

2018 UKACC 12th International Conference on Control (CONTROL 2018)

**Sheffield, United Kingdom
5-7 September 2018**



**IEEE Catalog Number: CFP1870S-POD
ISBN: 978-1-5090-6411-3**

**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:	CFP1870S-POD
ISBN (Print-On-Demand):	978-1-5090-6411-3
ISBN (Online):	978-1-5386-2864-5

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

BOUNDED CONTROL VIA GEOMETRICALLY SHAPING LYAPUNOV FUNCTION DERIVATIVES	1
<i>Catalin Stefan Teodorescu</i>	
SIMPLE GLOBALLY STABILISING ANTI-WINDUP DESIGNS FOR SYSTEMS WITH RATE-LIMITS.....	7
<i>Jorge Sofrony ; Matthew C. Turner ; Richard T. O'Brien</i>	
DECENTRALIZED ROBUST MODEL PREDICTIVE CONTROL FOR MULTI-INPUT LINEAR SYSTEMS	13
<i>Saeed Adelipour ; Mohammad Haeri ; Gabriele Pannocchia</i>	
ADAPTIVE ROBUST MPC: COMBINING ROBUSTNESS WITH ONLINE PERFORMANCE ENHANCEMENT	19
<i>Xiaonan Lu ; Mark Cannon</i>	
A FORMAL SENSITIVITY ANALYSIS FOR LAGUERRE BASED PREDICTIVE FUNCTIONAL CONTROL	20
<i>Muhammad Abdullah ; John Anthony Rossiter</i>	
ALTERNATIVE METHOD FOR PREDICTIVE FUNCTIONAL CONTROL TO HANDLE AN INTEGRATING PROCESS	26
<i>Muhammad Abdullah ; John Anthony Rossiter</i>	
WIND TURBINE LOAD MITIGATION USING MPC WITH GAUSSIAN WIND SPEED PREDICTION.....	32
<i>Yanhua Liu ; Ron J. Patton ; Shuo Shi</i>	
THREE-PHASE GRID-CONNECTED INVERTERS EQUIPPED WITH NONLINEAR CURRENT-LIMITING CONTROL	38
<i>Seyfullah Dedeoglu ; George C. Konstantopoulos</i>	
DISTRIBUTED OPTIMISATION FOR ENERGY MANAGEMENT IN BUILDING NETWORKS	44
<i>Alec Edwards ; Jan-Peter Calliess ; Kostas Margellos</i>	
CONTROL OF PARALLEL INVERTERS FOR HIGH POWER QUALITY AND SHARING ACCURACY IN SINGLE-PHASE AC MICROGRIDS	50
<i>Seno D. Panjaitan ; Rudi Kurnianto ; Bomo W. Sanjaya ; Matthew C. Turner</i>	
MODEL-BASED DESIGN OF PHEV ADAPTIVE CONTROL	56
<i>Garcia Guillermo ; Gao Bo ; Kim Bill Insup ; Wellers Matthias ; Jokela Tommi</i>	
HIERARCHICAL SELF-COMMISSIONING CONTROL OF GRID-SUPPORTING BOOST CONVERTERS WITH NONLINEAR LOADS.....	62
<i>Daniel O'Keeffe ; Stefano Rivero ; Laura Albiol-Tendillo ; Gordon Lightbody</i>	
A TRACKING BACKSTEPPING SLIDING-MODE CONTROL FOR SPACECRAFT RENDEZVOUS WITH A PASSIVE TARGET	69
<i>Jazmin Zenteno-Torres ; Jérôme Cieslak ; David Henry ; Jorge Dávila</i>	
BOX PARTICLE CONTROL FOR AEROSPACE VEHICLES GUIDANCE UNDER FAILURE PROBABILITY CONSTRAINTS.....	75
<i>Nicolas Merlinge ; Nadjim Horri ; Karim Dahia ; Helene Piet-Lahanier ; James Brusey</i>	
MULTI-OBJECTIVE OPTIMAL LONGITUDINAL FLIGHT CONTROL SYSTEM DESIGN FOR LARGE FLEXIBLE TRANSPORT AIRCRAFT.....	81
<i>Sipeng Song ; James F. Whidborne ; Mudassir Lone ; Arturo Molina-Cristobal</i>	
