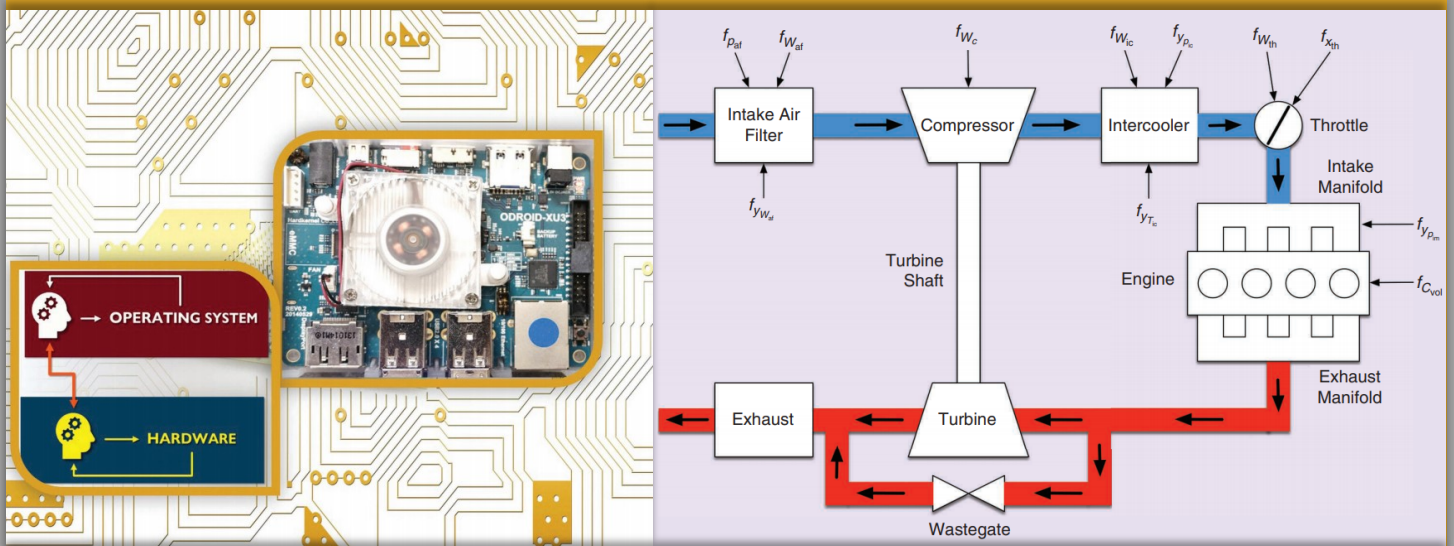


PUBLICATIONS CONTENT DIGEST



April 2020

CSS Publications Activities

Vice-President

ANDREW ALLEYNE *University of Illinois at Urbana-Champaign*
<http://ieeecss.org/publications>

Journal Editors

IEEE Transactions on Automatic Control

ALESSANDRO ASTOLFI *Imperial College London and University of Rome "Tor Vergata"*
<http://ieeecss.org/publication/transactions-automatic-control>

IEEE Transactions on Control Systems Technology

ANDREA SERRANI *Ohio State University*
<http://ieeecss.org/publication/transactions-control-systems-technology>

IEEE Transactions on Control of Network Systems

JEFF SHAMMA *King Abdullah University of Science and Technology*
ANNA SCAGLIONE Deputy Editor-in-Chief *Arizona State University*
<http://ieeecss.org/publication/transactions-control-network-systems>

IEEE Control Systems Letters

MARIA ELENA VALCHER *University of Padua*
<http://ieeecss.org/publication/control-systems-letters>

IEEE Control Systems Magazine

RODOLPHE SEPULCHRE *University of Cambridge*
<http://ieeecss.org/publication/ieee-control-systems-magazine>

Electronics Editor

E-letter on Systems, Control and Signal Processing

AHMAD TAHA *University of Texas at San Antonio*
<http://ieeecss.org/publication/e-letter>

***Submission and editorial instructions can be found on each publication's homepage**

For subscription to the monthly E-Letter, please send an empty email to
eletter-css-join@lists.it.utsa.edu

IEEE TRANSACTIONS ON AUTOMATIC CONTROL

A PUBLICATION OF THE IEEE CONTROL SYSTEMS SOCIETY



APRIL 2020

VOLUME 65

NUMBER 4

IETAA9

(ISSN 0018-9286)

