### WM09

**Control of Electrohydraulic Systems**

Chair: Thompson, David F.  
Co-Chair: Yao, Bin  
Organizer: Thompson, David F.  
Co-Organizer: Yao, Bin  
Univ. of Cincinnati  
Purdue Univ.  

**13:00**  
*Alternative Robust Control Strategies for Disturbance Rejection in Fluid Power Systems (I)*

Pannett, Richard F.  
Chawdhry, Pravir K.  
Burrows, Clifford R.  
Univ. of Bath  

**13:20**  
*A Comparison of Some Control Strategies for a Hydraulic Manipulator (I)*

Tochizawa, M.  
Edge, K. A.  
Univ. of Bath  

**13:40**  
*Robust Stability Analysis of Large Hydraulic Control Systems (I)*

Kremer, Gregory G.  
Ohio Univ.  

**14:00**  
*Feedback Design for Robust Tracking and Robust Stiffness in Flight Control Actuators using a Modified QFT Technique (I)*

Thompson, David F.  
Pruyn, John S.  
Shukla, Amit  
Univ. of Cincinnati  
Univ. of Cincinnati  
Univ. of Cincinnati  

**14:20**  
*Adaptive Robust Motion Control of Single-Rod Hydraulic Actuators: Theory and Experiments (I)*

Yao, Bin  
Bu, Fanping  
Reedy, John  
Chiu, George T.-C.  
Purdue Univ.  
Purdue Univ.  
Purdue Univ.  
Purdue Univ.  

**14:40**  
*Nonlinear Observer Based Force Control of Electro-Hydraulic Actuators (I)*

Sun, Hong  
Chiu, George T.-C.  
Purdue Univ.  
Purdue Univ.  

### WM10

**Passivity Based Nonlinear Control**

Chair: Shahruz, Shahram M.  
Co-Chair: Li, Perry Y.  
Univ. of Minnesota  

**13:00**  
*Master-Slave Passivity Design for Stabilization of Nonlinear Systems*

Jankovic, Mrdjan  
Larsen, Michael  
Kokotovic, Petar V.  
Ford Research Labs  
Univ. of California at Santa Barbara  
Univ. of California at Santa Barbara
13:20 774
Adaptive Passive Velocity Field Control
Li, Perry Y.
Univ. of Minnesota

13:40 780
How to Have Passively Q-Switched Lasers Self-Pulsate
Shahruz, Shahram M.

14:00 785
Passivity-Based Induction Motor Speed Control: Unknown Load Torque Case
Abdel Fattah, Hossam A.
Case Western Reserve Univ.
Loparo, Kenneth
Case Western Reserve Univ.

14:20 790
On Multi-Dissipative Dynamic Systems
Thygesen, Uffe H.
Tech. Univ. of Denmark

14:40 795
Dissipativity and Stability of Nonlinear Jump Systems
Aliyu, M. D. S.
King Fahd Univ. of Petroleum and Minerals

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WM11
Delay Systems
Chair: Kamen, Edward W.
Georgia Inst. of Tech.
Co-Chair: Suyama, Koichi
Tokyo Univ. of Mercantile Marine

13:00 800
Delay-Dependent Robust H_infinity Control of Uncertain Linear Systems with Input Delay
Li, Xi
Univ. of Alberta
Guay, Martin
Univ. of Alberta
Huang, Biao
Univ. of Alberta
Fisher, D. Grant
Univ. of Alberta

13:20 805
Steady State Offset in Predictive Control
Ordys, Andrzej W.
Univ. of Strathclyde

13:40 810
Suboptimal Dead Beat Controller for a Discrete-Time Multivariable Plant with Measurement Noise
Kase, Wataru
Osaka Inst. of Tech.

14:00 815
Stability Radius of Linear Delay Systems
Son, Nguyen Khoa
Hanoi Inst. of Mathematics
Ngoc, Pham Huu Anh
Hue Univ.

14:20 817
Discrete Modeling of Continuous Interval using Higher-Order Integrators
Hsu, Chen-Chien
St. John’s & St. Mary’s Inst. of Tech.
Wang, Wei-Yen
Soochow Univ.

14:40 822
Simple Predictor for Processes with Time Delay
Zhang, Weidong
Shanghai Jiaotong Univ.
Xu, Xiaoming
Shanghai Jiaotong Univ.
WM12
Identification II
Chair: Polis, Michael P. Oakland Univ.
Co-Chair: Poolla, Kameshwar Univ. of California at Berkeley

13:00 827
Identification with the Youla Parametrization in Identification for Control
Ansary, Pierre Univ. de Liège
Gevers, Michel Univ. Catholique de Louvain
Wertz, Vincent Univ. Catholique de Louvain

13:20 832
A Comparison of Canonical Variate Analysis and Partial Least Squares for the Identification of Dynamic Processes
Simoglou, Alexandros Univ. of Newcastle
Martin, Elaine Univ. of Newcastle
Morris, A. Julian Univ. of Newcastle

13:40 838
Identification of MIMO Bilinear State Space Models using Separable Least Squares
Verdult, V. Delft Univ. of Tech.
Verhaegen, Michel H. Delft Univ. of Tech.
Chou, C. T. Delft Univ. of Tech.

