
**1999 IEEE CCA/CACSD
Monday, August 23, 1999**

Hapuna Ballroom

**CCA/CACSD Opening Remarks
8:20 - 8:30**

General Chairs

Gruebel, Georg	DLR Oberpfaffenhofen
McClamroch, N. Harris	Univ. of Michigan
Sano, Akira	Keio Univ.

Hapuna Ballroom

**CACSD Plenary Presentation
8:30 - 9:30**

***Modelica -A Language for Physical System
Modeling, Visualization, and Interaction***

Elmqvist, Hilding	Dynasim AB
Chair: Varga, Andras	DLR Oberpfaffenhofen

8:30 CACSD-630
*Modelica -A Language for Physical System Modeling,
Visualization, and Interaction*
Elmqvist, Hilding, Dynasim AB
Mattsson, Sven Erik DLR Oberpfaffenhofen
Otter, Martin

Mauka

**CACSD-Panel
Perspectives of CACSD**

Chair: Gruebel, Georg DLR Oberpfaffenhofen

CACSD-297

*Perspectives of CACSD: Embedding the Control System
Design Process into a Virtual Engineering Environment*
Gruebel, Georg DLR Oberpfaffenhofen

7:00 p.m – 9:00 p.m.

Panelists

Gruebel, Georg	DLR Oberpfaffenhofen, DE
Elmqvist, Hilding	Dynasim AB, SE
Safonov, Michael G.	Univ. of Southern California, US
Levine, William S.	Univ. of Maryland, US
Engell, Sebastian	Univ. Dortmund, DE
Varsamidis, Thomas	Univ. of Wales, Bangor, UK
Schrage, Daniel P.	Georgia Inst. of Tech., US

Koa

CACSD-MA1

Computational Tools for Modeling Uncertain Systems

Chair: Beck, Carolyn Univ. of Illinois, Urbana-Champaign
Co-chair: D'Andrea, Raffaello Cornell Univ.
Org.: Beck, Carolyn Univ. of Illinois, Urbana-Champaign
Org.: D'Andrea, Raffaello Cornell Univ.

10:00 (I) CACSD-1
*Symbolic and Numerical Software Tools for LFT-Based Low
Order Uncertainty Modeling*
Varga, Andras,
Looye, Gertjan DLR Oberpfaffenhofen

10:20 (I) CACSD-7
*Computer-Aided Uncertainty Modeling of Nonlinear
Parameter-Dependent Systems, Part I: Theoretical Overview*
Belcastro, Christine M.,
Morelli, Eugene A.,
Lim, Kyong B. NASA Langley Res. Cen.

10:40 (I) CACSD-16
*Computer-Aided Uncertainty Modeling of Nonlinear
Parameter-Dependent Systems, Part II: F-16 Example*
Belcastro, Christine M.,
Lim, Kyong B.,
Morelli, Eugene A. NASA Langley Res. Cen.

11:00 (I) CACSD-24
*Software for Modeling, Analysis, and Control Design for
Multidimensional Systems*
D'Andrea, Raffaello Cornell Univ.

11:20 (I) CACSD-28
*The Validation of Model Sets on the Basis of Closed-Loop
Feedback System Generated Data*
Dullerud, Geir E. Univ. of Illinois, Urbana-Champaign
Smith, Roy Univ. of California, Santa Barbara

11:40 (I) CACSD-34
*Model Reduction of Complex Systems in the Linear-Fractional
Framework*
Lall, Sanjay California Inst. of Tech.
Beck, Carolyn Univ. of Illinois, Urbana-Champaign

Milo

CACSD-MA2

Hybrid Systems and Real-Time Simulation

Chair: Branicky, Michael S. Case Western Reserve Univ.
Co-chair: Ravn, Ole Tech. Univ. of Denmark
Org.: Lemmon, Michael Univ. of Notre Dame

10:00 (I) CACSD-97
*An Environment for Model-Checking of Logic Control Systems
with Hybrid Dynamics*
Kowalewski, S.,
Bauer, N.,
Preussig, J.,
Stursberg, O.,
Treseler, H. Univ. of Dortmund

10:20 (I)	CACSD-103	11:00 (I)	CACSD-219
<i>Modular Verification of a Fault-Tolerant Active Structure Controller: An Example</i>	Cadence Berkeley Labs	<i>Towards a More Efficient Approach to Automotive Embedded Control System Development</i>	ETAS Inc.
Wong-Toi, Howard		Smith, Michael H., Elbs, Martin	
10:40 (I)	CACSD-109	11:20 (I)	CACSD-225
<i>Fast Marching for Hybrid Systems</i>	Case Western Reserve Univ.	<i>A Qualitative Analysis of Automatic Code Generation Tools for Automotive Powertrain Applications</i>	Motorola Virtual Garage
Branicky, Michael S., Hebbar, Ravi		Wybo, David, Putti, David	
11:00	CACSD-115	11:40 (I)	CACSD-231
<i>Real-Time Distributed Software-In-The-Loop Simulation for Distributed Control Systems</i>	Seoul Nat. Univ.	<i>Software Architectures for OSEK/VDX Applications Using MATRIXx TM and AutoCode TM</i>	Integrated Systems, Inc.
Kwon, Wook Hyun, Choi, Seong-Gyu		Martin, Todd A.	
11:20	CACSD-120		Makai
<i>Simulation and Animation in Simulink and VRML</i>	Tech. Univ. of Denmark	CCA-MA4	
Ravn, Ole, Larsen, Thomas D., Andersen, Nils A.		Metal Processing	
11:40	CACSD-126	Chair: Takahashi, Ryouichi	Sumitomo Metal Ind.
<i>Development of Software for the Hard Real-Time Controller Using Feature-Oriented Reuse Method and CASE Tools</i>		Co-chair: Takatsu, Haruo	Yokogawa Electric Corp.
Choi, Byoung Wook, Jang, K.B., Kim, C.H., Wang, K.S. Kang, K.C.	LG Ind. Sys. Pohang Univ. of Sci. & Tech.	Org.: Takahashi, Ryouichi	Sumitomo Metal Ind.
	Mauka	10:00 (I)	CCA-1
CACSD-MA3		<i>Modeling for Control of Blast Furnace</i>	Univ. of Tokyo
Automatic Code Generation for Automotive Applications		Tsumura, Kouji	
Chair: Toeppe, Steve	Ford Motor Co.	10:20 (I)	CCA-7
Co-chair: Ruekgauer, Andreas	dSpace Inc.	<i>Directional Considerations When Tracking Time-Variant Parameters</i>	
Org.: Toeppe, Steve	Ford Motor Co.	Waller, Matias, Saxen, Henrik	Abo Akademi Univ.
10:00 (I)	CACSD-200	10:40 (I)	CCA-13
<i>Automatic Code Generation Requirements for Production Automotive Powertrain Applications</i>	Ford Motor Co.	<i>Hybrid Neural Network Multivariable Predictive Controller for Handling Abnormal Events in Processing Applications</i>	
Toeppe, Steve, Bostic, Dave, Ranville, Scott, Rzemien, Kevin		Mathur, Anoop, Parthasarathy, Sanjay, Gaikwad, Sujit	Honeywell Tech. Cen.
10:20 (I)	CACSD-207	11:00 (I)	CCA-18
<i>Using BEACON to Generate Embedded Software from Simulink Models</i>	Applied Dynamics Int.	<i>On the Possibility of Looperless Rolling on Hot Rolling Process</i>	
Englehart, Matthew		Katori, Hideo, Hirayama, Ryu, Ueyama, Takatsugu Furuta, Katsuhisa	Nippon Steel Corp. Tokyo Inst. of Tech.
10:40 (I)	CACSD-213	11:20 (I)	CCA-23
<i>Production Quality Code Generation from Simulink Block Diagrams</i>	dSpace GmbH	<i>Strip Gage and Tension Control At Cold Tandem Mill Based on I.L.Q. Design Theory</i>	
Hanselmann, Herbert, Kiffmeier, U., Koester, L., Meyer, M., Ruekgauer, A.		Kadoya, Y., Ooi, T., Washikita, Y. Seiki, Y.	Sumitomo Metal Ind. Toshiba Corp.

11:40 CCA-29
Application of Multivariable Technique in Temperature Control of Reheating Furnaces
 Wang, Zhongjie,
 Shao, Cheng,
 Chai, Tianyou Northeastern Univ.

12:00 *
Nonlinear Model Predictive Control for the Isothermal Extrusion of Aluminum
 Steiner, Max ETH

CCA-MA5

Flight Control I

Chair: Yurkovich, Stephen Ohio State Univ.
 Co-chair: Keel, Lee H. Tennessee State Univ.

10:00 CCA-33
Receding Horizon FIR Filter with Estimated Horizon Initial State and its Application to Aircraft Engine Systems
 Han, Soo Hee,
 Kim, Pyung Soo,
 Kwon, Wook Hyun Seoul Nat. Univ.

10:20 CCA-39
Bayesian Belief Networks for Fault Identification in Aircraft Gas Turbine Engines
 Mast, Timothy A.,
 Reed, Aaron T.,
 Yurkovich, Stephen Ohio State Univ.
 Ashby, Malcolm,
 Adibhatla, Shrider GE Aircraft Engr.

10:40 CCA-45
Control Structure Design Methods Applied to a Jet Engine
 Harefors, Melker Volvo Aero Corp.

11:00 CCA-51
Receding Horizon Control of the Caltech Ducted Fan: A Control Lyapunov Function Approach
 Jadbabaie, Ali,
 Yu, Jie California Inst. of Tech.
 Hauser, John Univ. of Colorado

11:20 CCA-57
QFT Based Robust/Fault Tolerant Flight Control Design for a Remote Pilotless Vehicle
 Wu, Shu-Fan Nanjing Univ. of Aeronautics & Astronautics
 Grimble, Michael J. Univ. of Strathclyde
 Wei, Wei Nanjing Univ. of Aeronautics & Astronautics

11:40 CCA-63
Fault Tolerant Controller Design for Large Space Structures
 Ahmad, S. S. Allied Signal Power Systems Inc.
 Lew, J. S.,
 Keel, Lee H. Tennessee State Univ.

Lehua

CCA-MA6

Integrated Design of Passive and Active Elements in Control Systems

Chair: Obinata, Goro Akita Univ.
 Co-chair: Skelton, Robert E. Univ. of California, San Diego
 Org.: Obinata, Goro Akita Univ.

10:00 (I) CCA-69
Generation of Structural Design Constraints for Spaceborn Precision Pointing Systems
 Becker, Gregory,
 Cubalchini, Ronald,
 Tham, Quang,
 Anagnost, John Raytheon Systems Co.

10:20 (I) *
Smart Tensegrity Structures: A Novel Concept for Spacecraft Structural Control
 Skelton, Robert E. Univ. of California, San Diego

10:40 (I) CCA-75
Integrated Structural and Control Design for Structural Systems via LMI
 Mayzus, Alexander,
 Grigoriadis, Karolos Univ. of Houston

11:00 (I) CCA-80
Redesign of Closed Loop System for Integrated Design of Structure and its Vibration Control System
 Adachi, Kazuhiko,
 Sakamoto, Koji,
 Iwatsubo, Takuzo Kobe Univ.

11:20 (I) CCA-86
Integrated Design of Structure and Control System Considering Performance and Stability
 Kajiwara, Itsuro,
 Nagamatsu, Akio Tokyo Inst. of Tech.

11:40 (I) CCA-92
Integrated Optimal Design of Passive and Active Elements for Hard Disk Servo Systems
 Obinata, Goro,
 Saito, Koji,
 Hiramoto, Kazuhiko,
 Doki, Hitoshi Akita Univ.

12:00 (I) CCA-97
Integrated System Design by Separation
 Iwasaki, Tetsuya Tokyo Inst. of Tech.