DYNAMIC ANALYSIS OF A TWIN ROTOR MIMO SYSTEM AND CONTROL DESIGN.....	87
<i>Emmanuel Prempain ; Andrea Lecchini-Visintini</i>	
EFFICIENT IMPLEMENTATION OF A HELICOPTER HINGLESS ROTOR MODEL WITH ACTIVE TRAILING EDGE FLAPS FOR CONTROL DESIGN	93
<i>Jahaz Alotaibi ; Rafael M. Morales</i>	
INFORMATION TRANSMISSION BOUNDS IN MOBILE COMMUNICATION NETWORKS	99
<i>Omar J. Faqir ; Deniz Gündüz ; Eric C. Kerrigan</i>	
ENERGY-OPTIMAL CONTROL IN MOBILE AERIAL RELAY-ASSISTED NETWORKS	100
<i>Omar J. Faqir ; Deniz Gündüz ; Eric C. Kerrigan</i>	
THE LIMITS OF LORAWAN IN EVENT-TRIGGERED WIRELESS NETWORKED CONTROL SYSTEMS	101
<i>Ivana Tomic ; Laksh Bhatia ; Michael J. Breza ; Julie A. Mccann</i>	

BAYESIAN ESTIMATION OF A PERIODICALLY-RELEASING BIOCHEMICAL SOURCE USING SENSOR NETWORKS	107
<i>Liang Hu ; Jinya Su ; Michael Hutchinson ; Cunjia Liu ; Wen-Hua Chen</i>	
OPTIMAL SENSOR PLACEMENT FOR LARGE SCALE SYSTEMS USING BOOSTED CLUSTERING.....	113
<i>Satheesh K. Perepu</i>	
EXTREMUM SEEKING CONTROL FOR TRUCK DRAG REDUCTION.....	114
<i>Georgios Papageorgiou ; Jason Barder ; James F. Whidborne ; Kevin P. Garry</i>	
DYNAMIC MODELLING OF OVERHEAD POWER LINES FOR ELECTRIC TRAINS	120
<i>John Martin</i>	
DEVELOPMENT OF CONTROLLER FOR REPOINT LIGHT RAILWAY TRACK SWITCH	126
<i>Saikat Dutra ; Osama Olaby ; Tim Harrison ; Precious Kaijuka ; Maria Sarniento-Carnevali ; Samuel D Bemment ; Christopher P Ward ; Roger Dixon</i>	
MECHANICAL HYBRID CONTROL FOR HEAVY-GOODS VEHICLE	127
<i>Fatin Gunes ; Yixin Yang ; Bill Kim ; Matthias Wellers</i>	
EXTERNALLY POSITIVE, PASSIVE AND NEGATIVE IMAGINARY SYSTEMS.....	133
<i>Ross Drummond ; Stephen R. Duncan</i>	
AN EFFECTIVE METHOD FOR EVALUATION OF THE NONLINEAR OUTPUT FREQUENCY RESPONSE FUNCTIONS FROM SYSTEM INPUT-OUTPUT DATA	134
<i>S. R. A. S. Gunawardena ; Z. Q. Lang</i>	
AN ENHANCED ALGORITHM FOR FREQUENCY ESTIMATION IN POWER SYSTEMS	140
<i>Xiaoqing Chen ; Manus Henry ; Stephen R. Duncan</i>	
LINEAR SYSTEM IDENTIFICATION OF LONGITUDINAL VEHICLE DYNAMICS VERSUS NONLINEAR PHYSICAL MODELLING	146
<i>Sebastian James ; Sean R. Anderson</i>	
AN OPEN-SOURCE SYSTEM IDENTIFICATION PACKAGE FOR MULTIVARIABLE PROCESSES	152
<i>Giuseppe Armenise ; Marco Vaccari ; Riccardo Bacci Di Capaci ; Gabriele Pannocchia</i>	
ACTIVITY RECOGNITION FROM BINARY DATA	158
<i>R. Auber ; M. Pouliquen ; E. Pigeon ; P. A. Chapon ; S. Moussay</i>	
HARDWARE PLATFORM DESIGN OF SMALL ENERGY STORAGE SYSTEM USING SECOND LIFE BATTERIES	163
<i>Cheng Zhang ; James Marco ; Tung Fai Yu</i>	
DISTRIBUTED CONTROL OF ENERGY-STORAGE SYSTEMS FOR VOLTAGE REGULATION IN DISTRIBUTION NETWORK WITH HIGH PV PENETRATION	169