14:00
Withdrawn

14:20 843
Thermal Power Plant Dynamics Identification
Kuleysky, Roland Israel Electric Corp. Ltd.
Hudelman, G. Israel Electric Corp. Ltd.
Hain, Yakov Israel Electric Corp. Ltd.

14:40 848
On the Identification of High-Order Lightly-Damped Multivariable Systems
Fisher, Darin Univ. of California at Berkeley
Jue, Deborah Univ. of California at Berkeley
Packard, Andrew K. Univ. of California at Berkeley
Poolla, Kameshwar Univ. of California at Berkeley

WM13
Learning & Estimation
Chair: Parisini, Thomas Politecnico di Milano
Co-Chair: El Ghaoui, Laurent M. ENSTA

13:00 854
A Learning and Estimation Problem Arising from In Situ Control and Diagnostics of Manufacturing Processes
Galarza, Cecilia Univ. of Michigan
Khargonekar, Pramod P. Univ. of Michigan

13:20 860
Intelligent Signal Validation System for a Cupola Furnace, Part 2: Testing and Analysis
Subramanian, Senthil Tennessee Tech. Univ.
Abdelrahman, Mohamed Tennessee Tech. Univ.
Learning of Nonlinear FIR Models under Uniform Distribution

Najarian, Kayvan  
Univ. of British Columbia

Dumont, Guy A.  
Univ. of British Columbia

Davies, Michael S.  
Univ. of British Columbia

Heckman, Nancy E.  
Univ. of British Columbia

Input-Output Data Based Tracking Control

Babinski, Alex  
Univ. of Illinois at Urbana-Champaign

Tsao, Tsu-Chin  
Univ. of Illinois at Urbana-Champaign

Intelligent Signal Validation System for a Cupola Furnace, Part 1: Methodology

Abdelrahman, Mohamed  
Tennessee Tech. Univ.

Subramanian, Senthil  
Tennessee Tech. Univ.

Sliding-Window Neural State Estimation in a Power Plant Heater Line

Alessandri, A.  
CNR-IAN National Research Council

Parisini, Thomas  
Politecnico di Milano

Zoppoli, Riccardo  
DIST-Untiv. of Genova

WM14 Nonconvex Optimization Methods

Chair: Feron, Eric  
Massachusetts Inst. of Tech.

Co-Chair: Lam, S. H.  
Princeton Univ.

Genetic Algorithm for Single Machine Scheduling with General Early-Tardy Penalty Weights

Yu, Haibin  
Chinese Academy of Sciences

Xu, Xinhe  
Northeastern Univ. Shenyang

Xue, Jinsong  
Chinese Academy of Sciences

Wang, Haobo  
Chinese Academy of Sciences

Efficient Global Optimization using SPSA

Maryak, John L.  
Johns Hopkins Univ.

Chin, Daniel C.  
Johns Hopkins Univ.

A Genetic Algorithm with a Machine Order-Based Representation Scheme for a Class of Job Shop Scheduling Problem

Song, Yingsheng  
Univ. of Ulster at Jordanstown

Hughes, J. G.  
Univ. of Ulster at Jordanstown

Design of L_1-Optimal Controllers by Multiobjective Linear Programming

Carvalho, Jose R. H.  
Univ. of Campinas

Ferreira, Paulo a Valente  
Univ. of Campinas

Optimization of Bilinear Systems using Higher-Order Method

Agrawal, Sunil K.  
Univ. of Delaware

Xu, Xiaochun  
Univ. of Delaware

Faiz, Nadeem  
Univ. of Delaware
A Robust Controller for Scalar Autonomous Optimal Control Problems
Lam, S. H. Princeton Univ.

13:00
Static Output Feedback Controllers for Systems with Parametric Uncertainty and Controller Gain Variations
Corrado, Joseph R. Georgia Inst. of Tech.
Haddad, Wassim M. Georgia Inst. of Tech.

13:20
Practical H∞-Infinity Weighting Functions and their Application to Real-Time Control of a Pilot Plant
Hu, Jiankun The Univ. of Melbourne
Bohn, Christian Ruhr-Univ. Bochum
Wu, H. R. Monash Univ.

14:00
Robust Speed Control of Induction Motors using Adaptive Observer
Aloliwi, Bader Michigan State Univ.
Khalil, Hassan K. Michigan State Univ.
Strangas, Elias Michigan State Univ.

14:20
A Simple Robust Control for Induction Motors
Guerrero-Ramirez, Gerardo National Univ. of Mexico
Tang, Yu National Univ. of Mexico

14:40
Robust Regularization of Uncertain Singular Systems
Wang, Dianhui Dalian Maritime Univ.

Stochastic Estimation and Stability
Chair: Haddad, Abraham H. Northwestern Univ.
Co-Chair: Hanson, Floyd B. Univ. of Illinois at Chicago

13:00
Output Endpoint Weighted Generalized Predictive Control: a Polynomial Approach
Ebert, Wolfram Humboldt-Univ. of Berlin
Morari, Manfred ETH Swiss Fed. Inst. of Tech.

