FP05
Manufacturing Systems
Chair: Morton, Yu
Co-Chair: Viswanadham, Nukala

Miami Univ.
Natl. Univ. of Singapore
An approach to develop component-based control software for flexible manufacturing systems
Morton, Yu T. Miami Univ.
Troy, Douglas A. Miami Univ.
Pizza, George A. Miami Univ.

Stochastic models for analysis of supply chain networks
Viswanadham, N. Natl. Univ. of Singapore

Control of parallel mechanisms - a geometric approach
Yiu, Y. K. Hong Kong Univ. of Sci. & Tech.
Li, Z. X. Hong Kong Univ. of Sci. & Tech.

Flexible process control for injection molding machines using Java technology
Cheng, Chi-Cheng Natl. Sun Yat-Sen Univ.
Tseng, Yih-Tun Natl. Sun Yat-Sen Univ.
Zhao, Ying-Jie Cogent Systems Corp.
Lee, Win-Cher Cogent Systems Corp.
Liu, Tung-Kuan Natl. Kaohsiung First Univ. of Sci. and Tech.

Stability analysis for multi-class multi-queue single server system under polling table
Wang, Zhi Zhejiang Univ.
Song, Ye_qiong LORIA-ENSEM
Yu, Hai-bin Chinese Academy of Sci.
Sun, Youxian Zhejiang Univ.

New design method for stable filtered inverse systems
Yamada, Kou Gunma Univ.
Kinoshita, Wataru Gunma Univ.

Recent Advances in Model Predictive Control
Chair: Allgower, Frank Univ. of Stuttgart
Co-Chair: Kothare, Mayuresh V. Lehigh Univ.
Organizer: Kothare, Mayuresh V. Lehigh Univ.
Organizer: Allgower, Frank Univ. of Stuttgart

Lagrangian quadratic programming approach for linear model predictive control (I)
Muske, Kenneth R. Villanova Univ.

Handling constraints with predictive functional control of unstable processes (I)
Rossiter, J. A. Univ. of Sheffield
Richalet, J. ADERSA

Efficient output feedback nonlinear model predictive control (I)
Findeisen, Rolf Univ. of Stuttgart
Diehl, Moritz Univ. of Heidelberg
Bürner, Tobias Univ. of Heidelberg
Allgöwer, Frank IST, Univ. of Stuttgart
Bock, H. Georg Univ. of Heidelberg
Schlöder, Johannes P. Univ. of Heidelberg
Subspace model predictive control and a case study (I)
Hale, Elaine T.  Univ. of Texas at Austin
Qin, S. Joe  Univ. of Texas at Austin

Predictive control of fast unstable and nonminimum-phase nonlinear systems (I)
Guemghar, K.  EPFL
Balas, Srinivasan  EPFL
Mullhaupt, Ph.  EPFL
Borvin, D.  EPFL

On concentration control of fast reactions in slowly-mixed plants with slow inputs (I)
Preisig, Heinz A  Eindhoven Inst. of Technology

 modeling for robustness analysis of failure detection & accommodation systems (I)
Belcastro, Christine M.  NASA Langley Research Ctr.
Chang, B.-C.  Drexel Univ.

Stability analysis for reconfigurable systems with actuator saturation (I)
Bateman, Alec  Barron Associates, Inc.
Ward, David  Barron Associates, Inc.
Monaco, Jeffrey  Barron Associates, Inc.
Lin, Zongli  Univ. of Virginia

Verification and validation of neural networks for safety-critical applications (I)
Hull, Jason  Barron Associates, Inc.
Ward, David  Barron Associates, Inc.
Zakrzewski, Radoslaw R.  Goodrich Aerospace

Reliability analysis of AFTI-16 SRFCS using ASSIST and SURE (I)
Wu, N. Eva  Binghamton Univ.

Analysis of design trade-offs in the rollback recovery method for fault tolerant digital control systems (I)
González, Oscar R  Old Dominion Univ.
Tejada, Arturo  Old Dominion Univ.
Gray, W. Steven  Old Dominion Univ.

Implementations of real-time system identification using recursive techniques (I)
Eure, Kenneth  NASA Langley Research Ctr.
FP08
Modeling & Control of Fluid Power Systems
Chair: Yao, Bin
Co-Chair: Krishnaswamy, Kailash
Organizer: Li, Perry Y.
Organizer: Yao, Bin

03:45 4813
Control of bifurcations in multidimensional parameter space for servo-hydraulic systems (I)
Shukla, Amit
Thompson, David F.
Univ. of Cincinnati
Univ. of Cincinnati

04:05 4819
Energy-saving adaptive robust motion control of single-rod hydraulic cylinders with programmable valves (I)
Yao, Bin
DeBoer, Chris
Purdue Univ.
Purdue Univ.