<i>Bo Li ; Minyou Chen ; Tingli Cheng ; Ya Li ; Muhammad Arshad Shehzad Hassan ; Ruilin Xu ; Tao Chen</i>	
NON-LINEAR MODEL PREDICTIVE CONTROL FOR PREVENTING PREMATURE AGING IN BATTERY ENERGY STORAGE SYSTEM	174
<i>Charalampos Galatsopoulos ; Simira Papadopoulou ; Chrysovalantou Ziogou ; Dimitris Trigkas ; Christos Yfoulis ; Spyridon Voutetakis</i>	
NONLINEAR DESIGN AND OPTIMISATION OF A VIBRATION ENERGY HARVESTER	180
<i>Uchenna Diala ; Rajintha Gunawardena ; Yunpeng Zhu ; Zi-qiang Lang</i>	
PARAMETERISATION OF THE SINGLE PARTICLE MODEL FOR LITHIUM-ION CELLS.....	186
<i>David A. Howey ; Adrien M. Bizeray ; Ji-Ho Kim ; Stephen R. Duncan</i>	
OPTIMAL DISPATCH OF PUMPED STORAGE HYDRO CASCADE UNDER UNCERTAINTY.....	187
<i>Fatemeh Najibi ; Eduardo Alonso ; Dimitra Apostolopoulou</i>	
OBSERVER-BASED SPEED CONTROLLER FOR THE SUPPRESSION OF ROTATIONAL HARMONIC OSCILLATIONS	193
<i>Peter Kotzyba ; Christian Bohn</i>	
DYNAMIC SURFACE CONTROL FOR THE REDUCTION OF TORSIONAL VIBRATIONS IN A SCALED EXPERIMENTAL DRILLSTRING SETUP	199
<i>Farooq Kifayat Ullah ; Christian Bohn</i>	
MULTI-OBJECTIVE GENERALIZED H_2 CONTROL FOR OPTIMAL PROTECTION FROM VIBRATION	205
<i>Dmitry V. Balandin ; Mark M. Kogan</i>	
AEROELASTIC LOAD CONTROL THROUGH THE USE OF A MECHANICALLY DRIVEN FLAP.....	211
<i>Xing Wei ; Xiaowei Zhao ; Bing Feng Ng</i>	
ROBUST ANALYSIS OF TONAL ACTIVE CONTROL SYSTEMS WITH CONTROL SCALING AND ESTIMATION UNCERTAINTY	217
<i>Hao Yang ; Rafael M. Morales</i>	

STABILIZATION OF CONTINUOUS-TIME SWITCHED LINEAR SYSTEMS UNDER ARBITRARY SWITCHING VIA REDUCED-ORDER SWITCHED OBSERVERS	223
<i>Naohisa Otsuka ; Daiki Kakehi</i>	
NONLINEAR OBSERVER-BASED AIR-FUEL RATIO CONTROL FOR PORT FUEL INJECTED WANKEL ENGINES	224
<i>Anthony Siming Chen ; Guido Herrmann ; Jing Na ; Matthew Turner ; Giovanni Vorraro ; Chris Brace</i>	
AN INDUSTRIAL RISK-BASED INDICATOR FOR DYNAMIC SAMPLING IN SEMICONDUCTOR MANUFACTURING	230
<i>Taki Eddine Korabi ; Guillaume Graton ; El Mostafa El Adel ; Mustapha Ouladsine ; Jacques Pinaton</i>	
IOT BASED ENERGY CONSUMPTION MONITORING PLATFORM FOR INDUSTRIAL PROCESSES	236
<i>Shaoiun Gan ; Kang Li ; Yanxia Wang ; Che Cameron</i>	
FAULT TOLERANT MPC FOR FED-BATCH PENICILLIN PRODUCTION	241
<i>Carlos A. Duran-Villalobos ; Barry Lennox ; Stephen Goldrick</i>	
A DATA-DRIVEN FRAMEWORK FOR IDENTIFYING TROPICAL WETLAND MODEL	242
<i>Angesh Anupam ; David J. Wilton ; Sean R. Anderson ; Visakan Kadirkamanathan</i>	
NONLINEAR H-INFINITY CONTROL FOR OPTIMIZING CEMENT PRODUCTION	248
<i>G. Rigatos ; P. Siano ; P. Wira ; K. Busawon ; I M. Jovanovic</i>	