13:20
On System Identification and Robust Control on Hardy Sobolev Space
Venkatesh, Saligrama R. United Technologies Research Ctr.
Passivity and Stability of Nonlinear Systems with Markarian Jump Parameters
Aliyu, M. D. S. King Fahd Univ. of Petroleum and Minerals

Policies for Simultaneous Estimation and Optimization
Lobo, Miguel Sousa Stanford Univ.
Boyd, Stephen P Stanford Univ.

Stabilization of Stochastic Quantized Control Systems
Lee, Kyung-Sup LG Electronics, Inc
Haddad, Abraham H. Northwestern Univ.

On Designing HInfinity Controller for a Class of Nonlinear Markarian Jump Systems with Parametric Uncertainties
Boukas, El-Kebir Ecole Polytechnique de Montreal
Shi, Peng Univ. of South Australia
Nguang, Sing Kiong Univ. of Auckland
Agarwal, Ramesh K. Wichita State Univ.

Control Education: a Multidisciplinary Discussion
Chair: Bequette, B. Wayne Rensselaer Polytechnic Inst.
Co-Chair: Agrawal, Sunil K. Univ. of Delaware

Chemical Process Control Education and Practice (I)
Bequette, B. Wayne Rensselaer Polytechnic Inst.
Ogunnaike, Babatunde A. Dupont Central Res. & Engineering

Discussion of Chemical Process Control Education and Practice (I)
Fabien, Brian C. Univ. of Washington

Undergraduate Control Education: an ME Perspective (I)
Agrawal, Sunil K. Univ. of Delaware

Discussion of Undergraduate Control Education: an ME Perspective (I)
Zhu, J. Jim Louisiana State Univ.

Control Education Crossing Department Boundaries (I)
Spong, Mark W. Univ. of Illinois at Urbana-Champaign

Training Simulators Enhance Process Control Education (I)
Cooper, D. J. Univ. of Connecticut
Fina, Danielle Univ. of Connecticut
Control of Civil Engineering Structures II

Chair: Dyke, Shirley J.  Washington Univ.
Co-Chair: Bergman, Larry A.  Univ. of IL at Urbana-Champaign
Organizer: Dyke, Shirley J.  Washington Univ.
Co-Organizer: Bergman, Larry A.  Univ. of IL at Urbana-Champaign

13:00 1002
Smart Bridge Dampers (SBD) (I)
Patten, W. Neff  Univ. of Oklahoma
Sun, J.  Univ. of Oklahoma
Zeng, Annie  Univ. of Oklahoma

13:20 1007
Active Vibration Control of Multiple Buildings Connected with Active Control Bridges in Response to Large Earthquakes (I)
Seto, Kazuto  Nihon Univ.
Matsumoto, Yukito  Nihon Univ.

13:40 1012
Hybrid Adaptive Robust Structural Vibration Control (I)
Shoureshi, Rahmat  Colorado School of Mines
Chaghajerdi, Amir H.  Colorado School of Mines
Bell, Mark J.  Colorado School of Mines

14:00 1017
Semi-Active Structural Control with Variable Friction Dampers (I)
Nishitani, Akira  Waseda Univ.
Nitta, Yoshihiro  Waseda Univ.
Ishibashi, Yoji  Waseda Univ.
Itch, Atsushi  Waseda Univ.

14:20
Effects of Cable Sag on the Control of Cable-Stayed Bridges Subjected to Ground Motion (I)
Magana, M. E.  Oregon State Univ.
Rodellar, Jose  Tech. Univ. of Catalonia
Casas, J. R.  Tech. Univ. of Catalonia
Sardans, C.  Tech. Univ. of Catalonia

14:40 1022
Seismic Response Control using Smart Dampers (I)
Yi, Fu  Washington Univ.
Dyke, Shirley J.  Washington Univ.
Caicedo, Juan M.  Washington Univ.
Carlson, J. David  Lord Corporation

WP01

Sliding Mode Control II

Chair: Furuta, Katsuhisa  Tokyo Inst. of Tech.
Co-Chair: Pieper, Jeff K.  Univ. of Calgary

15:30 1027
Air/Fuel Ratio Control using Sliding Mode Methods
Pieper, Jeff K.  Univ. of Calgary
Mehrotra, R.  Univ. of Calgary

15:50 1032
VS Controller Design for Continuous System from Sampled Data
Furuta, Katsuhisa  Tokyo Inst. of Tech.
Hatakeyama, Shoshiro  Tokyo Denki Univ.
Pan, Yaodong  Tokyo Denki Univ.
Output Regulation in Sliding Mode
Loukianov, Alexander G. Unidad Guadalajara
Castillo-Toledo, Bernardino Unidad Guadalajara
Garcia-Rocha, Reinaldo Unidad Guadalajara

16:30
Stabilization of an Inverted Pendulum with CMAC in a Variable Structure Controller
Bottura, Celso Pascoli FEEC - UNICAMP
Teixeira, Marcelo C. M. FEIS - UNESP
Bordon, Mauricio Jose FEEC - UNICAMP

16:50
Quasi Bang-Bang and Sliding-Mode Controls for a DC Shunt Motor
Kunchithapadam, Vijayalakshmi North Carolina A&T State Univ.
Bikdash, Marwan U. North Carolina A&T State Univ.
Homaifar, Abdullah North Carolina A&T State Univ.