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CACSD-MM1			
Numerical Methods for Systems			
Chair: Mehrmann, Volker	Tech. Univ. of Chemnitz		
Co-chair: Misra, Pradeep	Wright State Univ.		
Org.: Van Dooren, Paul	Univ. Catholique de Louvain		
Org.: Mehrmann, Volker	Tech. Univ. of Chemnitz		
2:00 (I)	CACSD-40		
<i>On Invariant Subspaces of Hamiltonian Matrices</i>			
Mehrmann, Volker,			
Xu, Hongguo	Tech. Univ. of Chemnitz		
2:20 (I)	CACSD-46		
<i>Numerical Solution of Linear Quadratic Control Problems for Descriptor Systems</i>			
Benner, Peter	Univ. of Bremen		
Byers, Ralph	Univ. of Kansas		
Mehrmann, Volker,			
Xu, Hongguo	Tech. Univ. of Chemnitz		
2:40 (I)	CACSD-52		
<i>The Photon Diffusion Equation: Forward and Inverse Problems</i>			
Syrmos, Vassilis L.,			
Yin, J.,			
Yun, D.Y.Y.	Univ. of Hawaii, Manoa		
Misra, Pradeep	Wright State Univ.		
3:00 (I)	CACSD-58		
<i>Two Point Boundary Value and Periodic Eigenvalue Problems</i>			
Van Dooren, Paul	Univ. Catholique de Louvain		
3:20 (I)	CACSD-64		
<i>Solving Linear and Quadratic Matrix Equations on Distributed Memory Parallel Computers</i>			
Benner, Peter	Univ. of Bremen		
Quintana-Orti, Enrique S.,			
Quintana-Orti, Gregorio	Univ. Jaime		
	Milo		
CACSD-MM2			
Object Oriented Modeling and Simulation			
Chair: Elmquist, Hilding	Dynasim AB		
Co-chair: Engell, Sebastian	Univ. of Dortmund		
Org.: Mattsson, Sven Erik	Dynasim AB		
Org.: Otter, Martin	DLR Oberpfaffenhofen		
2:00 (I)	CACSD-132		
<i>An Object-Oriented Model for Hybrid Control Systems</i>			
Carpanzano, Emanuele,			
Ferrarini, Luca,			
Maffezzoni, Claudio	Pol. di Milano		
2:20 (I)	CACSD-138		
<i>Recipe-Driven Batch Processes: Event Handling in Hybrid System Simulation</i>			
Fritz, Martin	Software Design & Manag. GmbH		
Liefeldt, Andreas,			
Engell, Sebastian	Univ. of Dortmund		
2:40 (I)	CACSD-144		
<i>Combining Information Technology Components and Symbolic Equation Manipulation in Modeling and Simulation of Mechatronic Systems</i>			
Diaz-Calderon, Antonio,			
Paredis, Christiaan J. J.,			
Khosla, Pradeep K.	Carnegie Mellon Univ.		
3:00 (I)	CACSD-151		
<i>Hybrid Modeling in Modelica Based on the Synchronous Data Flow Principle</i>			
Otter, Martin	DLR Oberpfaffenhofen		
Elmqvist, Hilding,			
Mattsson, Sven Erik	Dynasim AB		
3:40	CACSD-158		
<i>Physical Modeling with Multipoles</i>			
Mann, Herman	Czech Tech. Univ.		
	Mauka		
CACSD-MM3			
Automatic Code Generation			
Chair: Erkkinen, Tom J.	Applied Dynamics Int.		
Co-chair: Zurawka, Thomas	ETAS GmbH		
Org.: Erkkinen, Tom J.	Applied Dynamics Int.		
Org.: Zurawka, Thomas	ETAS GmbH		
2:00 (I)	CACSD-237		
<i>Safety-Critical Software Generation</i>			
Erkkinen, Tom J.	Applied Dynamics Int.		
2:20 (I)	CACSD-243		
<i>Component-Node-Network: Three Levels of Optimized Code Generation with ASCET-SD</i>			
Honekamp, Uwe,			
Reidel, Justus,			
Werther, Kai,			
Zurawka, Thomas,			
Beck, Thomas	ETAS GmbH		
2:40 (I)	CACSD-249		
<i>On the Compilation of Statecharts Models into Target Code for Embedded Systems</i>			
Erpenbach, Edwin,			
Stroop, Joachim,			
Rammig, Franz J.	Univ. of Paderborn		
3:00	CACSD-255		
<i>Using the Adaptive Blockset for Simulation and Rapid Prototyping</i>			
Ravn, Ole	Tech. Univ. of Denmark		
3:20 (I)	CACSD-261		
<i>Redefining the Process for Development of Embedded Software</i>			
Bryant, Steven E.	Army-Space and Missile Def. Com.		
Key, Kent	Military Tech., Inc.		

2:20	CCA-170	5:20 (I)	CACSD-85
<i>Design of a Tracking System Using N-Delay Two-Degree-Of-Freedom Control and its Application to Hard Disk Drives</i>	Takakura, Shinji Toshiba Res. & Dev. Cen.	<i>High-Performance Algorithms and Software for Systems and Control Computations</i>	Sima, Vasile Van Huffel, Sabine Res. Inst. for Inf., Bucharest Katholieke Univ. Leuven
2:40	CCA-176	5:40	CACSD-91
<i>Integrated Design for High Robust Performance with Quick Time-Response: An Application to Head Positioning Control of a Hard Disk</i>	Hara, Shinji, Nishio, Masashi Maruyama, Tsugito Tokyo Inst. of Tech. Fujitsu Lab. LTD.	<i>Numerical Linear Control Library – a Mathematica-Based Integrated Environment with the Modern Control Algorithms</i>	Datta, Biswa Nath, Sarkissian, Daniil Northern Illinois Univ.
3:00	CCA-182	Milo	
<i>Following Control of a Hard Disk Drive by Using Sampled-Data H_∞ Control</i>	Hirata, Mitsuo, Atsumi, Takenori, Murase, Akiyo, Nonami, Kenzo Chiba Univ.	CACSD-MP2 Fault Detection and Diagnosis	Chair: Popescu, Theodor Co-chair: Gertler, Janos Org.: Popescu, Theodor Org.: Gertler, Janos Res. Inst. for Inf., Bucharest George Mason Univ. Res. Inst. for Inf., Bucharest George Mason Univ.
3:20	CCA-187	4:20 (I)	CACSD-164
<i>H2-Control with Acceleration Feedback for a Micro Positioning System</i>	Robl, Christian, Englberger, Gerhard, Farber, Georg Tech. Univ. Munich	<i>Direct Identification of Optimal Nonlinear Parity Models</i>	Gertler, Janos, Hu, Yongtong George Mason Univ.
3:40	CCA-193	4:40 (I)	CACSD-170
<i>Multiobjectives Design of a Multirate Output Controller</i>	Shen, Liang, Er, Meng Joo Nanyang Tech. Univ.	<i>Estimation, Compression and Classification of Volterra Kernels with Application to Process Diagnosis</i>	Aiordachioaie, Dorel, Ceanga, Emil Dunarea de Jos Galati Univ.
Koa		5:00 (I)	CACSD-176
CACSD-MP1 Numerical Methods and Software	Chair: Van Dooren, Paul Co-chair: Benner, Peter Org.: Van Dooren, Paul Org.: Mehrmann, Volker Univ. Catholique de Louvain Univ. of Bremen Univ. Catholique de Louvain Tech. Univ. of Chemnitz	<i>The Implications of the Object/Unified Modeling Language Approach to the Problem of Fault Detection and Isolation in Dynamical Systems</i>	Fodor, George A. Grantner, Janos L. Driankov, Dimitar ABB Western Michigan Univ. Univ. of Linkoping
4:20 (I)	CACSD-70	5:20 (I)	CACSD-182
<i>Initializing Newton's Method for Discrete-Time Algebraic Riccati Equations Using the Butterfly SZ Algorithm</i>	Fassbender, Heike, Benner, Peter Univ. of Bremen	<i>Change Detection in Signals Using Linear Regression Models</i>	Popescu, Theodor Res. Inst. for Inf., Bucharest
4:40 (I)	CACSD-75	5:40 (I)	CACSD-188
<i>An Arithmetic for Rectangular Matrix Pencils</i>	Benner, Peter Byers, Ralph Univ. of Bremen Univ. of Kansas	<i>Computer Aided Design of Failure Detection and Identification and Adaptive Reconfigurable Control Systems for Aerospace Applications</i>	Boskovic, Jovan D., Gopinathan, Murali, Mehra, Raman K. Sci. Systems Co., Inc.
5:00 (I)	CACSD-81	6:00	CACSD-194
<i>Stability Radii of Polynomial Matrices</i>	Genin, Yves, Van Dooren, Paul Univ. Catholique de Louvain	<i>Component-Based Modeling and Diagnosis of Process-Control Systems</i>	Provan, Gregory, Chen, Yi-Liang Rockwell Sci. Cen.

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CACSD-MP3			
CACSD Learning via Internet			
Chair: Schmid, Christian	Ruhr-Univ.		
Co-chair: Kennedy, Diane C.	Ryerson Pol. Univ.		
Org.: Schmid, Christian	Ruhr-Univ.		
4:40 (I)	651		
<i>Ryerson Initiatives in Integrating the Internet, Multimedia Components, and Hand-On Experimentation into Problem-Based Control Education</i>			
Zywno, Malgorzata S.,			
Kennedy, Diane C.	Ryerson Pol. Univ.		
5:00 (I)	CACSD-273		
<i>DynaMit -Internet Based Education Using CACSD</i>			
Loehl, T.,			
Pegel, S.,			
Klatt, K.-U.,			
Engell, Sebastian	Univ. of Dortmund		
Schmid, Christian,			
Ali, A.	Ruhr-Univ. Bochum		
5:20 (I)	CACSD-279		
<i>The Virtual Lab for Controlling Real Experiments via Internet</i>			
Roehrig, Christof,			
Jochheim, Andreas	Univ. of Hagen		
5:40 (I)	CACSD-285		
<i>Multimedia Courseware for Basic Control Theory</i>			
Jochheim, Andreas,			
Gerke, Michael,			
Laaser, Wolfram	Univ. of Hagen		
6:00 (I)	CACSD-291		
<i>Using the World Wide Web for Teaching Control Systems Design</i>			
Henry, Jim	Univ. of Tennessee at Chattanooga		
	Makai		
CCA-MP4			
Combustion Dynamics and Control			
Chair: Banaszuk, Andrzej,			
Co-chair: Jacobson, Clas	United Tech. Res. Cen.		
Org.: Banaszuk, Andrzej,			
Org.: Jacobson, Clas	United Tech. Res. Cen.		
4:20 (I)	CCA-199		
<i>Linear and Nonlinear Analysis of Controlled Combustion Processes. Part I: Linear Analysis</i>			
Banaszuk, Andrzej,			
Jacobson, Clas,			
Khibnik, Alexander I.	United Tech. Res. Cen.		
Mehta, Prashant	Cornell Univ.		
4:40 (I)			CCA-206
<i>Linear and Nonlinear Analysis of Controlled Combustion Processes. Part I I: Nonlinear Analysis</i>			
Banaszuk, Andrzej,			
Jacobson, Clas,			
Khibnik, Alexander I.		United Tech. Res. Cen.	
Mehta, Prashant		Cornell Univ.	
5:00 (I)			*
<i>Controlling Flame Speed Using Countercurrent Shear</i>			
Strykowski, Paul,			
Forliti, D.		Univ. of Minnesota	
5:20 (I)			*
<i>LES Methods for Gas Turbine Instability Modeling</i>			
Yang, Vigor		Pennsylvania State Univ.	
5:40 (I)			CCA-213
<i>Role of Actuation in Combustion Control</i>			
Hathout, J.P.,			
Fleifil, Mahmoud,			
Annaswamy, Anuradha,			
Ghoniem, A.F.		Massachusetts Inst. of Tech.	
			Hau
CCA-MP5			
Guidance and Control of Aerospace Vehicles			
Chair: Cloutier, James R.		Air Force Res. Lab.	
Co-chair: Stansbery, Donald		Questech, Inc	
Org.: Cloutier, James R.		Air Force Res. Lab.	
4:20 (I)			CCA-219
<i>Hypersonic Guidance via the State-Dependent Riccati Equation Control Method</i>			
Cloutier, James R.,			
Zipfel, Peter H.		Air Force Res. Lab.	
4:40 (I)			CCA-225
<i>Online Identification and Control of Aerospace Vehicles Using Recurrent Networks</i>			
Hu, Zhenning,			
Balakrishnan, S.N.		Univ. of Missouri, Rolla	
5:00 (I)			CCA-231
<i>Motion Planning for Reduced Observability of Autonomous Aerial Vehicles</i>			
McFarland, Michael B.,			
Zachery, Randy A.,			
Taylor, Brian K.		Air Force Res. Lab.	
5:20 (I)			CCA-236
<i>Understanding Missile Autopilot Design Using the H_∞ Loop Shaping Design Procedure</i>			
Urban, Thomas J.,			
Iwaskiw, A. Pete,			
Iglesias, Pablo		Johns Hopkins Univ.	