REGULAR PAPERS

Performance Recovery of Dynamic Feedback-Linearization Methods for Multivariable Nonlinear Systems	<i>Y. Wu, A. Isidori, R. Lu, and H. K. Khalil</i>	1365
Variational Integrators for Dissipative Systems	<i>D. J. N. Limebeer, S. Ober-Blöbaum, and F. H. Farshi</i>	1381
Linear Quadratic Mean Field Games: Asymptotic Solvability and Relation to the Fixed Point Approach	<i>M. Huang and M. Zhou</i>	1397
A New Method for Control Allocation of Aircraft Flight Control System	<i>Y. Yang and Z. Gao</i>	1413
Synthesis of Dynamic Masks for Infinite-Step Opacity	<i>X. Yin and S. Li</i>	1429
Notions of Centralized and Decentralized Opacity in Linear Systems	<i>B. Ramasubramanian, R. Cleaveland, and S. I. Marcus</i>	1442
Distributed Mixed-Integer Linear Programming via Cut Generation and Constraint Exchange	<i>A. Testa, A. Rucco, and G. Notarstefano</i>	1456
Inner-Approximating Reachable Sets for Polynomial Systems With Time-Varying Uncertainties	<i>B. Xue, M. Fränzle, and N. Zhan</i>	1468
Output Feedback Energy Control of the Sine-Gordon PDE Model Using Collocated Spatially Sampled Sensing and Actuation	<i>Y. Orlov, A. L. Fradkov, and B. Andrievsky</i>	1484
Scheduling Multiple Agents in a Persistent Monitoring Task Using Reachability Analysis	<i>X. Yu, S. B. Andersson, N. Zhou, and C. G. Cassandras</i>	1499
Extending the Best Linear Approximation Framework to the Process Noise Case	<i>M. Schoukens, R. Pintelon, T. P. Dobrowiecki, and J. Schoukens</i>	1514
Analysis of the Existence of Equilibrium Profiles in Nonisothermal Axial Dispersion Tubular Reactors	<i>A. Hastir, F. Lamoline, J. J. Winkin, and D. Dochain</i>	1525
Competitive Statistical Estimation With Strategic Data Sources	<i>T. Westenbroek, R. Dong, L. J. Ratliff, and S. S. Sastry</i>	1537
Entropy Maximization for Markov Decision Processes Under Temporal Logic Constraints	<i>Y. Savas, M. Ornik, M. Cubuktepe, M. O. Karabag, and U. Topcu</i>	1552
Continuous-Time and Sampled-Data Stabilizers for Nonlinear Systems With Input and Measurement Delays	<i>S. Battilotti</i>	1568
Distributed GNE Seeking Under Partial-Decision Information Over Networks via a Doubly-Augmented Operator Splitting Approach	<i>L. Pavel</i>	1584
Necessary and Sufficient Bit Rate Conditions to Stabilize a Scalar Continuous-Time LTI System Based on Event Triggering	<i>Q. Ling</i>	1598

(Contents Continued on Back Cover)



Proper Orthogonal Decomposition Method to Nonlinear Filtering Problems in Medium-High Dimension	1613
. <i>Z. Wang, X. Luo, S. S.-T. Yau, and Z. Zhang</i>	
Structuring Multilevel Discrete-Event Systems With Dependence Structure Matrices	1625
. <i>M. Goorden, J. vande Mortel-Fronczak, M. Reniers, W. Fokkink, and J. Rooda</i>	