17:10
Output Regulation of DC-DC Switching Converters using Discrete-Time Integral Control
Fang, Chung-Chieh Univ. of Maryland
Abed, Eyad H. Univ. of Maryland

WP02
Adaptive Control using Neural Networks
Chair: Keel, Lee H. Tennessee State Univ.
Co-Chair: Zhang, Youping United Technologies Research Ctr.

15:30
Robust Identification for Output Tracking in Systems with Unknown Nonlinearities
Arslan, Gurdal Univ. of Illinois at Urbana-Champaign
Basar, Tamer Univ. of Illinois at Urbana-Champaign

15:50
Adaptive Neural Network Control for Strict-Feedback Nonlinear Systems using Backstepping Design
Zhang, T. National Univ. of Singapore
Ge, Shuzhi Sam National Univ. of Singapore
Hang, Chang Chieh National Univ. of Singapore

16:10
Stable Neural Controller Design for Unknown Nonlinear Systems using Backstepping
Zhang, Youping United Technologies Research Ctr.
Peng, Pei-Yuan United Technologies Research Ctr.

16:30
Stable Adaptive Control of Unknown Nonlinear Dynamic Systems using Neural Networks
Adetona, Olawale Tennessee State Univ.
Garcia, Ephrahim Vanderbilt Univ.
Keel, Lee H. Tennessee State Univ.

16:50
Nonlinear Adaptive Control with Potential FACTS Applications
Chen, Dingguo Oregon State Univ.
Mohler, Ronald R. Oregon State Univ.
Neural Network Based Adaptive Predictive Control Algorithm of Nonlinear Nonminimum Phase Systems

Jiya, Jibril Northeastern Univ.
Shao, Cheng Northeastern Univ.
Chai, Tian-You Northeastern Univ.

WP03
Nonlinear Distributed Parameter Systems
Chair: Berg, Jordan M. Texas Tech. Univ.
Co-Chair: Balas, Mark Univ. of Colorado

15:30 1086
Boundary Control of the Kuramoto-Sivashinsky Equation with Low Anti-Dissipation
Liu, Wei-Jiu Univ. of California at San Diego
Krstic, Miroslav Univ. of California at San Diego

15:50 1091
Wave Suppression by Nonlinear Finite-Dimensional Control
Armou, Antonio Univ. of California at Los Angeles
Christofides, Panagiotis D. Univ. of California at Los Angeles

16:10 1096
A Study on the Control of Nonlinear Distributed Parameter Systems
Godasi, Satyam Univ. of California at Davis
Karakas, Ahmet Univ. of California at Davis
Palazoglu, Ahmet N. Univ. of California at Davis

16:30 1101
Exponentially Stable Feedback Control of Discrete-Time Nonlinear Distributed Parameter Systems on Banach Spaces
Balas, Mark Univ. of Colorado

16:50 1107
PZT Actuator Placement for Structural Vibration Damping of High Speed Manufacturing Equipment
Sun, Dong Univ. of Toronto
Mills, James K. Univ. of Toronto

17:10 1112
A Problem of Positional Control of Nonlinear Parabolic System
Maksimov, Vyacheslav Inst. of Math and Mechan.

WP04
System Identification, Health Monitoring, and Damage Detection
Chair: Dyke, Shirley J. Washington Univ.
Co-Chair: Bergman, Larry A. Univ. of IL at Urbana-Champaign
Organizer: Dyke, Shirley J. Washington Univ.
Co Organizer: Bergman, Larry A. Univ. of IL at Urbana-Champaign

15:30 1114
Structural Damage Detection using Strain Data via Linear Matrix Inequality Based Methods (I)
Abdalla, M. O. Univ. of Houston
Zimmerman, D. C. Univ. of Houston
Grigoriadis, Karolos M. Univ. of Houston
A Bayesian Probabilistic Approach to Structural Health Monitoring (I)

Beck, James L. California Inst. of Tech.
Au, S. K. California Inst. of Tech.
Vanik, M. W. The Aerospace Co.

Condition Assessment and Damage Identification of a Steel-Stringer Bridge using System-Identification Methods (I)

Lenett, M. Univ. of Cincinnati
Helmicki, Arthur J. Univ. of Cincinnati
Hunt, Victor J. Univ. of Cincinnati
Aktan, A. Emin Drexel Univ.

Structural Health Monitoring using the Non-Resonant Transfer Function Response (I)

Ma, Jun Univ. of Maryland
Pines, Darryl J. Univ. of Maryland

Linearization of Magnetorheological Behavior Using a Neural Network (I)

Kim, Byeonghwa Texas A&M Univ.
Roschke, Paul Texas A&M Univ.

Structural Identification-Based Condition Assessment: a Demonstration of Methods Applied to a Laboratory Scale Model Testbed (I)

Helmicki, Arthur J. Univ. of Cincinnati
Lenett, M. Univ. of Cincinnati
Griesmann, A. Univ. of Cincinnati
Turer, A. Univ. of Cincinnati
Hunt, Victor J. Univ. of Cincinnati

Monitoring and Control of Polymerization Processes

Chair: Soroush, Masoud Drexel Univ.
Co-Chair: Richards, John R. E.I. Dupont de Nemours & Co., Inc.
Co-Organizer: Soroush, Masoud Drexel Univ.