5:40 (I) CCA-243
Integrated Missile Guidance and Control: A State Dependent Riccati Differential Equation Approach
 Palumbo, Neil F.,
 Jackson, Todd D. Johns Hopkins Univ.

6:00 (I) CCA-249
Air Traffic Control Using Genetic Search Techniques
 Cheng, V.H.L.,
 Crawford, L.S.,
 Menon, P.K. Optimal Synthesis, Inc.

Lehua

CCA-MP6

Motion Control

Chair: Ling, Bo Foxboro Co.
 Co-chair: Bonivento, C. Univ. of Bologna

4:20 CCA-255
Design of Speed Controllers to Suppress Torsional Vibrations Based on Frequency Characteristics
 Matsui, Yoshihiro Tokyo Nat. College of Tech.
 Nishida, Hideyuki,
 Todaka, Yuji Fuji Electric Co.
 Takeuchi, Tomoyoshi Univ. of Electro-Communications

4:40 CCA-261
Performance Improvement of Multivariable Linear System with Unmeasured External Disturbance
 Ling, Bo Foxboro Co.

5:00 CCA-267
Error Feedback Sliding Mode Controllers in Output Regulation of Nonlinear Systems
 Marconi, L.,
 Passini, S.,
 Bonivento, C. Univ. of Bologna

5:20 CCA-273
A Minimum-Time Motion Planning Method Based on Phase Space Analysis
 Koh, K.C.,
 Aum, H.S. Sun Moon Univ.
 Cho, H.S. KAIST

5:40 CCA-279
Adaptive Compensation for Pointing and Tracking System Applications
 Kennedy, Peter J.,
 Kennedy, Rhonda L. David H. Pollock Consultants
 Agard, Ian Northrop Grumman Elec.

6:00 CCA-285
Controller Design Involving Gain Scheduling for a Large Scale Pneumatic Muscle Actuator
 Repperger, D.W. Air Force Res. Lab.
 Phillips, C.A. Wright State Univ.
 Krier, M. Air Force Res. Lab.

**1999 IEEE CCA/CACSD
 Tuesday, August 24, 1999**

Hapuna Ballroom

CCA Plenary Presentation

8:30 - 9:30

Uncertainty, Complexity and Learning: Control Perspective

Kimura, Hidenori Univ. of Tokyo
 Chair: Hara, Shinji Tokyo Inst. of Tech.

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CACSD-TuA1

Computer Algebra in CACSD

Chair: Ogunye, Ayowale B. Air Products and Chem., Inc.
 Co-chair: Kwatny, Harry G. Drexel Univ.
 Org.: Ogunye, Ayowale B. Air Products and Chem., Inc.

10:00 (I) CACSD-640
A Computer Algebra Approach to Undersea Vehicle Dynamics
 Kwatny, Harry G. Drexel Univ.
 Salter, Eric Tech.-Sci., Inc.
 Ammeen, Edward S. Naval Surface Warfare Cen.
 Blankenship, Gilmer L. Univ. of Maryland

10:20 (I) CACSD-303
Solution of Unilateral and Bilateral Diophantine Equations Using Symbolic Computation
 Ogunye, Ayowale B. Air Products and Chem., Inc.

10:40 (I) CACSD-309
Symbolic Computation in Nonlinear Control System Modeling and Analysis
 de Jager, Bram Eindhoven Univ. of Tech.

11:00 (I) *
A Maple Toolbox for Measuring Nonlinearity in Process Control
 McLellan, P.J. Queen's Univ.
 Guay, Martin Univ. of Alberta

11:20 (I) CACSD-315
Symbolic Manipulation of Rational Matrices and Applications
 Karampetakis, N. P.,
 Tzekis, P. Aristotle Univ. of Thessaloniki

11:40 CACSD-321
A Computer Aided Technique to Derive the Class of Realizable Transfer Function Matrices of a Control System for a Prescribed Order Controller
 Tagawa, Yasutaka Tokyo Univ. of Agric. and Tech.
 Tagawa, Ryozauro Hokkaido Univ.

10:20	CCA-933		10:40 (I)	CCA-1110
<i>Analysis, Design, and Control of Advanced Brushless Synchronous Machines with Power Converters</i>			<i>Thruster Assisted Position Mooring System for Turret Anchored FPSOs</i>	
Lyshevski, Sergey E.,			Sorensen, Asgeir J.	Norwegian Univ. of Sci. & Tech.
Sinha, A.S.C.	Purdue Univ., Indianapolis		Strand, Jann Peter	ABB Ind.
Wylam, William,			Fossen, Thor I.	Norwegian Univ. of Sci. & Tech.
Cho, Peter	Delco Remy America, Inc.			
10:40	CCA-939		11:00 (I)	CCA-1118
<i>Rotor Position Detection of a Switched Reluctance Motors Using FM Technique</i>			<i>Development of Inverse LMI Method and its Applications to Dynamic Positioning System</i>	
Wang, Y. J.,			Yamamoto, Ikuo,	
Sun, Y.Y.,			Terada, Yuuzi	Mitsubishi Heavy Ind.
Huang, C.C.,				
Tsai, M.C.	Nat. Cheng Kung Univ.		11:20	CCA-1768
			<i>Global Attitude/Position Regulation for Underwater Vehicles</i>	
11:00	CCA-945		Boskovic, Dejan M.,	
<i>A Practical Implementation of a Linear Induction Motor Drive Using New Generation DSP Controller</i>			Krstic, Miroslav	Univ. of California, San Diego
Tsai, Mi Ching,				
Chen, Jeng Hu	Nat. Cheng Kung Univ.		11:40	CCA-1761
			<i>Robustness Analysis of Accelerometry Using an Electrostatically Suspended Gyroscope</i>	
11:20	CCA-950		Fax, J. Alex	California Inst. of Tech.
<i>Transient Dynamics and Motion Control of Induction Motors</i>			Hill, Daniel A.	Boeing Elec. Systems & Missile Def.
Lyshevski, Sergey E.	Purdue Univ., Indianapolis		Murray, Richard M.	California Inst. of Tech.
11:40	CCA-956		12:00 (I)	CCA-1791
<i>H_∞ Design of a Robust Speed Controller for Induction Motors</i>			<i>Collision Avoidance Control of Ship with Genetic Algorithm</i>	
Chiaverini, Stefano,			Ito, Masanori,	
Figalli, Gennaro,			Zhang, Feifei,	
Fusco, Giuseppe	Univ. degli Studi di Cassino		Yoshida, Norimoto	Tokyo Univ. of Mercantile Marine
12:00	CCA-962		12:20 (I)	CCA-1785
<i>On Robust Stability of Two Flux Observers for Induction Machines</i>			<i>PID Controller Optimization for Fin Roll Stabilization</i>	
Medvedev, Alexander	Lulea Univ. of Tech.		Hickey, N.A.	Univ. Edinburgh
			Johnson, M.A.,	
			Katebi, M.R.,	
			Grimble, Michael J.	Univ. of Strathclyde

Hau

Lehua

CCA-TuA5

Ship Motions and Offshore Structures

Chair: Terada, Yuuji,

Co-chair: Yamamoto, Ikuo

Org.: Terada, Yuuji

Mitsubishi Heavy Ind.

Mitsubishi Heavy Ind.

10:00 (I) CCA-1096

Recent Development on Analysis and Control of Ship's

Motions

Ohtsu, Kohei

Tokyo Univ. of Mercantile Marine

10:20 (I) CCA-1104

Controlling Line Tension in Thruster Assisted Mooring

Systems

Aamo, Ole Morten,

Fossen, Thor I.

Norwegian Univ. of Sci. & Tech.

CCA-TuA6

Mobile Robot and Vehicle Control

Chair: Larsen, Thomas D.

Co-chair: Takemori, Fumiaki

Tech. Univ. of Denmark

Tottori Univ.

10:00 CCA-1003

Noncontact Hold and Transfer Control by a Magnetic Robot

Hand Attached to a Mobile Robot with Two Independent Drive

Wheels

Kojima, Hiroyuki,

Yuasa, Yoshitaka,

Kobayashi, Toshio

Gunma Univ.

10:20 CCA-1009

A New Approach for Kalman Filtering on Mobile Robots in the

Presence of Uncertainties

Larsen, Thomas D.,

Andersen, Nils A.,

Ravn, Ole

Tech. Univ. of Denmark

10:40	CCA-1015		
<i>Robust Tracking and Regulation Control for Mobile Robots</i>			
Dixon, W.E., Dawson, D.M., Zergeroglu, E., Zhang, F.		Clemson Univ.	
11:00	CCA-1021		
<i>Design of Kalman Filters for Mobile Robots; Evaluation of the Kinematic and Odometric Approach</i>			
Larsen, Thomas D., Hansen, Karsten Lentfer, Andersen, Nils A., Ravn, Ole		Tech. Univ. of Denmark	
11:20	CCA-1027		
<i>Formation Control of Multiple Autonomous Vehicles</i>			
Kang, W. Xi, N.		Naval Postgraduate School Michigan State Univ.	
11:40	CCA-1033		
<i>Servo Control of Unstable-Wheeled System by Using Disturbance Torque Observer Compensation and Convex Optimization</i>			
Takemori, Fumiaki, Iwata, Jun-ichi, Okuyama, Yoshifumi		Tottori Univ.	
12:00	CCA-1039		
<i>Interactive On-Line Evaluation of Robot Motion Control</i>			
Valera, A. Robertsson, A., Nilsson, K., Johansson, R.		Valencia Tech. Univ. Lund Inst. of Tech.	
Koa			
CACSD-TuM1			
Design Methods			
Chair: Safonov, Michael G.		Univ. of Southern California	
Co-chair: Rotea, Mario A.		Purdue Univ.	
2:00	CACSD-328		
<i>Automatic PID Tuning: An Application of Unfalsified Control</i>			
Jun, Myungsoo, Safonov, Michael G.		Univ. of Southern California	
2:40	CACSD-334		
<i>A Canonical Representation for Unfalsified Control in Truncated Spaces</i>			
Brugarolas, Paul B. Safonov, Michael G.		California Inst. of Tech. Univ. of Southern California	
3:00	CACSD-340		
<i>Design of Static Cascade Compensators Using Generalized Singular Values</i>			
Rotea, Mario A.		Purdue Univ.	
3:20			CACSD-346
<i>Generalized Sampled and Hold Functions-Based Controllers Design for Uncertain Systems</i>			
Yu, Qi, Er, Meng Joo, Ni, M.L., Shen, L.			Nanyang Tech. Univ.
3:40			CACSD-351
<i>H_∞ Control of Linear Systems with Delayed Measurements</i>			
Shaked, Uri de Souza, Carlos E.			Tel-Aviv Univ. Lab. Nac. de Comp. Cient.
Milo			
CACSD-TuM2			
CACSD Tools in Flight Control			
Chair: Levine, William S.			Univ. of Maryland
Co-chair: Finsterwalder, Reinhard			Univ. of Bundeswehr
Org.: Joos, Hans-Dieter			DLR Oberpfaffenhofen
2:00 (I)			CACSD-416
<i>ICAD: An Appropriate CACSD Package for Aerospace Applications</i>			
Robertson, S.S., Leithead, W.E. O'Reilly, J.			Univ. of Strathclyde Univ. of Glasgow
2:20 (I)			CACSD-422
<i>CONDUIT-Control Designer's Unified Interface</i>			
Levine, William S. Tischler, Mark B.			Univ. of Maryland Army/NASA ARC
2:40 (I)			CACSD-428
<i>HAREM -HANDling Qualities Research and Evaluation Using MATLAB</i>			
Duda, Holger, Duus, Gunnar			German Aerospace Cen.
3:00 (I)			CACSD-433
<i>Multi-Objective Design Assessment and Control Law Synthesis Tuning for Flight Control Development</i>			
Joos, Hans-Dieter Finsterwalder, Reinhard			DLR Oberpfaffenhofen Univ. of Bundeswehr
3:20			CACSD-439
<i>A Graphical User Interface for Flight Control Development</i>			
Finsterwalder, Reinhard Joos, Hans-Dieter, Varga, Andras			Univ. of Bundeswehr DLR Oberpfaffenhofen
3:40 (I)			CACSD-445
<i>Near-Optimal Trajectory Generation for Autonomous Aircraft Landing</i>			
Yakimenko, Oleg A., Kaminer, Isaac I.			Naval Postgraduate School