TECHNICAL NOTES

Stability and Stabilization Through Envelopes for Retarded and Neutral Time-Delay Systems	1640
. <i>C. B. Cardeliquio, A. R. Fioravanti, C. Bonnet, and S.-I. Niculescu</i>	
A Note on Uniform Exponential Stability of Linear Periodic Time-Varying Systems	1647
. <i>R. Vrabel</i>	
Toward a Comprehensive Impossibility Result for String Stability	1652
. <i>A. Farnam and A. Sarlette</i>	
Analysis of Systems With Slope Restricted Nonlinearities Using Externally Positive Zames–Falb Multipliers	1660
. <i>M. C. Turner and R. Drummond</i>	
Event-Triggered Design With Guaranteed Minimum Interevent Times and \mathcal{L}_p Performance	1668
. <i>M. Ghodrat and H. Marquez</i>	
Input-to-State Stability of Time-Delay Systems With Delay-Dependent Impulses	1676
. <i>X. Liu and K. Zhang</i>	
Event-Triggered Control for Semiglobal Robust Consensus of a Class of Nonlinear Uncertain Multiagent Systems	1683
. <i>H. Meng, H.-T. Zhang, Z. Wang, and G. Chen</i>	
Finite-Time Distributed Linear Equation Solver for Solutions With Minimum l_1 -Norm	1691
. <i>J. Zhou, X. Wang, S. Mou, and B. D. O. Anderson</i>	
A Simplified Approach to Analyze Complementary Sensitivity Tradeoffs in Continuous-Time and Discrete-Time Systems	1697
. <i>N. Wan, D. Li, and N. Hovakimyan</i>	
Continuous Discrete Sequential Observers for Time-Varying Systems Under Sampling and Input Delays	1704
. <i>F. Mazenc and M. Malisoff</i>	
Matched Disturbance Rejection for a Class of Nonlinear Systems	1710
. <i>J. Ferguson, A. Donaire, R. Ortega, and R. H. Middleton</i>	
Equilibrium Solutions of Multiperiod Mean-Variance Portfolio Selection	1716
. <i>Y.-H. Ni, X. Li, J.-F. Zhang, and M. Krstic</i>	
Discrete-Time Systems With Constrained Time Delays and Delay-Dependent Lyapunov Functions	1724
. <i>P. Pepe</i>	
On Robust Parameter Estimation in Finite-Time Without Persistence of Excitation	1731
. <i>J. Wang, D. Efimov, and A. A. Bobtsov</i>	
Transforming Opacity Verification to Nonblocking Verification in Modular Systems	1739
. <i>S. Mohajerani and S. Lafortune</i>	
A Novel Method to Compute the Structured Distance to Instability for Combined Uncertainties on Delays and System Matrices	1747
. <i>F. Borgioli and W. Michiels</i>	
Resilient Leader-Follower Consensus to Arbitrary Reference Values in Time-Varying Graphs	1755
. <i>J. Usevitch and D. Panagou</i>	
Distributed Optimal Coordination for Heterogeneous Linear Multiagent Systems With Event-Triggered Mechanisms	1763
. <i>Z. Li, Z. Wu, Z. Li, and Z. Ding</i>	
Distributed Consensus Observer for Multiagent Systems With High-Order Integrator Dynamics	1771
. <i>Z. Zuo, M. Defoort, B. Tian, and Z. Ding</i>	
Asymptotical Stability of Probabilistic Boolean Networks With State Delays	1779
. <i>S. Zhu, J. Lu, and Y. Liu</i>	
Dual Averaging Push for Distributed Convex Optimization Over Time-Varying Directed Graph	1785
. <i>S. Liang, L. Y. Wang, and G. Yin</i>	
A Set-Membership Approach to Event-Triggered Filtering for General Nonlinear Systems Over Sensor Networks	1792
. <i>D. Ding, Z. Wang, and Q.-L. Han</i>	
A Smooth Double Proximal Primal-Dual Algorithm for a Class of Distributed Nonsmooth Optimization Problems	1800
. <i>Y. Wei, H. Fang, X. Zeng, J. Chen, and P. Pardalos</i>	
Discrete-Time Sliding-Mode Control With a Desired Switching Variable Generator	1807
. <i>A. Bartoszewicz and K. Adamiak</i>	
On the Existence and Uniqueness of Poincaré Maps for Systems With Impulse Effects	1815
. <i>J. R. Goodman and L. J. Colombo</i>	

ERRATUM

Corrections to “Stochastic Stability of Perturbed Learning Automata in Positive-Utility Games”	1822
. <i>G. C. Chasparis</i>	

IEEE TRANSACTIONS ON CONTROL OF NETWORK SYSTEMS

A PUBLICATION OF THE IEEE CONTROL SYSTEMS SOCIETY



COSPONSORED BY
IEEE CIRCUITS AND SYSTEMS SOCIETY
IEEE COMMUNICATIONS SOCIETY
IEEE COMPUTER SOCIETY
IEEE ROBOTICS AND AUTOMATION SOCIETY



MARCH 2020

VOLUME 7

NUMBER 1

ITCNAY

(ISSN 2325-5870)

EDITORIAL

The IEEE Transactions on Control of Network Systems and the Evolution of the Field	<i>Ioannis Ch. Paschalidis</i>	2
--	--------------------------------	---