Moving-Horizon State Estimation Applied to an Industrial Polymerization Process (I)

Russo, Louis P. Exxon Chemical Co.
Young, Robert E. Exxon Chemical Co.

Monitoring and Control of a Polyester Production Process (I)

Valluri, Sairam GSE Systems, Inc.
Lei, Guang-Dih GSE Systems, Inc.
Porter, Chris GSE Systems, Inc.

Nonlinear Model Predictive Control of Batch Polymerization Process: Unsaturated Polyester Resin (I)

Schei, Tor Steinar SINTEF Electronics & Cybernetics
Singstad, Peter SINTEF Electronics & Cybernetics
Numerical Issues in Solving Population Balance Equations for Particle Size Distribution Control in Emulsion Polymerization (I)
Crowley, Timothy J.  
Univ. of Delaware
Meadows, Edward S.  
Univ. of Delaware
Doyle, Ill, Frank J.  
Univ. of Delaware

A Systematic Tuning Approach for the Use of Extended Kalman Filters in Batch Processes (I)
Valappil, Jaleel V.  
Lehigh Univ.
Georgakis, Christos  
Lehigh Univ.

WP06
TUTORIAL: Automated Multivariable System Identification
Chair: Larimore, Wallace E.  
Adaptics, Inc.
Co-Chair: Seborg, Dale E.  
Univ. of California at Santa Barbara
Organizer: Larimore, Wallace E.  
Adaptics, Inc.

Automated Multivariable System Identification and Industrial Applications (I)
Larimore, Wallace E.  
Adaptics, Inc.

Applications of Canonical Variate Analysis to the Dynamical Modeling and Control of Drum Level in Industrial Boiler (I)
Eserin, Peter K. N.  
Champion International Corp.

Fault Detection in Boilers using Canonical Variate Analysis (I)
Borsje, Henk J.  
Alert Systems, Inc.

Comparing CVA and ERA in Transfer Function Measurements for Lithography Applications (I)
Hunter, Jr., Norman F.  
Los Alamos National Lab.

Experimental System Identification Results from the "SPICES" Smart Structures Program (I)
Flamm, David S.  
SRI International

WP07
Applications of Emerging Control Technology
Chair: Ray, Asok  
Pennsylvania State Univ.
Co-Chair: Haley, Pamela J.  
NASA Langley Research Center

Vibration Control using CMAC Neural Networks with Optimized Weight Smoothing
Kraft, L. Gordon  
Univ. of New Hampshire
Pallotta, Jeremy  
Univ. of New Hampshire
An Application of Optimal Control to Semiconductor Bandgap Engineering
Glielmo, Luigi
Univ. Degli Studi di Napoli Federico II
Rinaldi, Paolo
Washington Univ.

Damage-Mitigating Control with Overload Injection: Experimental Verification of the Concept
Zhang, Hui
Pennsylvania State Univ.
Ray, Asok
Pennsylvania State Univ.
Patankar, Ravindra P.
Pennsylvania State Univ.

Performance and Model Validation of the Caltech Ducted-Fan at a Fixed Operating Point
Lim, Kyong B.
NASA Langley Research Ctr.
Trotoux, Marc
Acrospatiale
Doyle, John C.
California Inst. of Tech.

Application of Reinforcement Learning Control to a Nonlinear Bouncing Cart
Bucak, Ihsan O.
Oakland Univ.
Zohdy, Mohamed A.
Oakland Univ.

A Feedback Solution to Ball-Plate Problem Based on Time-State Control Form
Sampei, Mitsuji
Tokyo Inst. of Tech.
Mizuno, Shintaro
Tokyo Inst. of Tech.
Segawa, Mitsuru
Tokyo Inst. of Tech.
Ishikawa, Masato
Tokyo Inst. of Tech.
Date, Hisashi
Tokyo Inst. of Tech.
Yamada, Daisuke
Tokyo Inst. of Tech.

Advanced Vehicle Systems
Chair: Sureshbabu, Natarajan
Ford Motor Co., SRL
Organizer: Phillips, Anthony M.
Ford Motor Co.
Co-Organizer: Sureshbabu, Natarajan
Ford Motor Co., SRL

Dynamic Modeling of a Lean Nox Trap for Lean Burn Engine Control (I)
Wang, Yanying
Ford Motor Co.
Raman, Shankar
Ford Motor Co.
Grizzle, Jessy W.
Univ. of Michigan

Closed Loop Temperature Control of a Lean Nox Trap During Desulfation (I)
Asik, Joseph R.
Ford Motor Co.
Meyer, G. M.
Ford Motor Co.

Idle Speed Control: an Old Problem in a New Engine Design (I)
Wang, Yan
Univ. of California at Santa Barbara
Stefanopoulou, Anna G.
Univ. of California at Santa Barbara
Levin, Mike
Ford Motor Co.
16:30 1222

Control System and Dynamic Model Validation for a Parallel Hybrid Electric Vehicle (I)

Cikanek, Susan R. Ford Research Lab.
Bailey, Kathleen E. Ford Research Lab.
Barasz, R. C. Ford Research Lab.
Powell, Barry K. Ford Research Lab.