	Mauka	2:40	CCA-1078
CCA-TuM3		<i>Robust D-Stability of Generalized State-Space Systems with One Parameter Uncertainties</i>	
Chair: Wu, M.	Central South Univ. of Tech.	Fang, Chun-Hsiung,	
Co-chair: Coelho, Antonio A. R.	Fed. Univ. of Santa Catarina	Lu, Chun-Lin,	
		Hong, Lin,	
2:00	CCA-1044	Kau, Shih-Wei	Nat. Kaohsiung Inst. of Tech.
<i>An Expert Control Strategy Using Neural Networks for the Electrolytic Process in Zinc Hydrometallurgy</i>		Lee, Li	Nat. Sun Yat-Sen Univ.
Wu, Min	Central South Univ. of Tech.		
Nakano, Michio	Takushoku Univ.		
She, Jin-Hua	Tokyo Univ. of Engr.		
2:20	CCA-1050	3:20	CCA-1084
<i>Neuro-Fuzzy Control of a Steam Boiler-Turbine Unit</i>		<i>An Improved Indirect Field Oriented Controller for the Induction Motor</i>	
Alturki, Fahd A.,		Behal, A.,	
Abdenmour, Adel Ben	King Saud Univ.	Feemster, Matthew,	
		Dawson, D.M.,	
		Haste, D.	Clemson Univ.
2:40	CCA-1056	3:40	CCA-1090
<i>Prediction of Flooding in an Absorption Column Using Neural Networks</i>		<i>Friction Compensation Strategy via Smooth Adaptive Dynamic Surface Control</i>	
Parthasarathy, Sanjay	Honeywell Tech. Cen.	Maulana, Aria Putra,	
Gowan, Hitesh	Honeywell Hi-Spec Solutions	Ohmori, Hiromitsu,	
Indhar, Praveen	Sasol Synthetic Fuels	Sano, Akira	Keio Univ.
3:00	*		Hau
<i>Direct Supervisory Adaptive Fuzzy Controller Applied to pH Control</i>		CCA-TuM5	
Nazaruddin, Yul Y.,		Control Applications in Aerospace Systems	
Astrid, P.,		Chair: Kanai, Mikio	Nat. Def. Acad.
Samyudia, Y.	Bandung Inst. of Tech.	Co-chair: Lee, Jang Gyu	Seoul Nat. Univ.
		Org.: Ochi, Yoshimasa	Nat. Def. Acad.
3:20	CCA-1062	2:00 (I)	CCA-968
<i>Comparative Study of Parametric and Structural Methodologies in Identification of an Experimental Nonlinear Process</i>		<i>Orbit Determination by Means of Kalman Filter Using VLBI Data</i>	
Marchi, Pierre Alibert,		Asai, Yoshihiko	Higashinippon Int. Univ.
dos Santos Coelho, Leandro,		Nishimura, Toshimitsu	Tokyo Engr. Univ.
Coelho, Antonio A.R.	Fed. Univ. of Santa Catarina		
3:40	CCA-1068	2:20 (I)	CCA-973
<i>Adaptive Neural Model Predictive Control of Chemical Process: An Empirical Study</i>		<i>New Method of Capturing Tumbling Object in Space and its Control Aspects</i>	
Wang, Dianhui	Dalian Maritime Univ.	Nakasuka, Shinichi,	
		Fujiwara, Takeshi	Univ. of Tokyo
	Makai	2:40 (I)	CCA-979
CCA-TuM4		<i>Robust Attitude Controller Design of Linear Parameter Varying Spacecraft via Mu Synthesis and Gain Scheduling</i>	
Electric Motors II		Nagashio, Tomoyoki,	
Chair: Ohmori, Hiromitsu	Keio Univ.	Kida, Takashi	Univ. of Electro-Communications
Co-chair: Reay, Donald S.	Heriot-Watt Univ.		
2:20	CCA-1073	3:00 (I)	CCA-985
<i>Sensorless Position Detection Using Neural Networks for the Control of Switched Reluctance Motors</i>		<i>An Experimental Investigation of Active and Passive Control of Rotating Stall in Axial Compressors</i>	
Reay, Donald S.,		Prasad, J.V.R.,	
Williams, B.W.	Heriot-Watt Univ.	Neumeier, Y.,	
		Lal, M.,	
		Bae, S. H.,	
		Meehan, A.	Georgia Inst. of Tech.

3:20 (I) CCA-991
Guidance Performance Analysis of Bank-To-Turn (BTT)
 Missiles
 Lee, Jang Gyu Seoul Nat. Univ.
 Han, Hyung Seok Kyungwon Univ.
 Kim, Young Jim Seoul Nat. Univ.

3:40 (I) CCA-997
Automatic Approach and Landing for Propulsion Controlled
Aircraft by H_∞ Control
 Ochi, Yoshimasa, Nat. Def. Acad.
 Kanai, Kimio

CCA-TuM6

Mobile Robot and its Control Architecture

Chair: Fujii, Teruo Univ. of Tokyo
 Co-chair: Yuh, Junku Univ. of Hawaii
 Org.: Fujii, Teruo Univ. of Tokyo

2:00 (I) CCA-1123
A Control System for an Omnidirectional Mobile Robot
 Paromtchik, I.E.,
 Asama, Hajime,
 Fujii, Teruo,
 Endo, I. Inst. of Phys. and Chem. Res.

2:20 (I) CCA-1129
Decentralized Control of Mobile Robots in Coordination
 Hirata, Yasuhisa,
 Kosuge, Kazuhiro Tohoku Univ.
 Asama, Hajime,
 Kaetsu, Hayato,
 Kawabata, Kuniaki Inst. of Phys. and Chem. Res.

2:40 (I) CCA-1135
Application of Non-Regressor Based Adaptive Control to
Underwater Mobile Platform-Mounted Manipulator
 Lee, Pan-Mook KRISO
 Yuh, Junku Univ. of Hawaii

3:00 (I) CCA-1779
Sensor Fusion Technique for Cable Following by Autonomous
Underwater Vehicles
 Balasuriya, Arjuna Nanyang Tech. Univ.
 Ura, Tamaki Univ. of Tokyo

3:20 (I) CCA-1141
Mobile Robot Teleoperation Using Local Storages
 Kawabata, Kuniaki,
 Ishikawa, Tatsuya,
 Asama, Hajime,
 Endo, Isao Inst. of Phys. and Chem. Res.

CACSD-TuP1
Optimization-Based CACSD
 Chair: Balakrishnan, Venkataramanan Purdue Univ.
 Co-chair: Tits, Andre Univ. of Maryland

4:20 CACSD-357
DirectSD -A Toolbox for Direct Design of SD Systems
 Polyakov, K. Yu,
 Rosenvasser, Ye.N. State Univ. of Ocean Tech.
 Lampe, Bernhard P. Univ. of Rostock

4:40 CACSD-363
Computation of Time Optimal Controls by Gradient Matching
 Szymkat, Maciej,
 Korytowski, A.,
 Turnau, A. St. Staszic Tech. Univ.

5:20 CACSD-369
Direct Collocation and Nonlinear Programming for Optimal
Control Problem Using an Enhanced Transcribing Scheme
 Hu, G.S.,
 Ong, Chong-Jin,
 Teo, C.L. Nat. Univ. of Singapore

6:00 CACSD-375
Reliability-Directed Computer-Aided Design System
 Abramov, Oleg V.,
 Katueva, Y.V. Inst. for Autom. and Control Processes
 Lazarev, G.I. Vladivostok State Univ.
 Suponya, A.A. Inst. for Autom. and Control Processes

CACSD-TuP2

MaTX/RtMaTX: A Freeware for Integrated CACSD

Chair: Koga, Masanobu,
 Co-chair: Furuta, Katsuhisa Tokyo Inst. of Tech.
 Org.: Koga, Masanobu Tokyo Inst. of Tech.

4:20 (I) CACSD-451
MaTX/RtMaTX: A Freeware for Integrated CACSD
 Koga, Masanobu Tokyo Inst. of Tech.

4:40 (I) CACSD-457
Robot Motion Control by MaTX/RtMaTX
 Yamakita, Masaki Tokyo Inst. of Tech.

5:00 (I) CACSD-462
Modeling and Simulation of Mechanical Systems -
Combination of a Symbolic Computation Tool and MaTX
 Hoshino, Tasuku,
 Furuta, Katsuhisa Tokyo Inst. of Tech.

5:20 (I) CACSD-468
VRSC: Visual Robotic Simulation and Control with
MaTX/RtMaTX
 Nonaka, Kenichiro Musashi Inst. of Tech.

5:40 (I) CACSD-474
MaTX for IO -Extension of MaTX for Economic Input-Output Analysis
 Tsukui, Makiko Tokyo Int. Univ.

6:00 (I) CACSD-480
MaTX Aided Control Education
 Hatakeyama, Shoshiro,
 Pan, Yaodong Tokyo Denki Univ.

Mauka

CCA-TuP3
Control Applications in Flows and Turbomachines

Chair: Copeland, G. Scott,
 Co-chair: Narayanan, Satish United Tech. Res. Cen.
 Org.: Copeland, G. Scott,
 Org.: Narayanan, Satish United Tech. Res. Cen.

4:20 CCA-730
Adaptive Detection of Instabilities and Nonlinear Analysis of a Reduced-Order Model for Flutter and Rotating Stall in Turbomachinery
 Copeland, G. Scott United Tech. Res. Cen.
 Kevrekidis, Ioannis G. Princeton Univ.
 Rico-Martinez, Ramiro Inst. Tec. de Celaya

5:20 CCA-730
Nonlinear Control Design for Rotating Stall with Magnetic Bearing Actuators
 Wang, Yong California Inst. of Tech.
 Paduano, James D. Massachusetts Inst. of Tech.
 Murray, Richard M. California Inst. of Tech.

4:40 (I) *
Dynamics, Visualization and Control of Mixing
 Mezić, Igor Univ. of California, Santa Barbara

5:00 (I) CCA-1151
Low-Dimensional Models for Active Control of Flow Separation
 Narayanan, Satish,
 Khibnik, Alexander I.,
 Jacobson, Clas United Tech. Res. Cen.
 Kevrekedis, Y. Princeton Univ.
 Rico-Martinez, Ramiro Inst. Tecnológico de Celaya
 Lust, K. Cornell Univ.

5:40 (I) CCA-1157
On the Design of Feedback Controllers for a Convecting Fluid Flow via Reduced Order Modeling
 Burns, John A.,
 King, Belinda B. Virginia Pol. Inst. and State Univ.
 Rubio, Diana North Carolina State Univ.

Makai
CCA-TuP4
Applications of Adaptive Control for Systems with Nonsmooth Nonlinearities
 Chair: Lewis, Frank L. Univ. of Texas, Arlington
 Co-chair: Cheng, J. John Nat. Chung Cheng Univ.
 Org.: Tao, Gang Univ. of Virginia
 Org.: Wen, Changyun Nanyang Tech. Univ.

4:20 (I) CCA-1163
Backlash Compensation in Nonlinear Systems Using Dynamic Inversion by Neural Networks
 Selmic, Rastko R.,
 Lewis, Frank L. Univ. of Texas at Arlington

4:40 (I) CCA-1169
Tracking Control in the Presence of Nonlinear Dynamic Frictional Effects: Robot Extension
 Feemster, Matthew,
 Dawson, D.M.,
 Behal, A.,
 Dixon, W.E. Clemson Univ.

5:00 (I) CCA-1175
Adaptive Friction Compensation of Servo Mechanisms
 Ge, S.S.,
 Lee, T.H.,
 Ren, S.X. Nat. Univ. of Singapore

5:20 (I) CCA-1181
Adaptive One-Step-Ahead Control with Input Amplitude, Rate, and Acceleration Constraints
 Cheng, J. John,
 Wang, Yi-Ming Nat. Chung Cheng Univ.

5:40 (I) CCA-1187
Transient Stability Enhancement of Power Systems by Robust Adaptive Control with Saturation Constraint
 Zhang, Ying,
 Wen, Changyun,
 Soh, Yeng Chai Nanyang Tech. Univ.

6:00 (I) CCA-1193
Adaptive Estimation of Magnetic Bearing Parameters
 Baloh, Michael,
 Tao, Gang,
 Allaire, Paul Univ. of Virginia

Hau

CCA-TuP5
Flight Control III
 Chair: Mesbahi, Mehran California Inst. of Tech.
 Co-chair: Ando, Yoshinori Nagoya Univ.