04:25 4825
Nonlinear backstepping control of an electrohydraulic material testing system (I)
Lee, Seunghyeokk James
Tsao, Tsu-Chin
Univ. of Illinois at Urbana
Univ. of California Los Angeles

04:45 4831
Passification of an electrohydraulic two-stage pressure control servo-valve (I)
Krishnaswamy, Kailash
Li, Perry Y.
Univ. of Minnesota
Univ. of Minnesota

05:05 4837
The control and containment forces on the swash plate of an axial piston pump utilizing a secondary swash-plate angle (I)
Manning, Noah D.
Univ. of Missouri - Columbia

05:25 4843
An experimental study on the use of unstable electrohydraulic valves for control (I)
Yuan, Qinghui
Li, Perry Y.
Univ. of Minnesota
Univ. of Minnesota

FP09
Electric Power Systems
Chair: Ray, Asok
Co-Chair: Chow, Joe H.

03:45 4849
Load scheduling and health management of electric power generation systems
Fu, Jinbo
Ray, Asok
Spare, John H.
Pennsylvania State Univ.
Pennsylvania State Univ.
KEMA Consulting

04:05 4855
Pelton turbine deflector control designs for Bradley Lake hydro units
Johnson, Randell M.
Chow, Joe H.
Hickey, Brian
Chugach Electric Assoc., Inc.
Rensselaer Polytechnic Inst.
Chugach Electric Assoc., Inc.
Decoupling algorithm in view of multivariable electrical drives control
Benkhoris, M. F. CRTT
Tali-Maamar, N. CRTT
Terrien, F. CRTT

Use of least-mean squares (LMS) adaptive filtering technique for estimating low-frequency electromechanical modes in power systems
Wies, R. W. Univ. of Alaska Fairbanks
Pierre, J. W. Univ. of Wyoming

Parameter space depiction of operation for DC-DC boost converter
Sangswang, Anawach Drexel Univ.
Nwankpa, Chika O. Drexel Univ.

Decentralized state estimation of multi-area interconnected power systems
Chen, Xue-Bo Anshan Inst. of Iron and Steel Tech.
Stankovic, Srdjan S. Univ. of Belgrade
Siljak, Dragoslav D. Santa Clara Univ.

Optimal Control
Chair: Sznaier, Mario Penn State Univ.
Co-Chair: Khammash, Mustafa H. Iowa State Univ.

H2 control with time domain constraints: theory and an application
Sznaier, Mario Penn State Univ.

Integrated parameter and control design
Qi, Xin Iowa State Univ.
Khammash, Mustafa H. Iowa State Univ.
Salapaka, Murti V. Iowa State Univ.

Some preliminary results for IMC-based robust tunable control
Boulet, Benoit McGill Univ.
Duan, Yingxuan McGill Univ.
Michalska, Hannah McGill Univ.

Towards quantitative time domain design tradeoffs in nonlinear control
Middleton, Rick H. The Univ. of Newcastle
Braslavsky, Julio H. Univ. Nacional de Quilmes

Reliable LOG controller design via the sequential measurement update
Hsieh, Chien-Shu Ta Hwa Inst. of Tech.
Liaw, Der-Cherng Natl. Chiao Tung Univ.
Chen, Chun-Hone Natl. Chiao Tung Univ.

H-infinite control and parameteric controllers for descriptor systems
Zhao, Zhuhua Northeastern Univ.
Zhang, Qingling Northeastern Univ.
Liu, Xiaodong Dalian Maritime Univ.
Summit 11

Control Applications V
Chair: Davison, Edward J. 
Co-Chair: Bevly, David M.

03:45 4914
Servomechanism controller design of web handling systems
Liu, Weixuan 
Davison, E. J.
Univ. of Toronto
Univ. of Toronto

04:05 4922
MIMO control of an apache web server: modeling and controller design
Gandhi, N. 
Tilbury, D. M.
Diao, Y.
Hellerstein, J.
Parekh, S.
Univ. of Michigan
Univ. of Michigan
IBM T.J. Watson Research Ctr.
IBM T.J. Watson Research Ctr.
IBM T.J. Watson Research Ctr.