16:50 1228

Look-Ahead Human-Machine Interface for Assistance of Manual Vehicle Steering (I)

Feng, Kai-Ten Univ. of California at Berkeley
Tan, Han-Shue Univ. of California at Berkeley
Tomizuka, Masayoshi Univ. of California at Berkeley
Zhang, Wei-Bin Univ. of California at Berkeley

17:10 1233

A Real-Time Rollover Threat Index for Sports Utility Vehicles (I)

Chen, Bo-Chiuan Univ. of Michigan
Peng, Huei Univ. of Michigan

REGENCY D

WP09 Biomedical Control Systems

Chair: Doyle, III, Frank J. Univ. of Delaware
Co-Chair: Morari, Manfred ETH Swiss Fed. Inst. of Tech.

15:30 1238

Control of Bipedal Locomotion Assisted with Functional Electrical Stimulation (I)

Popovic, Dejan B. Aalborg Univ.
Jonic, Slavica Belgrade Univ.

15:50 1243

Grasping and Walking Neuro Prostheses for Stroke and Spinal Cord Injured Subjects (I)

Popovic, M. R. ETH Swiss Fed. Inst. of Tech.
Keller, T. Univ. Hospital Balgrist
Pappas, I. ETH Swiss Fed. Inst. of Tech.
Morari, Manfred ETH Swiss Fed. Inst. of Tech.
Dietz, V. Univ. Hospital Balgrist

16:10 1248

A Simulation Study of the Nonlinear Dynamic Characteristics of a Local Cardiac Reflex in the Rat (I)

Vadigepalli, Rajanikanth Univ. of Delaware
Doyle, III, Frank J. Univ. of Delaware

16:30 1253

Multiple Model Predictive Control of Hemodynamic Variables - an Experimental Study (I)

Rao, Ramesh Rensselaer Polytechnic Inst.
Aufderheide, Brian Rensselaer Polytechnic Inst.
Bequette, B. Wayne Rensselaer Polytechnic Inst.
16:50 Automation in Anesthesia (I)
Frei, Christian W.
Gentilini, A.
Derighetti, Marco
Glatthoder, Adolf H.
Morari, Manfred
Schnider, Thomas W.
Zbinden, Alex M.

17:10 Experiences with Experimental Clinical Evaluation of a Computerized Drug Delivery System for Regulation of Mean Arterial Blood Pressure (I)
Kwok, K. Ezra
Shah, Sirish
Finegan, Barry
Kwong, Gary

16:50 WP10 Nonlinear H_\infty Control
Chair: Fausz, Jerry L.
Co-Chair: Dawson, Darren M.

15:30 Observer-Based Fuzzy H_\infty Control for Uncertain Nonlinear Systems with Time Delays
Lee, Kap Rai
Kim, Jong Hae
Jeung, Eun Tae
Yun, Han O.
Park, Hong Bae

15:50 H_\infty Filtering of Nonlinear Sampled-Data Systems with Parameter Uncertainties
Nguang, Sing Kiong
Shi, Peng

16:10 Achieving Nonvanishing Stability Regions with High-Gain Cheap Control using H_\infty Techniques: the Second Order Case
Toussaint, Gregory J.
Basar, Tamer

16:30 Using Suboptimal State Feedback Controllers in Certainty Equivalence Measurement Feedback Nonlinear H_\infty Control
Dower, Peter M.
Helton, J. William

16:50 H_\infty Control of Nonlinear Sampled-Data Systems
Nguang, Sing Kiong
Shi, Peng

17:10 Measurement Feedback H_\infty Control of Time-Periodic Nonlinear Systems
Orlov, Yury V.
Acho, Leonardo
WP11
Descriptor Systems
Chair: Pugh, A. Clive  
Co-Chair: Sugie, Toshiharu
Loughborough Univ. Kyoto Univ.

15:30 1299
An LMI Approach Towards General Quadratic Performance Analysis and Synthesis of Descriptor Systems
Rehm, Ansgar  
Allgower, Frank
Univ. of Stuttgart ETH Zurich

15:50 1304
Robust Stabilization of Descriptor Linear Systems via Proportional-Plus-Derivative State Feedback
Duan, Guang-Ren  
Irwin, George W.  
Liu, Guoping
The Queen’s Univ. of Belfast The Queen’s Univ. of Belfast GEC-Alstom

16:10 1309
Minimal Order Time Invariant Representation of Periodic Descriptor Systems
Sreedhar, J.  
Van Dooren, Paul  
Misra, Pradeep
Univ. of Illinois at Urbana-Champaign Univ. Catholique de Louvain Wright State Univ.

16:30 1314
Mixed-Mu Analysis for Dynamical Systems using Descriptor Form
Chen, Gan  
Sugie, Toshiharu  
Fujinaka, Toru  
Shibata, Hiroshi

16:50 1319
Properties of Generalized Chain-Scattering Representations
Tan, Liansheng  
Pugh, A. Clive  
Hayton, G. E.
Loughborough Univ. Loughborough Univ. Leeds Metropolitan Univ.