PAPERS

A Flexible Synthesis Framework of Structured Controllers for Networked Systems	<i>C. A. Rösinger and C. W. Scherer</i>	6
Finite-Time Consensus for Linear Multiagent Systems via Event-Triggered Strategy Without Continuous Communication	<i>C. Du, X. Liu, W. Ren, P. Lu, and H. Liu</i>	19
A Stability Analysis Framework for Multiantenna Multisensor Cyber-Physical Systems With Rank-Deficient Measurement Matrices	<i>S. Cai and V. K. N. Lau</i>	30
Distributed Convex Optimization on State-Dependent Undirected Graphs: Homogeneity Technique	<i>H. Hong, X. Yu, W. Yu, D. Zhang, and G. Wen</i>	42
State Estimation of Multichannel Networked Discrete Event Systems ...	<i>F. Lin, W. Wang, L. Han, and B. Shen</i>	53
Convex Relaxations of the Network Flow Problem Under Cycle Constraints	<i>M. Zholbaryssov and A. D. Domínguez-García</i>	64
Distributed Continuous-Time Nonsmooth Convex Optimization With Coupled Inequality Constraints	<i>X. Li, L. Xie, and Y. Hong</i>	74
Distributed Stopping Criterion for Consensus in the Presence of Delays	<i>M. Prakash, S. Talukdar, S. Attree, V. Yadav, and M. V. Salapaka</i>	85
How Will the Presence of Autonomous Vehicles Affect the Equilibrium State of Traffic Networks?	<i>N. Mehr and R. Horowitz</i>	96
On the Robustness of Complex Systems With Multipartitivity Structures Under Node Attacks	<i>Q. Cai, S. Alam, and J. Liu</i>	106
Adaptive Protocol Design For Distributed Tracking With Relative Output Information: A Distributed Fixed-Time Observer Approach	<i>Y. Lv, G. Wen, and T. Huang</i>	118

(Contents continued on Page 1)



Dynamic NE Seeking for Multi-Integrator Networked Agents With Disturbance Rejection	<i>A. R. Romano and L. Pavel</i>	129
Distributed Adaptive Time-Varying Group Formation Tracking for Multiagent Systems With Multiple Leaders on Directed Graphs	<i>J. Hu, P. Bhowmick, and A. Lanzon</i>	140
Optimal Energy Consumption for Communication, Computation, Caching, and Quality Guarantee	<i>F. Zafari, J. Li, K. K. Leung, D. Towsley, and A. Swami</i>	151
Stabilizing Scheduling Policies for Networked Control Systems	<i>A. Kundu and D. E. Quevedo</i>	163
Verification of Delay Co-Observability for Discrete Event Systems	<i>P. Xu, S. Shu, and F. Lin</i>	176
Comment on “Detecting Topology Variations in Networks of Linear Dynamical Systems”	<i>S. Roy, M. Xue, G. Battistelli, and P. Tesi</i>	187
Convergence Analysis of Signed Nonlinear Networks	<i>H. Chen, D. Zelazo, X. Wang, and L. Shen</i>	189
The Outputs Robustness of Boolean Control Networks via Pinning Control	<i>B. Li, J. Lu, Y. Liu, and Z.-G. Wu</i>	201
Controlling Parent Systems Through Swarms Using Abstraction	<i>K. L. Crandall and A. M. Wickenheiser</i>	210
Performance Measures in Electric Power Networks Under Line Contingencies	<i>T. Coletta and P. Jacquod</i>	221
Observation-Driven Scheduling for Remote Estimation of Two Gaussian Random Variables	<i>M. M. Vasconcelos and U. Mitra</i>	232
Globally Convergent Distributed Network Localization Using Locally Measured Bearings	<i>X. Li, X. Luo, and S. Zhao</i>	245
Consensus Disturbance Rejection for Linear Multiagent Systems With Directed Switching Communication Topologies	<i>P. Wang, G. Wen, X. Yu, W. Yu, and Y. Lv</i>	254
Differential Privacy for Network Identification	<i>V. Katewa, A. Chakraborty, and V. Gupta</i>	266
Distributed Inference of the Multiplex Network Topology of Complex Systems	<i>D. A. B. Lombana, R. A. Freeman, and K. Lynch</i>	278
Distributed Fault-Tolerant Control of Large-Scale Systems: An Active Fault Diagnosis Approach	<i>F. Boem, A. J. Gallo, D. M. Raimondo, and T. Parisini</i>	288
Stability Conditions for Cluster Synchronization in Networks of Heterogeneous Kuramoto Oscillators	<i>T. Menara, G. Baggio, D. S. Bassett, and F. Pasqualetti</i>	302
Distributed C-Means Clustering Via Broadcast-Only Token Passing	<i>L. Faramondi, G. Oliva, R. Setola, and C. N. Hadjicostis</i>	315
Truthful Data Quality Elicitation for Quality-Aware Data Crowdsourcing	<i>X. Gong and N. B. Shroff</i>	326
False Data Injection and Detection in LQG Systems: A Game Theoretic Approach	<i>R. Zhang and P. Venkitasubramaniam</i>	338
Stability of SIS Spreading Processes in Networks With Non-Markovian Transmission and Recovery	<i>M. Ogura and V. M. Preciado</i>	349
Sensor Placement for Optimal Control of Infinite-Dimensional Systems	<i>Q. Hou and A. Clark</i>	360
Robust Distributed Estimation of the Maximum of a Field	<i>S. Manfredi and D. Angeli</i>	372
On the Interaction Between Autonomous Mobility-on-Demand Systems and the Power Network: Models and Coordination Algorithms	<i>F. Rossi, R. Iglesias, M. Alizadeh, and M. Pavone</i>	384
Optimal Secure Two-Layer IoT Network Design	<i>J. Chen, C. Touati, and Q. Zhu</i>	398
Multistage Complex Contagions in Random Multiplex Networks	<i>Y. Zhuang and O. Yağın</i>	410
Online Optimization as a Feedback Controller: Stability and Tracking	<i>M. Colombino, E. Dall’Anese, and A. Bernstein</i>	422
From Dissipativity Theory to Compositional Abstractions of Interconnected Stochastic Hybrid Systems	<i>A. U. Awan and M. Zamani</i>	433
Two-Way Gaussian Networks With a Jammer and Decentralized Control	<i>C. McDonald, F. Alajaji, and S. Yüksel</i>	446
Distributed H_∞ Estimation Resilient to Biasing Attacks	<i>V. Ugrinovskii</i>	458
Resilient Consensus Through Event-Based Communication	<i>Y. Wang and H. Ishii</i>	471
Constraint-Coupled Distributed Optimization: A Relaxation and Duality Approach	<i>I. Notarnicola and G. Notarstefano</i>	483
Motion Feasibility Conditions for Multiagent Control Systems on Lie Groups	<i>L. J. Colombo and D. V. Dimarogonas</i>	493
Distributed Consensus-Based Multitarget Filtering and Its Application in Formation-Containment Control	<i>Y. Zhang, L. Sun, and G. Hu</i>	503
Reconstructibility Analysis and Observer Design for Boolean Control Networks	<i>Z. Zhang, T. Leifeld, and P. Zhang</i>	516