04:25 4928
Model reference adaptive predictive control of a variable-frequency oil-cooling machine
Huang, Chih-Hung 
Tsai, Ching-Chih
Natl. Chung-Hsing Univ.
Natl. Chung-Hsing Univ.

04:45 4934
Camera calibration and sensor fusion in an automated flexible manufacturing multi robot work cell
Garg, Devendra P. 
Kumar, Manish
Duke Univ.
Duke Univ.

05:05 4940
Precision dynamics, stochastic modeling, and multivariable control of planar magnetic levitator
Kim, Won-jong
Texas A&M Univ.

05:25 4946
Nanoradian digital stabilization of a suspended table for scientific experiments
Canuto, Enrico
Politecnico di Torino

---

Summit 12

Distributed Parameter Models
Chair: Fahrenthold, Eric P. 
Co-Chair: Doumanidis, Haris

03:45 4948
Interpretation of smooth reference commands as input-shaped functions
Eloudou, Raynald 
Singhose, William
Georgia Inst. of Tech.
Georgia Inst. of Tech.

04:05 4954
State space modeling for optical fiber drawing process
Tchikanda, Serge 
Lee, Kok-Meng
Sandia Labs.
Georgia Inst. of Tech.

04:25 4960
Discrete Hamilton's equations for distributed property systems simulations
Fahrenthold, Eric P.
Univ. of Texas at Austin
Modification of residual vibration in elevators with time-varying cable lengths

Zhang, Yuhong
Univ. of Delaware

Pota, Himanshu R.
Univ. of Delaware

Agrawal, Sunil K.
Univ. of Delaware

Distributed parameter thermal controllability—the inverse heat conduction problem in materials processing

Alaeddine, Tarek
Tufts Univ.

Doumanidis, Haris
Tufts Univ.

Analysis of multi-resolutional optimal control systems

Dasgupta, Anand
Univ. of Missouri-Rolla

Balakrishnan, S N
Univ. of Missouri-Rolla

Acar, Levent
Univ. of Missouri-Rolla

Controller Tuning

Chair: Bhattacharyya, Shankar P.
Texas A & M Univ.

Co-Chair: Tsakalis, Kostas
Arizona State Univ.

Gain-bandwidth optimization of PID controllers

Ukpai, Ugpai I.
Texas A&M Univ.

Jayasuriya, Suhada
Texas A&M Univ.

Simple criteria for controller performance monitoring

Tsakalis, Kostas S.
Arizona State Univ.

Dash, Sachi
Honeywell Tech Ctr.

Design of feedforward filters for improving tracking performances of existing feedback control systems

Tsai, Kuen-Yu
Stanford Univ.

Schaper, Charles D.
Stanford Univ.

Kailath, Thomas
Stanford Univ.

Design of fixed structure controllers with respect to various specifications using robust control and genetic algorithm

Le Mauff, Frédéric
Supélec

Duc, Gilles
Supélec

PID tuning revisited: guaranteed stability and non-fragility

Silva, Guillermo J.
IBM Server Group

Datta, Aniruddha
Texas A&M Univ.

Bhattacharyya, S. P.
Texas A&M Univ.

PID controller design using Bode’s integrals

Karimi, A.
EPFL

Garcia, D.
EPFL

Longchamp, R.
EPFL

Planning & Scheduling

Chair: Cruz, Jose
The Ohio State Univ.

Co-Chair: Casavola, Alessandro
Univ. Diella Calabria
Dynamic Nash task reassignment strategies in multi-team systems
Liu, Yong
Univ. of Pittsburgh
Cruz, Jr., Jose B.
The Ohio State Univ.
Simaan, Marwan A.
Univ. of Pittsburgh

Visual PLC-programming using Signal Interpreted Petri Nets
Minas, Mark
Univ. of Erlangen-Nürnberg
Frey, Georg
Univ. of Kaiserslautern

Modeling and optimal control of fed-batch processes using Control
Affine Feedforward Neural Networks
Xiong, Zhihua
Univ. of Newcastle
Zhang, Jie
Univ. of Newcastle

Towards constrained supervision of dynamic systems in spatial
networks
Casavola, Alessandro
Univ. of Calabria
Mosca, Edoardo
Univ. of Florence
Papini, Maurizio
Univ. of Florence

Modeling and control of holonic manufacturing systems based on
extended contract net protocol
Hsieh, Fu-shiung
Overseas Chinese Inst. of Tech.