NONLINEAR OPTIMAL CONTROL FOR A CELLS SIGNALING PATHWAY MODEL UNDER TIME-DELAYS	254
<i>G. Rigatos ; Masoud Abbaszadeh</i>	
SUPERVISED MULTI-CONTROL STRATEGIES FOR AN SEIADR EPIDEMIC MODEL	260
<i>Raúl Nistal ; Manuel De La Sen ; Santiago Alonso-Quesada ; Asier Ibeas</i>	
ON CONTROLLING WIND POWER TRANSMISSION TO THE GRID VIA AC AND DC CONNECTIONS	266
<i>Panos C. Papageorgiou ; Antonio T. Alexandridis</i>	
PSEUDOSPECTRAL OPTIMISATION OF UAV TRAJECTORIES FOR MINIMAL BATTERY CONSUMPTION IN THE PRESENCE OF A WIND FIELD	272
<i>Gustavo Toledo De Azevedo ; Pedro Augusto Queiroz De Assis ; Vandilberto Pereira Pinto ; Roberto Kawakami Harrop Galvão</i>	
SIMULTANEOUS SEARCH AND MONITORING OF EVASIVE TARGETS BY AN UNMANNED AERIAL VEHICLE	277
<i>Haoyu Zhang ; Sandor M. Veres</i>	
TOWARDS A COOPERATIVE ROBOTIC SYSTEM FOR AUTONOMOUS PIPE CUTTING IN NUCLEAR DECOMMISSIONING	283
<i>Thomas Burrell ; Craig West ; Stephens D. Monk ; Allahyar Montezeri ; C. James Taylor</i>	
A COMPARATIVE STUDY OF VELOCITY OBSTACLE APPROACHES FOR MULTI-AGENT SYSTEMS	289
<i>James A. Douthwaite ; Shiyu Zhao ; Lyudmila S. Mihaylova</i>	
COOPERATIVE DISTRIBUTED LQR CONTROL FOR LONGITUDINAL FLIGHT OF A FORMATION OF NON-IDENTICAL LOW-SPEED EXPERIMENTAL UAV'S	295
<i>Eleftherios E. Vlahakis ; Efsthios Milonidis ; George D. Halikias</i>	
MODEL-TO-DECISION APPROACH FOR AUTONOMOUS VEHICLE CONVOY COLLISION ETHICS	301
<i>James E. Pickering ; Patricia Ashman ; Alex Gilbert ; Dobrila Petrovic ; Kevin Warwick ; Keith J. Burnham</i>	
PATH PLANNING BASED ON STATE-OF-HEALTH OF THE POWER SOURCE FOR A CLASS OF MULTIROTOR UAVS	309
<i>R. Schacht-Rodríguez ; J. C. Ponsart ; D. Theilliol ; C. D. García-Beltrán ; C. M. Astoraa-Zaragoza</i>	
PHASE PROPERTIES OF THE GENERALISED ZAMES- FALB MULTIPLIERS	315
<i>William P. Heath ; Joaquin Carrasco</i>	
TOWARDS A PROOF OF THE KALMAN CONJECTURE FOR THE SECOND ORDER SYSTEMS WITH TIME-DELAY	316
<i>Jingfan Zhang ; William P. Heath ; Joaquin Carrasco</i>	
PASSIVITY CONTROL IN REAL-TIME HYBRID TESTING	317
<i>L. D. Hashan Peiris ; Andrew R. Plummer ; Jonathan L. Du Bois</i>	
RECENT FINDINGS ON STRONG INTEGRAL INPUT-TO-STATE STABILITY FOR FORCED LUR'E SYSTEMS	323
<i>Chris Guiver ; Hartmut Logemann</i>	
FIXED-TIME STABILIZATION OF SECOND-ORDER SYSTEMS WITH UNKNOWN NONLINEAR INHERENT DYNAMICS	324
<i>Yang Liu ; Hong Yue ; Wei Wang</i>	

PROBABILISTIC DECOUPLING CONTROL FOR STOCHASTIC NON-LINEAR SYSTEMS USING EKF-BASED DYNAMIC SET-POINT ADJUSTMENT	330
<i>Qichun Zhang ; Liang Hu</i>	
ICLOCS2: TRY THIS OPTIMAL CONTROL PROBLEM SOLVER BEFORE YOU TRY THE REST.....	336