IEEE

CONTROL SYSTEMS LETTERS

A PUBLICATION OF THE IEEE CONTROL SYSTEMS SOCIETY



APRIL 2020

VOLUME 4

NUMBER 2

ICSLBO

(ISSN 2475-1456)

PAPERS

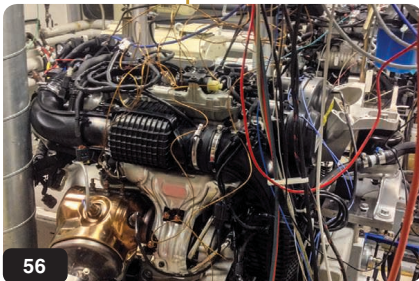
Adaptive Optimal Decision in Multi-Agent Random Switching Systems	<i>M. Liu, Y. Wan, and F. L. Lewis</i>	265
Reference Governor for Constrained Control Over Lossy Channels	<i>M. Pezzutto, E. Garone, and L. Schenato</i>	271
Cooperative Aerial Load Transportation via Sampled Communication	<i>E. Rossi, M. Tognon, R. Carli, L. Schenato, J. Cortés, and A. Franchi</i>	277
Design of Robust Lyapunov-Based Observers for Nonlinear Systems With Sum-of-Squares Programming	<i>D. Pylorof, E. Bakolas, and K. S. Chan</i>	283
On the Design of Structured Stabilizers for LTI Systems	<i>F. Ferrante, F. Dabbene, and C. Ravazzi</i>	289
Learning and Information Manipulation: Repeated Hypergames for Cyber-Physical Security	<i>C. Bakker, A. Bhattacharya, S. Chatterjee, and D. L. Vrabie</i>	295
Constrained Control of Linear Discrete-Time Systems Under Quartic Performance Criterion	<i>F. Liberati and E. Garone</i>	301
On the Design of Security-Guaranteeing Dynamic Watermarks	<i>B. Satchidanandan and P. R. Kumar</i>	307
Sliding Mode Control Techniques and Artificial Potential Field for Dynamic Collision Avoidance in Rendezvous Maneuvers	<i>M. Mancini, N. Bloise, E. Capello, and E. Punta</i>	313
Observability and Reconstructibility of Probabilistic Boolean Networks	<i>E. Fornasini and M. E. Valcher</i>	319
Real-Time Identifiability of Power Distribution Network Topologies With Limited Monitoring	<i>G. Cavraro, A. Bernstein, V. Kekatos, and Y. Zhang</i>	325
Detectability Analysis and Observer Design for Linear Time Varying Systems	<i>M. Tranninger, R. Seeber, S. Zhuk, M. Steinberger, and M. Horn</i>	331
Flatness and Submersivity of Discrete-Time Dynamical Systems	<i>P. Guillot and G. Millérioux</i>	337
Realization of r -Robust Formations in the Plane Using Control Barrier Functions	<i>L. Guerrero-Bonilla and V. Kumar</i>	343
Asymptotic Stability Analysis of Lur'e Systems With Butterfly Hysteresis Nonlinearities	<i>M. A. Vasquez-Beltran, B. Jayawardhana, and R. Peletier</i>	349
Output Tracking Control Design of Switched Boolean Control Networks	<i>A. Yerudkar, C. Del Vecchio, and L. Glielmo</i>	355