4:20 CCA-1199
A Study of Longitudinal Flight Maneuvers for the CTOL Aircraft Model
 Al-Hiddabi, Saif A.,
 McClamroch, N. Harris Univ. of Michigan

4:40	CCA-1205	5:20	CCA-1255
<i>LPV Controller Design for ALFLEX by Using LMI</i>		<i>Swing Up of an Inverted Pendulum by Simulator-Based Foresight Control</i>	
Ando, Yoshinori, Tsuge, Hidetaka, Suzuki, Masayuki	Nagoya Univ.	Uchida, Motomiki, Nakano, K.	Fukuoka Inst. of Tech.
5:00	CCA-1211	5:40	CCA-1260
<i>Formation Flying Control of Multiple Spacecraft via Graphs, Matrix Inequalities, and Switching</i>		<i>Dynamic Model Based Friction Compensation on the Furuta Pendulum</i>	
Mesbahi, Mehran, Hadaegh, F.Y.	California Inst. of Tech.	Gafvert, Magnus	Lund Inst. of Tech
5:20	CCA-1217	6:00	CCA-1266
<i>Motion Control of Highly-Maneuverable Aircraft</i>		<i>Adaptive Robust Stabilization of a Class of Nonlinear Systems with Partially Known Uncertainties</i>	
Lyshevski, Sergey E., Dunipace, Kenneth R. Colgren, Richard D.	Purdue Univ., Indianapolis Lockheed Martin Skunk Works	Wu, Hansheng	Hiroshima Prefectural Univ.
5:40	CCA-1223	1999 IEEE CCA/CACSD Wednesday, August 25, 1999	
<i>The Frequency-Domain Heterogeneous Control Mixer Module Method for Control Reconfiguration</i>		Hapuna Ballroom	
Zhenyu, Yang, Huazhang, Shao, Zongji, Chen	Beijing Univ.	CACSD Plenary Presentation 8:30 - 9:30	
6:00	CCA-1229	<i>Convex Matrix Optimization Problems, with Applications in Control, Signal Processing, and Circuit Design</i>	
<i>High-Performance Direct-Drive Flight Actuators: Advanced Technology Demonstration</i>		Boyd, Stephen	Stanford Univ.
Lyshevski, Sergey E.	Purdue Univ., Indianapolis	Chair: Varga, Andras	DLR Oberpfaffenhofen
	Lehua		Koa
CCA-TuP6		CACSD-WA1	
Inverted Pendulum Control		Chair: Li, Yun	Univ. of Glasgow
Chair: Tsachouridis, Vassilios A.	Univ. of Leicester	Co-chair: Wu, Henry	Univ. of Liverpool
Co-chair: Gafvert, Magnus	Lund Inst. of Tech	Org.: Li, Yun	Univ. of Glasgow
4:20	CCA-1235	10:00 (I)	CACSD-486
<i>Robust Control of a Triple Inverted Pendulum</i>		<i>Performance Indices in Evolutionary CACSD Automation with Application to Batch PID Generation</i>	
Tsachouridis, Vassilios A.	Univ. of Leicester	Feng, Wenyuan, Li, Yun	Univ. of Glasgow
4:40	CCA-1241	10:20 (I)	CACSD-492
<i>Multivariable Adaptive Model Output Following Control System Based on Backstepping Strategy and its Application to Parallel Inverted Pendulums</i>		<i>Genetic Algorithm Enabled Computer-Automated Design of QFT Control Systems</i>	
Takahashi, Masanori	Ariake Nat. College of Tech.	Chen, Wen-Hua, Ballance, Donald J., Feng, Wenyuan, Li, Yun	Univ. of Glasgow
Mizumoto, Ikuro, Iwai, Zenta, Kohzawa, Ryuichi	Kumamoto Univ.	10:40 (I)	CACSD-498
5:00	CCA-1249	<i>Control System Design Automation with Robust Tracking Thumbprint Performance Using a Multi-Objective Evolutionary Algorithm</i>	
<i>Time Optimal Control for the Pendulum-Cart System in Real-Time</i>		Tan, K.C., Lee, T.H., Khor, E.F.	Nat. Univ. of Singapore
Turnau, A., Korytowski, A., Szymkat, M.	St. Staszic Tech. Univ.		

11:00 (I)	CACSD-504	11:20 (I)	CACSD-581
<i>Population-Diversity Based Genetic Algorithm for Fuzzy Control of Synchronous Generators</i>		<i>Symbolic Verification of Executable Control Specifications</i>	
Wen, J.Y.,		Banphawatthanarak, Chonlawit,	
Wu, Q.H.,		Krogh, Bruce H.	Carnegie Mellon Univ.
Shimmin, D.W.,		Butts, Ken	Ford Res. Lab.
Turner, D.R.	Univ. of Liverpool		
Cheng, S.J.	Huazhong Univ. of Sci. & Tech.	11:40 (I)	CACSD-587
		<i>Automated Test of ECUs in a Hardware-In-The-Loop Simulation Environment</i>	
11:20 (I)	CACSD-510	Boot, Rolf	AUDI AG
<i>Parameter Identification of an Induction Machine Using Genetic Algorithms</i>		Richert, Jobst,	
Huang, K.S.	Guangdong Univ. of Tech.	Schuette, Herbert	dSpace GmbH
Kent, W.,		Ruekgauer, Andreas	dSpace Inc.
Wu, Q.H.,			
Turner, D.R.	Univ. of Liverpool		
11:40 (I)	CACSD-516		
<i>Lotka-Volterra Machine for a General Model of Complex Biological Systems</i>			
Hirafuji, Masayuki,			
Tanaka, Kei,			
Hagan, Scott	Nat. Agric. Res. Cen.		
	Milo		
CACSD-WA2		CCA-WA3	
Systems Engineering Methods for Powertrain Control Development		Chemical and Biological Processes	
Chair: Sivashankar, Shiva	Ford Res. Lab.	Chair: Chen, Shih-Chin	ABB Ind. Sys. Inc.
Co-chair: Moskwa, John J.	Univ. of Wisconsin-Madison	Co-chair: Femat, Ricardo	UASLP
Org.: Sivashankar, Shiva,			
Org.: Butts, Ken	Ford Res. Lab.		
10:00 (I)	CACSD-557	10:00	CCA-1272
<i>Using Modern Design Tools to Integrate the Systems Engineering and Software Engineering Processes</i>		<i>Implementing Supervisory Control for Chemical Batch Process</i>	
Holway, Paul,		Akesson, K.,	
Michaels, Larry,		Fabian, Martin	Chalmers Univ. of Tech.
Quinn, Stan,			
Santos, Craig	MathWorks, Inc.		
10:20 (I)	CACSD-563	10:20	CCA-1278
<i>A Modeling Environment for Production Powertrain Controller Development</i>		<i>Transition Control of Paper-Making Processes: Paper Grade Change</i>	
Sivashankar, N.,		Murphy, Timothy F.,	
Butts, K.	Ford Res. Lab.	Chen, Shih-Chin	ABB Ind. Sys., Inc.
10:40 (I)	CACSD-569	10:40	CCA-1284
<i>Implementation Details and Test Results for a Transient Engine Dynamometer and Hardware-In-The-Loop Vehicle Model</i>		<i>A Simple Method for Oscillation Diagnosis in Process Control Loops</i>	
Babbitt, Guy R.,		Horch, Alexander	Royal Inst. of Tech.
Moskwa, John J.	Univ. of Wisconsin-Madison		
11:00 (I)	CACSD-575	11:00	CCA-1290
<i>Production Intent Rapid Prototyping</i>		<i>Blood Glucose Regulation: An Output Feedback Approach</i>	
Erkkinen, Tom J.	Applied Dynamics Int.	Femat, Ricardo,	
		Ruiz-Velazquez, E.	UASLP
		11:20	CCA-1294
		<i>A Control Relevant Dynamic Model of Grate Sintering</i>	
		Martinsen, Frode,	
		Foss, Bjarne A.,	
		Johansen, Tor Arne	Norwegian Univ. of Sci. & Tech.
		11:40	CCA-1300
		<i>Optimized Modeling of the Intra Myocardial Coronary Circulation.</i>	
		Hirayama, H.	Asahikawa medical college
		Okizaki, A.	Asahikawa Medical College
		Okita, T.	Shizuoka Univ.
		Nishimura, T.	Ohita Univ.

12:00	CCA-1306		12:00	CCA-1342
<i>Adaptive Control of Peristaltic Pumps During Continuous Venovenous Hemofiltration</i>			<i>Analysis of α-β-γ Filters</i>	
Morales, Efrain O., Polycarpou, Marios, Hemasilpin, Nat, Bissler, John J.	Univ. of Cincinnati		Tenne, Dirk Singh, Tarunraj	State Univ. of New York at Buffalo State Univ. of New York
<hr/>			<hr/>	
CCA-WA4			CCA-WA5	Hau
System Identification and Signal Modeling			Control Problems in Heavy-Duty Vehicles	
Chair: Yaz, Edwin E.	Univ. of Arkansas		Chair: Canudas de Wit, Carlos	Lab. d'Autom. de Grenoble
Co-chair: Adachi, S.	Utsunomiya Univ.		Co-chair: Tomizuka, M.	Univ. of California, Berkeley
			Org.: Canudas de Wit, Carlos	Lab. d'Autom. de Grenoble
10:00	CCA-1312		10:00 (I)	CCA-1348
<i>System Identification of Anti-Vibration Units in Semiconductor Exposure Apparatus</i>			<i>Longitudinal and Lateral Control of Heavy-Duty Trucks for Automated Vehicle Following in Mixed Traffic: Experimental Results from the CHAUFFEUR Project</i>	
Kato, H., Wakui, S. Mayama, T. Toukairin, A., Takanashi, H., Adachi, S.	Canon Inc. Canon, Inc. Utsunomiya Univ.		Fritz, Hans	DaimlerChrysler AG
10:20	CCA-1318		10:20 (I)	CCA-1353
<i>Scale Transform Approach for Impulse Responses Identification</i>			<i>Speed Control Experiments with an Automated Heavy Vehicle</i>	
Zhang, Jiangang, Zhang, Jie, Mao, Jianqin	Beijing Univ.		Tan, Yaolong, Robotis, Andreas, Kanellakopoulos, Ioannis	UCLA
10:40	CCA-1324		10:40 (I)	CCA-1359
<i>The Application of Parameter Identification Methods with Competing Systems to Model a Human Interface Device</i>			<i>Automated Lane Guidance of Commercial Vehicles</i>	
Repperger, D.W. Phillips, C.A. Krier, M. Long, L., Taylor, S.	Air Force Res. Lab. Wright State Univ. Air Force Res. Lab. Wright State Univ.		Tomizuka, M., Tai, M., Wang, J-Y., Hingwe, P.	Univ. of California, Berkeley
11:00	CCA-1330		11:00 (I)	CCA-1365
<i>Detection of the Fundamental Frequency in Noisy Environment for Speech Enhancement of a Hearing AID</i>			<i>Modeling and Robust Control of Power Steering System of Heavy Vehicles for AHS</i>	
Yanagisawa, Koichi, Tanaka, Kyoko, Yamaura, Itsuo	Shinshu Univ.		Hingwe, P., Tai, M., Tomizuka, M.	Univ. of California, Berkeley
11:20	*		11:20 (I)	CCA-1371
<i>A Parameter Estimation Method for a Special Class of Systems of Ordinary Differential Equations</i>			<i>Stability Analysis via Passivity of the Lateral Actuator Dynamics of a Heavy Vehicle</i>	
Seatzu, Carla	Univ. of Cagliari		Canudas de Wit, Carlos, Claeys, Xavier Bechart, Hubert	Lab. d'Autom. de Grenoble Renault Dir. de la Recherche
11:40	CCA-1336		11:40 (I)	CCA-1377
<i>Selection and Performance of Probabilistic Tables Used in Non-Model Based Signal Prediction</i>			<i>Stability Issues for Vehicle Platooning in Automated Highway Systems</i>	
Zeceña, Juan Carlos Cordova, Yaz, Edwin E.	Univ. of Arkansas		Canudas de Wit, Carlos, Brogliato, Bernard	Lab. d'Autom. de Grenoble