<i>Yuanbo Nie ; Omar Faqir ; Eric C. Kerrigan</i>	
EFFICIENT IMPLEMENTATION OF RATE CONSTRAINTS FOR NONLINEAR OPTIMAL CONTROL	337
<i>Yuanbo Nie ; Eric C. Kerrigan</i>	
CAPTURING DISCONTINUITIES IN OPTIMAL CONTROL PROBLEMS	338
<i>Yuanbo Nie ; Eric C. Kerrigan</i>	
OSQP: AN OPERATOR SPLITTING SOLVER FOR QUADRATIC PROGRAMS	339
<i>Bartolomeo Stellato ; Goran Banjac ; Paul Goulart ; Alberto Bemporad ; Stephen Boyd</i>	
INFEASIBILITY DETECTION IN THE ALTERNATING DIRECTION METHOD OF MULTIPLIERS FOR CONVEX OPTIMIZATION	340
<i>Goran Banjac ; Paul Goulart ; Bartolomeo Stellato ; Stephen Boyd</i>	
DELAYED SYSTEMS - H_∞ PREVIEW TRACKING CONTROL	341
<i>E. Gershon</i>	
COOPERATIVE CONTROL OF INNOVATIVE TRI-ROTOR DRONES USING ROBUST FEEDBACK LINEARIZATION	347
<i>Junyan Hu ; Alexander Lanzon</i>	
SWARM ROBOTICS FOR OBJECT TRANSPORTATION	353
<i>Jean Luc Farrugia ; Simon G. Fabri</i>	
ON FINITE TIME STABILITY OF HOMOGENEOUS P-PI CONTROLLER FOR ROBOT MANIPULATOR ORIENTATION CONTROL	359
<i>Yasuyuki Satoh ; Hisakazu Nakamura</i>	
LAGUERRE-BASED ADAPTIVE MPC FOR ATTITUDE STABILIZATION OF QUAD-ROTOR	360
<i>O. J. Gonzalez Villarreal ; J.A. Rossiter ; H. Shin</i>	
THE POND CLEANING SYSTEM.....	366
<i>Konrad Gornicki ; Keir Groves ; Joaquin Carrasco ; Barry Lennox</i>	
RESTRICTED STRUCTURE NON-LINEAR GENERALIZED MINIMUM VARIANCE CONTROL OF A 2-LINK ROBOT ARM.....	367
<i>C. Cebeci ; M.J. Grimble ; R. Katebi ; L.F. Recalde</i>	
DESIGN AND DEVELOPMENT OF A NOVEL CONTROLLER FOR ROBUST ATTITUDE STABILISATION OF AN UNMANNED AIR VEHICLE FOR NUCLEAR ENVIRONMENTS	373
<i>Hamidreza Nemati ; Allahyar Montazeri</i>	
A VISION-BASED POSITIONING SYSTEM WITH INVERSE DEAD-ZONE CONTROL FOR DUAL-HYDRAULIC MANIPULATORS.....	379
<i>C. West ; S. D. Monk ; A. Montazeri ; C. J. Taylor</i>	
LQR CONTROL APPLIED TO A NOVEL TRACK SWITCH ACTUATOR	385
<i>Precious Kaijuka ; Roger Dixon ; Christopher Patrick Ward ; Saikat Dutta</i>	
MODELLING AND CONTROL OF A BIOLOGICALLY INSPIRED TRENCHLESS DRILLING DEVICE	386
<i>Kevin Worrall ; David Firstbrook ; Thaleia Flessa ; Euan Mcgookin ; Douglas Thomson ; Patrick Harkness</i>	
FDIR FOR A BIOLOGICALLY INSPIRED TRENCHLESS DRILLING DEVICE	387
<i>Thaleia Flessa ; Kevin Worrall ; David Firstbrook ; Euan Mcgookin ; Douglas Thomson ; Patrick Harkness</i>	
MODEL-PREDICTIVE CONTROL OF A COMPLIANT HYDRAULIC SYSTEM	388
<i>Anna Sadowska ; Leo Steenson ; Magnus Hedlund</i>	
RESIDUAL GENERATION SYNTHESIS FOR SENSOR FAULT DIAGNOSIS IN MULTI-AGENT SYSTEMS.	389
<i>César T. Martínez-Villegas ; Lizeth Torres ; Didier Theilliol</i>	
ONLINE FAULT DIAGNOSIS IN PETRI NET MODELS OF DISCRETE-EVENT SYSTEMS USING FOURIER-MOTZKIN	397