17:10 1324
Properties of the Generalized Companion Form and Application to the Solution of Regular Pmds
Pugh, A. Clive  
Tan, Liansheng
Loughborough Univ. Loughborough Univ.

WP12
Fault Detection, Identification, Estimation and Filtering
Chair: Chowdhury, Fahmida N.  
Co-Chair: Repperger, Daniel W
Univ. of Southwestern Louisiana Air Force Research Lab.

15:30 1329
Information Based Estimation for Both Linear and Nonlinear Systems
Mutambara, Arthur G.
FAMU-FSU

15:50 1334
A Novel Recursive Algorithm for Directional Forgetting
Cao, Liyu  
Schwartz, Howard M.
Carleton Univ. Carleton Univ.
CASMA-Crank Angle Synchronous Moving Average Filtering
Schmidt, Martin Darmstadt Univ. of Tech.
Kessel, Jens-Achim Darmstadt Univ. of Tech.

Fault Diagnosis for a Waste Treatment Plant
Aubrun, Christophe University of Nancy 1
Sauter, Dominique D. J. Univ. Henri Poincare, Nancy 1
Theilliol, Didier Univ. Henri Poincare, Nancy 1

A Novel Design of Structured Observer-Based Residuals for FDI
Alcorta-Garcia, Efraín Gerhard Mercator Duisburg Univ.
Frank, P. M. Gerhard Mercator Duisburg Univ.

Using Fault Detection Methods to Optimize Parameters in Human-Machine Interface Devices
Repperger, Daniel W Air Force Research Lab.
Haas, Michael W. Air Force Research Lab.
Koivo, A. J. Purdue Univ.

WP13 Applications of Artificial Intelligence
Chair: Samad, Tariq Honeywell Technology Center
Co-Chair: Balakrishnan, S.N. Univ. of Missouri-Rolla

Development and Implementation of Adaptive Critic Based Optimal Neurocontroller on a Cantilever Plate
Gupta, Abhishek Univ. of Missouri-Rolla
Balakrishnan, S.N. Univ. of Missouri-Rolla
Acar, Levent Univ. of Missouri-Rolla

Closed-Loop Ignition Control using On-Line Learning of Locally-Tuned Radial Basis Function Networks
Mueller, Norbert Darmstadt Univ. of Tech.
Nelles, Oliver Darmstadt Univ. of Tech.
Isermann, Rolf Darmstadt Univ. of Tech.

A Design of Self-Tuning PID Controllers using a Genetic Algorithm
Mitsukura, Yasue Okayama Prefectural Univ.
Yamamoto, Toru Okayama Prefectural Univ.
Kaneda, Masahiro Okayama Prefectural Univ.

Withdrawn

Fuzzy Control with Common Observability Gramian Assignment for Continuous Takagi-Sugeno Models
Chang, Wen-Jer National Taiwan Ocean Univ.
Sun, Chein-Chung National Taiwan Ocean Univ.

Obstacle Avoidance for Kinematically Redundant Robots using an Adaptive Fuzzy Logic Algorithm
Beheshti, Mohammad T. H. Univ. of Tarbiat Modares
Tehrani, Alireza K. Univ. of Tarbiat Modares
WP14

Nonconvex and Concave Programming Techniques in Robust Control Theory
Chair: Apkarian, Pierre
Co-Chair: Tuan, Hoang Duong
Organizer: Apkarian, Pierre
Co-Organizer: Tuan, Hoang Duong

15:30 1376
A Type of Gain Scheduling Which Converts to a "Classical" Problem in Several Complex Variables (I)
Helton, J. William
Univ. of California at San Diego

15:50 1381
A Polynomial-Time Algorithm for Solving a Class of Rank Minimization Problem (I)
Gurvits, Leonid
NEC Research Institute
Mesbahi, Mehran
California Inst. of Tech.

16:10 1385
A Path-Following Method for Solving BMI Problems in Control (I)
Hassibi, Arash
Stanford Univ.
How, Jonathan P.
Stanford Univ.
Boyd, Stephen P.
Stanford Univ.

16:30 1390
Region Maximization Technique in Robust Nonlinear Control via State-Dependent Scaling Design (I)
Ito, Hiroshi
Kyushu Inst. of Tech.

16:50 1395
LMI-Constrained Concave Programs in Robust Control (I)
Apkarian, Pierre
ONERA-CERT
Tuan, Hoang Duong
Nagoya Univ.

17:10 1400
Computation of Max-Plus Eigenvector Representations for Nonlinear H_infinity Value Functions (I)
Horton, Michelle
Mceneaney, William M.
North Carolina State Univ.

WP15

QFT / Robust Control
Chair: Nwokah, Osita D. I.
Co-Chair: Rodriguez, Armando A.

15:30 1405
Robust Controller Design of Multivariable Perturbed Systems with QFT
Chang, Yeong-Hwa
Chang, Jin-Chuan
Chung Cheng Inst. of Tech.
Chung Cheng Inst. of Tech.