		Lehua			Koa
CCA-WA6			CACSD-WM1		
Mechatronics I			Intelligent CACSD		
Chair: Saeki, Masami		Hiroshima Univ.	Chair: Pang, Grantham		Univ. of Hong Kong
Co-chair: Lee, Fu-Shin		Huafan Univ.	Co-chair: James, John R.		J.R. James Associates
			Org.: Pang, Grantham		Univ. of Hong Kong
			Org.: James, John R.		J.R. James Associates
10:00		CCA-1383	2:00 (I)		CACSD-522
<i>Global Stabilization of Centrifugal Compressors via Stability-Based Switching Controllers</i>			<i>A Formal Approach to Reactive System Design: Unmanned Aerial Vehicle Flight Management System Design Example</i>		
Leonessa, Alexander,			Koo, T. John,		
Haddad, Wassim M.,			Sinopoli, Bruno,		
Li, Hua		Georgia Inst. of Tech.	Sangiovanni-Vincentelli, Alberto,		
			Sastry, Shankar		Univ. of California, Berkeley
10:20		CCA-1389	2:20 (I)		CACSD-528
<i>A Chaos Model via Relay Feedback</i>			<i>Software-Enabled Control for Intelligent UAVs</i>		
Sugiki, Akihiko,			Schrage, Daniel P.,		
Hatakeyama, Shoshiro		Tokyo Denki Univ.	Vachtsevanos, George		Georgia Inst. of Tech.
Furuta, Katsuhisa		Tokyo Inst. of Tech.			
10:40		CCA-1394	2:40 (I)		CACSD-533
<i>Binary Excitation Based System Identification for Precision Ballscrew Table</i>			<i>Fuzzy-Neural Control with Application to a Heating System</i>		
Huang, Pai-Yi,			Mesbah, Samy,		
Chen, Yung-Yaw		Nat. Taiwan Univ.	Pang, Grantham		Univ. of Hong Kong
11:00		CCA-1400	3:00		CACSD-539
<i>Special-Purpose Devices Using Techniques of Discontinuous Control and Setting Adjustment (DC & SA) in Control Applications</i>			<i>The SAL Interpreter for Large-Scale Optimization in Distributed Control Systems</i>		
Mkrtchian, Vardan,			Bailey-Kellogg, Christopher		Dartmouth College
Hovakimyan, Aramais,			Zhao, Feng		Xerox Palo Alto Res. Cen.
Hunanyan, Armen,					
Kchachaturyan, Tigran		State Engr. Univ. of Armenia	3:20 (I)		CACSD-545
			<i>Tools and Techniques for Evaluating Control Architecture</i>		
11:20		CCA-1406	James, John R.		J.R. James Associates
<i>Modeling of Actuator Systems Using Multilayer Electrostrictive Materials</i>			McClain, Richard		Lockhead Martin Adv. Tech. Lab.
Lee, Fu-Shin		Huafan Univ.	3:40 (I)		CACSD-551
11:40		CCA-1412	<i>A Learning Algorithm for Recurrent Neural Networks and its Application to Nonlinear Identification</i>		
<i>Proposal of a Parallel Supporting Damper with Tendon and Robust Control System Design</i>			Yamamoto, Yoshihiro		Tottori Univ.
Kimura, Junso		Hiroshima Univ.	Nikiforuk, Peter N.		Univ. of Saskatchewan
Harada, Shigeru		Mitsubishi Heavy Ind.			
Saeki, Masami		Hiroshima Univ.			
12:00		CCA-1418			Milo
<i>On the States and Parameters Estimation of Non-Linear Discrete-Time Systems. Design and Experimental Results</i>			CACSD-WM2		
Boutayeb, M.,			Applications of CACSD		
Aubry, D.,			Chair: Kamwa, I.		Inst. de Recherche d'Hydro-Quebec
Darouach, M.			Co-chair: Sima, Vasile		Res. Inst. for Inf., Bucharest
E., Richard		Univ. of Henri Poincare INRIA-Lorraine	2:00		CACSD-624
			<i>SCADA in Hydropower Plants</i>		
			Mavrin, Mario,		
			Koroman, V.,		
			Borovic, B.		Brodarski Inst.

2:20	CACSD-595	2:40 (I)	CCA-1755
<i>Experience with a MATLAB Toolbox for Multiple-Control Coordination in Large Power Systems</i>		<i>Fault Diagnosis of the IFAC Benchmark Problem with a Model-Based Recurrent Neural Network</i>	
Kamwa, I.	Inst. de Recherche d'Hydro-Quebec	Gan, Chengyu,	Univ. of Massachusetts
Henniche, A.	Laval Univ.	Danai, Kourosh	
Gerin-Lajoie, L.,			
Lefebvre, D.	TransEnergie, Hydro-Quebec		
2:40	CACSD-602	3:00 (I)	CCA-1436
<i>Computer-Aided Design of Sliding Mode Control of Permanent Magnet Synchronous Motor</i>		<i>Optimal Auxiliary Input for Fault Detection of Systems with Model Uncertainty</i>	
Golea, Amar	Biskra Univ.	Hatanaka, Toshiharu,	Tottori Univ.
Golea, Nouredine	O.E.B. Univ.	Uosaki, Katsuji	
Kadjoudj, Med.	Batna Univ.		
Benounnes, N.	Biskra Univ.	3:20 (I)	CCA-1442
		<i>Detection of Abrupt Changes in Modal Characteristics of a Vibrating Structure -A Case Study</i>	
		Popescu, Theodor	Res. Inst. for Inf., Bucharest
3:00	CACSD-607		
<i>Design of Longitudinal Variable Structure Flight Control System for the F-18 Aircraft Model with Parameter Perturbations</i>			Makai
Jafarov, Elbrous M.,		CCA-WM4	
Tasaltin, Ramazan	Istanbul Tech. Univ.	Network and Discrete Event Systems	
		Chair: Walsh, Gregory C.	Univ. of Maryland
		Co-chair: Hellgren, Anders	Chalmers Univ. of Tech
3:20	CACSD-613	2:00	CCA-1448
<i>Estimation of Temperature Profiles of Slabs in a Reheat Furnace by Using the Kalman Filter</i>		<i>Asymptotic Behavior of Networked Control Systems</i>	
Wick, Hans-Joachim	Consultant-Autom.	Walsh, Gregory C.	Univ. of Maryland
Koester, Friedhelm	Hoesch Spundwand u. Profil GmbH	Beldiman, Octavian,	
		Bushnell, Linda	Duke Univ.
3:40	CACSD-618	2:20	CCA-1454
<i>Conception of Researcher's Environment for CACSD Gamma-1PC</i>		<i>Impact of Flow Control on Quality of Service Driven Packet Scheduling Disciplines</i>	
Mikhailova, L.S.,		Hayes, David A.,	
Alexandrov, A.G.,		Rumsewicz, Michael	Royal Melbourne Inst. of Tech.
Vnukow, A.V.,		Andrew, Lachlan L. H.	Univ. of Melbourne
Isakov, R.V.,			
Ryazantchev, R.P.	Moscow State Inst. of Steel and Alloys		
		2:40	CCA-1460
		<i>Development of State Space Model and Study of Performance Characteristics of Digital Based Excitation Control System ST4B with Single Machine Connected to Infinite Bus</i>	
		Rangnekar, Saroj	M. A. College of Tech.
		3:00	CCA-1466
		<i>Admission Control by MDP Theory: A Single-Sample-Path-Based Approach</i>	
		Wang, Junjie	Univ. of Maryland
		3:20	CCA-1472
		<i>Deadlock Detection and Controller Synthesis for Production Systems Using Partial Order Techniques</i>	
		Hellgren, Anders,	
		Fabian, Martin,	
		Lennartson, Bengt	Chalmers Univ. of Tech.
		3:40	CCA-1478
		<i>Optimization in Markov Decision Problems with Transition-Dependent Cost Functions</i>	
		Wang, Junjie	Univ. of Maryland
		Cao, Xi-Ren	Hong Kong Univ. of Sci. & Tech.

	Mauka		
CCA-WM3			
Fault Detection and Isolation in Dynamical Systems			
Chair: Popescu, Theodor	Res. Inst. for Inf., Bucharest		
Co-chair: Gertler, Janos	George Mason Univ.		
Org.: Popescu, Theodor	Res. Inst. for Inf., Bucharest		
2:00 (I)	CCA-1424		
<i>Robust Nonlinear Fault Diagnosis: Application to Robotic Systems</i>			
Trunov, Alexander,			
Polycarpou, Marios	Univ. of Cincinnati		
2:20 (I)	CCA-1430		
<i>Diagnostic Reasoning Based on Means-End Models: Experiences and Future Prospects</i>			
Larsson, Jan Eric	Lund Inst. of Tech.		

	Hau	2:20 (I)	CCA-1519
CCA-WM5		<i>Characterization of a Recoverable Flight Control Computer System</i>	
Chair: Yoshida, Kazuo	Keio Univ.	Malekpour, Mahyar,	
Co-chair: Halfmann, Christoph	Darmstadt Univ. of Tech.	Torres, Wilfredo	NASA Langley Res. Cen.
2:00	CCA-1484	2:40 (I)	CCA-1797
<i>Modeling and Identification of the Vehicle Suspension Characteristics Using Local Linear Model Trees</i>		<i>Stochastic Perturbation Analysis of Computer Control Systems Subject to Electromagnetic Disturbances</i>	
Halfmann, Christoph,		Gray, W. Steven,	
Nelles, O.,		Gonzalez, Oscar,	
Holzmann, H.	Darmstadt Univ. of Tech.	Dogan, Mustafa	Old Dominion Univ.
2:20	CCA-1490	3:00 (I)	CCA-1525
<i>Neuro-Fuzzy Based Modeling of Vehicle Suspension System</i>		<i>Detecting Controller Malfunctions in Electromagnetic Environments: Part I: Modeling and Estimation of Nominal System Function</i>	
Nazaruddin, Yul Y.	Bandung Inst. of Tech.	Weinstein, Bernice	NASA Langley Res. Cen.
Yamakita, Masaki	Tokyo Inst. of Tech.		
2:40	CCA-1496	3:20 (I)	CCA-1531
<i>Bilinear Disturbance-Accommodating Optimal Control of Semi-Active Suspension for Automobiles</i>		<i>Detecting Controller Malfunctions in Electromagnetic Environments: Part II-Design & Analysis of the Detector</i>	
Yoshida, Kazuo,		Belcastro, Celeste	NASA Langley Res. Cen.
Okamoto, Bunta	Keio Univ.		
3:00	CCA-1734	3:40 (I)	CCA-1538
<i>Adaptive Nonlinear Control of Repulsive Maglev Suspension Systems</i>		<i>Adaptive Estimation and Accommodation of Loss of Control Effectiveness Using a Lyapunov Method</i>	
Huang, Chao-Ming,		Wu, N. Eva	Binghamton Univ.
Chen, Min-Shin,			
Yen, Jia-Yush	Nat. Taiwan Univ.		
3:20	CCA-1502		Koa
<i>Active Suspension Control Using a Novel Strut and Active Filtered Feedback: Design and Implementation</i>		CCA-WP1	
Ikenaga, S.,		CAD & Monitoring	
Lewis, Frank L.,		Chair: Saito, Osami	Chiba Univ.
Davis, L.,		Co-chair: Yen, Gary	Oklahoma State Univ.
Campos, J.,			
Evans, M.,		4:20	CCA-1543
Scully, S.	Univ. of Texas, Arlington	<i>Development of nD Control System Toolbox for Use with MATLAB</i>	
		Xu, Li	Asahi Univ.
		Yamada, Minoru	Gifu Nat. College of Tech.
		Saito, Osami	Chiba Univ.
3:40	CCA-1509	4:40	CCA-1549
<i>Active Vibration Isolation by Adaptive Control</i>		<i>An Attribute Graph Grammar for Signal Flow Graphs</i>	
Shaw, Jinsiang	Huafan Univ.	Adachi, Yoshihiro,	
		Kobayashi, Suguru,	
		Tsuchida, Kensei	Toyo Univ.
		Yaku, Takeo	Nihon Univ.
	Lehua	5:00	CCA-1555
CCA-WM6		<i>A Tool for Rapid System Identification</i>	
Control Integrity in Adverse Operating Conditions		Wallen, Anders	Lund Inst. of Tech
Chair: Belcastro, Celeste	NASA Langley Res. Cen.		
Co-chair: Chang, B.C.	Drexel Univ.	5:20	CCA-1561
Org.: Belcastro, Celeste	NASA Langley Res.Cen.	<i>Identification Tool for Chemical Processes</i>	
		Tani, Shigeyuki,	
2:00 (I)	CCA-1515	Takahashi, Shinsuke,	
<i>A Virtual Closed Loop Remedy for Temporary Sensor Failures</i>		Sekozawa, Teruji	Hitachi Ltd.
Suh, Jon,			
Bajpai, Gaurav,			
Chang, B.C.	Drexel Univ.		

