS SENSOR NETWORKS	143
<i>Meng Joo Er ; Shi Zhang ; Baihai Zhang ; Chiang-Ju Chien ; Feifan Wang</i>	
PASSIVE MANUEVERING TARGET TRACKING VIA HYBRID COORDINATES FEDERATED FILTERING FUSION WITH INFORMATION FEEDBACK	149
<i>Li-Wei Fong ; Zheng-Kai Chen</i>	
ORBIT TRANSFER FROM EARTH TO MARS USING MODIFIED LAMBERT ALGORITHM	155
<i>Chieh-Min Liu ; Jyh-Ching Juang</i>	
AN EMBEDDED NON-CONTACT BODY TEMPERATURE MEASUREMENT SYSTEM WITH AUTOMATIC FACE TRACKING AND NEURAL NETWORK REGRESSION	161
<i>Po-Wei Huang ; Tzu-Hsuan Chang ; Meng-Ju Lee ; Tzu-Min Lin ; Meng-Liang Chung ; Bing-Fei Wu</i>	
A STUDY IN HUMAN-MACHINE INTERACTION THROUGH AGENT SIMULATION: AN APPLICATION IN PEDESTRIAN CROSSING	167
<i>Chin-Chung Wang ; Alan Liu ; Power Wu ; Po-Hsuan Lu</i>	
ROBUST FINITE-TIME OBSERVATION SCHEME DESIGN FOR UNCERTAIN SYSTEMS	173
<i>Cheng-Fa Cheng ; Tse-Han Chen</i>	
ROBUST M-ESTIMATION FILTER FOR MEMS GYRO ARRAY PROCESSING	179
<i>Kuan-Ying Huang ; Jyh-Ching Juang ; Tom Lin ; Ming-Yu Hsieh</i>	
M-PAM RECEIVER WITH SUCCESSIVE APPROXIMATION REGISTER ANALOG-TO-DIGITAL CONVERTER ON WIRELESS ROBOTIC APPLICATIONS	185
<i>Wen-Cheng Lai</i>	
INTEGRATION OF FRACTIONAL-N FREQUENCY SYNTHESIZER AND ANALOG-TO-DIGITAL CONVERTER FOR WIRELESS CONTROL AND MEDICAL ROBOT	190
<i>Wen-Cheng Lai</i>	
A LOCALIZATION METHOD USING THE BEE COLONY ALGORITHM FOR MOBILE WIRELESS SENSOR NETWORKS	194
<i>Chwan-Lu Tseng ; Che-Shen Cheng ; Chih-Wei Chen ; Shun-Yuan Wang ; Ren-Jie Wen</i>	
HYBRID EEG-NIRS BASED ACTIVE COMMAND GENERATION FOR QUADCOPTER MOVEMENT CONTROL	200
<i>M. Jawad Khan ; Amad Zafar ; Keum-Shik Hong</i>	
DESIGN OF A FUZZY SLIDING-MODE CONTROLLER FOR INDUCTION MOTOR VECTOR CONTROL SYSTEMS	206
<i>Shun-Yuan Wang ; Chuan-Min Lin ; Chwan-Lu Tseng ; Jen-Hsiang Chou ; Bo-Lun Syu</i>	
QUASI-SINUSOIDAL VOLTAGE SOURCE DRIVER DESIGN FOR BRUSHLESS DC MOTOR WITH DIGITAL HALL SENSOR FEEDBACK	212
<i>Chiu-Keng Lai ; Jing-Yao Huang</i>	
THE MODELING AND SIMULATION FOR CURRENT REGULATION OF PMSM DRIVE SYSTEM USING VERILOG HDL AND VARIABLE STRUCTURE CONTROL	218
<i>Chiu-Keng Lai ; Chia-Che Tsai</i>	
AN AUTOMATIC SPEECH RECOGNITION SYSTEM ON DSP BOARD	224
<i>Guo-Shing Huang ; Zhi-Hao Tian</i>	
ROBUST CONTROL OF EULER-LAGRANGE MECHANICAL SYSTEMS WITH DECENTRALIZED ADAPTIVE SCHEME	227
<i>Cheng-Fa Cheng ; Tse-Han Chen</i>	
AN OPTICAL APPROACH TO COUNTING REELED COMPONENTS	232
<i>Chun-Lin Tseng ; Hao-Yu Lu ; Shun-Pin Hsu</i>	

INTELLIGENT SHOPPING ASSISTANT SYSTEM	236
<i>Bing-Fei Wu ; Shih-Jhe Yao ; Li-Wei Hou ; Po-Ju Chang ; Wan Ju Tseng ; Ching-Wei Huang ; Yung-Shin Chen ; Po-Yu Yang</i>	
EFFECTS OF PULSE TRANSIT TIME AND PHYSIOLOGICAL DIFFERENCES ON WEARABLE DEVICE BASED BLOOD PRESSURE ESTIMATION.....	242
<i>Chun-Chieh Hsiao ; Hui-Chia Kuo ; Ren-Guey Lee ; Robert Lin</i>	
LOAD SHARING ANALYSIS OF IDENTICAL WOUND ROTOR INDUCTION MOTORS DRIVING THE SAME LOAD	247
<i>Abdulhamit Kurt ; Ahmet Kubilay Atalay ; Derya Ahmet Kocabas</i>	
DETECTION METHOD OF MEAT CONTAINING EXCESSIVE MOISTURE BASED ON HYPER SPECTRAL IMAGING AND SVM MULTI-INFORMATION FUSION	252
<i>Pei Y. Guo ; Hong B. Xiao ; Su X. Xing ; Mei Sun ; Man Bao</i>	
A UNIFIED APPROACH FOR REDUCED ORDER MODELING OF FRACTIONAL ORDER SYSTEM IN DELTA DOMAIN.....	257
<i>Prasanta Sarkar ; Rakesh Roshon Shekh ; Asif Iqbal</i>	
Author Index	