A framework of hierarchical receding control policy for production
systems
Song, Chunyue
Zhejiang Univ.
Gao, Chunhua
Zhejiang Univ.
Wang, Hui
Zhejiang Univ.
Li, Ping
Zhejiang Univ.

Chemical Process Control
Chair: Spreitzer, Karsten
Darmstadt Univ. of Tech.
Co-Chair: Gambier, Adrian
Univ. of Mannheim

Modelling feedback control adjustment to control output product
quality
Venkatesan, G.
Tokyo Inst. of Tech.

Observer-based estimation of the water-mass-flow through a central
heating boiler
Spreitzer, Karsten
Darmstadt Univ. of Technology
Rückbrodt, Dörte
Darmstadt Univ. of Tech.
Straky, Harald
Darmstadt Univ. of Tech.

Hybrid modelling for supervisory control purposes for the brine
heater of a multi stage flash desalination plant
Gambier, A.
Univ. of Mannheim
Fertig, M.
Univ. of Mannheim
Badreddin, E.
Univ. of Mannheim
Power stabilization of nuclear research reactor via fuzzy controllers
Emara, H. M. Cairo Univ.
Elsadat, A. Nuclear Research Ctr.
Bahgat, A. Cairo Univ.
Sultan, M. Nuclear Research Ctr.

Statistical process monitoring using multiple PCA models
Yang, Yinghua Northeastern Univ.
Lu, Ningyun Northeastern Univ.
Wang, Fuli Northeastern Univ.
Ma, Liling Northeastern Univ.
Chang, Yuqing Northeastern Univ.

A Novel Smith Predictor with Double-Controller Structure
Wei, Tang Shanghai Jiaotong Univ. of China
Songjiao, Shi Shanghai Jiao Tong Univ. of China
Mengxiao, Wang Northwest Inst. of Light Ind. of China

Fault Tolerent Control
Chair: Yen, Gary G. Oklahoma State Univ.
Co-Chair: Edwards, Christopher Univ. of Leicester

Dynamic database approach for fault tolerant control using Dual Heuristic programming
Yen, Gary G. Oklahoma State University
de Lima, Pedro G. Oklahoma State Univ.

A robust sensor fault reconstruction scheme using sliding mode observers applied to a nonlinear aero-engine model
Tan, Chee Pin Univ. of Leicester
Edwards, Christopher Univ. of Leicester

Multiple objective robust control mixer method for synthesis of reconfigurable control
Yang, Zhenyu Aalborg Univ. Esbjerg
Hicks, David L. Aalborg Univ. Esbjerg

A decentralized scheme for accommodation of multiple simultaneous actuator failures
Boškovic, Jovan D. Scientific Systems Co., Inc.
Mehra, Raman K. Scientific Systems Co., Inc.

Fault accommodation using model predictive methods
Boškovic, Jovan D. Scientific Systems Co., Inc.
Mehra, Raman K. Scientific Systems Co., Inc.

Systematization of reliable control
Suyama, Koichi Tokyo Univ. of Mercantile Marine

Numerical Methods II
Chair: Vincent, Tyrone L. Colorado School of Mines
Co-Chair: Jonckheere, Edmond A. Univ. of Southern California
03:45  5119
Theory of optimal pulse shaping for plasma processing
Vincent, Tyrone L. Colorado School of Mines
Raja, Laxminarayan L. The Univ. of Texas at Austin

04:05  5126
Spectral factorization via Lyapunov equation based Newton-Raphson iteration
Kraffer, Ferdinand
Loiseau, Jean J.
IRCCyN

04:25  5132
An efficient algorithm for solving a maximization problem under linear and quadratic inequality constraints
Antonelli, Gianluca
Chiaverini, Stefano
Fusco, Giuseppe
Univ. of Cassino
Univ. of Cassino
Univ. of Cassino

04:45  5138
Algebraic Riccati Equations and Infinitesimal V-Stability, A Grobner Basis Approach
Fathpour, Nanaz
Jonckheere, Edmond A.
Univ. of Southern California
Univ. of Southern California

05:05  Paper not available at time of printing
Optimization of tandem queue system with finite buffers
Li, Yongjian
Tu, Fengsheng
The Chinese Univ. of Hongkong
Nankai Univ.

05:25  5144
Design of the ordinary differential equation solver in the Yau Filtering System
Lai, Yen-Tai
Yau, Stephen S. T.
Chen, Ping-Hua
Natl. Cheng Kung Univ.
Natl. Cheng Kung Univ.
Natl. Cheng Kung Univ.