5:40 CCA-1567
An Effective Neuro-Fuzzy Paradigm for Machinery Condition Health Monitoring
 Yen, Gary,
 Meesad, Phayung Oklahoma State Univ.

6:00 CCA-1573
Wavelet Packet Feature Extraction for Vibration Monitoring
 Yen, Gary,
 Lin, Kuo-Chung Oklahoma State Univ.

CCA-WP2

Intelligent Building Control

Chair: Samad, Tariq Honeywell Tech.
 Co-chair: So, Albert T.P. City Univ. of Hong Kong
 Org.: So, Albert T.P. City Univ. of Hong Kong

4:20 (I) CCA-1579
Development of Air-Conditioning Control Algorithm for Building Energy-Saving
 Yamada, Fumio,
 Yonezawa, Kenzo,
 Sugawara, Susumu,
 Nishimura, Nobutaka Toshiba Corp.

4:40 (I) CCA-1585
The Open Protocol Standard for Computerized Building System: BACnet
 Haakenstad, Larry K. Alerton Tech., Inc.

5:00 (I) *
A Recipe for Success with Open System
 Arnold, Rand Echelon Corp.

5:20 (I) CCA-1744
Creating Better Business Outcomes through Enterprise Integration with Advanced Building Control Solutions
 Miller, Daniel T. Honeywell H&BC Solutions & Services

5:40 (I) *
Recent Developments in Controls for Intelligent Buildings
 Chow, Billy,
 Moul, Rob,
 Purkayastha, David Johnson Controls(HK) Ltd.

6:00 (I) CCA-1591
Dynamic Zoning Based Supervisory Control for Elevators
 So, Albert T.P.,
 Yu, Janson K.L. City Univ. of Hong Kong
 Chan, W.L. Hong Kong Pol. Univ.

Mauka

CCA-WP3

Control of Communication Networks

Chair: Takano, Makoto NTT Res. and Dev. Cen.
 Co-chair: Kawashima, Konosuke NTT Adv. Tech. Corp.
 Org.: Takano, Makoto NTT Res. and Dev. Cen.

4:20 (I) *
Spot and Derivative Markets in Admission Control: Optimal Seller Strategies
 Lazar, Aurel A.,
 Semret, Nemo Columbia Univ.

4:40 (I) CCA-1597
Multi-Attribute Learning Mechanism for Network Control and Management
 Inoue, Akiya,
 Yamamoto, Hisao NTT Service Integration Lab.

5:00 (I) CCA-1603
Stability Analysis of Window-Based Flow Control Mechanism in TCP/IP Networks
 Ohsaki, Hiroyuki,
 Murata, Masayuki,
 Ushio, Toshimitsu,
 Miyahara, Hideo Osaka Univ.

5:20 (I) CCA-1607
Towards Efficient Call Admission Control for State-Dependent Routing in Multirate Networks
 Ahlfors, Ulf,
 Korner, Ulf,
 Pioro, Michal Lund Inst. of Tech.

5:40 (I) CCA-1614
Load Balancing and Control for Distributed World Wide Web Servers
 Castro, Maurice,
 Dwyer, Michael,
 Rumsewicz, Michael Royal Melbourne Inst. of Tech.

6:00 (I) CCA-1620
Distributed Web Caching Using Hash-Based Query Caching Method
 Asaka, Takuya Waseda Univ.
 Miwa, Hiroyoshi NTT Service Integration Lab.
 Tanaka, Yoshiaki Waseda Univ.

Makai

CCA-WP4

Manufacturing Systems

Chair: De Keyser, Robin Univ. of Gent
 Co-chair: Takahashi, Katsuhiko Hiroshima Univ.

4:20 CCA-1626
Robust Output High-Gain Feedback Controllers for the Atomic Force Microscope under High Data Sampling Rate
 Hsu, Su-Hau,
 Fu, Li-Chen Nat. Taiwan Univ.

5:20 CCA-1716
Model Reference Adaptive Control with Multi-Rate Type Neural Network for Electro-Pneumatic Servo System
 Tanaka, Kanya Yamaguchi Univ.
 Yamada, Yuji Kure Inst. Nat. College
 Satoh, Taiji Yamaguchi Univ.
 Uchibori, Akihiko Tokyo Denki Univ.
 Uchikado, Shigeru

5:40 CCA-1722
Improved Control of Pneumatic Lumber Handling Systems
 Wang, Xiaochun George,
 Kim, Chris Integrated Manufac. Tech. Inst.

6:00 CCA-1728
Robust Compensators Design for Existing Control Systems
 Yari, A. R.,
 Eisaka, T. Kitami Inst. of Tech.

**1999 IEEE CCA/CACSD
 Thursday, August 26, 1999**

Hapuna Ballroom
**CCA Plenary Presentation
 8:30 - 9:30**

***Control in the Automotive Industry:
 Accomplishments in the Twentieth Century,
 Challenges in the Twenty-First Century***

Winkelman, James Ford Motor Co.
 Chair: Kanellakopoulos, Ioannis UCLA
 Koa

CCA-ThA1

Flexible Structures

Chair: Looze, Douglas P. Univ. of Massachusetts
 Co-chair: Kobayashi, Nobuyuki Aoyama Gakuin Univ.

10:00 CCA-291
Compensator Design for the ALFA Adaptive Optics System
 Looze, Douglas P.,
 Beker, Orhan Univ. of Massachusetts
 Kaspar, Markus,
 Hippler, Stephan Max Planck Inst. fur Astronom.e

10:20 CCA-297
Vibration Suppression Control of Flexible Robot Arm with CMS Modeling and Output Feedback Sliding Mode Controller
 Kobayashi, Nobuyuki,
 Inoue, Kengo Aoyama Gakuin Univ.

10:40 CCA-303
Fault-Tolerant Decentralized Control for Large Space Structures
 Kobayashi, Yohji Kobe City College of Tech.
 Ikeda, Masao Osaka Univ.
 Fujisaki, Yasumasa Kobe Univ.

11:00 CCA-309
Vibration Suppression Control of Flexible Arms by Using Sliding Mode Method
 Chen, Xinkai Tokyo Denki Univ.
 Guo, Shuxiang Kagawa Univ.
 Fukuda, Toshio Nagoya Univ.

11:20 CCA-315
Fuzzy Logic Control of a Moving Flexible Manipulator
 Chen, Chong,
 Yin, Yican Middle Tennessee State Univ.

11:40 CCA-321
Structural Design for Reduced-Order H_∞ Controller
 Hiramoto, Kazuhiko,
 Doki, Hitoshi,
 Obinata, Goro Akita Univ.

Milo

CCA-ThA2a

Scaled Control Experiments

Chair: Alleyne, Andrew Univ. of Illinois, Urbana-Champaign
 Co-chair: Murray, Richard M. California Inst. of Tech.
 Org.: Alleyne, Andrew Univ. of Illinois, Urbana-Champaign

10:00 (I) CCA-327
A Scaled Testbed for Vehicle Control: The IRS
 Brennan, S.,
 Alleyne, A. Univ. of Illinois, Urbana-Champaign

10:20 (I) CCA-333
The University of Toronto RC Helicopter: A Test Bed for Nonlinear Control
 Bortoff, Scott A. Univ. of Toronto

10:40 (I) CCA-339
Implications of Control-Structure Interaction in the Scaled Structural Control System Testing
 Dyke, Shirley J.,
 Jansen, Laura M. Washington Univ.

11:00 (I) CCA-345
A Testbed for Nonlinear Flight Control Techniques: The Caltech Ducted Fan
 Milam, Mark,
 Murray, Richard M. California Inst. of Tech.

Milo

CCA-ThA2b

Chemical Process Control

Chair: Seborg, Dale E. Univ. of California, Santa Barbara

11:40 CCA-352
Plantwide Control Design and Analysis of a Continuous Polymerization Process Using Optimal Control Methods
 Robinson, Derek L.,
 Schnelle, Phillip D. E.I. DuPont de Nemours & Co.
 McAvoy, Thomas Univ. of Maryland

3:20 CCA-539
Input Shaper Design for Double-Pendulum Planar Gantry Cranes
 Kenison, Michael,
 Singhose, William Georgia Inst. of Tech.

3:40 CCA-545
Limiting Excitation of Unmodeled High Modes with Negative Input Shapers
 Singhose, William,
 Grosser, Karen Georgia Inst. of Tech.

Milo

CCA-ThM2

Robust and Nonlinear Control of Magnetic Bearings

Chair: Fujita, Masayuki Kanazawa Univ.
 Co-chair: Knospe, Carl R. Univ. of Virginia
 Org.: Fujita, Masayuki Kanazawa Univ.

2:00 (I) CCA-551
Magnetic Suspension and Vibration Control of Beams for Non-Contact Processing
 Trumper, David L.,
 Weng, Ming-chih,
 Ritter, Robert J. Massachusetts Inst. of Tech.

2:20 CCA-743
Sliding Mode Nonlinear Control of Magnetic Bearings
 Torres, Mauricio C.N.R.S.
 Sira-Ramirez, Hebert C. INVESTAV-IPN
 Escobar, Gerardo C.N.R.S.

2:40 (I) CCA-558
Uncertain Model and Mu-Synthesis of a Magnetic Bearing
 Namerikawa, Toru,
 Fujita, Masayuki Kanazawa Univ.

3:00 (I) CCA-564
Low-Order Mu-Synthesis Controller Design for a Large Boiler Feed Pump Equipped with Active Magnetic Bearings
 Losch, Florian,
 Gähler, Conrad Int. Cen. for Magnetic Bearings
 Herzog, Raoul MECOS Traxler

3:20 (I) CCA-570
Mu-Control of a High Speed Spindle Thrust Magnetic Bearing
 Fittro, Roger L. Aston Univ.
 Knospe, Carl R. Univ. of Virginia

3:40 (I) CCA-576
Adaptive Unbalance Vibration Control of Magnetic Bearing System Using Frequency Estimation for Multiple Periodic Disturbances with Noise
 Nonami, Kenzo,
 Liu, Zi-he Chiba Univ.

Mauka

CCA-ThM3

Process Control

Chair: Takatsu, Haruo Yokogawa Electric Corp.
 Co-chair: Samad, Tariq Honeywell Tech.
 Org.: Shigemasa, Takashi Toshiba Co.

2:00 (I) CCA-582
Adaptive Fuzzy Temperature Control for Hydronic Heating Systems
 Haissig, Christine M. Honeywell Tech. Cen.

2:20 (I) CCA-589
Auto-Tuning PID Using Loop Shaping Ideas
 Gaikwad, Sujit,
 Dash, Sachi,
 Stein, Gunter Honeywell Tech. Cen.

2:40 (I) CCA-1740
Exapilot, Operational Efficiency Increase Support Package
 Kobayashi, Yasunori,
 Takatsu, Haruo Yokogawa Electric Corp.

3:00 (I) CCA-594
A Comparison of Identification-Based Performance Bounds for Robust Process Control
 Adusumilli, S. Arizona State Univ.
 Dash, Sachi Honeywell Tech. Cen.
 Rivera, D.E.,
 Tsakalis, K. Arizona State Univ.

3:20 (I) CCA-600
An Optimizing Control for District Heating and Cooling Plant
 Murai, Masahiko,
 Sakamoto, Yoshiyuki,
 Shinozaki, Tsutomu Toshiba Corp.

3:40 (I) CCA-605
Impacts of Enterprise Wide Supply-Chain Management Techniques on Process Control
 Tjoa, I. Bhieng,
 Raman, Ramesh MC Res. & Innovation Cen.
 Itou, Toshiaki,
 Fujita, Kaoru,
 Natori, Yukikazu Mitsubishi Chem. Corp.