<i>Ahmed Al-Ajeli ; David Parker</i>	
NONLINEARITY DETECTION IN DYNAMICAL SYSTEMS	403
<i>Callum Moseley ; Tom Shenton ; Ben Neaves ; Paolo Paoletti ; Philip Fulcher</i>	
A LIKELIHOOD RATIO-BASED APPROACH TO BLEED VALVE EVENT DETECTION IN GAS TURBINE ENGINES	408
<i>Ping Li ; Joshua Jayasuriya ; Andrew Hills ; Andrew R. Mills ; Visakan Kadirkamanathan</i>	
APPLICATION OF MULTI-WAY PRINCIPAL COMPONENT ANALYSIS ON BATCH DATA	414
<i>Jeffy F J ; Jinendra K Gugaliya ; Vinay Kariwala</i>	

USING MATLAB GUIs TO IMPROVE STUDENT ENGAGEMENT AND UNDERSTANDING.....	421
<i>J A Rossiter</i>	
USING QUIZZES INSTEAD OF PAPER BASED EXAMS TO ASSESS CONTROL TOPICS.....	422
<i>J A Rossiter</i>	
PRACTICAL PID HOVERING CONTROL OF A LABORATORY QUADCOPTER USING LOW-COST EMBEDDED CONTROL HARDWARE AND SOFTWARE	428
<i>Dimitrios Iosifidis ; Nikolaos Alvanos ; Christos Yfoulis ; Simira Papadopoulou ; C. Galatsopoulos</i>	
DROMOOC: A MASSIVE OPEN ONLINE COURSE ON DRONES AND AERIAL MULTI ROBOT SYSTEMS	434
<i>Sylvain Bertrand ; Julien Marzat ; Cristina Stoica Maniu ; Maria Makarov ; David Filliat ; Antoine Manzanera</i>	
A PORTABLE LOW-COST ARDUINO-BASED LABORATORY KIT FOR CONTROL EDUCATION.....	435
<i>Christos Y Foulis ; Simira Papadopoulou</i>	
DEVELOPING CONCEPT INVENTORY TESTS FOR ELECTRICAL ENGINEERING: EXTRACTABLE INFORMATION, EARLY RESULTS, AND LEARNED LESSONS	436
<i>Eva Fjällström ; Steffi Knorn ; Kjell Staffas ; Damiano Varagnolo</i>	
ADAPTIVE ONLINE ASSESSMENT FOR CONTROL STUDENTS WITH AUTOMATED MARKING	442
<i>Paul Mckenna</i>	
AUTOMATED PROJECT-BASED ASSESSMENT IN A PREDICTIVE CONTROL COURSE	443
<i>Ian Mcinerney ; Eric C. Kerrigan</i>	
USING 'BEGIN ROBOTICS' IN UNDERGRADUATE TEACHING	444
<i>R.J. Mitchell</i>	
ESTIMATION OF CENTRE OF PRESSURE FROM WEARABLE INERTIAL SENSORS	450
<i>Isaac Zeca ; Yuzhu Guo ; Fabio Storm ; Claudia Mazzà ; Lingzhong Guo</i>	
PARAMETER ESTIMATION OF MULTI-STAGED SI(N)RS EPIDEMIC MODELS	456
<i>Asier Ibeas ; Manuel De La Sen ; Santiago Alonso-Quesada ; Raúl Nistal</i>	
IDENTIFICATION OF QUANTIFIERS RELATED TO CIRCADIAN RHYTHM VARIATIONS	462
<i>Tristan Bonargent ; Eric Pigeon ; Tristan Martin ; Mathieu Pouliquen ; Olivier Gehan ; Tomas Menard ; Mohammed M'saad</i>	
WEIGHTED POINT-TO-POINT REPETITIVE CONTROL FOR DROP-FOOT ASSISTANCE	468
<i>A. P. Page ; C. T. Freeman ; B. Chu</i>	
UNDERSTANDING THE CONTROL OF A VITAMIN B12RIBOSWITCH.....	474
<i>Mohammad Abbadi ; Sarah Spurgeon ; Naziyat Khan ; Martin Warren</i>	
MODEL-BASED CONTROL OF FES EMBEDDING SIMULTANEOUS VOLITIONAL EMG MEASUREMENT	480
<i>Sakariya Sa-e ; Chris T. Freeman ; Kai Yang</i>	
Author Index	