(Contents Continued on Page ii)



Asymptotic Unknown Input Decoupling Observer for Discrete-Time LTI Systems	<i>D. Ichalal and S. Mammari</i>	361
An Optimized Input/Output-Constrained Control Design With Application to Microgrid Operation	<i>R. Harvey, Z. Qu, and T. Namerikawa</i>	367
Prediction-Correction Splittings for Time-Varying Optimization With Intermittent Observations	<i>N. Bastianello, A. Simonetto, and R. Carli</i>	373
Improving Controllability and Plug-and-Play Operation of Wind Farms Using B2B Converters	<i>T. Sadamoto and A. Chakraborty</i>	379
On the Design of Stabilizing Cycles for Switched Linear Systems	<i>A. Kundu</i>	385
Combined Backstepping/Second-Order Sliding-Mode Boundary Stabilization of an Unstable Reaction-Diffusion Process	<i>A. Pisano, Y. Orlov, A. Pilloni, and E. Usai</i>	391
Counterexample to a Lyapunov Condition for Uniform Asymptotic Partial Stability	<i>J. Orłowski, A. Chaillet, and M. Sigalotti</i>	397
A Stabilizing Sub-Optimal Model Predictive Control for Quasi-Linear Parameter Varying Systems	<i>S. Mate, H. Kodamana, S. Bhartiya, and P. S. V. Nataraj</i>	402
Dynamic L_2 Output Feedback Stabilization of LPV Systems With Piecewise Constant Parameters Subject to Spontaneous Poissonian Jumps	<i>M. Zakwan</i>	408
Distributed Computation for Solving the Sylvester Equation Based on Optimization	<i>W. Deng, X. Zeng, and Y. Hong</i>	414
Vortex Formation in a Swarm of Agents With a Coordinates Mixing Matrix-Based Model	<i>G. Fedele, L. D'Alfonso, and A. Bono</i>	420
Tree-Structured Polyhedral Invariant Set Calculations	<i>E. Klintberg, M. Nilsson, A. Gupta, L. J. Mårdh, and P. Falcone</i>	426
Cooperative Avoidance Control With Velocity-Based Detection Regions	<i>E. J. Rodríguez-Seda and D. M. Stipanović</i>	432
Adaptive Trajectory Generation Under Velocity Constraints Using Dynamical Movement Primitives	<i>A. Dahlin and Y. Karayiannidis</i>	438
Analysis of Positive Systems Using Copositive Programming	<i>T. Kato, Y. Ebihara, and T. Hagiwara</i>	444
Scenario-Based Probabilistic Reachable Sets for Recursively Feasible Stochastic Model Predictive Control	<i>L. Hewing and M. N. Zeilinger</i>	450
On Control of Multiagent Systems in the Presence of a Misbehaving Agent	<i>E. Yildirim, S. B. Sarsilmaz, A. T. Koru, and T. Yucelen</i>	456
The L_q/L_p Hankel Norms of Positive Systems	<i>Y. Ebihara, B. Zhu, and J. Lam</i>	462
On Optimal Static Output Feedback Control Synthesis	<i>Y.-S. Chou and S.-F. Wei</i>	468
Robust Estimation and Filtering for Poorly Known Models	<i>M. R. Fernandes, J. B. R. do Val, and R. F. Souto</i>	474
Asymptotically Exact Unweighted Particle Filter for Manifold-Valued Hidden States and Point Process Observations	<i>S. C. Surace, A. Kutschireiter, and J.-P. Pfister</i>	480
Some Insights on Synthesizing Optimal Linear Quadratic Controllers Using Krotov Sufficient Conditions ...	<i>A. Kumar and T. Jain</i>	486
Optimal Strategies of the Differential Game in a Circular Region	<i>E. Garcia, D. W. Casbeer, and M. Pachter</i>	492
Feedback Passivation of Linear Systems With Fixed-Structure Controllers	<i>L. Su, V. Gupta, and P. Antsaklis</i>	498
Errata for "Comments on Truncation Errors for Polynomial Chaos Expansions"	<i>T. Mühlpfordt, R. Findeisen, V. Hagenmeyer, and T. Faulwasser</i>	504
Nonsmooth Optimal Value and Policy Functions in Mechanical Systems Subject to Unilateral Constraints ..	<i>B. S. Banjanin and S. A. Burden</i>	506
Model-Free Stochastic Reachability Using Kernel Distribution Embeddings	<i>A. J. Thorpe and M. M. K. Oishi</i>	512
Overshoot Mitigation Using the Reference Governor Framework	<i>C. Freiheit, D. M. Anand, and H. R. Ossareh</i>	518