15:50 1410
Necessary and Sufficient Conditions for the Existence of a Common Quadratic Lyapunov Function in Two Stable Second Order Linear Time-Invariant Systems
Shorten, Robert
Narendra, Kumpati S.
Yale Univ.
Yale Univ.
Stability and Robustness Analysis of Flow Source Control
Choi, Changhwan Kwangju Inst. of Science and Tech.
Ryu, Jeha Kwangju Inst. of Science and Tech.
Park, Kyihwan Kwangju Inst. of Science and Tech.

Analysis and Quantitative Feedback Design of Pulse Width Modulator Amplifiers
Boje, Edward Univ. of Natal

On the Convexity of QFT Bounds and its Relation to Automatic Loop-Shaping
Chen, Qian Univ. of Massachusetts, Amherst
Chait, Yossi Univ. of Massachusetts, Amherst
Hollot, C. V. Univ. of Massachusetts, Amherst

Qualitative Control of Feedback Systems
Nwokah, Osta D.I. Southern Methodist Univ.
Happawana, Gemunu S. Southern Methodist Univ.
Borzova, Elena Southern Methodist Univ.
Afolabi, Dare I.U.P.U.I.

Stochastic Modeling and Estimation
Chair: Spall, James C. Johns Hopkins Univ.
Co-Chair: Mcclamroch, N. Harris Uniu. of Michigan

On Dissipation in Stochastic Systems
Thygesen, Uffe H. Tech. Univ. of Denmark

Adaptive Model Fitting with Time-Varying Input Variables
Spall, James C. Johns Hopkins Univ.

Decentralized Control with Noisy Transmission of Information
Shoarinejad, Kambiz Univ. of California at Los Angeles
Speyer, Jason L. Univ. of California at Los Angeles
Kanellakopoulos, Ioannis Univ. of California at Los Angeles

Bootstrap Control
Aronsson, Mattias A.T. Kearney
Arvastson, Lars Lund Inst. of Tech.
Holst, Jan Lund Inst. of Tech.
Lindoff, Bengt I. L. Ericsson Mobile Communications AB
Svensson, Anders M. Saab Dynamics AB

A Computational Approach to Conflict Detection Problems for Air Traffic Control
Shen, Jinglai Univ. of Michigan
Mcclamroch, N. Harris Univ. of Michigan
Gilbert, Eimer G. Univ. of Michigan

Stochastic Optimization Approach to Option Pricing
Fedotov, Sergei UMIST
Mikhailov, Sergei A. Univ. of Wuppertal
Laboratory and Web Based Control Education

Chair: Tzes, Anthony Polytechnic Univ.
Co-Chair: Tilbury, Dawn Univ. of Michigan

15:30 1455
Concretizing Control Education
Bernstein, Dennis S. Univ. of Michigan

15:50 1460
An Interactive Tool for Classical Control Design Education
Garcia, Raymond C. Georgia Inst. of Tech.
Heck, Bonnie S. Georgia Inst. of Tech.

16:10 1465
Java-Based Remote Experimentation for Control Algorithms
Prototyping
Piguet, Yves Ecole Polytechnique Federale de Lausanne
Gillet, Denis Ecole Polytechnique Federale de Lausanne

16:30 1470
Enhancing Basic Robotics Education on the Web
Salazar-Silva, G. H. CINVESTAV-IPN
Martinez-Garcia, Juan Carlos CINVESTAV-IPN
Garrido-Moctezuma, Ruben CINVESTAV-IPN

16:50 1472
Internet-Based Client/Server Virtual Instrument Designs for Real-Time Remote-Access Control Engineering Laboratory
Overstreet, Jamahl Polytechnic Univ.
Tzes, Anthony Polytechnic Univ.

17:10 1477
Naive Control of the Double Integrator: a Comparison of a Dozen Diverse Controllers under Off-Nominal Conditions
Rao, Venkatesh G. Univ. of Michigan
Bernstein, Dennis S. Univ. of Michigan

Decentralized Control of Interconnected Dynamic System

Chair: Rajamani, Rajesh Univ. of Minnesota
Co-Chair: Misawa, Eduardo Oklahoma State Univ.
Organizer: Rajamani, Rajesh Univ. of Minnesota
Co-Organizer: Misawa, Eduardo Oklahoma State Univ.

15:30 4522
Overlapping Decentralized Observation and Control of a Platoon of Vehicles (I)
Siljak, Dragoslav D. Santa Clara Univ.
Miladenvic, Suzana M. Univ. of Belgrade
Stankovic, Srdjan S. Univ. of Belgrade

15:50 1482
A Centralized Control Strategy for a Mobile Offshore Base (I)
Spry, Stephen Univ. of California at Berkeley
Hedrick, J. Karl Univ. of California at Berkeley

16:10 1487
Control and Coordination in Uninhabited Combat Air Vehicles (I)
Godbole, Dattaprabodh N. Honeywell Technology Center
16:30 1491
Semi-Autonomous Adaptive Cruise Control Systems (I)
Rajamani, Rajesh
Zhu, Chunyu
Univ. of Minnesota

16:50 4527
Robust Decentralized Control of Large-Scale Interconnected Systems: General Interconnection (I)
Pagilla, Prabhakar R.
Oklahoma State Univ.

17:10 1496
Aggregation of a Class of Linear, Interconnected Dynamical Systems (I)
Swaroop, Darbha
Rajagopal, K. R.
Texas A&M Univ.