Makai

CCA-ThM4

Power Systems Control I

Chair: Bevrani, Hassan West Reg. Elec. Cc
 Co-chair: Owens, David H. Univ. of Exeter

2:00 CCA-609
Nonlinear Control of Non-Minimum Phase Systems: Application to the Voltage and Speed Regulation of Power Systems
 Okou, Aime Francis,
 Akhrif, Ouassima,
 Dessaint, Louis-A. École de Tech. Superieure

2:20	CCA-616	3:00	CCA-658
<i>Robust Load Frequency Controller in a Deregulated Environment: A Mu-Synthesis Approach</i>	West Regional Electric Co.	<i>Design of a State Control for a Solid-Coupled Magnetic Levitation Transport System</i>	Aachen Inst. of Tech.
Bevrani, Hassan		Groning, Ingolf, Zickermann, Richard, Henneberger, Gerhard	
2:40	CCA-622	3:20	CCA-662
<i>Fuzzy Logic in Voltage and Reactive Power Control in Power Systems</i>	Catholic Univ. of Minas Gerais	<i>Road Friction Estimation Using Adaptive Observer with Periodical Sigma-Modification</i>	Univ. of Tokyo
Ekel, P.Ya., Terra, L.D.B., Junges, M.F.D. de Oliveira, F.J.A., Kowaltschuck, R., Taguti, T.Y.	Parana State Energy Co.	Nishira, Hikaru Kawabe, Taketoshi Shin, Seiichi	Nissan Motor Co. Univ. of Tokyo
3:00	CCA-628	Lehua	
<i>Stability Analysis of the International Space Station Electrical Power System</i>	Aerospace Corp.	CCA-ThM6	
Ly, J.H., Truong, C.		Robot Control	
3:20	CCA-634	Chair: Safonov, Michael G.	Univ. of Southern California
<i>Robust Control of Gas Generator in a 1.5 MW Gas Turbine Engine</i>	Univ. of Exeter	Co-chair: Shimizu, K.	Keio Univ.
Gomma, H. W., Owens, David H.		2:00	CCA-668
3:40	CCA-640	<i>An Experimental Facility for Nonlinear Robot Control</i>	Oce-Tech. B.V.
<i>Unsupervised Neural Network for Fault Detection and Classification in Dynamic Systems</i>	Univ. of Southwestern Louisiana	van Beek, Bert de Jager, Bram	Eindhoven Univ. of Tech.
Pei, Xiaoqin, Chowdhury, Fahmida N.		2:20	CCA-674
Hau		<i>IMC Design with Limiting Properties of LQR and its Application to Trajectory Tracking Control</i>	
CCA-ThM5		Suzuki, R., Doi, M., Kobayashi, N., Furuya, S.	Kanazawa Inst. of Tech.
ABS and Adaptive Control	SUNY at Buffalo	2:40	CCA-680
Chair: Singh, Tarunraj	RWTH	<i>Unfalsified Direct Adaptive Control of a Two-Link Robot Arm</i>	
Co-chair: Groning, Ingolf		Tsao, Tung-Ching Safonov, Michael G.	Spectrum Astro, Inc Univ. of Southern California
2:00	*	3:00	CCA-687
<i>A Sliding Mode Nonlinear Control Strategy for Anti-Lock Braking Systems</i>	Amirkabir Univ. of Tech.	<i>Design of Nonlinear Tracking Controllers for Robots</i>	
Taheri, Saied		Lyshevski, Sergey E., Sinha, A.S.C., Rizkalla, Maher	Purdue Univ., Indianapolis
2:20	CCA-646	3:20	CCA-693
<i>Adaptive Fuzzy Logic Control of an Anti-Locking Braking System</i>	SUNY at Buffalo	<i>RD500 Manipulator Force Controller Design: A Multiobjective Approach</i>	
Kokes, Guy, Singh, Tarunraj		Folcher, Jean-Pierre Andriot, Claude	École Nat. Supérieure de Tech. Avan. Commisariat a l'Energie Atomique
2:40	CCA-652	3:40	CCA-699
<i>Hardware-In-The Loop Simulator for ABS/TCS</i>	Keimyung Univ.	<i>Performance Improvement of Direct Gradient Descent Control for General Nonlinear Systems</i>	
Lee, Jae-Cheon Suh, Myung-Won	Sung-Kyun-Kwan Univ.	Shimizu, K., Otsuka, K.	Keio Univ.

	Koa			5:20	CCA-749
CCA-ThP1				<i>Direct Closed-Loop Identification of Magnetic Suspension System</i>	
Chair: Meckl, Peter H.		Purdue Univ.		Sun, Lianming,	
Co-chair: Singhose, William		Georgia Tech.		Ohmori, Hiromitsu,	
Org.: Meckl, Peter H.		Purdue Univ.		Sano, Akira	Keio Univ.
4:20 (I)		CCA-707		5:40	CCA-755
<i>Benchmarking Optimal Control Strategies for Flexible Systems</i>				<i>Nonlinear Output Feedback Control for Stepper Motors: A Robust Adaptive Approach</i>	
Reynolds, Michael C.,				Melkote, Hemant,	
Meckl, Peter H.		Purdue Univ.		Khorrani, Farshad	Pol. Univ.
4:40 (I)		CCA-713			Mauka
<i>An Expert System for the Design of Input Shapers</i>				CCA-ThP3	
French, Lila		Massachusetts Inst. of Tech.		Control of Semiconductor Manufacturing Processes	
Singhose, William		Georgia Inst. of Tech.		Chair: Smith, Roy	Univ. of California, Santa Barbara
Seering, Warren		Massachusetts Inst. of Tech.		Co-chair: Poola, Kameshwar	Univ. of California, Berkeley
5:00 (I)		CCA-719		Org.: Smith, Roy	Univ. of California, Santa Barbara
<i>Comparison of Command Shaping Controllers for Suppressing Payload Sway in a Rotary Boom Crane</i>				4:20 (I)	CCA-761
Lewis, Derek		Seagate Tech.		<i>Control of a III-V Epitaxial MOCVD Process Using Ultraviolet Absorption Concentration Monitoring</i>	
Parker, Gordon G.		Michigan Tech. Univ.		Gaffney Flynn, Monique S.	Litton Guid. & Cont. Sys.
Driessen, Brian,				Smith, Roy,	
Robinett, Rush D.		Sandia Nat. Lab.		Abraham, Patrick,	
5:20 (I)		CCA-1774		DenBaars, Steven P.	Univ. of California, Santa Barbara
<i>Command Shaping Boom Crane Control System with Nonlinear Inputs</i>				4:40 (I)	CCA-767
Parker, Gordon G.		Michigan Tech. Univ.		<i>Piloting Epitaxy through Ellipsometric Feedback</i>	
Groom, Kenneth,				Warnick, Sean C.,	
Hurtado, Johnny,				Dahleh, Munther A.	Massachusetts Inst. of Tech.
Robinett, Rush D.		Sandia Nat. Lab.		5:00 (I)	CCA-773
Leban, Frank		Naval Surface Warfare Cen.		<i>Real-Time Estimation of Patterned Wafer Parameters Using In-Situ Spectroscopic Ellipsometry</i>	
5:40 (I)		CCA-725		Galarza, Cecilia G.,	
<i>Achieving Fast Motions in Semiconductor Manufacturing Machinery</i>				Khargonekar, Pramod P.,	
Meckl, Peter H.		Purdue Univ.		Terry, Jr, Fred L.	Univ. of Michigan
Umemoto, Kazunobu		NEC Corp.		5:20 (I)	CCA-779
				<i>Real-Time Plasma Etch Control Using In-Situ Sensors and Neural Networks</i>	
	Milo			Stokes, David,	
CCA-ThP2				May, Gary S.	Georgia Inst. of Tech.
Control of Magnetic Bearings and Steppers				5:40 (I)	CCA-784
Chair: Wang, Y.		California Inst. of Tech.		<i>Micro-Sensor Arrays for Calibration, Control, and Monitoring of Semiconductor Manufacturing Processes</i>	
Co-chair: Torres, Mauricio		CNRS		Fisher, Darin,	
4:40		CCA-737		Freed, Mason,	
<i>Elimination of Imbalance Vibrations in Magnetic Bearing Systems Using Discrete-Time Gain-Scheduled Q-Parameterization Controllers</i>				Spanos, Costas,	
Mohamed, Abdelfatah,				Poola, Kameshwar	Univ. of California, Berkeley
Hassan, Ikbal M.M.,					
Hashem, Adel M.K.		Assiut Univ.			

6:00 (I) CCA-789
Interprocess Run-To-Run Feedforward Control for Wafer Patterning
 Wagner, Aaron B. Univ. of Michigan
 Ruegsegger, Steven M. IBM
 Freudenberg, James S.,
 Grimard, Dennis S. Univ. of Michigan

CCA-ThP4

Power Systems Control II

Chair: McInroy, John E. Univ. of Wyoming
 Co-chair: Kamwa, I. Inst. de Recherche d'Hydro-Quebec

4:20 CCA-796
Emulating Large, Time Varying Rotary Power Loads At Low Cost
 McInroy, John E.,
 Legowski, S.F.,
 Morris, C.M.,
 Muknahallipatna, S.,
 Bershinsky, V. Univ. of Wyoming

4:40 CCA-802
Robust Controller Design for Simultaneous Control of Throttle Pressure and Megawatt Output in a Power Plant Unit
 Zhao, Haipeng Univ. of Illinois at Urbana-Champaign
 Li, Wei Univ. of Illinois, Urbana-Champaign
 Taft, Cyrus EPRI I&C Cen.
 Bentsman, Joseph Univ. of Illinois, Urbana-Champaign

5:00 CCA-808
Nonlinear and Linear Robust Control of Switching Power Converters
 Bevrani, Hassan West Regional Electric Co.
 Abrishamchian, M.,
 Sarari-shad, N. K.N. Toosi Univ. of Tech.

5:20 CCA-814
Nonlinear Variable Speed Control of Wind Turbines
 Song, Y.D.,
 Dhinakaran, B. North Carolina A&T State Univ.

5:40 CCA-820
Reduced-Order Estimation of Power System Harmonics Using Set Theory
 Andreou, Spyros,
 Yaz, Edwin E.,
 Olejniczak, Kraig J. Univ. of Arkansas
 Yaz, Yvonne like Centenary College

6:00 CCA-826
Optimization-Based Tuning and Coordination of Flexible Damping Controllers for Bulk Power Systems
 Kamwa, I. Inst. de Recherche d'Hydro-Quebec
 Trudel, G.,
 Lefebvre, D. TransEnergie, Hydro-Quebec

Hau
CCA-ThP5
Automotive Control
 Chair: Lyshevski, Sergey E. Purdue Univ., Indianapolis
 Co-chair: Kolmanovsky, Ilya Ford Res. Lab.

4:20 CCA-833
Optimization of Complex Powertrain Systems for Fuel Economy and Emissions
 Kolmanovsky, Ilya,
 van Nieuwstadt, Michiel,
 Sun, Jing Ford Res. Lab.

4:40 CCA-840
Diesel-Electric Drivetrains for Hybrid-Electric Vehicles: New Challenging Problems in Multivariable Analysis and Control
 Lyshevski, Sergey E. Purdue Univ., Indianapolis

5:00 CCA-846
Automation Concept for a New Dynamical Engine Test Stand
 Schmidt, Martin,
 Kessel, Jens-Achim Darmstadt Univ. of Tech.

5:20 CCA-852
Intake Oxygen Concentration Estimation for DI Diesel Engines
 Diop, Sette Lab. des Signaux & Systemes
 Moraal, Paul E. Ford Motor Co.
 Kolmanovsky, Ilya,
 van Nieuwstadt, Michiel Ford Res. Lab.

5:40 CCA-858
Nonlinear Analysis and Control of Turbocharged Diesels
 Lyshevski, Sergey E.,
 Sinha, A.S.C. Purdue Univ., Indianapolis
 Seger, J.P. Cummins Eng. Co., Inc.

CCA-ThP6

Robot Manipulators

Chair: Murakami, Toshiyuki Keio Univ.
 Co-chair: Tomei, Patrizio Univ. of Roma

4:20 CCA-863
Lyapunov Recursive Design of Robust Tracking Control with L_2 -Gain Performance for Electrically-Driven Robot Manipulators
 Ishii, Chiharu Ashikaga Inst. of Tech.
 Shen, Tielong Sophia Univ.
 Qu, Zhihua Univ. of Central Florida

4:40 CCA-869
Decentralized Control of Cooperative Manipulators Based on Virtual Force Transmission Algorithm
 Itoh, Masanao,
 Murakami, Toshiyuki,
 Ohnishi, Kouhei Keio Univ.

5:00 CCA-875
*Robust Adaptive Friction Compensation for Tracking Control
of Robots*
Tomei, Patrizio Univ. of Roma

5:20 CCA-881
*Robust Output Feedback Control of Robot Manipulators Using
High-Gain Observer*
Shin, Eui Seok,
Lee, Kang Woong Hankuk Aviation Univ.

5:40 CCA-887
*An Approach to Robust Hierarchical Impedance Control in
Redundant Manipulator*
Ishii, Kunihiko,
Fujimoto, Yasutaka,
Murakami, Toshiyuki,
Ohnishi, Kouhei Keio Univ.