» FEATURES



30 Control Systems for Computing Systems

Making computers efficient with modular, coordinated, and robust control

RAGHAVENDRA PRADYUMNA POTHUKUCHI,
SWETA YAMINI POTHUKUCHI, PETROS G. VOULGARIS,
and JOSEP TORRELLAS

56 A Realistic Simulation Testbed of a Turbocharged Spark-Ignited Engine System

A platform for the evaluation of fault diagnosis algorithms and strategies

KOK YEOW NG, ERIK FRISK, MATTIAS KRYSANDER,
and LARS ERIKSSON

» DEPARTMENTS



3 FROM THE EDITOR
Cybernetics

5 ABOUT THIS ISSUE
Control and Computation

8 PRESIDENT'S MESSAGE
Women in the IEEE Control Systems Society

12 25 YEARS AGO

14 MEMBER ACTIVITIES
Findings From a Recent IEEE Control Systems Society Leadership Diversity Survey

15 TECHNICAL ACTIVITIES
Technical Committee on Nonlinear Systems and Control
Technical Committee on Networks and Communication Systems

Cover credit: The modular design of the resource control system for multilayer computers (courtesy of Raghavendra Pradyumna Pothukuchi).



23 PEOPLE IN CONTROL

Sridevi “Sri” Sarma
Derek A. Paley
Lorenzo Mario Fagiano

84 LECTURE NOTES

Real-Time Implementation of the Optimal Predictor and Optimal Filter: Accuracy Versus Latency

92 BOOKSHELF

Algorithms for Optimization
Book Announcements

97 CONFERENCE REPORTS

The 15th IEEE International Conference on Control and Automation
The 23rd International Conference on Systems Theory, Control, and Computing (ICSTCC 2019)
Invitation to the Fourth IEEE Conference on Control Technology and Applications (CCTA)

105 CSS BUSINESS

Changes to the Constitution and the Bylaws of the IEEE Control Systems Society

114 CONFERENCE CALENDAR

116 ON THE LIGHTER SIDE

My Job Meme



**IEEE PERIODICALS
MAGAZINES DEPARTMENT**

445 Hoes Lane, Piscataway,
NJ 08854 USA

Senior Managing Editor
Geraldine Krolin-Taylor

Senior Art Director
Janet Dudar

Associate Art Director
Gail A. Schnitzer

Production Coordinator
Theresa L. Smith

Advertising Production Manager
Felicia Spagnoli

Production Director
Peter M. Tuohy

*Director, Business Development –
Media & Advertising*
Mark David

Editorial Services Director
Kevin Lisankie

Staff Director
Publishing Operations
Dawn M. Melley

*IEEE prohibits discrimination, harassment,
and bullying. For more information, visit
[http://www.ieee.org/web/aboutus/whatis/
policies/p9-26.html](http://www.ieee.org/web/aboutus/whatis/policies/p9-26.html).*

MISSION STATEMENT AND SCOPE: As the official means of communication for the IEEE Control Systems Society, *IEEE Control Systems* publishes interesting, useful, and informative material on all aspects of control system technology for the benefit of control educators, practitioners, and researchers. With this mission statement in mind, *IEEE Control Systems* encourages submissions, both feature articles and columns, on all aspects of control system technology.

SUBMISSION OF MANUSCRIPTS: A feature article typically provides an in-depth treatment of either an application of control technology, a tutorial on some area of control theory, or an innovation in control education.

IEEE Control Systems publishes a variety of columns. “Applications of Control” columns are industrially oriented summaries of innovations in control technology. “Focus on Education” typically describes some aspect of education such as novel control experiments. “Lecture Notes” can be theoretical in nature as long as they have clear tutorial value and intent. See recent issues for examples of these and other types of columns. Authors are encouraged to contact the editor-in-chief about the suitability of potential columns.

A detailed Author’s Guide, a sample formatted manuscript, and LATEX template can be found at <http://www.ieeeccs.org/publications/csm/submissions>. The specifications in this guide should be followed by all submissions.

All manuscripts should be submitted electronically to the *IEEE Control Systems* website, <https://css.paperplaza.net/conferences/scripts/start.pl>, with inquiries on appropriateness of content emailed to r.sepulchre@eng.cam.ac.uk.

SPECIAL ISSUES: *IEEE Control Systems* encourages proposals for special issues. Proposers are encouraged to contact the editor-in-chief to discuss potential topics.

BOOKS AND CONFERENCES: Submit information about recently published books to the associate editor for book reviews. Submit information about past and future conferences to the corresponding editor for conferences.

ADVERTISING: *IEEE Control Systems* accepts advertising for educational products, books, software, conferences, employment, and control-related technology. For information about advertising, contact Mark David, m.david@ieee.org, +1 732 465 6473.

IEEE CONTROL SYSTEMS—(ISSN 1066-033X) (ISMAD7) is published bimonthly by The Institute of Electrical and Electronics Engineers, Inc. Headquarters: 3 Park Avenue, 17th Floor, New York, NY 10016-5997, U.S.A. +1 212 419 7900. Responsibility for the contents rests upon the authors and not upon the IEEE, the Society, or its members. The is a membership benefit of the IEEE Control Systems Society, and subscriptions are US\$4.00 per member per year (included in Society fee). Replacement copies for members are available for US\$20.00 (one copy only). Nonmembers can purchase individual copies for US\$113. Nonmember subscription prices are available on request. Copyright and Reprint Permissions: Abstracting is permitted with credit to the source. Libraries are permitted to photocopy beyond the limits of the U.S. Copyright law for private use of patrons: 1) those post-1977 articles that carry a code at the bottom of the first page, provided the per-copy fee indicated in the code is paid through the Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01970, U.S.A.; and 2) pre-1978 articles without fee. For other copying, reprint, or republication permission, write to: Copyrights and Permissions Department, IEEE Service Center, 445 Hoes Lane, Piscataway NJ 08854, U.S.A. Copyright © 2020 by The Institute of Electrical and Electronics Engineers, Inc. All rights reserved. Periodicals postage paid at New York, NY, and at additional mailing offices. Postmaster: Send address changes to *IEEE Control Systems*, IEEE, 445 Hoes Lane, Piscataway, NJ 08854 U.S.A. Canadian GST #125634188
Printed in U.S.A

UPCOMING CONFERENCES



American Control Conference ACC 2020

July 1–3, Denver, Colorado, USA

Paper Submission Deadline:
~~September 23, 2019 (Passed)~~

Acceptance/Rejection Notice:
January 31, 2020

Final Manuscript Submission:
~~March 19, 2020 (Passed)~~

<http://acc2020.a2c2.org/>



Conference on
Control Technology and Applications
CCTA 2020

August 24–26, Montreal, Canada

Initial Submission Deadline:
October 27, 2019 (Passed)

Notification of Acceptance/Rejection:
April 26, 2020

Final Submission Due Date:
May 31, 2020

<http://ccta2020.ieeeccs.org/>



Conference on Decision and Control **CDC 2020**

December 8–11, Jeju Island, Republic of Korea

Initial Paper Submissions to L-CSS with CDC Option Due:

~~March 17, 2020 (Passed)~~

Invited Session Proposals Due:

~~March 24, 2020 (Passed)~~

Initial Paper Submissions Due:

~~March 31, 2020 (Passed)~~

Workshop Proposals Due:

May 1, 2020

Paper and Workshop Decision Notification:

mid-July, 2020

Accepted Papers Due:

September 10, 2020

<http://cdc2020.ieeecss.org/>



American Control Conference **ACC 2021**

May 26–28, New Orleans, Louisiana, USA

Manuscript Submission Deadline
September 14, 2020

Acceptance/Rejection Notice
January 24, 2021

Final Manuscript Submission Deadline
March 15, 2021

<http://acc2021.a2c2.org/>